



Lot 2 Golf Links Road, Wynyard

Section 40T – Rezoning & Subdivision

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Revision History

Revision	Description	Date
1	First Issue	13 th July 2023
2	RFI and Change of layout	17 th September 2025
3	RFI Response to 31 st October	5 th November 2025
4	Response to Flooding	11 th December 2025

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1. Introduction

PDA Surveyors, Engineers and Planners have been engaged by the clients Bluff Developments Estate Pty Ltd, to request an amendment to the *Tasmanian Planning Scheme - Waratah Wynyard* and to issue a planning permit for a 12 Lot subdivision.

This report forms the basis of the application and has been prepared considering the provisions of the planning scheme, the requirements of the Act and other relevant strategic documents.

1.2. Proposal

The proposal is to rezone the title from Agricultural to Low Density Residential. The proposal will also include 12 residential lots.

1.3. Title Information

The proposal relates to the land detailed in the below Table.

ADDRESS	LANDOWNER	TITLE REFERENCE	AREA
Lot 2 Golf Links Road, Wynyard	Bluff Developments Estate Pty Ltd	148923/2	4.7ha±

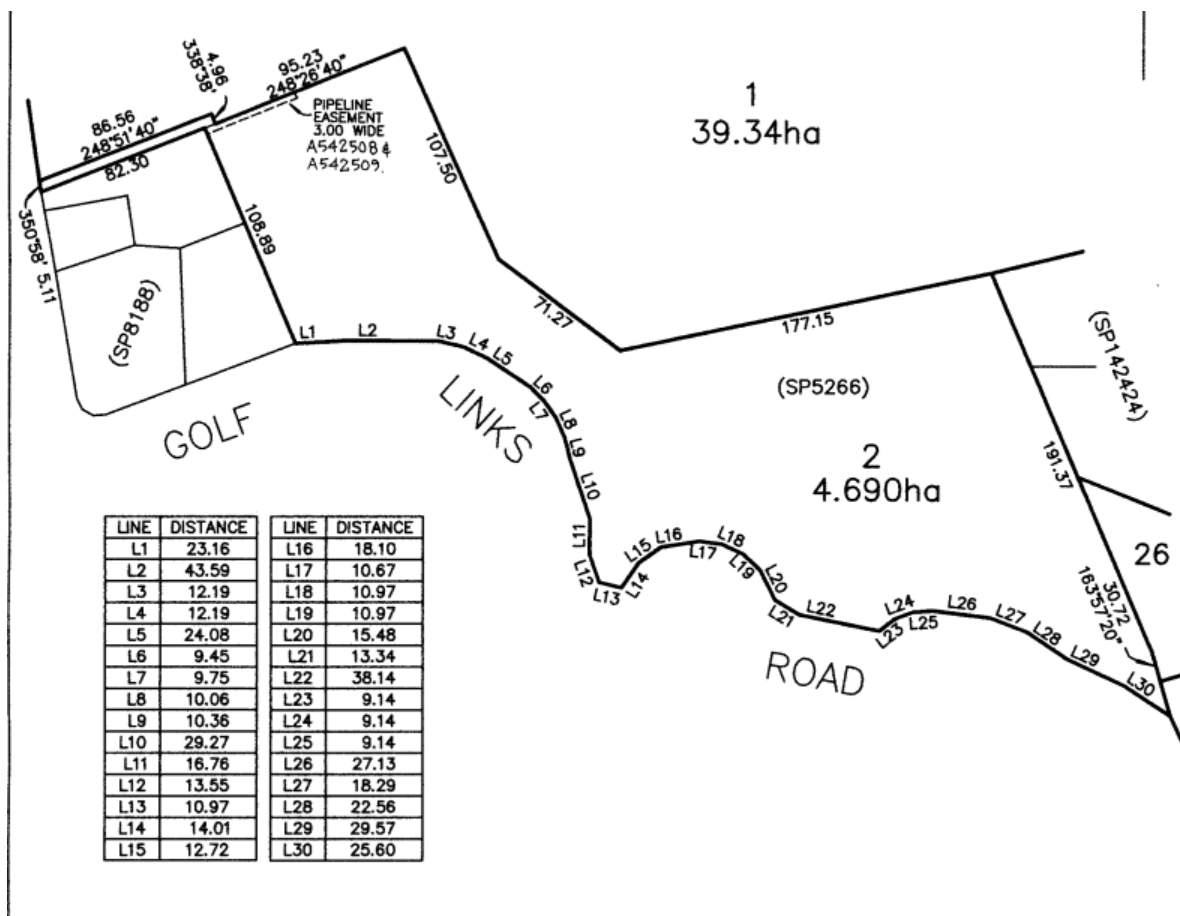


Fig 1. Title Information

2. Site

The site is a primarily vacant lot with a seasonal creek located through to the Inglis River. There are some established trees around the creek and Golf Links Road. The site is sloped towards the north east.

2.1. Servicing

The site is in an area serviced by water and stormwater, and the site has the ability to connect to the reticulated sewer. There is existing water within Golf Links Road. Sewer is proposed to service the area by a through 8 Iglisdale Drive for gravity connection. This will connect to the existing sewer system to the east within a council-owned walkway. Lots 11 and 12 will utilise septic systems. The seasonal creek will discharge most of the site through an existing pipe directly to the Inglis River.

2.2. Access

The site has road frontage via Golf Links Road. The entire southern portion of the site is connected to Golf Links Road. Shared access are proposed for lots 1-3, 4-5 6-8 and 11-12 to decrease additional access points to Golfink and limit works within the landslip hazard area.

2.3. Natural Values

The site is primarily clear grassland with established trees along the seasonal creek. The trees propose no significant natural values and are not covered by any threatened vegetation or natural assets overlay.

2.4. Zoning and Overlays

The site is currently zoned Agricultural under the planning scheme, as shown in Figure 2. The following overlays impact the site.

- Safeguarding of Airports Code
- Waterway and Coastal Protection Area
- Bushfire Prone Area
- Landslip Hazard Code
- Coastal Erosion

2.5. Surrounding Area

The site is located in Wynyard. Currently, the site is zoned Agricultural, consistent with the adjacent title to the north. Land to the east and west are zoned Residential, with the east being General Residential and the west, Low-Density Residential.

3. Assessment of planning scheme amendment

3.1. Description of Proposal

The proposal seeks to rezone the area of C/T 148923/2 from the Agricultural to the Low Density Residential Zone, as shown in Figure 2. The proposed rezoning will tidy up the site's zoning to be consistent with the area west of the site and logical extension of residential land to be consistent with the development to the east of the site. The site had been considered in Waratah Wynyard Settlement strategy specifically page 110 and stated that it was considered in the shortlist but concerns were raised by drainage. The proposed subdivision plans show how the site will be drained through the existing drain internally. The site could be considered as since the Waratah Wynyard report was adopted by council none of the site have been rezoned and issues still arise from a number of land owners required to rezone the land in comparison to the site.

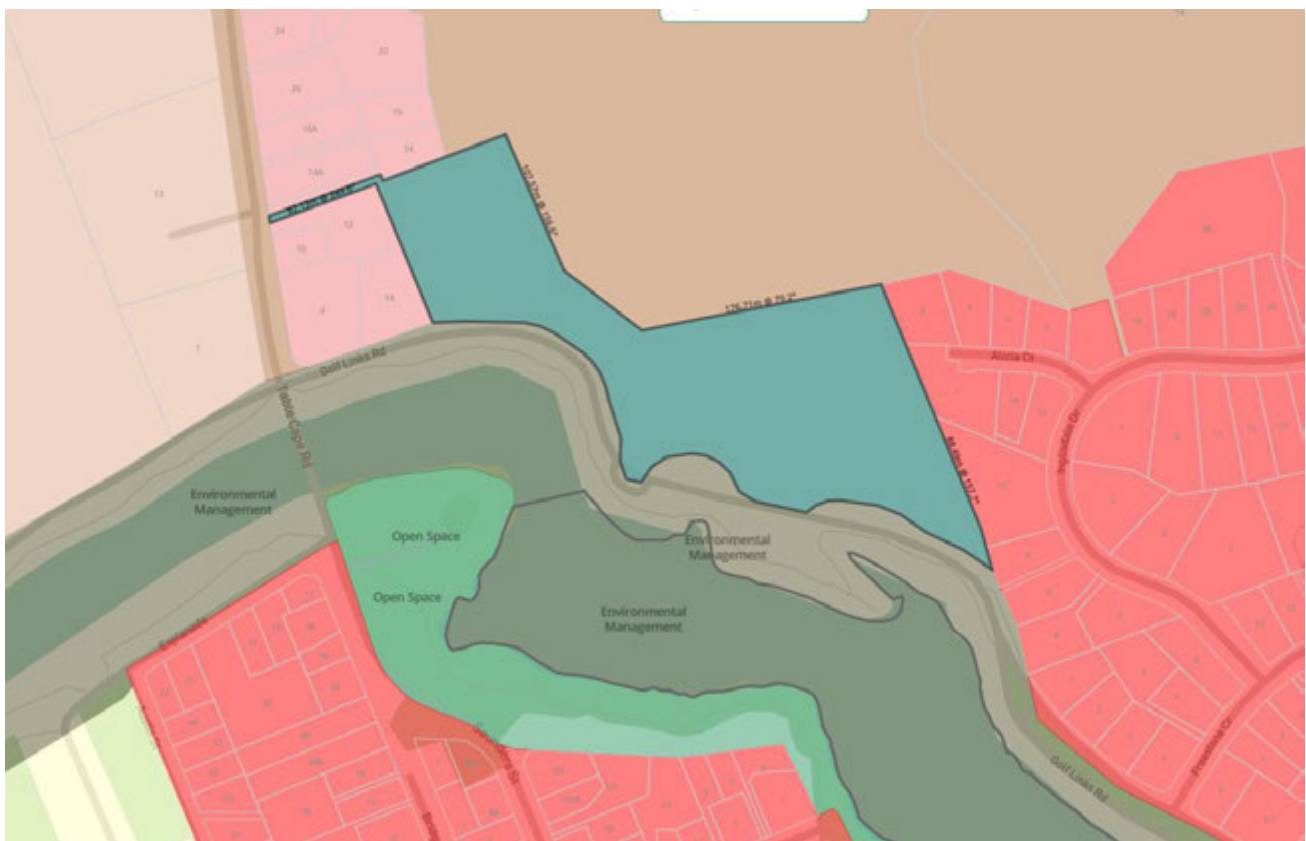


Fig 2. Zoning of the surrounding area and the site.

3.2. Rezoning Approach

The justification of the rezoning is to make the land more consistent with the surrounding development to the east and west of the site, extending the Low Density zoned land towards the already developed General Residential area of Golf Links Road. As shown by the provided Agricultural report, the land possesses little value as agricultural land due to the size and terrain of the site as well as the land capability of 4 or worse.

3.3. Requirements of the Act

This planning scheme amendment application is made under Section 37 of the *Land Use Planning and Approvals Act 1993* (the Act). It requires:

1. *A person may request a planning authority to amend an LPS that applies to the municipal area of the planning authority.*
2. *A request under subsection (1) is to be in a form approved by the planning authority or, if a form has been approved by the Commission, is to be in that form.*
3. *A request under subsection (1) by a person to a planning authority to amend the zoning or use or development of one or more parcels of land specified in an LPS must, if the person is not the owner, of the sole owner, of the land-*
 - a. *Be signed by each owner of the land; or*
 - b. *Be accompanied by the written permission of each of the land to make the making of the request.*

Consent of the landowners has been provided in accordance to the requirements of the Act.

Section 34(2) of the Act is relevant for a planning scheme amendment as it stipulates the assessment criteria to be met. The criteria are that the proposal:

- a) *Contains all provisions that the SPPs specify must be contained in an LPS; and*
- b) *Is in accordance with Section 32; and*
- c) *Furtheres the objectives set out in Schedule 1; and*
- d) *Is consistent with each State Policy; and*
- (da) *satisfies the relevant criteria in relation to the TPPs; and*
- e) *As far as practicable, is consistent with the regional land use strategy, if any, for the regional area in which is situated the land to which the relevant planning instruments relates; and*
- f) *Has regard to the strategic plan, prepared under section 66 of the Local Government Act 1993, that applies in relation to the land to which the relevant planning instrument relates; and*
- g) *As far as practicable, is consistent with and coordinated with any LPSs that apply to the municipal area that are adjacent to the municipal area to which the relevant planning instrument relates; and*
- h) *Has regard to the safety requirements set out in the standards prescribed under the Gas Pipelines Act 2000.*

The following sections address the matters above.

3.4. Assessment against Section 34 (2)(a)

Section 34(2)(a) requires that the amendment results in a planning scheme instrument that contains all the provisions that the SPPs specify must be contained in an LPS. The proposal will not override existing provisions and will rely on the zone provisions in the SPPs. This criterion is met.

3.5. Assessment against Section 34 (2)(b)

Section 34(2)(b) requires that the amendment is in accordance with Section 32, which prescribes the content requirements for Local Provision Schedules. The proposal meets the requirements given that proposal will not override the existing provisions and will rely on the zone and code provisions in the SPPs.

3.6. Assessment against Section 34 (2)(c)

Section 34(2)(c) requires that the amendment furthers the objectives of the resource management and planning system set out in Schedule 1 of the Act. An assessment of the proposal against these objectives is provided in the table below.

Part 1 Objective	Response
(a) To promote the sustainable development of the natural and physical resources and the maintenance of ecological processes and genetic diversity	The development will be sustainable and meet the requirements of the Urban Drainage Act for the discharge of stormwater to the site. The development will limit the environmental impact as the site is primarily grassland surrounded by residential lots to the east and west.
(b) To provide for the fair, orderly and sustainable use and development of air, water	The proposed rezoning will result in a more sustainable and effective utilisation of the site, consistent with the surroundings of the site.
(c) To encourage public involvement in resource management and planning	The draft amendment will be placed on public exhibition. Enabling the public to be involved during the planning process and provide the opportunity to provide a representation to the development. Subsequent development will also be placed on public exhibition.
(d) To facilitate economic development in accordance with the objectives set out in paragraphs (a), (b) and (c)	The rezoning will facilitate better site utilisation and will restrict conflict between existing residential and agricultural use. The most probable use will be for residential use

	but other potential uses are Business, Emergency Services, General Retail and Hire and Community Meetings and Entertainment. The rezoning will help facilitate sustainable development and provide social and economic benefits to the greater Wynyard area.
(e) To promote the sharing of responsibility for resource management and planning between the different spheres of Government, the community and industry in the State	The proposed rezoning amendment represents a process where different spheres of government are involved in the planning approval process.
Part 2 Objective	Response
(a) To require sound strategic planning and coordination action by the State and local government	The proposed amendment provides sound strategic planning through the <i>Cradle Coast Regional Land Use Planning Strategy</i> and the <i>Liveable Waratah Wynyard Settlement Strategy</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	The proposed amendment does not affect the planning instruments. The proposed amendment will allow for more effective and efficient site utilisation.
(c) To ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land	Environmental consideration has been considered and natural values reports has been considered. The development will meet the requirements of the <i>Urban Drainage Act 2013</i> to limit potential environmental impact on the nearby water body.
(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	The proposed amendment does not affect the ability to meet this objective.
(e) To provide for consolidation of approvals for land use or development and related matters, and to coordinate planning approvals with related approvals	The section 40T process ensures there is a consolidated approval process.

(f) To secure a pleasant, efficient and safe working, living and recreational environment for all Tasmanians and visitors to Tasmania	The proposed amendment will result in more potential residential lots within an established area of Wynyard. The site is near an established area with access to shops and local schools.
(g) To conserve those buildings, areas or other places which are scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value	The site is currently vacant and none of the land has been identified as having heritage values.
(h) To protect public infrastructure and other assets and enable the orderly provisions and coordination of public utilities and other facilities for the benefits of the community	The proposed amendment will support the provision and coordination of public utilities and other facilities. The traffic assessment is undertaken to assess the existing road network's potential impact. The proposal will also increase the availability of services to the area.
(i) To provide a planning framework which fully considers land capability.	The land has been considered as part of the strategic plan for the Waratah Wynyard municipality. Whilst the site wasn't considered the primary site to expand, this was due to the site being considered with the title to the north. The site is ranked as high or higher than the preferred site outside of the landslip hazard and most of the landslip is contained within the northern title.

3.7. Assessment against Section 34 (2)(d)

Section 34(2)(d) requires that the amendment be consistent with each State policy. State policies are in effect and have been addressed below.

3.7.1 State Policy on the Protection of Agricultural Land 2009

Assessment against the *State Policy on the Protection of Agricultural Land 2009* is applicable as the proposal is an amendment to the zone from Agricultural to Low Density. Please see attached agricultural report. Due to the size of the title and the surrounding area, the subject site is not considered prime agricultural land.

3.7.2 State Policy on Water Quality Management 1997

The State Policy on *Water Quality Management 1997* is applicable as any future development will require stormwater to be managed. Any future development of the site will need to be managed under the *Urban Drainage Act 2013* and any relevant council policies. As the site has existing stormwater mains and can discharge stormwater, it is considered that any future development will be compliant with the *State Policy of Water Quality Management 1997*.

3.7.3 State Coastal Policy 1996

The site is in proximity to the coast. An assessment is therefore required against the *State Coastal Policy 1996*. The *State Coastal Policy 1996* has five sustainable development objectives of the resource management planning system, Tasmanian. Assessment against the 5 objectives has been addressed above as per Section 34(2)(c). The *Coastal Policy 1996* has 3 main principles as follows.

- Natural and cultural values of the coast shall be protected;
- The coast shall be used and developed in a sustainable manner;
- Integrated management and protection of the coastal zone is a shared responsibility.

The previously mentioned principles have a large range of desired outcomes to achieve the State Coastal Policy 1996 objectives.

The proposed amendment and development will have limited interaction with the coastal environment. There is no native vegetation that will be impacted as part of the development. As an existing seasonal creek discharges to the Inglis River, no new work will be required by the river bank. The primary impact will be on the coast with the increased discharge of stormwater.

Per the *Urban Drainage Act 2013*, water pollutants must be managed and decreased before discharging to the water body. This can be done in several ways such as open drains, gross pollutant traps and exact details to be confirmed during engineering.

3.8 Assessment against Section 34 (2)(da)

Section 34 (2)(da) requires the amendment to address the relevant criteria of the Tasmanian Planning Policies (TPPs). There are no TPP's currently in effect and it is not applicable.

3.9. Assessment against Section 34 (2)(e)

Section 34 (2)(e) requires the amendment as far as practicable, to be consistent with the Regional Land Use Strategy that applies to the area. The *Cradle Coast Regional Land Use Planning Strategy* (CCRLUS) applies to the site and sets out a policy to facilitate and manage growth and development until 2030.

The Waratah-Wynyard Council has had the *Liveable Waratah-Wynyard Settlement Strategy* in place since 2021.

Please see the assessment against the 5 policy groupings of the CCRLUS below.

3.9.1 Implementing the Framework

The strategic outcome for implementation is as follows.

- *Promotes regional land use policies that respect the natural environment, facilitate a robust and successful regional economy, provide liveable communities and a sustainable pattern of settlement, and guide new use and development toward a secure and prosperous future*
- *Consolidates and aligns land use planning with related strategies for economic, social, environmental, conservation and resource management applying for the Cradle Coast Region and places them into an overall context of an integrated regional land use strategy*
- *Provides a basis for the coordination of future actions and initiatives related to the growth and development of the Region and promotes arrangements which optimise benefit for regional communities*
- *Initiates a regional land use planning process to provide a strategic regional perspective and a coordinate framework for consistent regulatory action*

The strategic outcome for implementation is based on following the larger planning framework and coordination between government bodies and developers. As part of the framework, it is to ensure the proposal is in line with the goals of the CCRLUS.

3.9.2 Wise Use of Resources

The strategic outcome for Wise Use of Resources is as followed.

Use and development of natural and cultural resources in the Cradle Coast Region -

- safeguards the life supporting properties of air, water and land
- maintains and enhances the health and security of biodiversity and ecological processes
- provides sustainable access to natural resources and assets in support of human activity and economic prosperity
- recognises and respects natural and cultural heritage
- promotes the optimum use of land and resources

Below is an assessment of the Policies for Changing Climate, Water Management, Land, Air, Conservation, Coastal management, and Cultural and Historical Heritage.

3.9.2.1 Land Use Policies for a Changing Climate

Policy	Response
(a) Promote outcomes which reduce carbon emissions and increase energy efficiency in a manner consistent with	The development will allow for residential development that can be energy efficient. The location is within walking distance to the

and appropriate to furthering declared Commonwealth and State policies and targets	larger Wynyard area, and there is an existing walk trail by Inglis River. There will be larger opportunities to development reduce carbon emissions during the construction of dwellings.
(b) Promote compact and contained settlement centres which allow reduced dependency on private vehicle use and the length of daily journeys by providing communities with ready local access to daily needs for employment, education, health care, retail and personal services and social and recreation facilities, including - i. a greater mix and less dispersal or segregation in the nature and distribution of land use ii. provision of local activity centres where there is a concentrated mix of activity for shopping, working, studying, recreation and socialising clustered at readily accessible locations iii. improvement in the level of internal connectedness and convenience for pedestrian, cycle and public transport options iv. increase in urban densities for residential and commercial use v. location of employment opportunities within a greater number of centres and at a rate commensurate with local need vi. minimise expansion at the urban fringe and creation of rural residential clusters in remote or poorly connected locations.	As mentioned above the site is within the walking path trail of the Inglis River and can connect to existing transport networks of the area.
(c) Facilitate opportunity for resource processing, manufacturing and utility development in locations which minimise distances for freight	Not applicable to this proposal

transport, energy distribution and journey to work. The mix and locations of these may need to be more flexible in remote locations isolated from reliable and accessible road and rail freight networks.	
(d) Promote energy efficient urban places and facilitate energy efficient buildings through design and construction requirements for subdivision layout, building disposition, and the use of materials and landscaping which maximise solar access and natural lighting, natural heating, cooling and ventilation, and the use of low energy and recovered materials, energy and resources	The lots are large enough to allow for solar access for each potential building. Future applications for dwellings will determine the construction material layout to maximise solar access, natural lighting and cooling/heating.
(e) Facilitate non-carbon energy alternatives, renewable energy and energy recovery projects which enhance transition to a carbon-neutral society, including – i. stand-alone commercial scale installations in locations where there will be an acceptable level of impact on cultural, economic and natural resource values and on the amenity of designated sensitive use areas ii. installations forming a directly associated and subservient part of a use or development iii. domestic-scale installations in all locations	Installation of energy-efficient alternatives and renewable energy will be subject to separate development applications.
(f) Facilitate carbon capture and storage, including by geological sequestration, soil carbon in agriculture, reforestation and control on the clearing of vegetation	Not applicable to this application.
(g) Apply sound risk management practices	Development is subject to Council-led management risks.

3.9.2.2 Land Use Policies for Water Management

Policy	Response
(a) Use catchments as the ecological and hydrological unit of meaningful scale for planning and land management	Use of the existing dam can be both for stormwater and ecological by retaining the dam but also used to treat prior to discharge to the Inglis river. Further details to be determined at engineering design.
(b) Identify the surface water and ground water features, hydrological function, and natural features and areas necessary for the ecological and hydrological integrity of catchments	The integrity of the catchment will not be impacted as the existing seasonal creek is being retained.
(c) Require catchments, natural water courses and water bodies be adequately buffered against likelihood for resource development, economic activity, utilities and settlement to have adverse effect on – i. existing and known likely drinking water supplies ii. surface water, ground water, and water bodies susceptible to impact due to extraction of water or the addition of nutrients, sediments and pollutants iii. hydrological function of water, including its chemical and physical properties, and its biological interaction with the environment	The development will unlikely to affect drinking water supplies. No extraction is proposed and no adverse effect on hydrological function is anticipated.
(d) Limit modification of natural drainage systems, including change in channel alignment and in the nature of the stream beds and flow rates	The proposed subdivision will implement a stormwater drainage system into the existing seasonal creek, which will discharge directly into the Inglis River. Management through the urban drainage act will manage the stormwater to decrease pollutants and subsoil affecting the Inglis River.
(e) Impact on water quality by runoff from adjacent use or development	Stormwater infrastructure and stormwater management are to be implemented to ensure the water quality of the runoff is to the relevant standards.
(h) Promote sustainable water use practices including water harvesting and recycling such as Water Sensitive	Due to direct discharging to the Inglis River, water sensitive urban design will be utilised.

Urban Design for stormwater and waste water	The exact extent of the requirement is to be determined during engineering.
(i) Require retention and rehabilitation of native vegetation within riparian and foreshore areas	No native vegetation within the riparian area is proposed to be disturbed as part of the application.
(j) Require urban and rural land use or development incorporate measures to manage diffuse and point source pollution from storm water and waste water discharge in accordance with the Tasmanian State Policy on Water Quality Management 1997 and the Tasmanian State Stormwater Strategy 2010	The proposed development will comply with the relevant water and stormwater management policies.

3.9.2.3 Land Use Policies for Conservation

The subject site is agricultural land that is grassland. No natural values are present on site and policies for conservation are not applicable.

3.9.2.4 Land Use Policies for Coastal Management

Policy	Response
(a) Place limits on the expansion of urban and residential use and development within the coastal zone to avoid linear settlement patterns and encroachment onto areas of intact coastal environment	The proposed amendment and development will keep in line with surrounding development and considered infill. The proposed area will not encroach on or impact on the coastal environment.
(b) Require new use or development within areas of intact coastal environment are dependent on a coastal location for operational efficiency	The location is not required on the coast for operation efficiency.
(c) Minimise or avoid use or development in areas subject to high levels of coastal hazard	The land is not subject to high levels of coastal hazards.
(d) Protect ecological and cultural values of foreshore, coastal reserve, wetland, dune, and estuary areas from adverse effect and encroachment by development on land in the vicinity, including RAMSAR wetlands and significant coastal wetlands such as Robbins Passage and Boullanger Bay	The proposal will not result in adverse effects on the estuary areas. The development is not in the vicinity of any Wetlands.

(e) Require intensification and redevelopment within established settlements ensure continued and undiminished physical and visual public access to beaches, headlands and waterways	The proposed development within established settlements. The development will not diminish or impact public access to beaches, headways and waterways.
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3.9.2.5 Land Use Policies for Cultural and Historic Heritage

Policy	Response
(a) Recognise and conserve the importance of natural geological and biological heritage for both Indigenous and European communities	The proposal doesn't impact Indigenous or European communities' geological or biological heritage.
(b) Recognise and promote understanding of Aboriginal heritage, including places, features, landscapes and items of spiritual and cultural significance and identify measures to consider and resolve values of importance for Aboriginal communities in accordance with statutory requirements	The land has no aboriginal heritage features identified.
(c) Recognise and promote understanding of the Region's historic cultural heritage places, including significant buildings, structures, works, relics, towns and localities	The site has no region-specific heritage values.
(d) Rely on the scope and accuracy of statutory archaeological and heritage registers to identify all buildings, items, landscapes, places, precincts and relics of scientific, aesthetic, architectural and historic interest or otherwise of special cultural value of national, state and local significance	No buildings are on the site.
(e) Facilitate sympathetic re-use of historic heritage assets through planning incentives and design requirements	No Heritage values onsite.
(f) Promote settlement and development compatible with the under-lying heritage values of a location	The site is not in a location of historic heritage values.

3.9.3 Support for Economic Activity

The strategic outcome for implementation are as followed.

Prosperity and liveability of the Cradle Coast Region is achieved through economically, socially and environmentally sustainable development. Land use planning –

- facilitates regional business through arrangements for the allocation, disposition and regulation of land use which promote diversification, innovation and entrepreneurship and avoid unnecessary restraint on competition and cost for compliance
- promotes use and development which maximises the Region's economic potential in key sectors with deep capacity and potential for sustained growth and economic return or a clear strategic advantage
- improves the social and environmental sustainability of the State and regional economy by allowing economic development and employment opportunities in a range of locations while respecting the link between a healthy environment and a healthy economy
- supports and grows liveable regional communities through coordinate action aligned with State and regional economic development plans specific to the issues, challenges and opportunities of the Region

Below is an assessment against the relevant Policies for Economic Activity and Jobs.

3.9.3.1 Economic Activity

Policy	Response
(a) identify land significant for agriculture in the Region as not less than the entirety of the land which is currently available to and developed for agriculture	The land is identified as agricultural under the planning scheme
(b) exclude use or development that has no need or reason to locate on land significant for agriculture, unless the local unique circumstances of the King Island economy require a nuanced approach, and that approach is consistent with the State Policy on the Protection of Agricultural Land 2009	The proposed use and development is not required to be on agricultural land. The land has been considered a growth area within the Wynyard settlement strategy and adjoining land is considered as the growth area of Wynard per the settlement strategy.
(c) indicate agriculture dependent on the soil as a growth medium is the priority use on land significant for agriculture	Not applicable.
(d) facilitate new forms and changing patterns of agricultural use on land	Not applicable.

that is not significant for agriculture, including controlled environment and feed lot agriculture	
(e) protect and buffer agriculture against incompatible use which may conflict and constraint potential for sustainable production	Residential use is adjoining the site from the east and west. Due to the north's topography, no buffers are necessarily consistent with the adjoining residential development.
(f) ensure industries which support and service agricultural production are able to diversify, adjust, innovate and value-add	Not applicable.
(g) Land significant for agriculture is not excluded from agricultural use unless for – - Settlement in accordance with an approved settlement strategy; or - An alternative economic use where - - Necessary to operational efficiency; - The impact on loss of land for agricultural use and on adjacent agricultural use is minimal; and - There is no reasonable alternative location which would avoid agricultural land or allow location on agricultural land of a lesser classification	The land has been considered as a growth area with the Wynyard Settlement Strategy. Whilst it was not the highest considered, the land was considered with the larger parcel to the north. The site was rated high in the majority of aspects considered, with landslip hazard being the main reason for it not being identified as the primary growth location. The majority of landslip hazard is located in the north. The proposed amendment from Agricultural to low density will not result in a significant loss in Agricultural land. Please see the provided agricultural report, but the land is heavily constrained for Agricultural due to the size of the title, the adjoining residential development and the site's topography.

3.9.4 Place for People

The strategic outcome for Place for People is as followed.

Regional settlements provide liveable and sustainable communities where –

- the growth and development of centres is contained to create functional places which optimise use of land and infrastructure services and minimise adverse impact on resources of identified economic, natural or cultural value
- the pattern of settlement provides a network of compact, well connected and separate centres each with individual character and identity
- land supply is matched to need and there is a balance of infill and expansion
- there is coordinated and equitable access to the provision of regional-level services

- each settlement provides an appropriate level of local development and infrastructure facilities to meet locally specific daily requirements in employment, education, health care, retail, and social and recreation activity for its resident population
- each settlement provides a healthy, pleasant and safe place in which to live, work and visit
- there is diversity and choice in affordable and accessible housing
- people and property are not exposed to unacceptable levels of risk
- transport, utility and human service infrastructure is planned and available to meet local and regional need
- energy and resource efficiency is incorporated into the design, construction and operation of all activities

Below is an assessment against the relevant Policies for Places and People.

3.9.3.1 Urban Settlement

Policy	Response
(a) Assume a low growth scenario under which demand is driven by internal population change and low rates of inward migration	As mentioned in the Wynyard Settlement Strategy, a less than 10-year supply of low-density land is available within the municipality. Presently no additional supply has been added since the report was endorsed.
(b) Promote established settlement areas as the focus for growth and development	The subject site is connected to the established settlement area of Wynyard.
(c) Promote optimum use of land capability and the capacity of available and planned infrastructure service	All lots will be fully serviced with water and sewer connections.
(d) Match land supply to need and provide sufficient land within the designated urban settlement boundaries of each centre to meet forecast need for a time horizon of not less than 10 years but not exceeding 20 years	As mentioned within the Wynyard settlement strategy, there is a low amount of available low density zoned land to meet the forecast need of the future. There is currently less than a 10 year supply. A supply of 12 additional lots are unlikely to exceed a supply by 20years.
(e) Accommodate growth and development for each of the centres identified in Table B4.5 through either - i. A Stable Growth Strategy which promotes growth and development within the established boundaries of the nominated settlement area	The land will accommodate growth within established boundaries as Wynyard, with the east and west being established residential areas.

without priority for intensification; ii. Contained Growth Scenario which promotes a mix of intensification and strategically planned expansion on the established boundaries of the nominated settlement centre	
(f) Provide a pattern of settlement which maintain – i. Separate towns, villages and communities ii. Visual and functional transitional space between each individual centre iii. Absence of linear development or expansions aligned to coastline, ridgeline or river or road frontage.	The proposed amendment and development are keeping within the development pattern with the area and logical continuation of the established surrounding area.
(g) Implement structure plans and regulatory instruments for each centres which – i. Identify arrangements for intensification through infill, redevelopment and conversion of vacant and under-developed land, including for intensity of buildings and density of population ii. Identify arrangements for the expansion of urban boundaries when – (a) Areas of expansion are contagious within established settlement areas (b) Sequence of release is progressive from established settlement areas and consistent with the capacity and orderly provision of infrastructure services	Waratah-Wynyard does not have a specific structure plan but have a settlement strategy in place. The settlement strategy identified several locations that considered further development, including this site. This site was rated highly within the settlement strategy, which wasn't considered the primary location due to the natural hazard overlay. This title was considered with the larger title to the north. Within the settlement strategy land to the west was considered the primary location for further intensification. The proposed amendment will help bridge the gap in services between the two sites. The proposed development will be considered infill development of the established eastern and western residential areas.

(c) Compact urban form is retained	
(g) Land significant for agriculture is not excluded from agricultural use unless for – i. Settlement in accordance with an approved settlement strategy; or ii. An alternative economic use where- iii. Necessary to operational efficiency; iv. The impact on loss of land for agricultural use and on adjacent agricultural use is minimal; and v. There is no reasonable alternative location which would avoid agricultural land or allow location on agricultural land of a lesser classification	Please see provided agricultural report considering the land is not significant for agricultural use.

3.9.4.4 Land Use Policies for Protecting People and Property

Policy	Response
(a) Recognise land exposed to future or enhanced risk is a valuable and strategic resource that should not be sterilised by unnecessarily excluding use or development	Not applicable
(b) Establish the priority for risk management is to protect the lives of people, the economic value of buildings, the functional capacity of infrastructure, and the integrity of natural systems	The land is considered bushfire-prone and will need to comply with the planning scheme's requirements.
(c) Avoid new essential service, sensitive or inappropriately located use or development on undeveloped land exposed to or affected by a high level of an existing, likely future or enhanced risk, including from inundation and erosion by the sea, flooding, bush fire or landslip	The land has a band of low landslip hazards consistent with the development of Alicia Drive and English Drive. These bands are generally acceptable for residential subdivision development and can be managed during construction.
(d) Limit opportunity for expansion of existing essential service, sensitive or	Not applicable

inappropriately located use and development onto land exposed to or affected by an existing, likely future or enhanced level of risk	
(e) Limit opportunity for redevelopment and intensification of existing essential service, sensitive or inappropriately located use or development on land exposed to or affected by an existing, likely future or enhanced level of risk unless the impact can be managed to be no greater or less than the existing situation	Not applicable
(f) Promote guidelines and technical measures that which will assist to reduce impact of an existing, likely future or enhanced level of risk and make existing strategically significant places, uses, development and infrastructure assets less vulnerable, including provision for protection, accommodation and abatement, or retreat	Not applicable
(g) Require a hazard risk assessment for new or intensified use or development on land exposed to an existing, likely future or enhanced risk, such assessment to address the nature and severity of the hazard, the specific risk factors for the proposed use or development, and the measures required to mitigate any risk having exceedance probability of greater than 1% at any time over the life of the development	This application is subject to any assessment that is deemed necessary by the planning authority.
(h) Ensure current and future landowners and occupiers are put on notice of the likelihood for a future or enhanced level of risk	Not applicable

3.9.4.5 Land Use Policies for housing land – places to live

Policy	Response
a) Identify at all times the ability to accommodate forecast housing demand for a minimum future period of 10 years – i. Through infill, redevelopment or increased densities within each settlement area ii. On land designated for settlement growth and immediately available for residential development under the planning scheme	The municipality of Waratah-Wynyard has a very small supply of low density with pockets of low density to the west and small already developed areas of Boat Harbour and Somerset. The lands have been considered part of the Waratah-Wynyard settlement strategy to increase the supply of low-density residential.
b) Facilitate choice and diversity in location, form and type of housing to meet the economic social, health and well-being requirements and preferences of all people	Not applicable.
c) Direct development for new housing into locations where appropriate levels of employment, business, infrastructure and community service facilities are available or planned	The proposed amendment and development is consistent with the surrounding residential development. The site will have access to services and is located near existing businesses and community services.
d) Promote higher dwelling density to optimise use of land and infrastructure and community service facilities	The proposed density is within the scope of Low-density development.
e) Rationalise or remove opportunity for housing in locations where oversupply is identified, and in locations where access, servicing, safety or impact are unacceptable	Not applicable.
f) Require housing land is separated from and buffered against adverse effect from existing and potential adjacent non-residential use	The proposed development is not considered to be affected by existing or potential adjacent uses.
g) Provide land for housing development requirements which do not unreasonably or unnecessarily constrain - i. Efficient use of land and infrastructure ii. Housing market or supply iii. Location of housing outside designated residential estates	The land has been identified as suitable for low-density residential development due to the ability to connect to existing reticulated services. The site is also adjoining existing general residential lots to the east and low-density residential to the west. The proposed amendment will not constrain and will provide a key difference of lot size and type, compared to the wider area of Wynyard.

iv. Tenure, including for public housing, rental and temporary accommodation v. Accessibility and affordability vi. Diversity in type, mix and density within a single urban locality as appropriate to lifestyle preference and changing housing needs vii. Housing for the elderly, disadvantage and disabled viii. Orientation, configuration, design, material and technologies ix. Inclusion of housing in business and mixed-use areas	
h) Facilitate housing forms which incorporate climate sensitive design, the use of low energy materials, reduction in waste and emissions, and technologies which encourage efficient water and energy use	Not applicable
i) Provide opportunity for housing in rural areas where - i. Required as part of a rural resource use, unless the unique circumstances of the King Island economy require a nuanced approach and that approach is consistent with the State Policy on the Protection of Agricultural Land 2009 ii. There is no adverse effect for access to and use of rural resource land, including to land significant for agriculture iii. There is no adverse effect on key natural resource values, including areas of biodiversity significance and landscape aesthetics iv. Adequate arrangements are available for transport and there is convenient access to basic retail needs, community	Not applicable

services, and employment opportunities, whether or not in an alternate settlement area v. There is no restraint on options for settlement expansion or provision of employment land vi. There is an acceptable level of risk from exposure to natural or man-made hazard vii. Capacity is available to meet basic utility needs at reasonable cost or there is capacity for self-sufficiency in onsite generation, collection and disposal without risk to human or environmental health	
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3.9.5 Planned Provision for Infrastructure

The strategic outcome for Provision for Infrastructure is as followed.

Economic prosperity, liveable settlement and environmental health is underpinned by integrated land use and infrastructure planning to facilitate provision of adequate, appropriate and reliable infrastructure in a manner that -

- ensures infrastructure is planned and available commensurate with the use and development of land
- prioritises optimum use of existing infrastructure over provision of new or expanded services
- protects the function, capacity and security of existing and planned infrastructure corridors, facilities and sites

Below is an assessment against the relevant Policies for Provision for Infrastructure.

3.9.5.1 Integrated Land Use and Infrastructure Planning

Policy	Response
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(a) Are integrated and coordinated with strategies, policies and programs contained in or derived from the Tasmanian Infrastructure Strategy planning processes	The site is not considered in any Tasmanian Infrastructure Strategy Plan
(b) Recognise existing and planned infrastructure provision for services and utilities	Not applicable
(c) Promote compact contained settlement areas to – (i) Assist climate change adaptation and mitigation measures (ii) Optimise investment in infrastructure provisions	Not applicable
(d) Direct new and intensified use or development to locations where there is available or planned infrastructure capacity and function appropriate to the need of communities and economic activity	Not applicable
(e) Require the scale and sequence of growth and development be in accordance with arrangements for the provision of infrastructure	Not applicable
(f) Require use or development optimise capacity and function in available and planned infrastructure services and utilities	The subject site is within an existing road network and can connect to services.
(g) Restrict use or development in locations where provision or upgrade in capacity or function of infrastructure services and utilities cannot be economically or sustainably provided	The subject site has the potential to connect to the reticulated services in close proximity to the site.
(h) Recognise strategic and substantial infrastructure assets such as airports, railways, major roads and seaports as a distinct land use category	Not applicable

(i) Protect infrastructure assets, corridors, facilities sites and systems from use or development likely to create conflict or interference to the operational capacity, function or security of services and utilities, including for road and rail corridors, airport and seaport land, energy generation and distribution corridors, and water catchment and storage areas	The proposal will not detrimentally affect any infrastructure.
(j) Minimise permit and assessment requirements for works involving replacement or improvement in the capacity, function or safety of existing infrastructure	Not applicable
(k) Limit use or development which has no need or reason to locate on land within an infrastructure corridor, facility or site	Not applicable
(l) Promote compact contained settlement areas to – i. Minimise adverse effect on areas of natural or cultural value ii. Minimise adverse effect on the amenity, health and safety of designated settlement areas iii. Minimise exposure to likely risk from natural hazards iv. Collocate services and facilities	Not applicable

3.10. Assessment against Section 34 (2)(f)

Section 34 (2)(f) requires the amendment to address the strategic plan, prepared under section 66 of the *Local Government Act 1993*, that applies in relation to the land to which the relevant planning instrument relates.

Waratah-Wynyard has the Liveable Waratah-Wynyard Settlement Strategy, the settlement strategy is in place to encourage appropriate development in the right location and retain the qualities of the towns and villages within the municipality. Within the strategy there are 8 key priorities. Linked with the recommendations below is a response against the priorities and which of the recommendations the proposed amendment will meet.

Strategic Priorities	Response
Guiding growth to most appropriate locations	The proposed amendment meets the priorities as it supplies appropriate land as mentioned within the report. There is only 3-4 year supply of low-density land. The subject site adjoining the recommended area for growth within the settlement strategy. The proposed development will provide services to each of the proposed lots and help bridge the service gap to the recommended growth area.
Making efficient use of our existing towns and villages	The proposed amendment will meet the goal to minimise conflict with adjoining use. The site has residential development to the east and west and the amendment will be consistent with the surroundings.
Building resilience	The proposed amendment and development will provide a broader demographic base. As mentioned within the supply strategy, there is a lack of low-density sized blocks providing larger blocks to suit a different demo graph compared to general residential.
Retaining and enhancing local character	Meet the goal to retain the value and character as the site is the continuation of the existing residential development of Golf Links Road.
Supporting the community to participate in appropriate development	The proposed amendment will be advertised, allowing the community to provide representation regarding the development.
Making it easier to become and stay healthy	The site is in close proximity to open space trial along the Inglis river allowing potential residents access to nearby open space.
Supporting efficient and vibrant centres	The proposed amendment will enhance the area of Wynyard. These lots will be in a similar style to the eastern side which has been popular with high market demand. The development will have easy access to services and the town area of Wynyard.
Increase awareness of natural and cultural values	The proposed site has no ecological value but does overlook the Inglis River. The proposed development won't impact on the ecology of the area but would likely attract people who want the natural values of the area.

3.11. Assessment against Section 34 (2)(g)

The two nearest municipalities of Circular Head Council and Burnie City Council have Local Provision Schedules in effect. The proposed amendment will not impact any Local Provision Schedule's operation in adjoining municipal areas.

3.12. Assessment against Section 34 (2)(h)

Section 34(2)(h) requires the amendment to have regard to the safety requirements set out in the standards prescribed under the *Gas Safety Act 2019*. There is no gas infrastructure in the vicinity of the development and considered not applicable.

4. Development Proposal

The development application is assessed against the provisions of the Low Density Residential Zone of the Tasmanian Planning Scheme – Waratah-Wynyard.

The development seeks to subdivide 12 Low Density lots.

The proposed residential lots range between 1200m² and 2500m². Lots 1-8 will be provided with reticulated sewer, water and stormwater. Lots 11 and 12 will utilise onsite septic.

4.1 Development Standards for Subdivision

10.6.1 Lot design

Objective: That each lot: a) Has an area and dimensions appropriate for use and development in the zone; b) Is provided with appropriate access to a road; c) Contains areas which are suitable for residential development.	
Acceptable Solutions	Performance Criteria
A1 Each lot, or a lot proposed in a plan of subdivision, must: a) Have an area no less than 1500m² and: i. Be able to contain a minimum area of 10m x 15m with a gradient not steeper than 1 in 5 clear of: a. all setbacks required by the clause 10.4.3 A1 and A2; and b. easements of other title restrictions that limit or restrict development; and	P1 Each lot, or proposed in a plan of subdivision, must have sufficient useable area and dimensions suitable for its intended use, having regard to: a) the relevant requirements for development of buildings on the lots; b) the intended location of buildings on the lots; c) the topography of the site; d) adequate provision of private open space; e) the pattern of development existing on established properties in the area; and

ii. existing buildings are consistent with the setback required by clause 10.4.3 A1 and A2; b) be required for public use by the crown, a council or state authority; c) be required for the provisions of Utilities; or d) be for the consolidation of a lot with another lot provided each lot is within the same zone	f) any constraints to development, and must have an area not less than 1200m ² .
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Comment:

P1 is met. Each lot is more than 1200m². Each lot has adequate area for building sites and open space. The topography of the site is steep hills but will have the added benefit of a view similar to the pattern of development to the east. The pattern of development is consistent with the existing low density lots to the west, which utilised internal access arrangements. There are additional consistent with site on River Road that utilise shared access.

Acceptable Solutions	Performance Criteria
A2 Each lot, or a lot proposed in a plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, must have a frontage not less than 20m.	P2 Each lot, or proposed in a plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, must be provided with a frontage or legal connection to a road by right of carriageway, that is sufficient for the intended use, having regard to: a) the width of frontage proposed, if any b) the number of other lots which have the land subject to the right of carriageway as their sole or principal mean of access; c) the topography of the site; d) the ability to manoeuvre vehicles on the site; and e) the pattern of development existing on established properties in the area, and is not less than 3.6m wide.

Comment:

P2 is met

(a) Lots 4 and 5 have the smallest frontage with 4.4m each but utilise shared access. Lot 12 have 5m frontage the remaining of the sites have frontage greater than 20.

- (b) The most number of users for access is for proposed 1-3 and 6-8, each lot will be designed to have access with passing bays are required by Tasmanian Standards.
- (c) The land is steep, and to decrease the extent of works with the terrain, reciprocal access is proposed.
- (d) Each lot is large enough to ensure maneuverability on-site.
- (e) There is a pattern of development of low density lots with access strips from Table Cape Road and river road.

Acceptable Solutions	Performance Criteria
A3 Each lot, or a lot proposed in a plan of subdivision, must be provided with a vehicular access from boundary of the lot to a road in accordance with the requirements of the road authority.	P3 Each lot, or proposed in a plan of subdivision, must be provided with reasonable vehicular access to a boundary of a lot or building area on the lot, if any having regard to: a) the topography of the site b) the distance between the lot or building area and the carriageway; c) the nature of the road and the traffic; d) the anticipated nature of vehicles likely to access the site; and e) the ability for emergency services to access the site.

Comment:

A3 is met: Each lot will have a vehicular access from a boundary in accordance with the requirements of the road authority.

10.6.2 Roads

Objective:

That the arrangement of new roads within a subdivision provides;

- a) the provisions of safe, convenient and efficient connections to assist accessibility and mobility of the community;
- b) the adequate accommodation of vehicular, pedestrian, cycling and public transport traffic; and
- c) the efficient ultimate subdivision of the entirety of the land and of surrounding land.

Acceptable Solutions	Performance Criteria
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A1 The Subdivision includes no new roads.	P1 The arrangement and construction of roads within a subdivision must provide an appropriate level of access, connectivity, safety, convenience and legibility for vehicles, pedestrians and cyclists, having regard to: a) any relevant road network plan adopted by council; b) the existing and proposed road hierarchy; c) the need for connecting roads and pedestrian path, to common boundaries with adjoining land, to facilitate future subdivision potential; d) maximising connectivity with the surrounding road, pedestrian, cycling and public transport networks; e) minimise the travel distance between key destinations such as shops and services and public transport routes; f) access to public transport; g) the efficient and safe movement of pedestrians, cyclists and public transport; h) the need to provide bicycle infrastructure on new arterial and collector roads in accordance with the <i>Guide to Road Design Part 6A: Paths for Walking and Cycling 2016</i>; i) the topography of the site; and j) the future subdivision potential of any balance lots on adjoining or adjacent land.
Comment: A1 is met: No Road is proposed.	

10.6.3 Services

Objective: That the subdivision of land provides services for the future use and development of the land.	
Acceptable Solutions	Performance Criteria

A1 Each lot, or a lot proposed in a plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, must: a) be connected to a full water supply service if the frontage of the lot is within 30m of a full water supply service; or: b) be connected to a limited water supply service if the frontage of the lot is within 30m of a limited water supply service, unless a regulated entity advises that the lot is unable to be connected to the relevant water supply service.	P1 No Performance Criterion.
Comment: A1 is met: Each lot will be connected to a water main.	
Acceptable Solutions	Performance Criteria
A2 Each lot, or a lot proposed in a plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, must have a connection to a reticulated sewerage system.	P2 Each lot, or proposed in a plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, must be capable of accommodating an onsite wastewater treatment system adequate for the future use and development of the land.
Comment: A2 is met for lots 1-8 with connection to the existing sewer main through 8 Iglisdale Drive into the walkway. P1 is met: an accompanied wastewater report has been provided to support onsite wastewater treatment for lots 11 and 12.	
Acceptable Solutions	Performance Criteria
A3 Each lot, or a lot proposed in a plan of subdivision, excluding for public open space, a riparian or littoral reserve or Utilities, must be capable of connecting to a public stormwater system.	P3 Each lot, or proposed in a plan of subdivision, must be capable of accommodating an onsite stormwater management system adequate for the future use and development of the land, having regards to: a) the size of the lots b) topography of the site c) soil conditions;

- d) any existing buildings on the site;
- e) any area of the site covered by impervious surfaces; and
- f) any watercourse on the land.

Comment:

A3 is met: Each lot will drain to the Inglis River via the seasonal creek. Please see concept stormwater design.

4.2 Codes

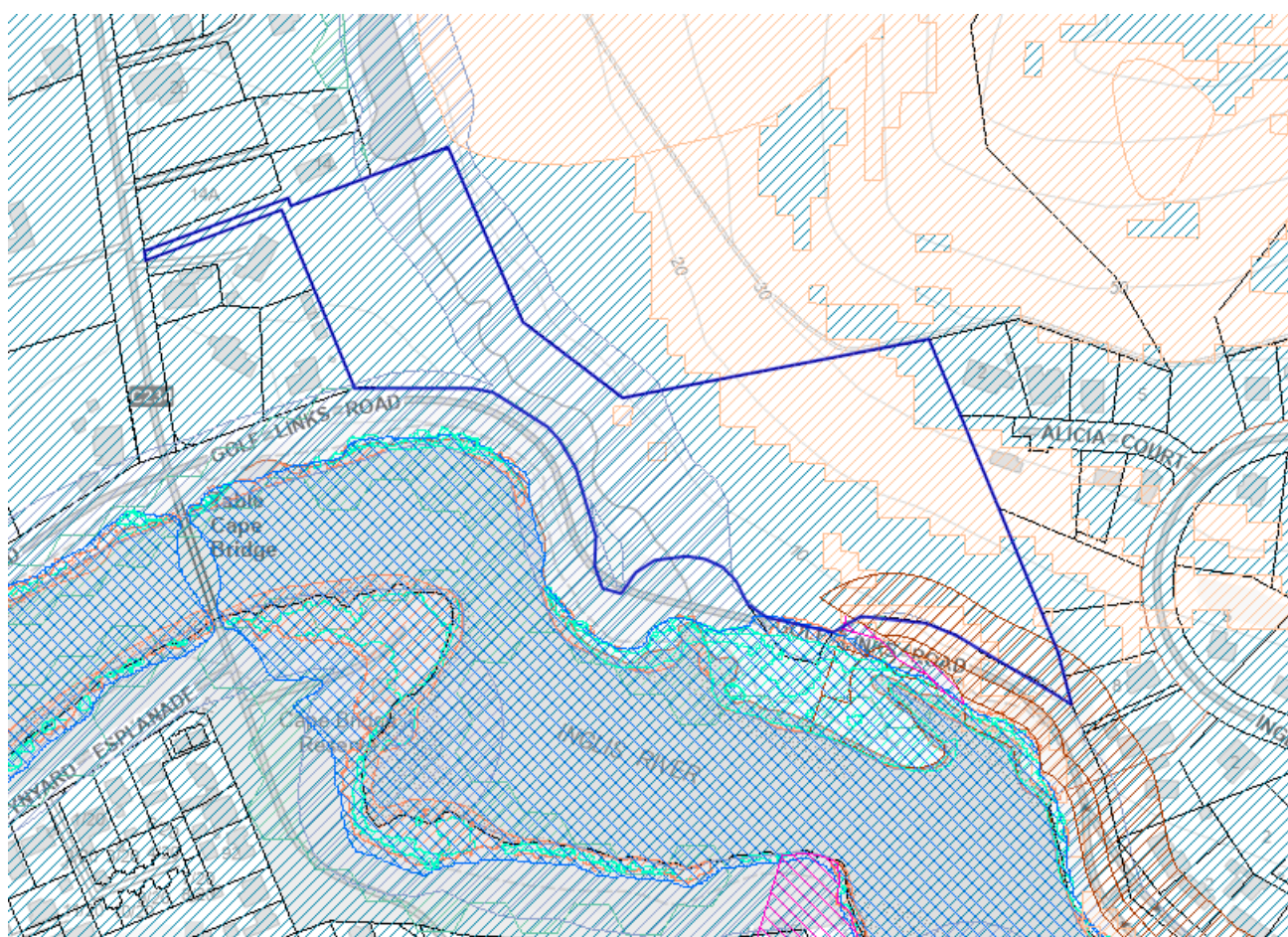


Figure 4. Scheme Overlay identification of the subject land and surrounds (LISTmap, 2025)

Code	Comments:
C1 Signs Code	Not applicable
C2 Parking and Sustainable Transport Code	See response below
C3 Road and Railway Assets Code	Not applicable
C4 Electricity Transmission Infrastructure Protection Code	Not applicable
C5 Telecommunications Code	Not applicable
C6 Local Historic Heritage Code	Not applicable
C7 Natural Assets Code	See response below
C8 Scenic Protection Code	Not applicable
C9 Attenuation Code	Not applicable
C10 Coastal Erosion Hazard Code	See response below
C11 Coastal Inundation Hazard Code	See response below
C12 Flood-Prone Areas Hazard Code	See response below
C13 Bushfire-Prone Areas Code	See attached Bushfire Hazard Management Report
C14 Potentially Contaminated Land Code	Not applicable
C15 Landslip Hazard Code	See response below
C16 Safeguarding of Airports Code	Not applicable

3.4 Code Standards

C2.0 Parking and Sustainable Transport Code

C2.6.7 Development Standards

C2.6.3 Number of accesses for vehicles

Objective: That: (a) access to land is provided which is safe and efficient for users of the land and all road network users, including but not limited to drivers, passengers, pedestrians and cyclists by minimising the number of vehicle accesses; (b) accesses do not cause an unreasonable loss of amenity of adjoining uses; and (c) the number of accesses minimise impacts on the streetscape.	
Acceptable Solutions	
A1 The number of accesses provided for each frontage must: (a) be no more than 1; or (b) no more than the existing number of accesses, whichever is the greater.	
Response: A1 is met: Each lot has no more than one vehicle access point per road frontage	

C7.0 Natural Assets Code

C7.7 Development Standards for subdivision

C7.7.1 Subdivision within a waterway and coastal protection area or a future coastal refugia area

Objective: That: (a) works associated with subdivision within a waterway and coastal protection area or a future coastal refugia area will not have an unnecessary or unacceptable impact on natural assets; and (b) future development likely to be facilitated by subdivision is unlikely to lead to an unnecessary or unacceptable impact on natural assets.	
Acceptable Solutions	Performance Criteria
A1	P1.1

Each lot, or a lot proposed in a plan of subdivision, within a waterway and coastal protection area or a future coastal refugia area, must:

- (a) be for the creation of separate lots for existing buildings
- (b) be required for public use by the Crown, a council, or a State authority;
- (c) be required for the provision of Utilities;
- (d) be for the consolidation of a lot; or
- (e) not include any works (excluding boundary fencing), building area, bushfire hazard management area or vehicular access within a waterway and coastal protection area or future coastal refugia area.

Each lot, or a lot proposed in a plan of subdivision, within a waterway and coastal protection area or a future coastal refugia area, must minimise adverse impacts on natural assets, having regard to:

- (a) the need to locate building areas and any associated bushfire hazard management area to be outside a waterway and coastal protection area or a future coastal refugia area; and
- (b) future development likely to be facilitated by the subdivision.

Response: The proposed subdivision will contain a large POS lot which contains the majority of the buffer area. Any of the proposed area will have minimised area within the overally. Works required in the area are for servicing purposes including stormwater and sewer. Due to the buffer distance the overlay covers sections of the road. The catchment will remain untouched with work around the existing outlet as shown in the image below.





C10.0 Coastal Erosion Hazard Code

C10.7 Development Standards for Subdivision

C10.7.1 Subdivision within a coastal erosion hazard area

Objective:	
That subdivision within a coastal erosion hazard area does not create opportunity for use or development that cannot achieve and maintain a tolerable risk from coastal erosion.	
Acceptable Solutions	Performance Criteria
A1 Each lot, or a lot proposed in a plan of subdivision, within a coastal erosion hazard area, must: a) be able to contain a building area, vehicle access, and services, that are wholly located outside a coastal erosion hazard area; b) be for the creation of separate lots for existing buildings;	P1 Each lot, or a lot proposed in a plan of subdivision, within a coastal erosion hazard area must not create an opportunity for use or development that cannot achieve and maintain a tolerable risk from coastal erosion, having regard to: (a) any increase in risk from coastal erosion for adjacent land;

c) be required for public use by the Crown, a council or a State authority; or d) be required for the provision of Utilities, and not be located on an actively mobile landform.	(b) the level of risk to use or development arising from an increased reliance on public infrastructure; (c) the need to minimise future remediation works; (d) any loss or substantial compromise, by coastal erosion, of access to the lot on or off site; (e) the need to locate building areas outside the coastal erosion hazard area; (f) any advice from a State authority, regulated entity or a council; and (g) the advice contained in a coastal erosion hazard report, and works must not be located on actively mobile landforms unless for engineering or remediation works to protect land, property and human life.
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Comment:

P1 is met

The site is separated by Golf links road which separates the coast from the site. The proposed development includes access and sewer main through the erosion hazard area. The proposed work is unlikely to impact adjoining neighbours. The proposed site will utilise existing sewer within the overlay. The proposed line is unlikely to impact or increase any additional risk to coastal inundation. Proposed works to be to a standard to decrease remediation works in the future. The proposed coastal erosion is over the existing road the separate the site from the coast. Building envelopes are outside of the hazard band.

C11.0 Coastal Inundation Hazard Code

C11.7 Development Standards for Subdivision

C11.7.1 Subdivision within a coastal inundation hazard area

Objective:

That subdivision within a coastal inundation hazard area does not create an opportunity for use or development that cannot achieve and maintain a tolerable risk from coastal inundation.

Acceptable Solutions	Performance Criteria
A1 Each lot, or a lot proposed in a plan of subdivision, within a coastal inundation hazard area, must: (a) be able to contain a building area, vehicle access, and services, that are wholly located outside a coastal inundation hazard area; (b) be for the creation of separate lots for existing buildings; (c) be required for public use by the Crown, a council or State authority; or (d) be required for the provision of Utilities.	P1 Each lot, or a lot proposed in a plan of subdivision, within a coastal inundation hazard area, must not create an opportunity for use or development that cannot achieve and maintain a tolerable risk from coastal inundation, having regard to: (a) any increase in risk from coastal inundation for adjacent land; (b) the level of risk to use or development arising from an increased reliance on public infrastructure; (c) the need to minimise future remediation works; (d) any loss or substantial compromise, by coastal inundation, of access to the lot or off site; (e) the need to locate building areas outside the coastal inundation hazard area; (f) any advice from a State authority, regulated entity or a council; and (g) the advice contained in a coastal inundation hazard report

Response: There is only 1 lot within the potential low hazard area, this band contains a number of existing houses and is at the end of the proposed band. Works required in the area include services to facilitate drainage and connect into the existing main within the walkway. The risk level is low and with the existing road provide protection to the site.

C12.0 Flood Prone Areas

C12.7 Development Standards for Subdivision

C12.7.1 Subdivision within a flood-prone hazard area

Objective:	
That subdivision within a flood-prone hazard area does not create an opportunity for use or development that cannot achieve a tolerable risk from flood.	
Acceptable Solutions	Performance Criteria
A1 Each lot, or a lot proposed in a plan of subdivision, within a flood-prone hazard area, must: (a) be able to contain a building area, vehicle access, and services, that are wholly located outside a flood-prone hazard area; (b) be for the creation of separate lots for existing buildings; (c) be required for public use by the Crown, a council or a State authority; or (d) be required for the provision of Utilities.	P1 Each lot, or a lot proposed in a plan of subdivision, within a flood-prone hazard area, must not create an opportunity for use or development that cannot achieve a tolerable risk from flood, having regard to: (a) any increase in risk from flood for adjacent land; (b) the level of risk to use or development arising from an increased reliance on public infrastructure; (c) the need to minimise future remediation works; (d) any loss or substantial compromise by flood of access to the lot, on or off site; (e) the need to locate building areas outside the flood-prone hazard area; (f) any advice from a State authority, regulated entity or a council; and (g) the advice contained in a flood hazard report.
Comment: P1 is met	

Each lot within the proposed subdivision is capable of accommodating building envelopes and access points outside the identified flood-prone area. The flood-affected land is limited to a small section of the existing road and does not extend into the proposed development site. The proposal does not result in any increase in flood risk to adjoining properties, as the site has only minor interaction with the flood overlay and no works are proposed within the affected area

C15.0 Landslip Hazard Code

C15.7 Development Standards for subdivision

C15.7.1 Subdivision within a landslip hazard area

Objective:	
That subdivision within a landslip hazard area does not create an opportunity for use or development that cannot achieve a tolerable risk from landslip.	
Acceptable Solutions	Performance Criteria
A1 Each lot, or a lot proposed in a plan of subdivision, within a landslip hazard area must: (a) be able to contain a building area, vehicle access, and services, that are wholly located outside a landslip hazard area; (b) be for the creation of separate lots for existing buildings (c) be required for public use by the Crown, a council, or a State authority; or (d) be required for the provision of Utilities;	P1.1 Each lot, or a lot proposed in a plan of subdivision, within a landslip hazard area must not create an opportunity for use or development that cannot achieve a tolerable risk from landslip, having regard to: (a) any increase in risk from a landslip for adjacent land; (b) the level of risk to use or development arising from an increased reliance on public infrastructure; (c) the need to minimise future remediation works; (d) any loss or substantial compromise, by a landslip, of access to the lot on or offsite; (e) the need to locate building areas outside the landslip hazard area; (f) any advice from a State authority, regulated entity or a council; and (g) the advice contained in a landslip hazard report.

Response: The proposed area includes area within a low landslip hazard band. The proposed development will be consistent with the surrounding area that contains landslip. The proposed works will need to be done in accordance to good hillside practice.

5. Conclusion

Under Section 37 of the *Land Use Planning and Approvals Act 1993*, an amendment to the zone has been submitted for the site of Lot 2 Golf Links Road. The site is within the established residential area of Wynyard and will result in more efficient utilisation of the land. The proposal has been addressed and meets the relevant strategic planning requirements. Based on the information provided in this report, there is sufficient justification to support the proposed rezoning from Agricultural to Low Density Residential to match the surrounding zone of west and consistent with the growth area identified within the Waratah-Wynyard Settlement Strategy.

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EAST COAST

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Our Ref: 49895

5th January 2026

Waratah-Wynyard Council
21 Saunders Street, Wynyard.

Attention: Theresia Williams

Dear Madam

RE: SUBDIVISION & REZONING PLANNING SCHEME AMENDMENT- GOLF LINKS ROAD, WYNYARD

RFI Response 22nd of December

RFI references opportunities to respond and include but neither are currently in effect. I have still provide a response to the request below.

1. The development plan does not specifically address our proposed site but our development is inline with the Liveable Waratah Wynyard Settlement Strategy as outlined in the rezoning report.
2. Whilst TPP aren't currently in place, the proposed rezoning meets the following:

Settlement

- 1.1.3 (1) Per the Waratah Wynyard Strategy there is no additional supply of low density zoned land and the proposed would provide some supply.
- 1.1.3(2) the proposed rezoning would be considered infill as there is existing development to the east and west of the site. The site has ability for services and integrates with existing transport systems.
- 1.1.3 (3) above requires additional land supply for low-density areas in the area of Wynard. The site has access to direct employment and training opportunities within Wynyard as well as transport systems.
- 1.1.3 (4) The rezoning priorities growth in established settlements. Wynard being a regional town is the highest settlement hierarchy in Waratah-Wynard municipality.
- 1.1.3 (5) The site doesn't impede infill development.
- 1.1.3 (6) N/A as site isn't in a structure plan and isn't of a scale that would warrant a structure plan.
- 1.1.3 (7) N/A as development isn't creating urban growth boundaries.
- 1.1.3 (8) The land would be considered within an existing urban settlement with the nature of development surrounding the site. An agricultural report has been provided that states the limited nature of utilising the land for agricultural purposes.
- 1.1.3 (9 - 11) not applicable.

The aspects of 1.2-1.6 are more functions of what is proposed at time of developing. The site currently doesn't negatively impact any of the other aspects.

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(03) 6431 4400

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77 Gunn St,
Devonport, TAS 7310
(03) 6423 6875

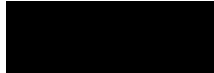
SWANSEA
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Swansea, TAS 7190
(03) 6130 9099

Enclosure 5 Consolidated application documents

Content from 2.0 through to 7.0 have been addressed with either the full rezoning report or further consultant reports.

Yours faithfully,

PDA Surveyors



Allan Brooks

PDA Surveyors, Engineers & Planners



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Hobart, Tasmania 7000
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Our Ref: 49895AB
49895AB - Response to RFI - 2025.10.14.docx

14 October 2025

The Technical Officer Engineering & Development
WARATAH-WYNYARD COUNCIL
Via email: omayer@warwyn.tas.gov.au

Attention: Oliver Mayer

Re: Lot 2 Golf Links Road, Wynyard

Reference is made to Council's emailed RFI dated 2 October 2025.

For convenience, the RFI is reproduced in green italics, followed by our response. Then the hydraulic calculations are summarised.

Response to email dated 02 October 2025

With regards to the drawings provided, could you provide more details of the stormwater branch lines coming off the trunk main.

The drawings have been amended to show long sections of the branch lines.

Also, can you provide a hydraulic assessment of the trunk main discharge at SW1/1, including the culvert under Golf Links Rd discharging into the Inglis River.

The stormwater system has been modelled in Drains to estimate the flow rates at SW1/1. The assumptions and modelling process are described briefly in the next section. The hydraulics of the culvert are affected by the operation of the dam, but not much is known at this stage about the dam's operation. An analysis will be done at the next project stage to assess the operation and to design any measures needed to accommodate the additional flows generated by the subdivision.

Drains model of proposed stormwater system

The catchment layout and details are shown below. The catchments were modelled with the extended rational method. For impervious areas a C10 value of 0.9 was used, and for pervious areas a value of 0.3 was applied.

A full ensemble of storms, with durations ranging from 5 minutes to 2 hours, and 10 temporal patterns per duration, was analysed for the 20% AEP and 1% AEP events.

Table 1. Design flows at creek outlet

Event	Design flow
20% AEP	85 l/s
1% AEP	165 l/s

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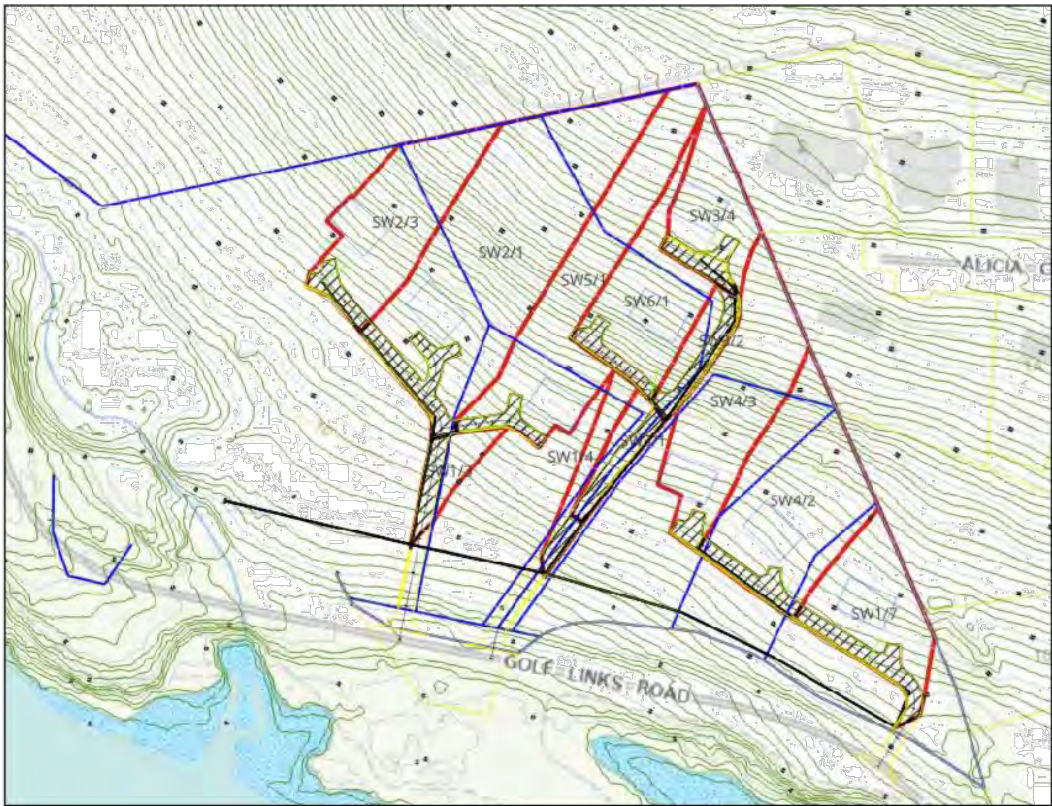


Figure 1. Catchment layout

Table 2. Breakdown of catchments

49895AB - Catchment Area Check - Lot 2 Golf Links Rd							
POST DEVELOPMENT		Breakdown					
Name	Area, m²	Roof, m²	Sealed ground	Landscaping	EIA	EIA%	PA
SW2/3	1444	150	123	1171	273	19%	81%
SW5/1	1985	150	122	1713	272	14%	86%
SW2/1	3565	150	286	3129	436	12%	88%
SW1/3	336	0	143	193	143	43%	57%
SW3/4	849	150	163	536	313	37%	63%
SW6/1	1211	150	141	920	291	24%	76%
SW3/2	379	0	204	175	204	54%	46%
SW3/1	319	0	180	139	180	56%	44%
SW1/4	336	0	77	259	77	23%	77%
SW4/3	1704	150	70	1484	220	13%	87%
SW4/2	2034	150	186	1698	336	17%	83%
SW1/7	1183	150	256	777	406	34%	66%
Total	15345	1200	1951	12194			

The median flow results are shown below for the 20% AEP and 1% AEP.

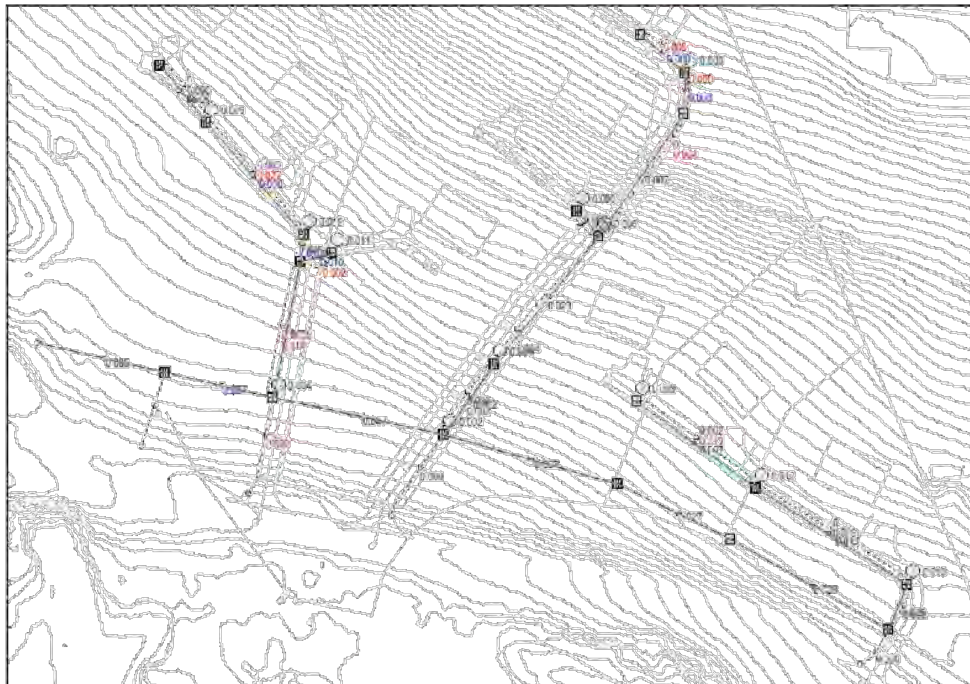


Figure 2. 20% AEP flow results

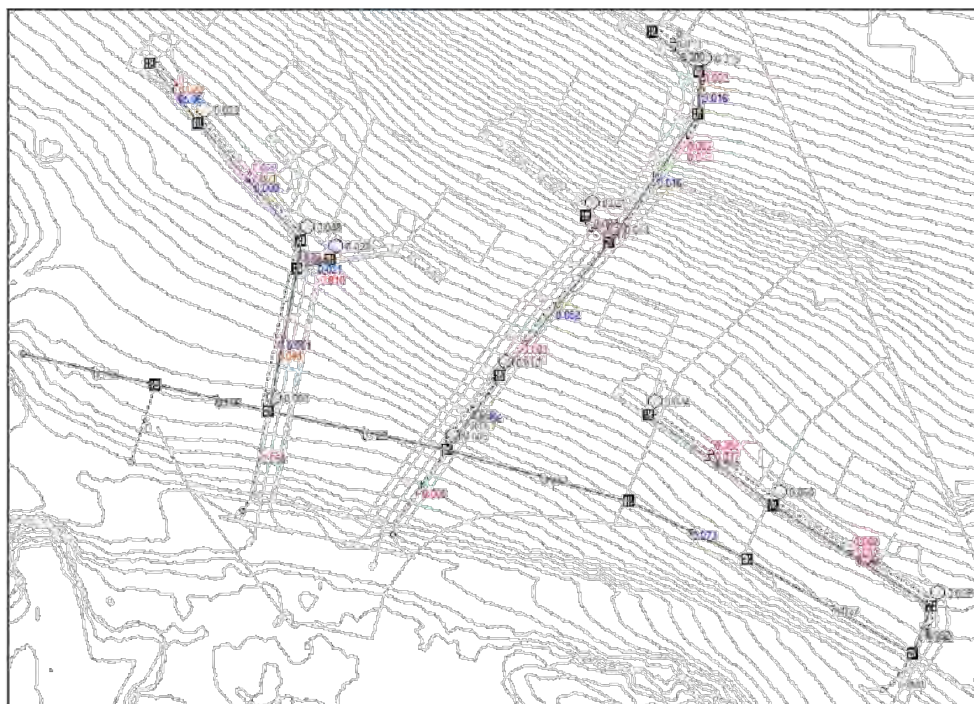


Figure 3. 1% AEP flow results

Golf Links Rd Culvert

The existing culvert under Golf Links Rd is a DN300 pipe. The culvert is located downstream of a series of two dams which appear to be used for water supply purposes. The culvert inlet, i.e., outlet from the lower dam is controlled by a stop valve. At the next design stage, it is intended to analyse the hydraulics of the dams and the culvert based on surveyed details of the topography of the dam, the roadway and the culvert and more knowledge of the operation of the pump station.

Modifications to the operation of the dam will be considered in order to accommodate the additional flows generated by the proposed subdivision. A potential modification may be to remove the valve and lower the level of the dam to create more detention storage capacity. A wider range of storm durations will be analysed.

We note in this regard that the flow capacity under gravity of a DN300 concrete pipe laid at a hypothetical 1% slope is about 100 l/s, which is comparable to the 20% AEP discharge from the subdivision.

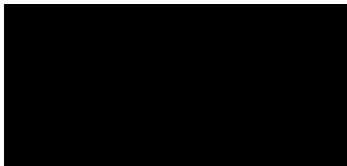
Summary

We trust that the above information adequately addresses Council's queries.

Yours faithfully,

PDA Surveyors, Engineers & Planners

Per:



Roderick Parsons CPEng
Civil Engineer

Enclosure 5 Consolidated application documents

From: [Allan Brooks](#)
To: [Theresa Williams](#); [Joanna Potter](#)
Subject: RE: Request for Information - Planning Scheme Amendment & Subdivision - Golf Links Road Wynyard - PSA 1/2024 & SD2191
Date: Tuesday, 25 November 2025 1:41:52 PM
Attachments: [image010.png](#)
[image011.png](#)
[image012.png](#)
[image013.png](#)
[image014.png](#)
[image015.png](#)
[image016.png](#)
[image017.png](#)
[image018.png](#)
[image019.png](#)
[49895AB-PA-05-B.pdf](#)
[49895-Concept_Plans.pdf](#)

Hi Joanna and Theresa

Please see updated plans to address the last couple of RFI points.

Let me know if anything further is required.

Regards,



Allan Brooks MPlanning, BAppSci (ME)
Associate | Senior Planner
Phone: [+61 \(03\) 6331 4099](tel:+610363314099) | Mobile: [0448 453 971](tel:0448453971)
allan.brooks@pda.com.au
3/23 Brisbane Street, Launceston TAS 7250

From: Theresa Williams <theresia@eqtownplanning.com.au>
Sent: Friday, 7 November 2025 12:34 PM
To: Allan Brooks <allan.brooks@pda.com.au>; Joanna Potter <jpotter@warwyn.tas.gov.au>
Subject: Re: Request for Information - Planning Scheme Amendment & Subdivision - Golf Links Road Wynyard - PSA 1/2024 & SD2191

Good afternoon Allan,

Thank you for clarifying. I have made comments below in bold for your reference.

This looks to leave only small matters in relation to items 4, 6, 7 and 11, and the Taswater concerns to finalise.

Regards



Theresa Williams
0409 795 803
PO Box 2144 Burnie Tas 7320
@ equilibriumtownplanning
www.eqtownplanning.com.au

From: Allan Brooks <allan.brooks@pda.com.au>
Sent: Wednesday, November 5, 2025 9:19 AM
To: Joanna Potter <jpotter@warwyn.tas.gov.au>

Enclosure 5 Consolidated application documents

Cc: Theresia Williams <theresia@eotownplanning.com.au>

Subject: RE: Request for Information - Planning Scheme Amendment & Subdivision - Golf Links Road Wynyard - PSA 1/2024 & SD2191

Hi Joanna and Theresia

I have responded partially to some of the points and need some further clarification on others.

1. Liveable Waratah Wynyard Settlement StrategyThe *Liveable Waratah Wynyard Settlement Strategy* refers directly to this land (p.110).

The application must address the interaction with this portion of the strategy directly.

I referred to the reference in 3.1 –

The proposal seeks to rezone the area of C/T 148923/2 from the Agricultural to the Low Density Residential Zone, as shown in Figure 2. The proposed rezoning will tidy up the site's zoning to be consistent with the area west of the site and logical extension of residential land to be consistent with the development to the east of the site. The site had been considered in Waratah Wynyard Settlement strategy specifically page 110 and stated that it was considered in the shortlist but concerns were raised by drainage. The proposed subdivision plans show how the site will be drained through the existing drain internally. The site could be considered as since the Waratah Wynyard report was adopted by council none of the site have been rezoned and issues still arise from a number of land owners required to rezone the land in comparison to the site.

Let me know if this is adequate or further response needed.

Thank you Allan, this is sufficient.

2. Open space references have been amended in the attached.

Noted.

3. Nothing required

4. Land title documents for the subject land include a pipeline easement. Please clarify the intention for this easement as part of this proposed development.

Is this in regards to the below existing easement? Nothing is proposed and is to retain. Let me know if this point is in reference to another easement.

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Noted. Thank you for clarifying. The latest draft plan of subdivision shows a large services easement that runs through the site as proposed. This also runs into the neighbouring property which has flow on effects onto the application form, notification of landowners etc to be addressed in the final submission of documents.



5. Will updated plans to show setbacks aswell as address the Taswater RFI

Noted.

6. The engineering show road access longsections. The right of Way will be placed over the entirety of the driveway to benefit the necessary lots. I did state this in the report but let me know if I need to include something further on the plans.

It would be beneficial to make this clear on the final draft of the plans so it can be understood at a glance, particularly for public notification.

7. The flood prone hazard area applies to the road portion and potentially the pump station. It is necessary to address this matter in the application documentation.

Referenced to sewer pump which we have removed from the application. Flood overlay below where we aren't proposing any development?



The supporting report simply states that the overlay / code is not applicable, which is not accurate. The Code is applicable, and must be addressed, whether or not a flood report is required.

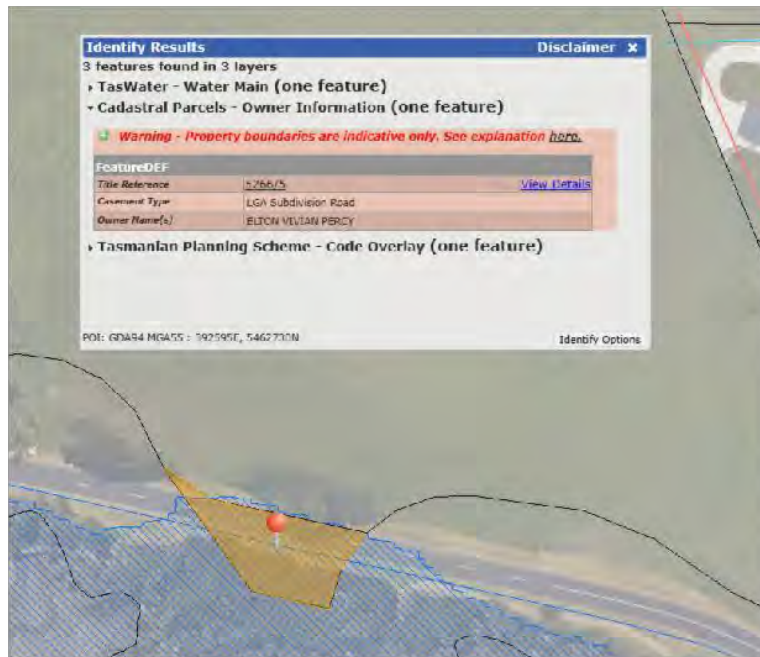
8. Updated plans to clarify all portions of land are to be transferred to Council as the road authority. Currently the plans indicate two portions of land at 305m² and 288m². There is an additional portion of land below that 288m² of land that would be expected to be included in the land transfer. All are required to be marked on the plans as such.



Enclosure 5 Consolidated application documents

Assume this means the white section above? That is already transferred to Council (TR 5266/5).

Noted.



9. Fixed on the attached update report.

Thank you.

10. Priority Vegetation is completely outside of our title as it cant be within Agricultural zoned land.

Noted and accepted.

11. Will discuss with the client and update the proposal plan to include staging if desired.

Regards,



Allan Brooks MPlanning, BAppSci (ME)
Associate | Senior Planner

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3/23 Brisbane Street, Launceston TAS 7250

From: Joanna Potter <jpotter@warwyn.tas.gov.au>
Sent: Friday, 31 October 2025 9:30 AM
To: Allan Brooks <allan.brooks@pda.com.au>
Cc: Theresia Williams <theresia@eqtownplanning.com.au>
Subject: Request for Information - Planning Scheme Amendment & Subdivision - Golf Links Road Wynyard - PSA 1/2024 & SD2191

Good morning Allan,

See attached correspondence regarding planning scheme amendment & subdivision application at Golf Links Road Wynyard, PSA 1/2024 & SD2191.

If you have any enquiries please contact our planning consultant Theresia on 0409 793 803.

Best,

Joanna

Joanna Potter
Administrative Officer

Development & Regulatory Services

Waratah-Wynyard Council
21 Saunders Street (PO Box 168)
Wynyard, TAS, 7325
P: 03 6443 8344
E: jpotter@warwyn.tas.gov.au



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Andrew Richardson

Agricultural Assessment of Lot 2 Golf Links Road, Wynyard.

July 2021



Lot 2 Golf Links Road Agricultural Assessment Report



Pinion Advisory was formed in July 2020 by the merger of three Australian consulting firms – Macquarie Franklin, Rural Directions and Sunraysia Environmental.

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Senior Consultant

An appropriate citation for this report is: Pinion Advisory, Lot 2 Golf Links Road, Wynyard – *Agricultural Assessment Report. July 2021*

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Lot 2 Golf Links Road Agricultural Assessment Report

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1 Purpose

This report has been undertaken on behalf of the proponent (Andrew Richardson) and will accompany an application to the Waratah Wynyard Council seeking approval to undertake a rezoning of the property at Lot 2 Golf Links Road, Wynyard.

The document provides an agricultural assessment of the property in question and proposed rezoning development.

1.1 Land Capability

The currently recognised reference for identifying land capability is based on the class definitions and methodology described in the Land Classification Handbook, Second Edition, C.J Grose, 1999, Department of Primary Industries, Water and Environment, Tasmania.

Most agricultural land in Tasmania has been classified by the Department of Primary Industries and Water at a scale of 1:100,000, according to its ability to withstand degradation. A scale of 1 to 7 has been developed with Class 1 being the most resilient to degradation processes and Class 7 the least. Class 1, 2 and 3 is collectively termed "prime agricultural land". For planning purposes, a scale of 1:100,000 is often unsuitable and a re-assessment is required at a scale of 1:25,000 or 1:10,000. Factors influencing capability include elevation, slope, climate, soil type, rooting depth, salinity, rockiness and susceptibility to wind, water erosion and flooding.

In providing the opinion enclosed here, it is to be noted that Jason Lynch possess a BAppSc(hort), certified practising agriculturalist, is a member of Ag Institute of Agriculture and has over 20 years experience in the agricultural industry in Tasmania. Jason is skilled to undertake agricultural and development assessments as well as land capability studies. He has previously been engaged by property owners, independent planners, surveyors and Councils to undertake assessments within the Break O'Day, Burnie, Central Coast, Circular Head, Clarence, Devonport, Dorset, George Town, Kentish, King Island, Latrobe, Launceston, Meander Valley, Northern Midlands, Southern Midlands and Waratah-Wynyard municipalities. Most of these studies have involved the assessment of land for development purposes for potential conflict with Council Planning Schemes.

2 Property Details

2.1 Location

The property is located at Lot 2 Golf Links Road, located approximately 2 km north of Wynyard GPO (Figure 1). Table 1.

Table 1 Property title and identification details

Property ID	Title Reference	Address	Hectares (Approx)
2758376	148923/2	Lot 2 Golf Links, Road	4.7

The property has a southerly facing aspect, with flat and very gently land on the low lying western area, which is bisected from the eastern area of the property by an unnamed waterway, with the eastern area covered by gentle to moderately steep sloping and undulating land which leads up to the highest point present on the north eastern section of the block.

The vegetation present on the properties in question is dominated by pastureland with a eucalypts tree shelter belt along the western bank side of the unnamed waterway and riparian vegetation including various grasses and rushes present in the waterway unnamed creek line.

The infrastructure present on the properties includes internal and boundary fence, with the internal fencing in a non-functional and degraded condition.

No threatened native vegetation communities are located on and/or within the vicinity of the property in question (Threatened Native Vegetation Communities 2020).

The property itself and all adjacent land to the north, east and west is held as private tenure with a strip of public reserve along the foreshore of the Inglis River, casement land associated the various roads in the area, authority crown, local government, and private tenure land to the south with local government act reserve and conservation area to the west. Figure 3.

The property in question and all adjacent to the north and west is zoned rural resource, general residential zoned land to the east and further to the south, low density residential zoned adjacent to the north western boundary, environmental management zoned land associated the Inglis river and coastline land, open space along the southern shore of the Inglis River, and community purpose zoned land further to the south. Figure 4.

Lot 2 Golf Links Road Agricultural Assessment Report



Figure 1 Property location highlighted in blue (source The LIST)



Figure 2 Topography of the property in question (source The LIST)

Lot 2 Golf Links Road Agricultural Assessment Report



Figure 3 Land tenure on the land surrounding the property in question (outlined in blue) with the private freehold land (yellow shaded), public reserve (gold shaded), easement (grey shaded), conservation area (light brown), local government act reserve (blue), authority crown (light blue) (source the LIST)



Figure 4 Rural resource zoned land on the property in question and surrounding land (brown shaded), general residential (red shaded), environmental management (blue), open spaces (green), low density residential (maroon), community purpose (light yellow) and utilities (yellow shaded). (source the LIST)

3 Land Capability

The original land capability assessment of the area was modelled undertaken by DPIWE at a scale of 1:100,000 and reported in their Inglis Report in 1999. The majority of the subject property was classified as class 5 land with a small section of class 4+5 land present on the far north western area of the block.

A more detailed recent assessment in July 2021 by the report author has identified that Class 4, 5+4 and 5+6 land covers the property. Figure 7.

Class 4 land is defined as:

Land well suited to grazing but which is limited to occasional cropping or to a very restricted range of crops. The length of cropping phase and/or range of crops are constrained by severe limitations of erosion, wetness, soils or climate. Major conservation treatments and/or careful management are required to minimise degradation.

Cropping rotations should be restricted to one to two years out of ten in a rotation with pasture or equivalent to avoid damage to the soil resource. In some areas longer cropping phases may be possible but the versatility of the land is very limited.

Class 5 land is defined as:

This land is unsuitable for cropping, although some areas on easier slopes may be cultivated for pasture establishment or renewal and occasional fodder crops may be grown. The land may have slight to moderate limitations for pastoral use. The effects of limitations on the grazing potential may be reduced by applying appropriate soil conservation measures and land management practices.

Class 5+4 land is defined as:

At least 40% land well suited to grazing but which is limited to occasional cropping or a very restricted range of crops, up to 60% land unsuited to cropping and with slight to moderate limitations to pastoral use.

Class 6 land is described as:

Land marginally suitable for grazing because of severe limitations. This land has low productivity, high risk of erosion, low natural fertility or other limitations that severely restrict agricultural use.

Class 6+5 land is defined as:

At least 40% land suited to grazing with moderate limitations, up to 60% land suited to pastoral use with severe limitations.

Lot 2 Golf Links Road Agricultural Assessment Report

The key limitations associated with land on the property includes:

- Erosion (e) associated with the risk of rill and sheet erosion on the steeper land, wind erosion and associated scouring on the sandy soils and the potential for degraded soil structural due to pugging from livestock movement on waterlogged soils and/or inappropriate, excessive ground cultivation activities.
- Soils (s) associated with the light loamy texture of the soils which are prone due pugging and soil structural damage during periods of soil waterlogging
- Wetness (w) associated with being imperfectly drained, soil waterlogging due, high seasonal water table and inundation during occasional flooding events from the unnamed waterway.



Figure 5 Land capability areas on the property in question (outlined in blue)

Enclosure 5 Consolidated application documents

Lot 2 Golf Links Road Agricultural Assessment Report

Table 2 Land capability table

Land Capability Class (ha)	Land Characteristics							
	Geology & Soils	Slope %	Topography & Elevation	Erosion Type & Severity	Climatic Limitations	Soil Qualities	Main Land Management Requirements	Agricultural Versatility
4se (approx. 0.8 ha)	Dermosol soils, as per the Flowerdale association, derived from quaternary alluvium. Black sandy loam soils with a gravelly layer at 20-30cm depth.	5-15	Gentle to moderate sloping and undulating land. 10m ASL	Low/moderate risk (sheet and rill), due to surface water movement and structure decline due to excessive and inappropriate soil cultivation.	Low. This land experiences cool wet winters and mild summer conditions. Receives on average 975 mm annual rainfall, has on average 20 annual frost events, has up average 900 GDD (Oct to April) and up to 680 chill hours (May to August).	Imperfect drained soil and moderate topsoil depth (0-30cm). Low soil moisture holding capacity. Subject to soil waterlogging due to extended periods of high rainfall, and high seasonal water table.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover, avoid over-grazing, and reduce grazing pressure during periods of soil waterlogging.	Potential areas of this land are suitable for low intensity cropping with a severely limited range of crops. Suitable for pastoral use with minor limitations.

Enclosure 5 Consolidated application documents

Lot 2 Golf Links Road Agricultural Assessment Report

Land Capability Class (ha)	Geology & Soils	Slope %	Topography & Elevation	Erosion Type & Severity	Climatic Limitations	Soil Qualities	Main Land Management Requirements	Agricultural Versatility
4es (approx. 2.1ha)	Ferrosol soils, as per the Burnie association, derived from tertiary basalt geology. Brown clay loam soils.	3-15	Gently sloping and undulating land. 5-35m ASL	Low/moderate risk (sheet and rill), due to surface water movement and structure decline due to excessive and inappropriate soil cultivation.	Low. This land experiences cool wet winters and mild summer conditions. Receives on average 975 mm annual rainfall, has on average 15 annual frost events, has up average 900 GDD (Oct to April) and up to 650 chill hours (May to August).	Moderately well drained soil and moderate topsoil depth (0-30cm). Low soil moisture holding capacity. Occasional stone and fragments present in the soil profile. Subject to soil waterlogging due to extended periods of high rainfall, and high seasonal water table.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover, avoid over-grazing, and reduce grazing pressure during periods of soil waterlogging.	Potential areas of this land are suitable for low intensity cropping with a severely limited range of crops. Suitable for pastoral use with minor limitations.

Enclosure 5 Consolidated application documents

Lot 2 Golf Links Road Agricultural Assessment Report

Land Capability Class (ha)	Geology & Soils	Slope %	Topography & Elevation	Erosion Type & Severity	Climatic Limitations	Soil Qualities	Main Land Management Requirements	Agricultural Versatility
5+4sw (approx. 0.8 ha)	Ferrosol soils, as per the Burnie association, derived from tertiary basalt geology. Brown clay loam soils.	15-25	Moderate/steep sloping and undulating land. 15-30m ASL	Moderate risk (sheet and rill), due to surface water movement, structure decline due to excessive and inappropriate soil cultivation and potential mass movement.	Low. This land experiences cool wet winters and mild summer conditions. Receives on average 975 mm annual rainfall, has on average 15 annual frost events, has up average 900 GDD (Oct to April) and up to 650 chill hours (May to August).	Moderately well drained soil and moderate topsoil depth (0-30cm). Low soil moisture holding capacity. Occasional stone and fragments present in the soil profile, and isolated small rocky outcrops on the soil surface. Subject to soil waterlogging due to extended periods of high rainfall.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover, avoid over-grazing, and reduce grazing pressure during periods of soil waterlogging.	Potential areas (40%) of this land are suitable for low intensity cropping with a severely limited range of crops. Suitable for pastoral use with minor limitations.

Enclosure 5 Consolidated application documents

Lot 2 Golf Links Road Agricultural Assessment Report

Land Capability Class (ha)	Geology & Soils	Slope %	Topography & Elevation	Erosion Type & Severity	Climatic Limitations	Soil Qualities	Main Land Management Requirements	Agricultural Versatility
6+5w (approx. 1.1 ha)	Complex of soils derived including Ferrosol soils, as per the Burnie association derived Tertiary basalt geology and Dermosol soils, as per the Flowerdale association, derived from quaternary alluvium. Brown loam and clay loam soils.	0-5	Flat to very gently sloping and undulating land as per the waterways riparian land. 5-10m ASL	Moderate risk (sheet and rill), due to surface water movement and stream bank erosion during periods of high water flow events in the waterway.	Low. This land experiences cool wet winters and mild summer conditions. Receives on average 975 mm annual rainfall, has up to 20 annual frost events, receives 920 GDD (Oct to April) and up to 675 chill hours (May to August).	Poor to imperfectly drained soils. Moderate/high soil moisture holding capacity. Subject to extended periods of soil waterlogging, with a high seasonal water table and inundation when the unnamed waterway is subject to high flow events.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover, avoid over-grazing, and reduce grazing pressure during periods of soil waterlogging.	This land is unsuitable for cropping. Suitable for pastoral use with moderate to severe limitations. Due to the nature of this land, as per riparian ground, it is would be appropriate to undertake any land development activities.

Lot 2 Golf Links Road Agricultural Assessment Report



Figure 6 Black sandy loam dermosol soil present on the western low lying ground

Lot 2 Golf Links Road Agricultural Assessment Report



Figure 7 Brown clay loam ferrosol soil present

Lot 2 Golf Links Road Agricultural Assessment Report



Figure 8 North easterly view over the block with class 4 land in the foreground and class 4+5 land in the background and the residential dwellings adjacent on the north west corner of the property



Figure 9 Westerly view along the south easterly boundary of the property in question

Lot 2 Golf Links Road Agricultural Assessment Report



Figure 10 North westerly view over the lower lying western area of the property in question

4 Proposed Development

In summary, the proponent is planning to undertake a re-zoning of the property from rural to general residential.

This proposed rezoning allows for a contiguous line of residential development from the existing residential areas associated with Golf Links Road, Alicia Court and Inglisdale Drive across to the southern end of Table Cape Road.



Figure 11 Extension of the residential areas along Golf Links Road, Alicia Court, Inglisdale Drive and Table Cape Road, with the property in question shown (highlighted in blue)

The development would consist of subdividing the property into a 30 lots ranging in size from 331 to 1496m².

The unnamed waterway which flows through the lower lying land on the property is not part of the development and will not be altered and/or modified.

As part of the development water mains, stormwater system and sewerage lines will be constructed and service all the lots on the property in question.

The detailed plan of the proposed subdivision lots layout, water mains, stormwater system and sewerage lines is attached in Appendix A Figure 11, 12, 13 and 14.

5 Land Use

5.1 Agricultural and primary industry activities conducted

The property in question is used for agricultural land use activity, that being for small scale and low intensity pastoral use to seasonally graze a number of beef cattle.

5.1.1 Pastoral use

Based on land capability, prevailing rainfall and climate this property would be anticipated to sustainably support a 30 DSE/ha carrying capacity.

The property has 3.6 hectares (less 1.1 hectares of the class 5+6 land of riparian ground associated with the unnamed waterway) of effective grazing land, and this would be sufficient to support a total carrying capacity of approximately 110 SE.

If the property were run as a beef breeding enterprise it would be potentially possible to run 6 breeding cows, for an anticipated gross margin return of potentially \$5,500. It is important to note that the current livestock markets are at record all time high, and the current financial returns which can be obtained from a pastoral enterprise are well above the long term average outcomes.

Livestock grazing on the property would likely require supplementation with fodder (as per silage, hay and/or nitrogen fertiliser) at times (eg late summer and during winter) of the year when there is insufficient pasture growth to meet the livestock feed requirements.

Similar financial returns could be realised from beef finishing and sheep based pastoral enterprises.

5.1.2 Cropping use

Overall, the property would not be considered suitable for cropping land use activity due to the land capability of the block, challenging topography, small amount of land, prevailing erosion risk of the soils, lack of available irrigation water and the presence of the nearby residential dwellings which imposes an existing level of fettering on this type of potential land use.

Class 4 land can be cropped on a 2 in 10 year rotation, and therefore with 3.5 hectares of theoretically croppable land means 0.7 hectares per annum of crop could be grown.

It would be not possible to establish a meaningful crop rotation, not be possible to attract commercial crop production contracts for this size of available land, highly restricted potential to develop irrigation water resources and the presence of nearby residential dwellings all of which means in reality no cropping activity would be undertaken on the land.

5.1.3 Perennial horticultural use

The property would not be consider to be suitable for the development of perennial horticultural land use activity for similar reasons to the block not being able to support cropping activities.

Intensive perennial horticultural land use activity, such as berry fruit production, are considered unsuitable due to the steep slopes present on the majority of the block and lack of available irrigation water resources. The low lying land is flat, however it is similarly limited due to the lack of

available irrigation water and small size of this block would make it unviable to invest capital into such a small enterprise with no growth and potential increase in scale.

5.2 Existing constraints imposed upon the block

The property in question is current exposed to a number of constraints which limits the potential agricultural land use activity of the block including;

1. Close proximity to residential dwellings on the lower lying western area of the property
2. Close proximity to residential dwellings on western area of the elevated area of the block.
3. Lack of irrigation water and potential for irrigation development
4. Small size of the block
5. Highly restricted potential for alternative agricultural land use activities beyond the current pastoral use

5.3 Adjacent land use activity

Adjacent and surrounding land is used for:

- The land to the north (as per title 177440/2) is used for pastoral land use activity
- The land to the east, as per the various property titles associated with Alicia Court and Inglisdale Drive are used for residential purposes, and is zoned as general residential
- The land to the west and north west, as per the various property titles associated with Table Cape Road are used for residential purposes and is zoned as rural residential

The southern boundary is defined by Golf Links Road with the Inglis River estuary nearby to the south.

5.4 Impact on agricultural and primary industry land use activities

The proposed development has been designed and planned in order to minimise any potential negative impact or constraint on the adjacent pastureland to the north of the block.

The layout and plan of the proposed development is consistent with that of the residential development on the land to the east, as per that of Alicia Court, Inglisdale Drive and Table Cape Road in terms of proximity to the adjacent pastureland

After inspecting the site, I have concluded that the proposed plan and layout of the development is sufficient to prevent unreasonable impact of agricultural activities on residential amenity and vice versa.

5.4.1 Impact of agricultural and primary production land use activity on neighbouring land on the proposed development

Agricultural activity, as per pastoral land use activity, would be conducted on land adjacent to the north of the property in question.

However, normal agricultural activities, are not expected to have any unreasonable impact on the proposed development.

Lot 2 Golf Links Road Agricultural Assessment Report

An assessment of the key risks are summarised in Table 3. This has been compiled on the basis that the neighbouring farm activities could possibly include irrigated and dryland crops as well as pasture for livestock grazing purposes.

The presence of existing dwellings on Alicia Court, Inglisdale Drive and Table Cape already provides a current level of fettering and constraints to the current and potential land use activity which can/could be conducted on adjacent and nearby agricultural land.

Table 3 Potential risk from neighbouring agricultural land/activities

Potential Risk from Neighbouring Agricultural Land Use Activity	Extent of Risk & Possible Mitigation Strategy
1. Spray drift and dust	Risk = low. Existing separation distances will mitigate the impact of sprays and dust if applied under normal recommended conditions. Aerial spraying would not be conducted on the adjacent land due to the close proximity to existing residential dwellings, although ground or spot spraying is a practical and mostly used alternative on the agricultural land to the south and west. Spraying events should be communicated in a timely manner with any potential residential dwelling(s) inhabitants that may be present. The application of all agricultural chemicals must be abide by the DPIPE's "Code of practice for ground and aerial spraying".
2. Noise from machinery and irrigation pump operation, livestock and dogs.	Risk = low although some occasional machinery traffic will occur when working and undertaking general farming duties on adjacent land, and livestock are present on adjacent and nearby paddocks.
3. Irrigation water over boundary	Risk = low. Irrigation systems are not normally operated in high winds due to excessive evaporative losses and uneven application rates on the ground. It should be noted that this area of Table Cape is highly constrained in terms of access to irrigation water and the potential for irrigation is minimal.
4. Stock escaping and causing damage.	Risk = low provided that boundary fences are maintained in sound condition.
5. Electric fences	Risk = low. Mitigated by the proponent attaching appropriate warning signs on boundary fencing.

5.4.2 Impact of proposed development to agricultural activity on neighbouring land

These impacts are usually manifested as complaints that could be made by visitors against issues identified in Section 5.4.1. These have been generally assessed as low risk. ^{#1}

Other risks to neighbouring agricultural activity are outlined in Table 4. Some of these risks rely on an element of criminal intent and it could well be argued that this is very much lower with potential inhabitants of residential dwellings than with other members of the public.

Table 4 Potential risk to neighbouring agricultural activity

Potential Risk to Neighbouring Agricultural Activity	Extent of Risk & Possible Mitigation Strategy
1. Trespass	Risk = low. Mitigation measures include maintenance of sound boundary fencing, lockable gates and appropriate signage to warn visitors about entry onto private land; report unauthorised entry to police.
2. Theft	Risk = low. Ensure there is good quality boundary fencing on neighbouring properties and appropriate signage to deter inadvertent entry to property; limit vehicle movements, report thefts to police.
3. Damage to property	Risk = low. As for theft.
4. Weed infestation	Risk = low. Risks are expected to be negligible, with the proponents committed to the productivity and sustainability of their property and weed control is a key activity.
5. Fire outbreak	Risk = low. Fire risk can be mitigated by careful operation of outside barbeques and disposal of rubbish, and appropriate management of vegetation around the property to mitigate the risk of fire. If applicable a bushfire management plan would be prepared which covers the proposed development.
6. Dog menace to neighbouring livestock	Risk = low. Mitigated by ensuring that good communication is maintained between the proponent and potential residents of the neighbouring properties. Dogs would be managed as per the regulations determined by the council.

5.5 Water storage

The property is serviced by TasWater for the supply of drinking water and sewerage services.

The nearby Inglis River is the salt water estuarine area of the waterway and cannot be used to supply irrigation water.

The unnamed waterway which flows along the low lying western area of the block has potentially 3.36 ML of high availability and 3.59 ML of mid availability irrigation water which could be used for irrigation purposes. This water would need to be stored in a dam. No readily obvious dam site are present on the property, and would highly likely require complete excavation of the dam site to occur. The amount of irrigation water available in conjunction with the limited potential for irrigated agricultural renders the predictably high cost of building a dam to be uneconomic and subsequently impractical.

The property is not located within a proclaimed Irrigation district.

6 Local and regional importance

The property in question does not hold recognised local and regional agricultural importance.

The property in question covers 4.8 hectares of land which accounts for less than 0.003% of the total Inglis land capability mapping areas.

No prime agricultural land is present on the property.

No prime agricultural land is adjacent to the property in question, with the nearest prime agricultural land (as class 3 land) is approximately 520m to the north and roughly 50m higher in elevation.

The non-prime agricultural land on property represents less than 0.0017% of the total Inglis land capability mapping areas. Table 4.

Table 5 Relative regional significance of the property in question by land area

Non-prime land capability areas	Inglis mapping areas		Lot 2 Golf Links Road	
	Land area (hectares)	% of total mapping area	Land area (hectares)	% of Inglis land capability mapping areas
Prime class land	22,322	7.8	0	0
Non-prime class land	165,729	58.1	4.8	<0.003
Exempt land	97,127	34.1	0	0
All land classes	285,178	100	4.8	<0.0017

4.8 hectares of pastureland will be permanently lost due to the rezoning and subsequent subdivision development which represents less than 0.0017% of land in the Inglis land capability mapping areas.

There is no infrastructure (eg pipelines or dams) and/or unique agricultural resources present on the property which would define the property as having a particular level of prominence.

7 Conclusions

1. The Lot 2 Golf Links Road property covers a total area of 4.7 hectares.
2. The property in question is covered by Class 4, 4+5 and 5+6 land.
3. The proposed development for the property is a re-zoning and subsequent subdivision for residential development.
4. The proposed rezoning is sensitive to the adjacent land use activity and not anticipated to create any negative impacts and/or constraint on the capability/capacity of the neighbouring properties to be actively managed and farmed.
5. The presence of existing dwellings on Alicia Court, Inglisdale Drive and Table Cape already provides a current level of fettering and constraints to the current and potential land use activity which can/could be conducted on adjacent and nearby agricultural land.
6. The property in question does not have any local and/or regional significance.
7. The proposed re-zoning allows for a contiguous line of residential development from the existing residential areas associated with Golf Links Road, Alicia Court and Inglisdale Drive across to the southern end of Table Cape Road.



8 References

Grose C.J. (1999) Land Capability Handbook: Guidelines for the Classification of Agricultural Land in Tasmania. 2nd Edition, DPIWE, Tasmania.

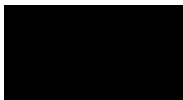
Moreton R. M. (1999) Land Capability Survey of Tasmania, Inglis, 1:100 000 map. Department of Primary Industries, Water and Environment, Tasmania.

Moreton R. M. (1999) Land Capability Survey of Tasmania. Inglis Report. Department of Primary Industries, Water and Environment, Tasmania.

Kidd D & Spanswick S., (2000) Revised Burnie-Table Cape Reconnaissance Soil Map of Tasmania. Department of Primary Industry Water & Environment.

9 Declaration

I declare that I have made all the enquiries which I consider desirable or appropriate, and no matters of significance which I regard as relevant have, to my knowledge, been withheld.



Mr Jason Lynch B. App.Sci (Hort) CPAg
Senior Consultant
Pinion Advisory
July 2021

Lot 2 Golf Links Road Agricultural Assessment Report

10 Appendix A



Figure 12 Subdivision plan for the property in question (source EnviroPlan)

Lot 2 Golf Links Road Agricultural Assessment Report

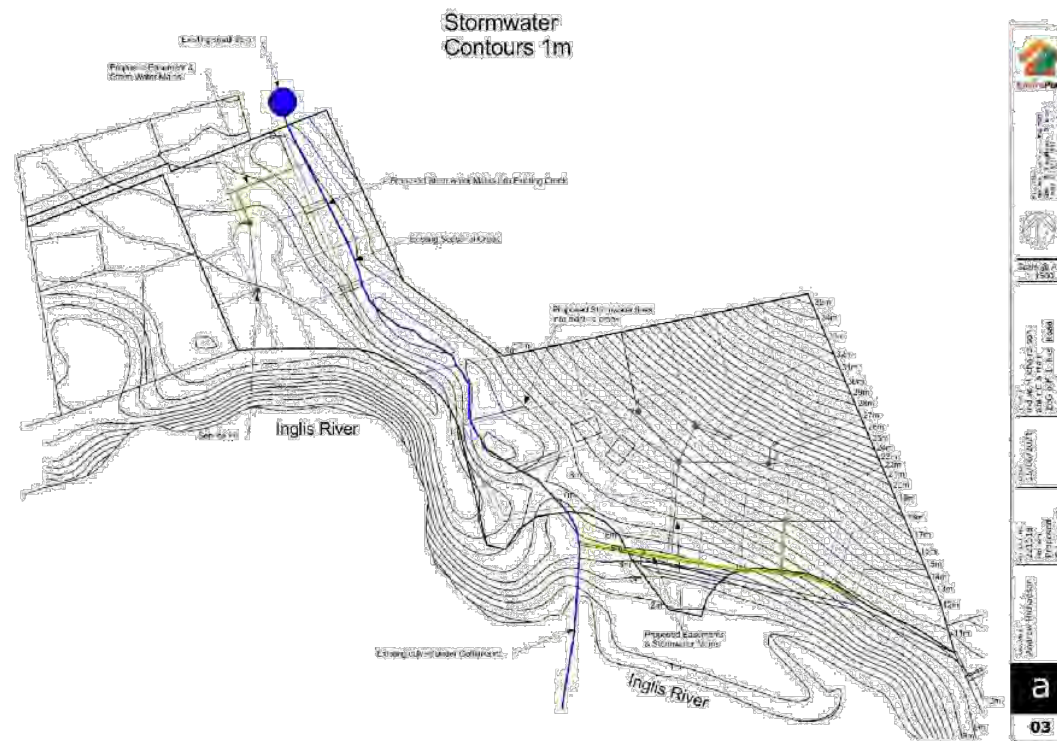


Figure 13 Stormwater system of the subdivision on the property in question (source EnviroPlan)

Lot 2 Golf Links Road Agricultural Assessment Report



Figure 14 Water mains layout plan of the subdivision plan on the property in question (source EnviroPlan)

Lot 2 Golf Links Road Agricultural Assessment Report

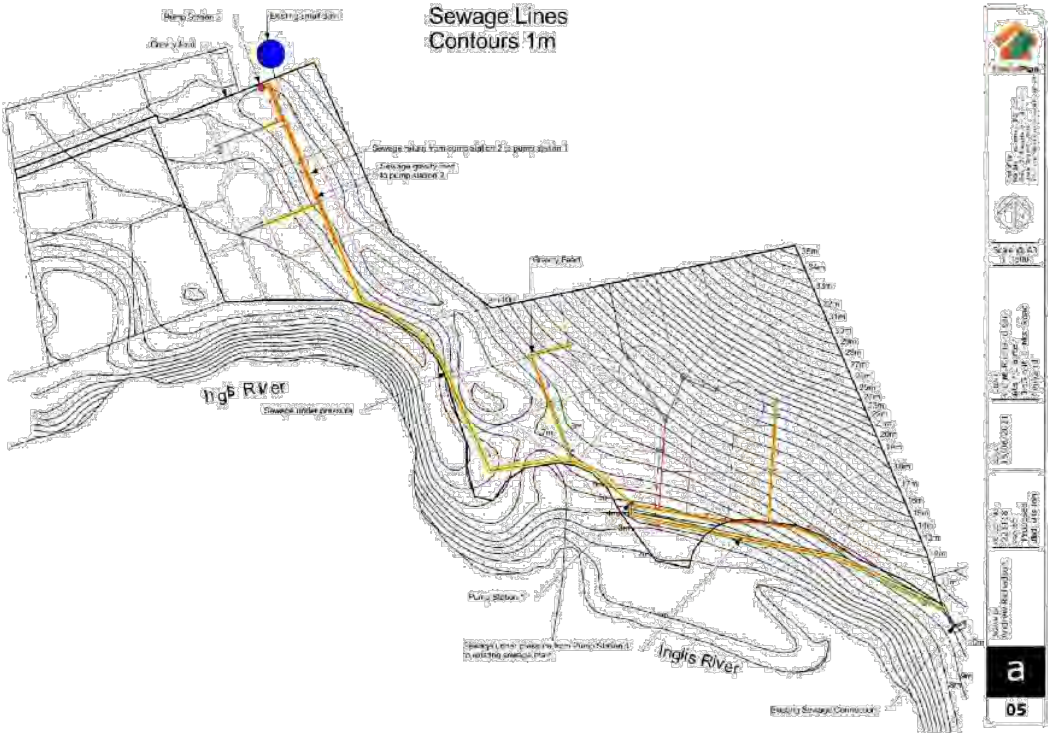


Figure 15 Sewerage lines layout plan for the subdivision on the property in question (source EnviroPlan)



Bushfire Hazard Assessment Report & Bushfire Hazard Management Plan

Lot 2 Golf Links Road, Wynyard





**Rebecca Green
& Associates**

Prepared for (Client)

Bluff Developments Estate Pty Ltd

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Assessed & Prepared by

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Version 3

17 December 2025

Job No: RGA-B2345



**Rebecca Green
& Associates**

Executive Summary

The proposed development at Lot 2 Golf Links Road, Wynyard, is subject to bushfire threat. A bushfire attack under extreme fire weather conditions is likely to subject buildings at this site to considerable radiant heat, ember attack along with wind and smoke.

The site requires bushfire protection measures to protect the buildings and people that may be on site during a bushfire.

These measures include provision of hazard management areas in close proximity to the buildings, implementation of safe egress routes, establishment of a water supply and construction of buildings as described in AS 3959-2018 Construction of Buildings in Bushfire Prone Areas.



**Rebecca Green
& Associates**

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Schedule 1 – Bushfire Report

1.0 Introduction

The Bushfire Attack Level (BAL) Report and Bushfire Hazard Management Plan (BHMP) has been prepared for submission with a Planning Permit Application under the *Land Use Planning and Approvals Act 1993; Bushfire-Prone Areas Code* and/or a Building Permit Application under the *Building Act 2016 & Regulations 2016*.

The Bushfire Attack Level (BAL) is established taking into account the type and density of vegetation within 100 metres of the proposed building site and the slope of the land; using the simplified method in AS 3959-2018 Construction of Buildings in Bushfire Prone Areas; and includes:

- The type and density of vegetation on the site,
- Relationship of that vegetation to the slope and topography of the land,
- Orientation and predominant fire risk,
- Other features attributing to bushfire risk.

On completion of assessment, a Bushfire Attack Level (BAL) is established which has a direct reference to the construction methods and techniques to be undertaken on the buildings and for the preparation of a Bushfire Hazard Management Plan (BHMP).

1.1 Scope

This report was commissioned to identify the Bushfire Attack Level for the existing property. ALL comment, advice and fire suppression measures are in relation to compliance with *Bushfire-Prone Areas Code* of the Tasmanian Planning Scheme – Waratah-Wynyard, the National Construction Code and Australian Standards, *AS 3959-2018, Construction of buildings in bushfire-prone areas*.

1.2 Limitations

The inspection has been undertaken and report provided on the understanding that:-

1. The report only deals with the potential bushfire risk, all other statutory assessments are outside the scope of this report.
2. The report only identifies the size, volume and status of vegetation at the time the site inspection was undertaken and cannot be relied upon for any future development.
3. Impacts of future development and vegetation growth have not been considered.

No action or reliance is to be placed on this report; other than for which it was commissioned.

1.3 Proposal

The proposal is for the development of a subdivision, comprising Lots 1-8 and Lots 11-12, and 2 x road lots (Lot 101 and Lot 102). All residential lots will be provided with access to Golf Links Road. A number of lots will have proposed access via reciprocal rights of way. The development is not likely to be staged; it is anticipated that all lots will be undertaken in a single stage.



2.0 Site Description for Proposal (Bushfire Context)

2.1 Locality Plan

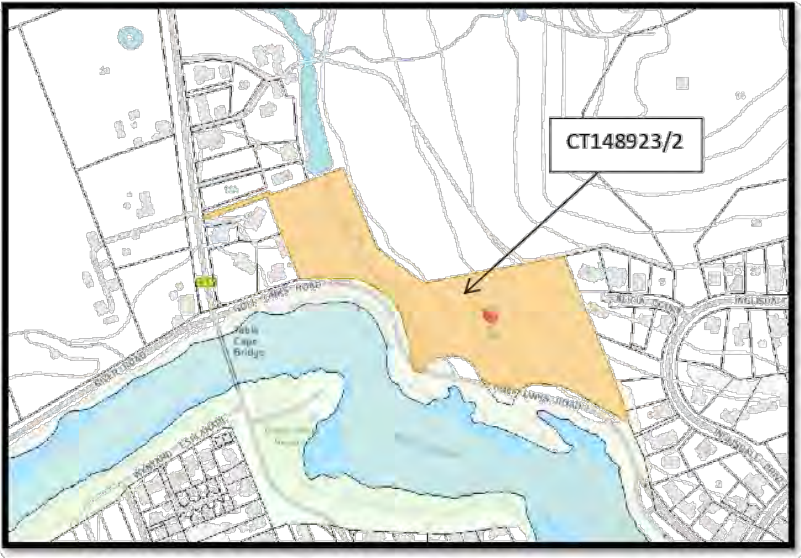


Figure 1: Location Plan of Lot 2 Golf Links Road, Wynyard

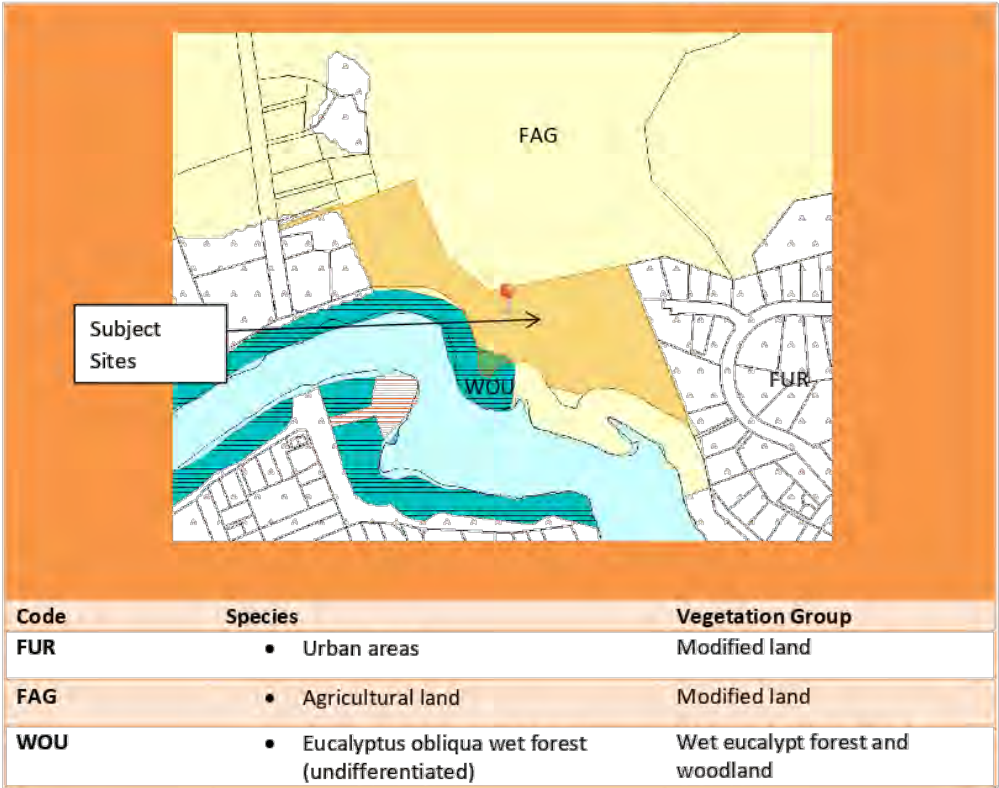
Property Address	Lot 2 Golf Links Road, Wynyard
Certificate of Title	Volume 148923 Folio 2
Owner	Bluff Development Estate Pty Ltd
Existing Use	Vacant
Type of Proposed Work	Subdivision
Water Supply	Lots 1-8 - On-site for fire fighting (and Lot 12, if fire plug >120m hose lay of future habitable building) Lot 11-12 Reticulated TasWater supply available (where <120m hose lay of existing fire plug in Golf Links Road)
Road Access	Golf Links Road

3.0 Bushfire Site Assessment

3.1 Vegetation Analysis

3.1.1 TasVeg Classification

Reference to Tasmanian Vegetation Monitoring & Mapping Program (TASVEG) indicates the land in and around the property is generally comprising of varying vegetation types including:





3.1.2 Site & Vegetation Photos



Looking along northern boundary of Lot 12 to the east



Looking southeast from Lot 12 towards Lot 11



Looking southwest of Lot 12 toward 12 Table Cape Road



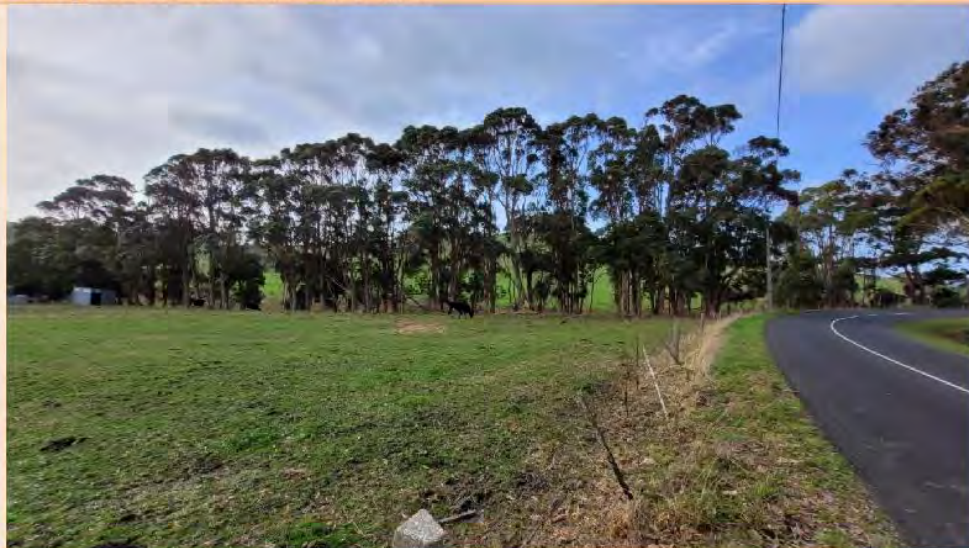
Looking north of Lot 12



Existing fire plug adjacent to Lot 11 on Golf Links Road



Looking north from Golf Links Road to Lot 11



Looking east of Lot 11



Looking south of Lot 11



Looking west of Lot 11



Looking along vegetation south of Golf Links Road and south of Lot 11



Looking toward Lot 102 from Golf Links Road



Looking north from Golf Links Road toward Lot 8



Looking northeast towards Lots 8 and 7 from Gold Links Road



Looking south of Lot 8



Looking north toward Lots 2/3



Looking south of Lots 2/3



Looking southwest towards subdivision from Alicia Court





**Rebecca Green
& Associates**

3.2 BAL Assessment – Subdivision

The Acceptable Solution in Clause C13.6.1, C13.0 Bushfire-Prone Areas Code requires all lots within the proposed subdivision to demonstrate that each lot can achieve a Hazard Management Area between the bushfire vegetation and each building on the lot with distances equal to or greater than those specified in Table 2.6 of AS3959-2018 Construction of Buildings in Bushfire Prone Areas for **BAL 19/12.5**.

Lots 1, 2, 3 & 4	North	South	East	West
Vegetation within 100m of Building Area	Approx. 56m to grassland	0m to grassland Forest south of Golf Links Road	>100m subdivision lots	Subdivision lots and grassland >33m
Slope (degrees, over 100m)	Upslope/flat	0-5 deg	Upslope/flat	Upslope/flat
BAL rating at boundary (existing vegetation)	FZ	FZ	FZ	FZ
BAL rating with setbacks/HMA	BAL 12.5	BAL 12.5/BAL 19	BAL 12.5	BAL 12.5

Lots 4 & 5	North	South	East	West
Vegetation within 100m of Building Area	0m to grassland	0m to grassland Forest south of Golf Links Road	>100m subdivision lots	Subdivision lots and grassland >58m
Slope (degrees, over 100m)	Upslope/flat	0-5 deg	Upslope/flat	Upslope/flat
BAL rating at boundary (existing vegetation)	FZ	FZ	FZ	FZ
BAL rating with setbacks/HMA	BAL 12.5/BAL 19	BAL 12.5	BAL 12.5	BAL 12.5

Lot 7	North	South	East	West
Vegetation within 100m of Building Area	0-approx. 32m subdivision lots >32m grassland	0m to grassland Forest south of Golf Links Road	>100m subdivision lots	0m to grassland
Slope (degrees, over 100m)	Upslope/flat	0-5 deg	Upslope/flat	5-10 deg
BAL rating at boundary (existing vegetation)	FZ	FZ	FZ	FZ
BAL rating with setbacks/HMA	BAL 12.5	BAL 12.5/BAL 19	BAL 12.5	BAL 12.5/BAL 19



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setbacks/HMA

Lot 8	North	South	East	West
Vegetation within 100m of Building Area	0m to grassland	0m to grassland Forest south of Golf Links Road	>100m subdivision lots	0m to grassland
Slope (degrees, over 100m)	Upslope/flat	0-5 deg	Upslope/flat	5-10 deg
BAL rating at boundary (existing vegetation)	FZ	FZ	FZ	FZ
BAL rating with setbacks/HMA	BAL 12.5/BAL 19	BAL 12.5	BAL 12.5	BAL 12.5/BAL 19

Lot 11	North	South	East	West
Vegetation within 100m of Building Area	>100m managed/low threat	0m to grassland Forest south of Golf Links Road	0m to grassland	>100m managed/low threat
Slope (degrees, over 100m)	Upslope/flat	0-5 deg	Upslope/flat	Upslope/flat
BAL rating at boundary (existing vegetation)	FZ	FZ	FZ	FZ
BAL rating with setbacks/HMA	BAL 12.5	BAL 12.5/BAL 19	BAL 12.5/BAL 19	BAL 12.5

Lot 12	North	South	East	West
Vegetation within 100m of Building Area	>100m managed/low threat	0m to grassland Forest south of Golf Links Road	0m to grassland	>100m managed/low threat
Slope (degrees, over 100m)	Upslope/flat	0-5 deg	Upslope/flat	Upslope/flat
BAL rating at boundary (existing vegetation)	FZ	FZ	FZ	FZ
BAL rating with setbacks/HMA	BAL 12.5	BAL 12.5	BAL 12.5/BAL 19	BAL 12.5



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Specified Hazard Management Areas – All Lots

Lot	Rating	Setback	Hazard Management Area
1, 2, 3 & 6	BAL 12.5 (<i>see note 1</i>)	38m to forest on southern side of Golf Links Road	Entire Lot
	BAL 19	27m to forest on southern side of Golf Links Road	Entire Lot
4 & 5	BAL 12.5 (<i>see note 1</i>)	14m to north boundary	Entire Lot
	BAL 19	10m to north boundary	Entire Lot
7	BAL 12.5 (<i>see note 1</i>)	19m to west boundary 38m to forest on southern side of Golf Links Road	Entire Lot
	BAL 19	13m to west boundary 27m to forest on southern side of Golf Links Road	Entire Lot
8	BAL 12.5 (<i>see note 1</i>)	19m to west boundary 14m to north boundary	Lot to edge of Waterway and Coastal Protection Area overlay
	BAL 19	13m to west boundary 10m to north boundary	Lot to edge of Waterway and Coastal Protection Area overlay
11	BAL 12.5 (<i>see note 1</i>)	14m to east boundary 38m to forest on southern side of Golf Links Road	Entire Lot
	BAL 19	10m to east boundary 27m to forest on southern side of Golf Links Road	Entire Lot
12	BAL 12.5 (<i>see note 1</i>)	14m to east boundary	Entire Lot
	BAL 19	10m to east boundary	Entire Lot
101	No BAL Specified		Entire Lot

Note 1 – BAL 12.5: Habitable buildings must be fully constructed to BAL 19 if any façade is within the BAL 19 building area.



3.3 Staging of the Subdivision

Hazard management areas include the area to protect the buildings as well as the access and water supplies. Low threat vegetation includes maintained lawns (<100mm in height), gardens and orchards.

Staging of the subdivision is not likely. The subdivision is proposed in a single stage.

3.4 Road Access

Roads are to be constructed to provide vehicle access to the site to assist firefighting and emergency personnel to defend the building or evacuate occupants; and provide access at all times to the water supply for firefighting purposes on the building site.

Private access roads are to be maintained from the entrance to the property cross over with the public road through to the buildings on the site.

PROPERTY ACCESS LESS THAN 30m; OR ACCESS IS NOT REQUIRED FOR A FIRE APPLIANCE TO ACCESS A FIRE FIGHTING WATER POINT Lot 11 and Lot 12 (is habitable building <120m hose lay from existing fire plug)	Private access driveways are to be <u>constructed/maintained</u> from the entrance of the property cross over at the public road through to any new habitable building. Private access roads are to be maintained to a standard not less than specified in Table C13.2A .
PROPERTY ACCESS IS 30m OR GREATER, OR ACCESS IS REQUIRED FOR A FIRE APPLIANCE TO A FIRE FIGHTING POINT: Lot 4 and Lot 5, and Lot 12 (if fire hydrant location >120m hose lay)	Private access driveways are to be <u>constructed/maintained</u> from the entrance of the property cross over at the public road through to any new habitable building and on-site dedicated firefighting water supply. Private access roads are to be constructed and maintained to a standard not less than specified in Table C13.2B .
PROPERTY ACCESS IS 30m OR GREATER, AND ACCESS IS PROVIDED TO 3 OR MORE PROPERTIES: Lots 1, 2 & 3 and Lots 6, 7 & 8	Private access driveways are to be <u>constructed/maintained</u> from the entrance of the property cross over at the public road through to any new habitable building and on-site dedicated firefighting water supply. Private access roads are to be constructed and maintained to a standard not less than specified in Table C13.2D .

Table C13.2A: Standards for Property Access

There is no specified design and construction requirements for property access length less than 30m; or access is not required for a fire appliance to access a fire fighting water point.

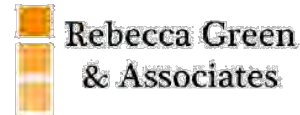


Table C13.2B: Standards for Property Access

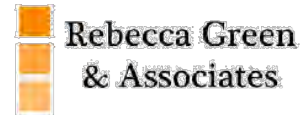
The following design and construction requirements apply to property access length is 30 metres or greater or access for a fire appliance to a fire fighting point:

- (i) All weather construction;
- (ii) Load capacity of at least 20 tonnes, including for bridges and culverts;
- (iii) Minimum carriageway width of 4 metres;
- (iv) Minimum vertical clearance of 4 metres;
- (v) Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
- (vi) Cross falls of less than 3 degrees (1:20 or 5%);
- (vii) Dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;
- (viii) Curves with a minimum inner radius of 10 metres;
- (ix) Maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and
- (x) Terminate with a turning area for fire appliances provided by one of the following:
 - a) A turning circle with a minimum inner radius of 10 metres;
 - b) A property access encircling the building; or
 - c) A hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.

Table C13.2D: Standards for Property Access

The following design and construction requirements apply to property access length is 30 metres or greater, and access is provided to 3 or more properties:

- (i) All weather construction;
- (ii) Load capacity of at least 20 tonnes, including for bridges and culverts;
- (iii) Minimum carriageway width of 4 metres;
- (iv) Minimum vertical clearance of 4 metres;
- (v) Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
- (vi) Cross falls of less than 3 degrees (1:20 or 5%);
- (vii) Dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;
- (viii) Curves with a minimum inner radius of 10 metres;
- (ix) Maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and
- (x) Terminate with a turning area for fire appliances provided by one of the following:
 - a) A turning circle with a minimum inner radius of 10 metres;
 - b) A property access encircling the building; or
 - c) A hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.
- (xi) Passing bays of 2m additional carriageway width and 20m length must be provided every 100m.



3.5 Water Supply

A building that is constructed in a designated bushfire prone area must provide access at all times to a sufficient supply of water for firefighting purposes on the building site.

Lots 11 and 12 - Reticulated Water Supply	Building areas are compliant with Table C13.4, being within 120m of a hydrant (existing).
Static Water Supply (new - Lots 1 to 8 and Lot 12, if greater than 120m hose lay from existing fire plug).	On-site water supply is required for <u>any new habitable building</u> . A water tank of at least 10,000 litres per building area to be protected and above ground pipes and fittings used for a stored water supply must be of non-rusting, non-combustible, non-heat-deforming materials and must be situated more than 6m from a building area to be protected.

Table C13.4: Reticulated Water Supply for Fire Fighting

Column 1		Column 2
Element		Requirement
A.	Distance between building area to be protected and water supply	The following requirements apply: (a) The building area to be protected must be located within 120 metres of a fire hydrant; and (b) The distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.
B.	Design criteria for fire hydrants	The following requirements apply: (a) Fire hydrant system must be designed and constructed in accordance with <i>TasWater Supplement to Water Supply Code of Australia WSA 03-2011-3.1 MRWA 2nd Edition</i> ; and (b) Fire hydrants are not installed in parking areas.
C.	Hardstand	A hardstand area for fire appliances must be: (a) No more than 3m from the hydrant, measured as a hose lay; (b) No closer than 6m from the building area to be protected; (c) A minimum width of 3m constructed to the same standard as the carriageway; and (d) Connected to the property access by a carriageway equivalent to the standard of the property access.



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Table C13.5: Static Water Supply for Fire Fighting

Column 1		Column 2
Element		Requirement
A.	Distance between building area to be protected and water supply	The following requirements apply: (c) The building area to be protected must be located within 90 metres of the fire fighting water point of a static water supply; and (d) The distance must be measured as a hose lay, between the fire fighting water point and the furthest part of the building area.
B.	Static Water Supplies	A static water supply: (c) May have a remotely located offtake connected to the static water supply; (d) May be a supply for combined use (fire fighting and other uses) but the specified minimum quantity of fire fighting water must be available at all times; (e) Must be a minimum of 10,000 litres per building area to be protected. This volume of water must not be used for any other purpose including fire fighting sprinkler or spray systems; (f) Must be metal, concrete or lagged by non-combustible materials if above ground; and (g) If a tank can be located so it is shielded in all directions in compliance with Section 3.5 of AS 3959-2009 the tank may be constructed of any material provided that the lowest 400mm of the tank exterior is protected by: (a) Metal; (b) Non-combustible material; or (c) Fibre-cement a minimum 6mm thickness.
C.	Fittings, pipework and accessories (including stands and tank supports)	Fittings and pipework associated with a fire fighting water point for a static water supply must: (1) Have a minimum nominal internal diameter of 50mm; (2) Be fitted with a valve with a minimum nominal diameter of 50mm; (3) Be metal or lagged by non-combustible materials if above ground; (4) if buried, have a minimum depth of 300mm; (5) Provide a DIN or NEN standard forged Storz 65mm coupling fitted with a suction washer for connection to fire fighting equipment; (6) Ensure the coupling is accessible and available for connection at all times; (7) Ensure the coupling is fitted with a blank cap and securing chain (minimum 220mm length); (8) Ensure underground tanks have either an opening at the top of not less than 250mm diameter or a coupling compliant with this Table; and (9) If a remote offtake is installed, ensure the offtake is



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		in a position that is: (a) Visible; (b) Accessible to allow connection by fire fighting equipment; (c) At a working height of 450-600mm above ground level; and (d) Protected from possible damage, including damage from vehicles.
D.	Signage for static water connections	The fire fighting water point for a static water supply must be identified by a sign permanently fixed to the exterior of the assembly in a visible location. The sign must: (1) Comply with water tank signage requirements within AS 2304-2011 Water storage tanks for fire protection systems; or (2) be: (a) marked with the letter "W" contained within a circle with the letter in upper case of not less than 100mm in height; (b) in fade-resistant material with white reflective lettering and circle on a red background; (c) located within 1m of the fire fighting water point in a situation which will not impede access or operation; and (d) no less than 400mm above the ground.
E.	Hardstand	A hardstand area for fire appliances must be provided: (1) No more than 3m from the fire fighting water point, measured as a hose lay (including the minimum water level in dams, swimming pools and the like); (2) No closer than 6m from the building area to be protected; (3) a minimum width of 3m constructed to the same standard as the carriageway; and (4) Connected to the property access by a carriageway equivalent to the standard of the property access.

4.0 Bushfire-Prone Areas Code Assessment Criteria

Assessment has been completed below to demonstrate the BAL and BHMP have been developed in compliance with the Acceptable Solutions and/or the Performance Criteria as specified in the Bushfire-Prone Areas Code.

C13.4 – Exemptions – Not applicable.

E1.6.1 Subdivision

C13.6.1.1 Hazard Management Areas		
		Comments
☐ A1	(a) & (b)	Not applicable.
☒ P1		Specified distances for Hazard Management Areas for BAL 12.5/19 as specified on the plan are in accordance with AS3959. The proposal



complies the performance criteria.		
C13.6.2 Public Access		
Comments		
☐ A1	(a)	Not applicable.
☒ A1	(b)	The private driveway to all lots will be constructed/maintained in accordance with Table C13.2A/C13.2B/C13.2D at the time of future habitable building.
☐ P1		
C13.6.3 Water supply for fire fighting purposes		
Comments		
☒ A1	(a)	Not applicable.
	(b)	Lots 11 and 12, indicative habitable buildings are located within 120m hose lay of existing fire plugs in the existing roads. The acceptable solution is achieved.
☐ P1	No PC	
☒ A2	(a)	Not applicable.
	(b)	Any new habitable building on Lots 1-8, and Lot 12 if building area greater than 120m from fire hydrant, at building application stage must be provided with a stored water supply in a water supply tank at least 10,000 litres per building area to be protected, with a fitting suitable for TFS access in accordance with Table C13.5 shall be considered.
☐ A2	(c)	Not applicable.
☐ P2	No PC	

5.0 Layout Options

Not relevant to this proposal.

6.0 Other Planning Provisions

Not relevant to this proposal.



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7.0 Conclusions and Recommendations

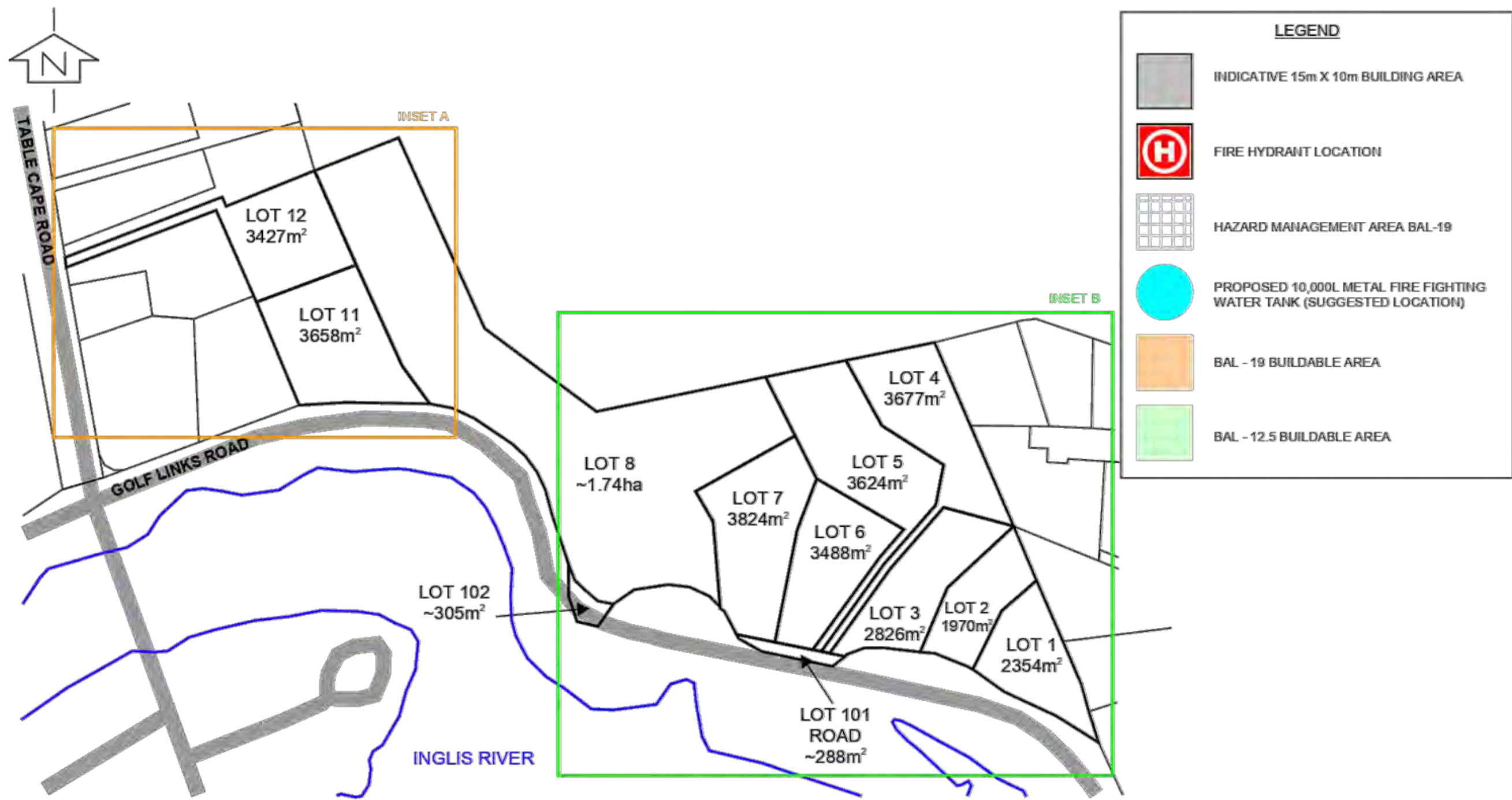
Mitigation from bushfire is dependent on the careful management of the site by maintaining reduced fuel loads within the hazard management areas and within the site generally and to provide sources of water supply dedicated for firefighting purposes and the construction and maintenance of a safe egress route.

- a) Hazard management areas meet the requirements of BAL 12.5 or BAL 19 for all lots.**
- b) Property accesses comply with Table C13.2.**
- c) Water supply complies with Table C13.4 for Lot 11 and Lot 12. Water supply for Lots 1 to 8 comply with Table C13.5.**
- d) Hazard Management areas for each lot must be established prior to Council sealing a final plan and must be maintained in perpetuity.**
- e) Future buildings must Maintain Hazard Management Areas and follow recommendations as outlined in Bushfire Hazard Management Plan and as detailed in Schedule 2.**



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Schedule 2 – Bushfire Hazard Management Plan



BUSHFIRE HAZARD MANAGEMENT PLAN
BUSHFIRE ATTACK LEVEL (BAL) - BAL 12.5/19
SUBDIVISION (LOTS 1-8 & 11-12)

LOT 2, GOLF LINKS ROAD, WYNYARD
VOLUME 148923 FOLIO 2
PROPERTY ID 2758376

DATE: 17 DECEMBER 2025
VERSION: 3
DRAWN: REBECCA GREEN
PHONE: 0409 284 422
EMAIL: ADMIN@RGASSOCIATES.COM.AU
BFP - 116, SCOPE - 1, 2, 3A, 3B, 3C



**Rebecca Green
& Associates**



BUSHFIRE HAZARD MANAGEMENT PLAN
 BUSHFIRE ATTACK LEVEL (BAL) - BAL 12.5/19
 SUBDIVISION (LOTS 1-8 & 11-12)
 INSET A

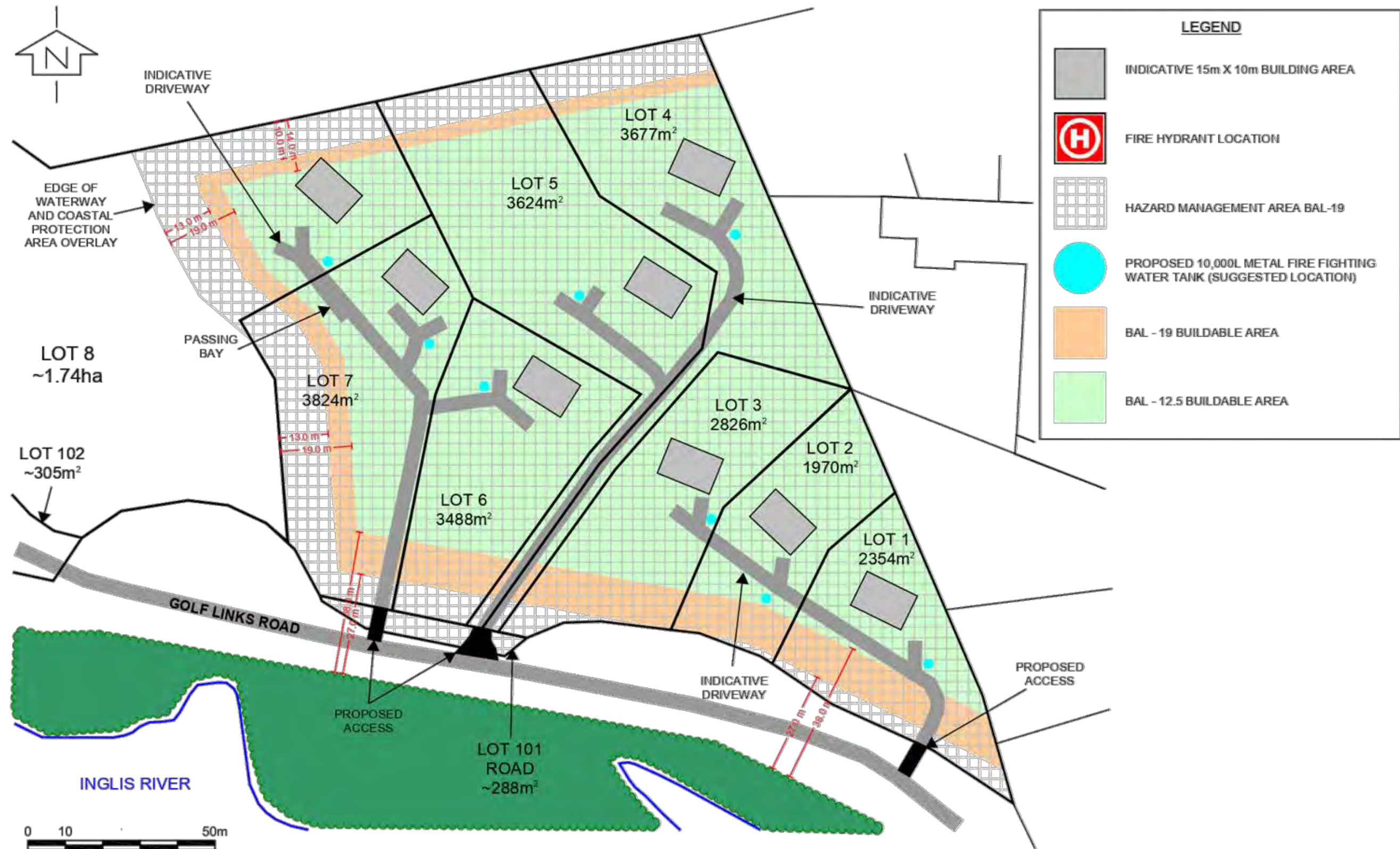
LOT 2, GOLF LINKS ROAD, WYNYARD
 VOLUME 148923 FOLIO 2
 PROPERTY ID 2758376

DATE: 17 DECEMBER 2025
 VERSION: 3
 DRAWN: REBECCA GREEN
 PHONE: 0409 284 422
 EMAIL: ADMIN@RGASSOCIATES.COM.AU
 BFP - 116, SCOPE - 1, 2, 3A, 3B, 3C

Rebecca Green



**Rebecca Green
 & Associates**



BUSHFIRE HAZARD MANAGEMENT PLAN
BUSHFIRE ATTACK LEVEL (BAL) - BAL 12.5/19
SUBDIVISION (LOTS 1-8 & 11-12)
INSET B

LOT 2, GOLF LINKS ROAD, WYNYARD
VOLUME 148923 FOLIO 2
PROPERTY ID 2758376

DATE: 17 DECEMBER 2025
VERSION: 3
DRAWN: REBECCA GREEN
PHONE: 0409 284 422
EMAIL: ADMIN@RGASSOCIATES.COM.AU
BFP - 116, SCOPE - 1, 2, 3A, 3B, 3C

Rebecca Green



**Rebecca Green
& Associates**

NOTES

Construction: BAL 12.5, BAL 19 as shown

Buildings in Bushfire Prone Areas to be built in accordance with the National Construction Code and Australian Standard AS3959.

Building setbacks/ BAL ratings apply to habitable buildings (Class 1, 2, 3, 8 or 9) and Class 10a buildings within 6m of a habitable building.

Habitable buildings must be fully constructed to BAL 19 if any façade is within the BAL 19 building area of Lots 1-8 & 11-12.

See report table for individual BAL ratings and setback requirements.

Hazard Management Areas:

Hazard Management Areas include the area to protect the buildings as well as the access and water supplies.

Low threat vegetation, include maintained lawns (<100mm in height), gardens and orchards.

The owner of a lot is responsible for management of vegetation within the lot.

Water Supply:

The subdivision will be serviced by a reticulated supply (Lots 11 & 12). The building area to be protected must be located within 120 metres of a fire hydrant, and the distance must be measured as a hose lay, between the water connection point and the furthest part of the building area.

Lots 1-8 to be provided with on-site water supply for any new habitable building in accordance with Table C13.5

Roads:

Driveways

The following design and construction requirements apply to property access length is 30 metres or greater or access for a fire appliance to a fire fighting point:

- (i) All weather construction;
- (ii) Load capacity of at least 20 tonnes, including for bridges and culverts;
- (iii) Minimum carriageway width of 4 metres;
- (iv) Minimum vertical clearance of 4 metres;
- (v) Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
- (vi) Cross falls of less than 3 degrees (1:20 or 5%);
- (vii) Dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;
- (viii) Curves with a minimum inner radius of 10 metres;
- (ix) Maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and
- (x) Terminate with a turning area for fire appliances provided by one of the following:
 - a) A turning circle with a minimum inner radius of 10 metres;
 - b) A property access encircling the building; or
 - c) A hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.

The following design and construction requirements apply to property access length is 30 metres or greater, and access is provided to 3 or more properties:

- (i) All weather construction;
- (ii) Load capacity of at least 20 tonnes, including for bridges and culverts;
- (iii) Minimum carriageway width of 4 metres;
- (iv) Minimum vertical clearance of 4 metres;
- (v) Minimum horizontal clearance of 0.5 metres from the edge of the carriageway;
- (vi) Cross falls of less than 3 degrees (1:20 or 5%);
- (vii) Dips less than 7 degrees (1:8 or 12.5%) entry and exit angle;
- (viii) Curves with a minimum inner radius of 10 metres;
- (ix) Maximum gradient of 15 degrees (1:3.5 or 28%) for sealed roads, and 10 degrees (1:5.5 or 18%) for unsealed roads; and
- (x) Terminate with a turning area for fire appliances provided by one of the following:
 - a) A turning circle with a minimum inner radius of 10 metres;
 - b) A property access encircling the building; or
 - c) A hammerhead "T" or "Y" turning head 4 metres wide and 8 metres long.
- (xi) Passing bays of 2 metres additional carriageway width and 20 metres length must be provided every 100 metres.

- THIS BHMP MUST BE READ IN CONJUNCTION WITH BUSHFIRE HAZARD ASSESSMENT REPORT
REF: RGA-B2345, R.GREEN, 17 DECEMBER 2025

- THIS BHMP HAS BEEN PREPARED TO SATISFY THE REQUIREMENTS OF C13.0 BUSHFIRE - PRONE AREAS
CODE OF TASMANIAN PLANNING SCHEME - WARATAH-WYNYARD (EFFECTIVE 13 FEBRUARY 2023)

BUSHFIRE HAZARD MANAGEMENT PLAN
BUSHFIRE ATTACK LEVEL (BAL) - BAL 12.5/19
SUBDIVISION (LOTS 1-8 & 11-12)
NOTES

LOT 2, GOLF LINKS ROAD, WYNYARD
VOLUME 148923 FOLIO 2
PROPERTY ID 2758376

DATE: 17 DECEMBER 2025
VERSION: 3
DRAWN: REBECCA GREEN
PHONE: 0409 284 422
EMAIL: ADMIN@RGASSOCIATES.COM.AU
BFP - 116, SCOPE - 1, 2, 3A, 3B, 3C



Rebecca Green
& Associates



Rebecca Green
& Associates

Form 55

CERTIFICATE OF QUALIFIED PERSON – ASSESSABLE ITEM

Section 321

To:	Bluff Developments Estate Pty Ltd	Owner /Agent	Form 55
	32 Dress Circle Drive	Address	
	LENNOX HEAD NSW	Suburb/postcode	
		2478	

Qualified person details:

Qualified person:	Rebecca Green		
Address:	PO Box 2108	Phone No:	0409 284 422
	Launceston	7250	Fax No:
Licence No:	BFP-116	Email address:	admin@rgassociates.com.au

Qualifications and Insurance details:	Accredited to report on bushfire hazards under Part IVA of the Fire Services Act 1979	(description from Column 3 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)
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Speciality area of expertise:	Analysis of hazards in bushfire prone areas	(description from Column 4 of the Director's Determination - Certificates by Qualified Persons for Assessable Items)
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Details of work:

Address:	Lot 2 Golf Links Road	Lot No:	2
	WYNYARD	7325	Certificate of title No:
			148923
The assessable item related to this certificate:	Subdivision (Lots 1-8 and Lots 11-12), and 2 x Road Lots (Lot 101 and Lot 102).		
	(description of the assessable item being certified) Assessable item includes – - a material; - a design - a form of construction - a document - testing of a component, building system or plumbing system - an inspection, or assessment, performed		

Certificate details:

Certificate type:	Bushfire Hazard	(description from Column 1 of Schedule 1 of the Director's Determination - Certificates by Qualified Persons for Assessable Items n)
-------------------	-----------------	--

This certificate is in relation to the above assessable item, at any stage, as part of - (tick one)

building work, plumbing work or plumbing installation or demolition work:



or

a building, temporary structure or plumbing installation:



Enclosure 5 Consolidated application documents

In issuing this certificate the following matters are relevant –

Documents:	Bushfire Hazard Assessment Report & Bushfire Hazard Management Plan (Rebecca Green & Associates, 17 December 2025, Version 3, Job No. RGA-B2345)
Relevant	N/A
References:	Tasmanian Planning Scheme – Waratah-Wynyard, Bushfire-Prone Areas Code Australian Standard 3959-2018

Substance of Certificate: (what it is that is being certified)

1. Assessment of the site Bushfire Attack Level (to Australian Standard 3959-2018)
2. Bushfire Hazard Management Plan showing BAL-12.5 & BAL-19 solutions.

Scope and/or Limitations

Scope This report and certification was commissioned to identify the Bushfire Attack Level for the existing property. <u>All</u> comment, advice and fire suppression measures are in relation to compliance with <i>Tasmanian Planning Scheme – Waratah-Wynyard, Bushfire-Prone Areas Code C13.0, the Building Act 2016 & Regulations 2016, National Construction Code and Australian Standard 3959-2018, Construction of buildings in bushfire-prone areas.</i> Limitations The assessment has been undertaken and report provided on the understanding that:- 1. The report only deals with the potential bushfire risk all other statutory assessments are outside the scope of this certificate. 2. The report only identifies the size, volume and status of vegetation at the time the inspection was undertaken and cannot be relied upon for any future development. 3. Impacts of future development and vegetation growth have not been considered. 4. No assurance is given or inferred for the health, safety or amenity of the general public, individuals or occupants in the event of a Bushfire. 5. No warranty is offered or inferred for any buildings constructed on the property in the event of a Bushfire. No action or reliance is to be placed on this certificate or report; other than for which it was commissioned.
--

I certify the matters described in this certificate.

	Signed:	Certificate No:	Date:
Qualified person:		RG-270/2025	17 December 2025



**Rebecca Green
& Associates**

Attachment 1 – Certificate of Compliance to the Bushfire-prone Area Code

BUSHFIRE-PRONE AREAS CODE

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

1. Land to which certificate applies

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

Street address:

Lot 2 Golf Links Road, Wynyard

Certificate of Title / PID:

CT148923/2, PID 2758376

2. Proposed Use or Development

Description of proposed Use and Development:

Subdivision (Lots 1-8 and Lots 11-12, 2 x road lots (Lot 101 and Lot 102)).

Applicable Planning Scheme:

Tasmanian Planning Scheme – Waratah-Wynyard

3. Documents relied upon

This certificate relates to the following documents:

Title	Author	Date	Version
Plan of Subdivision Ref: 49895AB-PA-05	PDA Surveyors, Engineers & Planners	25.11.25	B
Bushfire Hazard Assessment Report	Rebecca Green	17 December 2025	3
Bushfire Hazard Management Plan	Rebecca Green	17 December 2025	3

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

4. Nature of Certificate

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

☐	E1.4 / C13.4 – Use or development exempt from this Code
Compliance test	Compliance Requirement
☐ E1.4(a) / C13.4.1(a)	Insufficient increase in risk

☐	E1.5.1 / C13.5.1 – Vulnerable Uses
Acceptable Solution	Compliance Requirement
☐ E1.5.1 P1 / C13.5.1 P1	Planning authority discretion required. A proposal cannot be certified as compliant with P1.
☐ E1.5.1 A2 / C13.5.1 A2	Emergency management strategy
☐ E1.5.1 A3 / C13.5.1 A2	Bushfire hazard management plan

☐	E1.5.2 / C13.5.2 – Hazardous Uses
Acceptable Solution	Compliance Requirement
☐ E1.5.2 P1 / C13.5.2 P1	Planning authority discretion required. A proposal cannot be certified as compliant with P1.
☐ E1.5.2 A2 / C13.5.2 A2	Emergency management strategy
☐ E1.5.2 A3 / C13.5.2 A3	Bushfire hazard management plan

☒	E1.6.1 / C13.6.1 Subdivision: Provision of hazard management areas
Acceptable Solution	Compliance Requirement
☐ E1.6.1 P1 / C13.6.1 P1	Planning authority discretion required. A proposal cannot be certified as compliant with P1.
☒ E1.6.1 A1 (a) / C13.6.1 A1(a)	Insufficient increase in risk Lot 101 ROAD and Lot 102 ROAD complies, insufficient increase in risk, existing road, subdivision plan will resolve encroachment issues.
☒ E1.6.1 A1 (b) / C13.6.1 A1(b)	Provides BAL-19 for all lots (including any lot designated as 'balance') <i>Refer to Bushfire Hazard Assessment Report & Bushfire Hazard Management Plan, prepared by</i>

Enclosure 5 Consolidated application documents

		<i>Rebecca Green & Associates, 17 December 2025 demonstrating 12.5/BAL 19.</i>
☐	E1.6.1 A1(c) / C13.6.1 A1(c)	Consent for Part 5 Agreement

☒	E1.6.2 / C13.6.2 Subdivision: Public and fire fighting access	
	Acceptable Solution	Compliance Requirement
☐	E1.6.2 P1 / C13.6.2 P1	Planning authority discretion required.
☒	E1.6.2 A1 (a) / C13.6.2 A1 (a)	Insufficient increase in risk Lot 101 ROAD and Lot 102 ROAD complies, insufficient increase in risk, existing road, subdivision plan will resolve encroachment issues.
☒	E1.6.2 A1 (b) / C13.6.2 A1 (b)	Access complies with relevant Tables <i>Refer to Bushfire Hazard Assessment Report & Bushfire Hazard Management Plan, prepared by Rebecca Green & Associates, 17 December 2025, all lots will have access to a Council maintained road. Proposed private accesses will comply with Table C13.2.</i>

☒	E1.6.3 / C13.1.6.3 Subdivision: Provision of water supply for fire fighting purposes	
	Acceptable Solution	Compliance Requirement
☐	E1.6.3 A1 (a) / C13.6.3 A1 (a)	Insufficient increase in risk
☒	E1.6.3 A1 (b) / C13.6.3 A1 (b)	Reticulated water supply complies with relevant Table <i>Refer to Bushfire Hazard Assessment Report & Bushfire Hazard Management Plan, prepared by Rebecca Green & Associates, 17 December 2025 (Lots 11 and 12).</i>
☐	E1.6.3 A1 (c) / C13.6.3 A1 (c)	Water supply consistent with the objective
☒	E1.6.3 A2 (a) / C13.6.3 A2 (a)	Insufficient increase in risk Lot 101 ROAD and Lot 102 ROAD complies, insufficient increase in risk, existing road, subdivision plan will resolve encroachment issues.
☒	E1.6.3 A2 (b) / C13.6.3 A2 (b)	Static water supply complies with relevant Table <i>Refer to Bushfire Hazard Assessment Report & Bushfire Hazard Management Plan, prepared by Rebecca Green & Associates, 17 December 2025 –</i>

		<i>Lots 1-8, and Lot 12, if building to be greater than 120m hose lay from fire hydrant.</i>
☐	E1.6.3 A2 (c) / C13.6.3 A2 (c)	Static water supply consistent with the objective

5. Bushfire Hazard Practitioner

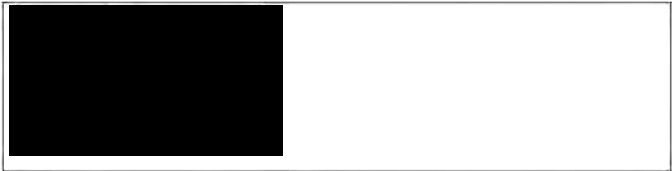
Name:	Rebecca Green	Phone No:	0409 284 422
Postal Address:	PO Box 2108 Launceston, Tas 7250	Email Address:	admin@rgassociates.com.au
Accreditation No:	BFP – 116	Scope:	1, 2, 3A, 3B, 3C

6. Certification

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

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

Signed:
certifier



Name:	Rebecca Green	Date:	17 December 2025
-------	--------------------------	-------	-----------------------------

Certificate Number:	RGA-084/2025
---------------------	-------------------------

(for Practitioner Use only)



**Rebecca Green
& Associates**

Attachment 2 – AS3959-2018 Construction Requirements



**Rebecca Green
& Associates**

BAL Assessments

Revised for 2018 edition

	BAL—LOW	BAL-12.5	BAL-19	BAL-29	BAL-40	BAL—FZ (FLAMEZONE)
SUBFLOOR SUPPORTS	No special construction requirements	No special construction requirements	Enclosure by external wall or by steel, bronze or aluminium mesh	Enclosure by external wall or by steel, bronze or aluminium mesh. Non-combustible or naturally fire resistant timber supports where the subfloor is unenclosed	If enclosed by external wall refer below "External Walls" section in table or non-combustible sub-floor supports, or tested for bushfire resistance to AS1530.8.1	Enclosure by external wall or non-combustible with an FRL of 30/-/- or to be tested for bushfire resistance to AS1530.8.2
FLOORS	No special construction requirements	No special construction requirements	Concrete slab on ground or enclosure by external wall, metal mesh as above or flooring less than 400mm above ground level to be non-combustible, naturally fire resistant timber or protected on the underside with sarking or mineral wool insulation	Concrete slab on ground or enclosure by external wall, metal mesh as above or flooring less than 400mm above ground level to be non-combustible, naturally fire resistant timber or protected on the underside with sarking or mineral wool insulation	Concrete slab on ground or enclosure by external wall or protection of underside with a non-combustible material such as fibre cement sheet or be non-combustible or to be tested for bushfire resistance to AS1530.8.1	Concrete slab on ground or enclosure by external wall or an FRL of 30/30/30 or protection of underside 30 minute incipient spread of fire system or to be tested for bushfire resistance to AS1530.8.2
EXTERNAL WALLS	No special construction requirements	As for BAL-19	Parts less than 400mm above ground or decks etc to be of non-combustible material, 6mm fibre cement clad or bushfire resistant/ naturally fire resistant timber	Non-combustible material (masonry, brick veneer, mud brick, aerated concrete, concrete) or timber framed, or steel framed walls sarked on the outside and clad with 6mm fibre cement sheeting or steel sheeting or bushfire resistant timber	Non-combustible material (masonry, brick veneer, mud brick, aerated concrete, concrete) or timber framed, or steel framed walls sarked on the outside and clad with 9mm fibre cement sheeting or steel or to be tested for bushfire resistance to AS1530.8.1	Non-combustible material (masonry, brick veneer, mud brick, aerated concrete, concrete) or timber framed, or steel framed walls sarked on the outside and clad with 9mm fibre cement sheeting or steel or to be tested for bushfire resistance to AS1530.8.2
EXTERNAL WINDOWS	No special construction requirements	4mm grade A Safety Glass of glass blocks within 400m of ground, deck etc with Openable portion metal screened with frame of metal or metal reinforced PVC-U or bushfire resisting timber	5mm toughened glass or glass bricks within 400mm of the ground, deck etc with openable portion metal screened with frame of metal or metal reinforced PVC-U or bushfire resisting timber. Above 400mm annealed glass can be used with all glass screened	5mm toughened glass with openable portion screened and frame of metal or metal reinforced PVC-U, or bushfire resistant timber and portion within 400mm of ground, deck, screen etc screened	6mm toughened glass. Fixed and openable portion screened with steel or bronze mesh	Protected by bushfire shutter or FRL of -/30/- and openable portion screened with steel or bronze mesh or be tested for bushfire resistance to AS1530.8.2
EXTERNAL DOORS	No special construction requirements	As for BAL-19 except that door framing can be naturally fire resistant (high density) timber	Screened with steel, bronze or aluminium mesh or glazed with 5mm toughened glass, non-combustible or 35mm solid timber for 400mm above threshold, metal or bushfire resistant timber framed for 400mm above ground, decking etc. Tight-fitting with weather strips at base	Screened with steel, bronze or aluminium mesh or non-combustible, or 35mm solid timber for 400mm above threshold. Metal or bushfire resistant timber framed tight-fitting with weather strips at base	Non-combustible or 35mm solid timber, screened with steel or bronze mesh, metal framed, tight-fitting with weather strips at base	Protected by bushfire shutter or tight-fitting with weather strips at base and a FRL of -/30/-
ROOFS	No special construction requirements	As for BAL-19 (including roof to be fully sarked)	Non-combustible covering, roof/wall junctions sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked.	Non-combustible covering. Roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked	Non-combustible covering. Roof/wall junction sealed. Openings fitted with non-combustible ember guards. Roof to be fully sarked and no roof mounted evaporative coolers	Roof with FRL of 30/30/30 or tested for bushfire resistance to AS1530.8.2. Roof/wall junction sealed. Openings fitted with non-combustible ember guards. No roof mounted evaporative coolers
VERANDAS DECKS ETC.	No special construction requirements	As for BAL-19	Enclosed sub floor space—no special requirements for materials except within 400mm of ground. No special requirements for supports or framing. Decking to be non-combustible or bushfire resistant within 300mm horizontally and 400mm vertically from a glazed element	Enclosed sub floor space or non-combustible or bushfire resistant timber supports. Decking to be non-combustible or bushfire resistant timbers	Enclosed sub-floor space or non-combustible supports. Decking to be non-combustible	Enclosed sub floor space or non-combustible supports. Decking to have no gaps and be non-combustible

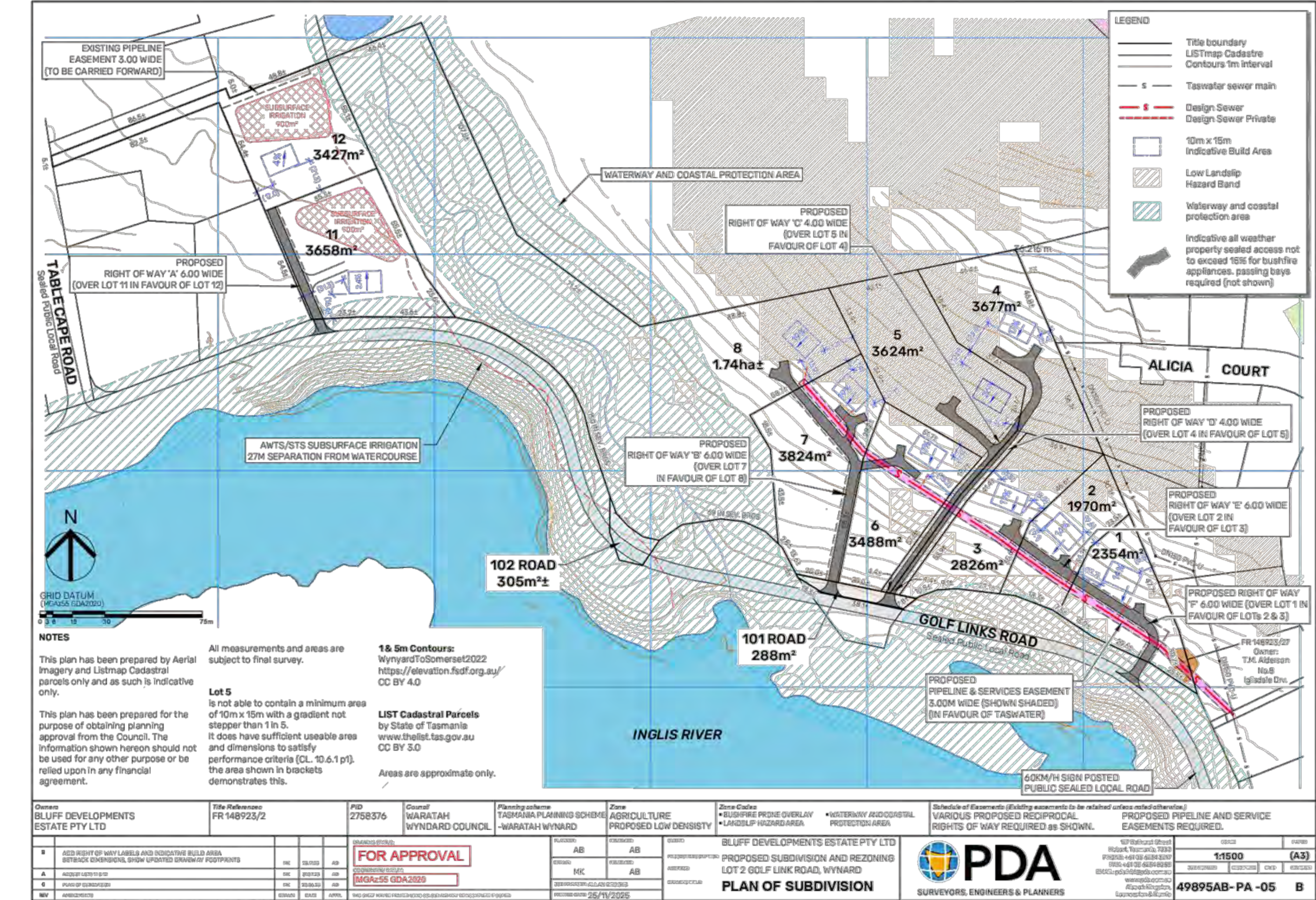
Please note: The information in the table is a summary of the construction requirements in the AS3959-2018 standard and is not intended as a design or construction guide. You should consult the standard for the full technical details.



**Rebecca Green
& Associates**

Attachment 3 – Proposed Plans

PDA Surveyors, Engineers & Planners





Rebecca Green
& Associates

Attachment 4 – Tasmania Fire Service Water Supply Signage Guideline

V1.0

10,000 LITRE DOMESTIC FIREFIGHTING STATIC WATER INDICATOR SIGN

SIGN WIDTH TO BE 3 X LETTER HEIGHT

300 MM MINIMUM

CIRCULAR BAND THICKNESS TO BE
0.15 TIMES LETTER HEIGHT

MINIMUM 15 MM

LETTERING TO BE UPPERCASE AND NOT LESS
THAN 100MM IN HEIGHT

INSIDE DIAMETER OF CIRCULAR BAND
TO BE 2 TIMES LETTER HEIGHT

SIGN SIZE DIMENSIONS
3 X LETTER HEIGHT HIGH AND 3 X
LETTER HEIGHT WIDE.

THICKNESS OF CIRCULAR BAND
TO BE 0.15 TIMES LETTER HEIGHT

TEXT STYLE TO BE IN ACCORDANCE WITH
AS1744.2015, SERIES F

SIGN TO BE IN FADE RESISTING MATERIAL WITH
WHITE REFLECTIVE LETTERING AND CIRCLE
ON A RED BACKGROUND

RED TO BE R-13 SIGNAL RED
COLOUR CODE 1795U

WHITE SUBSTRATE COLOUR TO BE
PMS 186C

SIGN TO BE CONSTRUCTED FROM UV STABILIZED,
NON FLAMMABLE AND NON HEAT DEFORMING
MATERIAL

SIGN TO BE PERMANENTLY FIXED

SIGN HEIGHT TO BE 3 X LETTER HEIGHT

300 MM MINIMUM

LETTER HEIGHT (H)
MINIMUM 100MM

MINIMUM 100 MM

200MM MINIMUM

CIRCLE INNER DIAMETER
2 X LETTER HEIGHT



Tasmania Fire Service



**Rebecca Green
& Associates**

References

- (a) Tasmanian Planning Commission 2021, *Tasmanian Planning Scheme – Waratah-Wynyard (Effective 13 February 2023)*, C13.0 Bushfire-Prone Areas Code, Tasmania.
- (b) Australian Standards, AS 3959-2018, *Construction of buildings in bushfire-prone areas*, Standards Australia, Sydney NSW.
- (c) Resource Management & Conservation Division of the Department Primary Industry & Water, TASVEG V4.0, *Tasmanian Vegetation Map*, Tasmania.
- (d) Tasmanian Government, Land Information System Tasmania, www.thelist.tas.gov.au



LOT 2 GOLF LINKS ROAD, WYNYARD

10 LOT SUBDIVISION

TRAFFIC IMPACT ASSESSMENT

DECEMBER 2025



Traffic Impact Assessment



Lot 2 Golf Links Road, Wynyard 10 Lot Subdivision

TRAFFIC IMPACT ASSESSMENT

- Final
- December 2025

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Traffic Impact Assessment



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Traffic Impact Assessment



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Traffic Impact Assessment



1. Introduction

1.1 Background

In accordance with the Tasmanian Planning Scheme – Waratah Wynyard requirements a Traffic Impact Assessment (TIA) has been prepared to assess the proposed 10 lot subdivision at Lot 2 Golf Links Road, Wynyard including consideration of:

- Anticipated additional traffic and pedestrian movements.
- The significance of the impact of these movements on the existing road network
- Any changes required to accommodate the additional traffic.

The TIA has been prepared based on Department of State Growth (DSG) guidelines.

1.2 Objectives

A Traffic Impact Assessment is a means for assisting in the planning and design of sustainable development proposals that consider:

- Safety
- Capacity
- Equity and social justice
- Economic efficiency
- The environment
- Future development

This report considers traffic projections to 10 years beyond the opening of the development.

1.3 Scope of Traffic Impact Assessment (TIA)

This TIA considers in detail the impact of the proposal on Golf Links Road.

1.4 References

- RTA Guide to Traffic Generating Development 2002
- Tasmanian Planning Scheme - Waratah – Wynyard
- Austroads Guide Road Design Part 4A: Unsignalized & Signalised Intersections 2021
- Guide to Traffic Management Part 6: Intersections, Interchanges & Crossings 2020.
- LGAT Tasmanian Standard Drawings

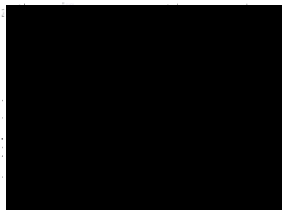
Traffic Impact Assessment



1.5 Statement of Experience and Qualifications

This TIA has been prepared by Richard Burk, an experienced and qualified traffic engineer in accordance with the requirements of the Department of State Growth's guidelines and Council's requirements. Richard's experience and qualifications include:

- 38 years professional experience in road and traffic engineering industry
 - Manager Traffic Engineering at the Department of State Growth until May 2017.
 - Previous National committee membership with Austroads Traffic Management Working Group and State Road Authorities Pavement Marking Working Group
- Master of Traffic, Monash University, 2004
- Post Graduate Diploma in Management, Deakin University, 1995
- Bachelor of Civil Engineering, University of Tasmania, 1987



Richard Burk

BE (Civil) M Traffic Dip Man. MIE Aust CPEng

Director Traffic and Civil Services Pty Ltd

Traffic Impact Assessment



1.6 Glossary of Terms

AADT	Annual Average Daily Traffic - The total number of vehicles travelling in both directions passing a point in a year divided by the number of days in a year.
Acceleration Lane	An auxiliary lane used to allow vehicles to increase speed without interfering with the main traffic stream. It is often used on the departure side of intersections.
Access	The driveway by which vehicles and/or pedestrians enter and/or leave the property adjacent to a road.
ADT	Average Daily Traffic – The average 24-hour volume being the total number of vehicles travelling in both directions passing a point in a stated period divided by the stated number of days in that period.
Austroroads	The Association of Australian and New Zealand road transport and traffic authorities and includes the Australian Local Government Association.
Delay	The additional travel time experienced by a vehicle or pedestrian with reference to a base travel time (e.g. the free flow travel time).
DSG	Department of State Growth – The Tasmanian Government Department which manages the State Road Network.
GFA	Gross Floor Area
Intersection Kerb	The place at which two or more roads meet or cross. A raised border of rigid material formed at the edge of a carriageway, pavement or bridge.
km/h	Kilometres per hour
Level of Service	An index of the operational performance of traffic on a given traffic lane, carriageway or road when accommodating various traffic volumes under different combinations of operating conditions. It is usually defined in terms of the convenience of travel and safety performance.
m	Metres
Median	A strip of road, not normally intended for use by traffic, which separates carriageways for traffic in opposite directions. Usually formed by painted lines, kerbed and paved areas grassed areas, etc.
Movement	A stream of vehicles that enters from the same approach and departs from the same exit (i.e. with the same origin and destination).
Phase	The part of a signal cycle during which one or more movements receive right-of-way subject to resolution of any vehicle or pedestrian conflicts by priority rules. A phase is identified by at least one movement gaining right-of-way at the start of it and at least one movement losing right-of-way at the end of it.

Traffic Impact Assessment



Sight Distance	The distance, measured along the road over which visibility occurs between a driver and an object or between two drivers at specific heights above the carriageway in their lane of travel.
Signal Phasing	Sequential arrangement of separately controlled groups of vehicle and pedestrian movements within a signal cycle to allow all vehicle and pedestrian movements to proceed.
SISD	Safe Intersection Sight Distance – The sight distance provides sufficient distance for a driver of a vehicle on the major road to observe a vehicle on a minor road approach moving into a collision situation and to decelerate to a stop before reaching the collision point.
Speed	Distance travelled per unit time.
85th Percentile	The speed at which 85% of car drivers will travel slower and 15% will travel faster. A control method that allows a variable sequence and variable duration of signal displays depending on vehicle and pedestrian traffic demands.
Traffic-actuated Control	A control method that allows a variable sequence and variable duration of signal displays depending on vehicle and pedestrian traffic demands.
Traffic Growth Factor	A factor used to estimate the percentage annual increase in traffic volume.
Trip	A one-way vehicular movement from one point to another excluding the return journey. Therefore, a vehicle entering and leaving a land use is counted as two trips. (RTA Guide to Traffic generating Developments).
Turning Movement	The number of vehicles observed to make a particular turning movement (left or right turn, or through movement) at an intersection over a specified period.
Turning Movement Count	A traffic count at an intersection during which all turning movements are recorded.
Vehicle Actuated Traffic Signals	Traffic signals in which the phasing varies in accordance with the detected presence of vehicles on the signal approaches.
vpd	vehicles per day – The number of vehicles travelling in both directions passing a point during a day from midnight to midnight.
vph	vehicles per hour – The number of vehicles travelling in both directions passing a point during an hour.

1.7 Site Specific Glossary of Terms

WWC	Waratah – Wynyard Council
SSA	Safe System Assessment

Traffic Impact Assessment



2. Site Description

The proposed Lot 2 Golf Links Road subdivision site is some 4.7Ha in area and situated along the Northern side of Golf Links Road beside the Inglis River. The site location and adjacent road network are shown in Figures 1-3 respectively. Subdivision plans are attached in Appendix A.

Figure 1 - Location of proposed development



Source: LISTmap, DPIPW

Traffic Impact Assessment



Traffic Impact Assessment



Figure 3 – Aerial view of road network adjacent the development site



Source: LISTmap, DPIPWE

Traffic Impact Assessment

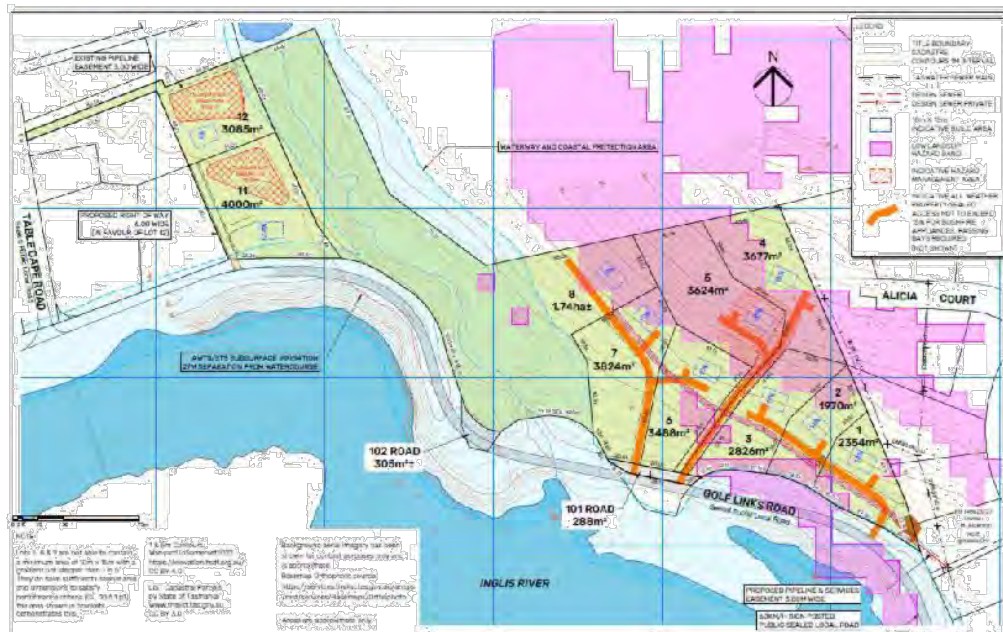


3. Development Proposal & Planning Scheme

3.1 Description of Proposed Development

The proposed subdivision layout, see Figure 4, consists of 10 lots (1-8 & 11 & 12) all accessing Golf Links Road. The development design plan is attached in Appendix A.

Figure 4 – Proposed subdivision layout



Traffic Impact Assessment



3.2 Council Planning Scheme

The site involves land currently zoned Agricultural in accordance with the Tasmanian Planning Scheme – Waratah - Wynyard, see Figure 5.

Figure 5 – Development site zoned Agricultural

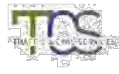


Source: LISTmap, DPIPWE

3.3 Local Road Network Objectives

To ensure that safe and efficient roads are operated and maintained, and development is provided for in an orderly manner minimising conflicts between sensitive uses and major roads in accordance with the Tasmanian Planning Scheme – Waratah Wynyard.

Traffic Impact Assessment



4. Existing Conditions

4.1 Transport Network

The transport network adjacent to the development site consists of Golf Links Road and Table Cape Road which are Council Roads. Golf Links Road connects Freestone Cove and the Wynyard Golf Course with Wynyard. These roads are not part of Tasmania's 26m B Double network, see Appendix D.

4.2 Table Cape Road

Table Cape Road is a 2-lane 2-way rural road connecting Table Cape with Wynyard with estimated traffic activity of 840vpd (2023) and has a Collector Road function with a 60km/h Speed Limit approaching the Inglis River, see Figures 6. The road has rural standard drainage and there are no footpaths or cyclist facilities. The road has a typical seal width of 5.8m with no shoulders. Delineation is provided by guideposts and a Separation line.

Figure 6 – Southbound approaching Inglis River



Traffic Impact Assessment



4.3 Golf Links Road

Golf Links Road is a 2-lane 2-way urban access road with estimated traffic activity of 450vpd and has a 60km/h Speed Limit, see Figures 7 and 8. The road has rural standard drainage and there are no footpaths or cyclist facilities. The road has a seal width of 5.4m with no shoulders. Delineation is provided by Barrier line.

Figure 7 – Eastbound from Table Cape Road junction



Figure 8 – Westbound from Freestone Crescent



Traffic Impact Assessment



4.4 Table Cape Road / Golf Links Road intersection

This existing intersection has a simple layout, Figures 9 – 15 show the nature of the approaches and layout.

Figure 9 – Aerial view of Table Cape Road / Golf Links Road intersection



Source: LISTmap, DPIPWE

Figure 10 – Golf Links Road approach to Table Cape Road



Figure 11 – Table Cape Road Southern approach to the junction.



Traffic Impact Assessment



Figure 12 – Table Cape Road Southern approach at the junction.



Figure 13 – Table Cape Road Northern approach to the junction.



Figure 14 – Looking right along Table Cape Road from Golf Links Road



Sight distance right
is 123m with bush
trimming.

Traffic Impact Assessment



Figure 15 – Looking left along Table Cape Road from Golf Links Road



Sight distance
left is 229m.

4.5 Proposed Road Lots 4 & 5

Access to lots 4 & 5 are shown in Figures 16 - 20.

Figure 16 – Aerial view of the proposed access to Lots 4 & 5 Golf Links Road



Source: LISTmap, DPIPW

Figure 17 – Golf Links Road Eastern approach to Lots 4 & 5 Golf Links Road.



Traffic Impact Assessment



Figure 18 – Golf Links Road Western approach to Lots 4 & 5 Golf Links Road.



Figure 19 – Looking right along Golf Links Road from access to Lots 4 & 5



**Sight distance
right is 110m.**

Figure 20 – Looking left along Golf Links Road from access to Lots 4 & 5



**Sight distance
left is 120m.**

Traffic Impact Assessment



4.6 Golf Links Road

4.6.1 Lots 11 & 12

Figures 21 – 23 show sight distance for lots 11 & 12.

Figure 21 – Elevation view of Lot 11& 12 accesses



Figure 22 – Proposed Lot 11 & 12 accesses looking right along Golf Links Road.



Sight distance
right is 115m.

Figure 23 – Proposed Lot 11 & 12 accesses looking left along Golf Links Road.



Sight distance left
is 65m with tree
trimming.

Traffic Impact Assessment



4.6.2 Lots 6,7 & 8

Figures 24 - 26 show sight distance for lots 6,7 & 8 Golf Links Road.

Figure 24 – Elevation view of access to lots 6,7 & 8.



Figure 25 – Proposed Lot 6,7 &8 accesses looking right along Golf Links Road.



Sight distance
right is 85m.

Figure 26 – Proposed Lot6,7 & 8 accesses looking left along Golf Links Road.



Sight distance
left is 172m.

Traffic Impact Assessment



4.6.3 Lots 1,2 & 3

Figures 27 – 39 show sight distance for lots 1,2 & 3.

Figure 27 – Aerial view of access to Lots 1,2 & 3.



Figure 28 – Proposed Lot 1,2 & 3 accesses looking right along Golf Links Road.



Sight distance
right is 180m.

Figure 29 – Proposed Lot 1,2 & 3 accesses looking left along Golf Links Road.



Sight distance
left is 85m.

Traffic Impact Assessment



4.7 Traffic Activity

From TCS traffic observations, see Appendix B, estimated traffic activity at Table Cape Bridge is summarised as follows:

Table Cape Road (South of Golf Links Road junction):

- 840vpd and 84 vph (2023)
- 924vpd and 92 vph (2033)

Golf Links Road (at Table Cape Road junction):

- 450vpd and 45 vph (2023)
- 495vpd and 50 vph (2033)

4.8 Crash History

The DSG is supplied with reported crashes by Tasmania Police. The DSG maintains a crash database from the crash reports which is used to monitor road safety, identify problem areas and develop improvement schemes.

The 5-year reported crash history for Golf Links Road is shown in Figures 30 and 31.

The reported crash history provides no evidence of a crash propensity on the Golf Links Road approaches to the development site.

Figure 30 – 5 Year reported crash history – Golf Links Road.

Crash Id	Units	Description	Date	Time	Severity	Light	Speed	Location
50340167	LV; LV	110 – Cross traffic	18-NOV-2015	14:34	First Aid	Day	60	Table Cape // Golf Links Jen
50562306	LV	171 – Left off c/way into obj. or parked veh.	25-MAY-2020	10:15	Minor	Day	60	Golf Links Road
51725467	LV	184 – Out of control on c/way.	14-JUL-2022	20:12	PDO	Night	60	Golf Links Road
51930986	LV	189 – Other curve	18-MAR-2023	21:00	Minor	Night	60	Golf Links Road

LV Light Vehicle
PDO Property Damage Only

Traffic Impact Assessment



Figure 31 – 5 Year reported crash locations – Golf Links Road.



4.9 Road Safety Review

From Road Safety Review the following issues were identified along Golf Links Road:

- no road shoulders
- oft road edges, see Figure 32.

These issues are considered minor in nature as the roads have low traffic volumes and Golf Links Road is primarily catering for light vehicles with a very low percentage of commercial vehicles estimated at 1-2 %.

Figure 32 – Golf Links Road – Westbound from Table Cape Road.



Traffic Impact Assessment



4.10 Safe Systems Assessment

Golf Links Road has been assessed in accordance with the Austroads Safe System Assessment framework. This framework involves consideration of exposure, likelihood and severity to yield a risk framework score. High risk crash types and vulnerable road user crash types are assessed for each site and aggregated to provide an overall crash risk. Crash risk is considered in terms of three components:

- Exposure (is low where low numbers of through and turning traffic) i.e.1 out of 4
- Likelihood (is low where the infrastructure standard is high) i.e. 1 out of 4
- Severity (is low where the speed environment is low) i.e. 1 out of 4

The Austroads Safe System Assessment process enables the relative crash risk of an intersection or road link to be assessed. Vulnerable road users are considered along with the most common crash types.

Crash risk scores indicate how well the infrastructure satisfies the *safe system objective which is for a forgiving road system where crashes do not result in death or serious injury.*

The SSA crash risk was assessed as 53/448 which is a low crash risk score. See Appendix C for the assessment details. Figure 33 indicates the severity of the SSA score.

Figure 33 – Austroads Safe System Assessment alignment between crash score and risk



Traffic Impact Assessment



5. Traffic Generation and Assignment

This section of the report describes how traffic generated by the proposal is distributed within the adjacent road network now (2025) and in ten years (2035).

5.1 Traffic Growth

A compound annual growth rate for the adjacent road network of 1 % has been assumed.

5.2 Trip Generation

Applicable rates are sourced from the RTA Guide to Traffic Generating Developments 2002.

Applicable traffic generation rates for General Urban land use:

- Dwelling House land use: 9vpd with 0.85 vph at peak times.

Traffic Generation:

- 10 Lots generating in total 90 vpd and 9 vph on Golf Links Road at the Table Cape Road junction.

5.3 Trip Assignment

It is assumed that:

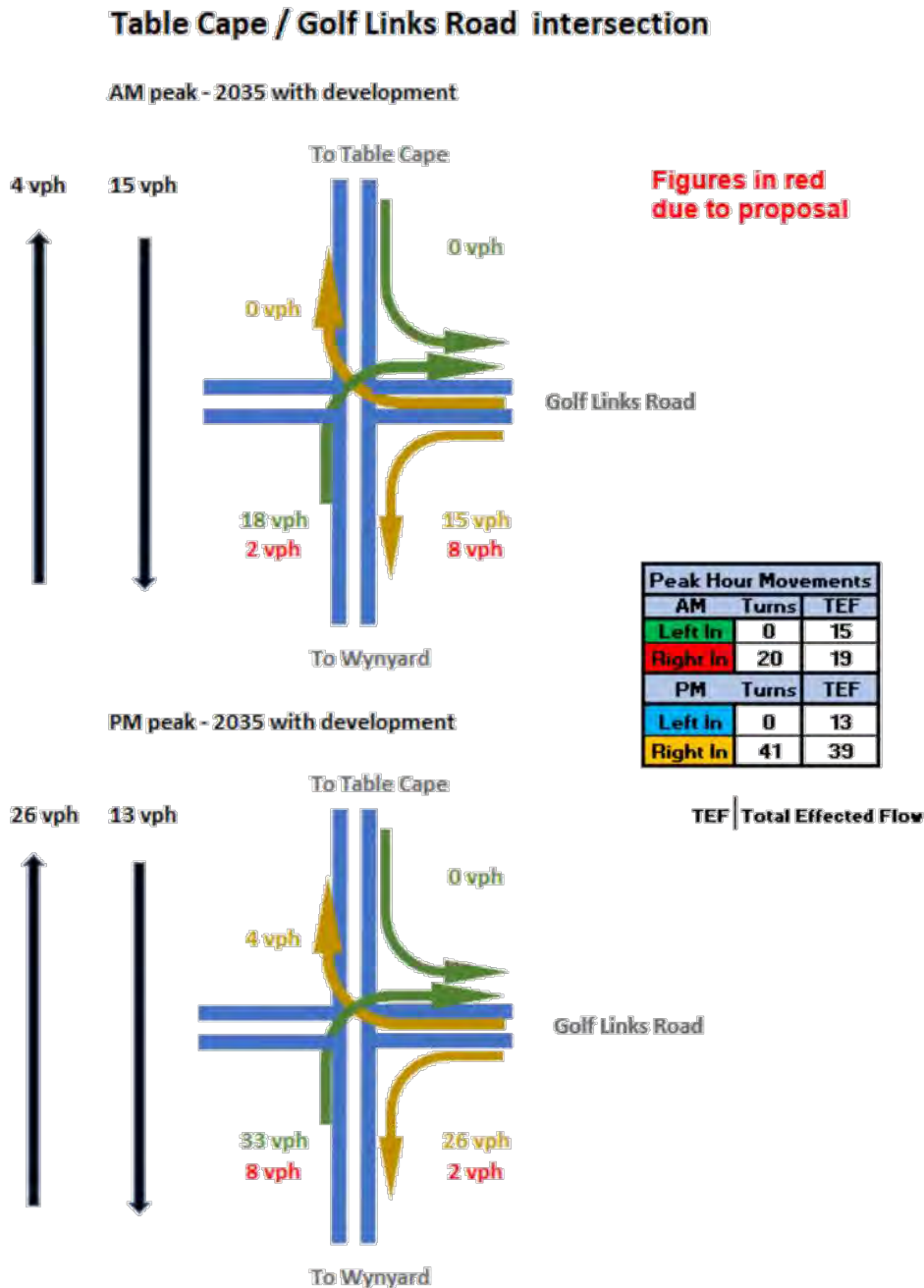
- 90% of traffic due to the proposal associated with movements to & from Wynyard.
- 10% of traffic due to the proposal associated with movements to & from Table Cape.

Figure 34 shows estimated traffic activity at the Table Cape Road / Golf Links Road junction in 2035.

Traffic Impact Assessment



Figure 34 – Traffic assignment for Table Cape / Golf Links Road junction.



Traffic Impact Assessment



6. Impact on Road Network

6.1 Impact on Traffic Capacity

This section considers the performance of the proposed intersection in 2033 based on assumed background traffic growth of 1% and the traffic generated by the proposed development. The proposal is estimated to increase traffic on Golf Links Road by 90vpd from 450vpd (2025) to 540 vpd (2035).

Table Cape Road / Golf Links Road Junction

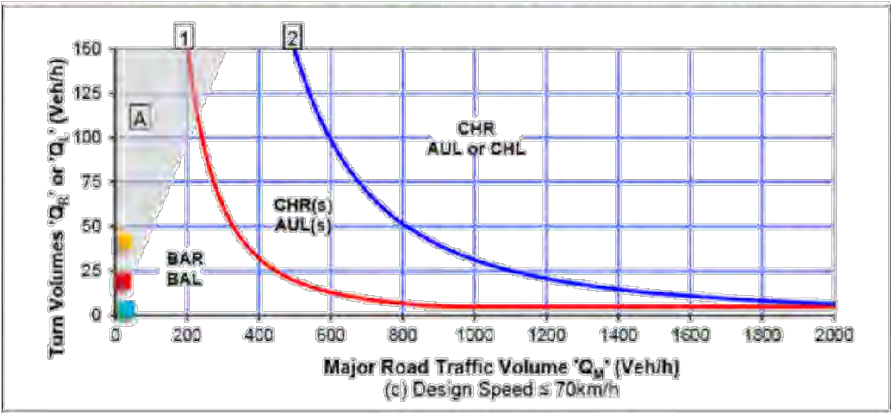
The junction is estimated to operate at LOS A. See Appendix E for LOS definitions

6.2 Austroads Junction Warrants

Junction layout requirements are based on Austroads Guidelines which take into account the standard of the road, speed limit and volume of through and side road traffic

Figure 35 provides evidence that by 2035 a simple intersection layout is adequate. The existing intersection has a simple layout.

Figure 35 – Austroads Junction Warrant – Table Cape / Golf Links Rd. junction



Peak Hour Movements		
AM	Turns	TEF
Left In	0	15
Right In	20	19
PM	Turns	TEF
Left In	0	13
Right In	41	39

Traffic Impact Assessment



6.3 Sight Distance requirements (Figure 36)

Figure 36 – Sight distance requirements summary

Junction Major Rd - Minor Rd	Speed	Speed	Road frontage sight distance				Mitigation	
	Limit (km/h)	Environ. (km/h)	Austroads SISD (m)	Available		AS / NZS 2890.1 SSD(m)		
				Left(m)	Right(m)			
Table Cape - Golf Links	60	60	123	229	123			Trim
Accesses								
Golf Links - Lot 1,2 & 3	60	60	123	85	180	65		
Golf Links - Lot 4 & 5	60	55	110	120	110	60		
Golf Links - Lot 6, 7 & 8	60	40	73	172	85	35		
Golf Links - Lot 11 & 12	60	60	123	65	115	65	Trim	

Austroads Compliant

AS/NZS 2890.1 Compliant

Compliant with tree trimming

6.4 Property access standards

The following access standards are recommended:

- Golf Links Road accesses to lots 1 to 12 are where the road has a rural standard with no shoulders. Accordingly driveable culvert headwalls type 1, see Appendix F are required and the driveways need to be constructed to a rural standard in accordance with LGAT Standard Drawings for Rural Driveways TSD-R03 & R04.

LGAT Standards are available online at:

https://www.lgat.tas.gov.au/_data/assets/pdf_file/0027/813735/Tasmanian-Municipal-Standards-Drawings-v3-December-20202.pdf

6.5 Proposed Road Standard

In accordance with LGAT Urban Sealed Roads standard drawing TSD-R06. The road should be constructed to a sealed width of 6.9m with an Urban Type Cul-De-Sac – TSD-R07 of 18m diameter or as directed by Council. Footpath should be provided one side of the road.

6.6 Bushfire Prone Area

The proposed accesses should comply with recommendation of the bushfire hazard report prepared for the proposal.

6.7 Services

Services do not appear to be impacted by the proposal.

Traffic Impact Assessment



6.8 Tasmanian Subdivision Guideline Considerations

The proposal is broadly compliant with Tasmanian Subdivision Guidelines.

6.9 Transport Planning Considerations

There are no transport planning issues with the proposal.

6.10 Liveability, Safety and Amenity Guidelines

Guidelines for the safety and amenity of a residential areas include:

- Residential precincts need to be bounded by traffic routes and/or natural barriers to minimise conflict.
- Direct vehicular and pedestrian access should be avoided from single dwelling units onto road with over 2,000 vehicles per day.
- Effective street lengths should be less than 200-250m in order to achieve typical vehicle speeds of 40km/h.
- Cyclist and pedestrian demands should be catered for separately using path or cycle networks.

To maximise the liveability, safety and amenity of the local area, road and street network layout should be such that:

- A minimum of 60% of lots should abut residential streets with less than 300vpd passing traffic.
- A minimum of 80% of lots should abut residential streets with less than 600 vpd passing traffic.
- A maximum of 5% of single dwelling lots should abut residential streets with between 1,000-2,000 vpd passing traffic.
- A maximum of 1% of single dwelling lots should abut local streets or collectors with less than 3,000 vpd passing traffic, and
- No single dwelling lot should abut a route with > 3,000 vpd passing traffic.

These guidelines are from *TE&M Chapter 2.2: Design of New Urban Networks*.

The proposal satisfies the liveability, safety and amenity targets described above.

Traffic Impact Assessment



6.11 Tasmanian Planning Scheme – Waratah-Wynyard

Road and Railway Assets Code C3

C3.5.1 Traffic generation at a vehicle crossing, level crossing or new junction.

Acceptable Solution A1.1 – Not applicable as the relevant roads are not Category 1.

Acceptable Solution A1.2 – For a road, excluding a Category 1 road or a limited access road, written consent for a new junction, vehicle crossing, or level crossing to serve the use and development has been issued by the road authority.

The proposal involves 4 new vehicle crossings serving 10 lots, see Figure 36. Written consent from the road owner (Waratah Wynyard Council) has not been issued. This TIA has been prepared to assist Council in assessing the proposal. **A1.2 is currently not satisfied.**

Acceptable Solution A1.3 – Not applicable as no rail network is involved.

Acceptable solution A1.4: Vehicular traffic to and from the site, using an existing vehicle crossing or private level crossing will not increase by more than:

- (a) *The amounts in Table C3.1*
- (b) *Allowed by a licence issued under Part IVA of the Roads and Jetties Act 1935 in respect to a limited access road; and*

Table C3.1 allows up to 20% or 40 vpd whichever is greater for *other* roads.

Golf Links Road is a low volume No Through road and therefore classified as an “*other*” road and has an estimated AADT of 450vpd. The proposal will increase traffic by an estimated 90vpd i.e a 20% increase.

A1.4 is satisfied.

Acceptable solution A1.5: Vehicular traffic must be able to enter and leave a major road in a forward direction. **A1.5 is satisfied.**

C3.6.1 Habitable buildings for sensitive uses within a road or railway attenuation area

Not applicable, as there are no sensitive uses within a road or railway attenuation area.

C3.7.1 Subdivision for sensitive uses within a road or railway attenuation area

Not applicable as the proposed subdivision is not within a road or railway attenuation area.

Traffic Impact Assessment



6.12 Other requirements

6.12.1 Environmental

No adverse environmental impact is anticipated in relation to:

- Noise, Vibration and Visual Impact
- Community Severance and Pedestrian Amenity
- Hazardous Loads, Air Pollution and Dust and Dirt
- Ecological Impacts and Heritage and Conservation

6.12.2 Street Lighting and Furniture

The proposed road should be provided with street lighting in accordance with the Council Guidelines.

6.13 Tasmanian Subdivision Guidelines

No subdivision roads are proposed. Accordingly, there are no road related subdivision issues.

6.14 Transport Planning Considerations

Golf Links Road is a No Through road with Freestone Crescent provides a circulating loop at the Eastern end and as such provides adequately for current and estimated future traffic. A change in the function of Golf Links Road is not expected. Golf Links Road has limited development potential and accordingly is unlikely to become an arterial road with traffic capacity issues.

6.15 Services

Existing above ground services do not appear to be affected by the proposal. There are power poles along the North side of Golf Links Road, off set from the road.

Traffic Impact Assessment



6.16 Provisions for all road users

6.16.1 Light Vehicles

Traffic safety and capacity requirements for light vehicles have been considered, and the existing and proposed junctions are considered suitable in terms of traffic safety and capacity.

6.16.2 Heavy Vehicles

Once fully developed the largest vehicles accessing the subdivision will be light rigid trucks e.g. garbage collection or fire trucks. Short term access by semitrailers delivering equipment and materials is assumed. The proposed road is adequate for these purposes.

6.16.3 Public Transport

It is assumed there is a School Bus services in the area. The proposal does not affect operation of school bus services.

6.16.4 Pedestrians

The proposed road includes footpath. The proposal does not disaffect pedestrians.

6.16.5 Cyclists

The proposal does not disaffect cyclists.

6.16.6 Motorcyclists

The proposal does not disaffect motorcyclists.

Traffic Impact Assessment



7. Recommendations and Conclusions

This traffic impact assessment has been prepared to assess the proposed 10 Lot subdivision of Lot 2 Golf Links Road, Wynyard.

It has been prepared following a review of available traffic and crash data, existing conditions, Road Safety Review, Austroads Safe System Assessment, future growth projections for Golf Links Road, relevant traffic standards and Austroads guidelines.

From Road Safety Review and Safe System Assessment, Golf Links Road in the vicinity of the development site was determined to have a low crash risk. The 5-year reported crash history for Golf Links Road provides no evidence of a crash propensity in the vicinity of the proposal.

The proposal is estimated to generate 90vpd & peak flow of 9 vph on Golf Links Road.

From review of Austroads junction warrants the existing Table Cape Road / Golf Links Road intersection is adequate to cope with the forecast increase in traffic.

Evidence provided demonstrates requirements of the Tasmanian Planning Scheme – Waratah-Wynyard Road & Railway Asset Code C2 are satisfied.

Recommendations:

- *Construct proposed accesses compliant with recommendations of the bushfire hazard report prepared for the proposal.*
- *Construct proposed Golf Links Road accesses with driveable culvert headwalls type 1, see Appendix F, and otherwise in accordance with LGAT Standard Drawings for Rural Driveways TSD-R03 & R04.*
- *Clear vegetation limiting sight distance at the following sites:*
 - *Table Cape / Golf Links Road junction looking right, see Figure 14*
 - *Golf Links Rd / Proposed access to lots 11 & 12 looking left, see Figure 23.*

Subject to the above recommendations, the proposed subdivision will not disaffect traffic safety and efficiently on Golf Links Road or at the Table Cape Road intersection and is supported on traffic grounds.

Traffic Impact Assessment

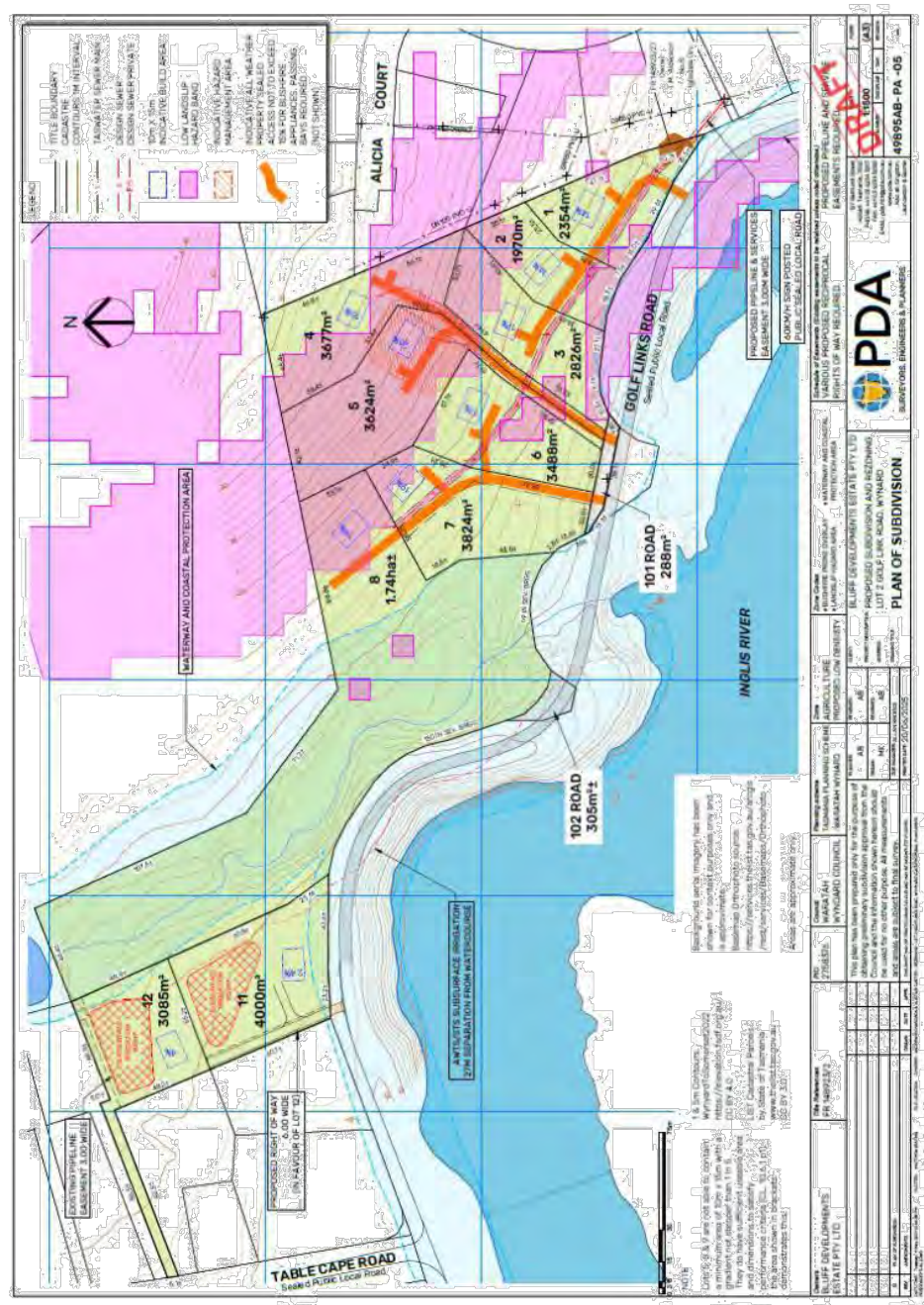


Appendices

Traffic Impact Assessment



Appendix A - Site Layout Plans



Traffic Impact Assessment



Appendix B - 2023 Traffic Count Data

Location: Table Cape Road at Golf Links Road/River Road

GPS Coordinates: Lat=-41.443908, Lon=147.141662

Date: 2023-07-14

Day of week: Friday

Weather: Fine

Analyst: Sid Saxby

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:00	0	2	0	2	0	0	0	0	2	0	0	0	6
08:05	0	1	0	1	0	0	0	0	0	0	0	1	3
08:10	0	1	0	0	0	0	0	1	0	0	0	1	3
08:15	0	2	0	2	0	0	0	0	1	0	0	1	6
08:20	0	1	0	1	0	0	0	0	2	0	0	2	6
08:25	0	0	0	1	0	0	0	0	3	0	0	0	4
08:30	0	0	0	0	0	0	0	1	0	0	0	0	1

**Table Cape Road
(Golf Links Road junction)**

- AADT - 840 vpd
- Peak Hours - 84vph

**Golf Links Road
(Table Cape Road junction)**

- AADT - 450 vpd
- Peak Hours - 45vph

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:00	0	2	0	2	0	0	0	0	2	0	0	0	6
08:05	0	1	0	1	0	0	0	0	0	0	0	0	2
08:10	0	1	0	0	0	0	0	1	0	0	0	1	3
08:15	0	2	0	2	0	0	0	0	1	0	0	0	5
08:20	0	1	0	1	0	0	0	0	2	0	0	2	6
08:25	0	0	0	1	0	0	0	0	3	0	0	0	4
08:30	0	0	0	0	0	0	0	1	0	0	0	0	1

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:05	0	0	0	0	0	0	0	0	0	0	0	1	1
08:10	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0
08:20	0	0	0	0	0	0	0	0	0	0	0	0	0
08:25	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Impact Assessment



Intersection Count Summary

08:00 - 08:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	7	0	7	0	0	0	2	8	0	0	5	29

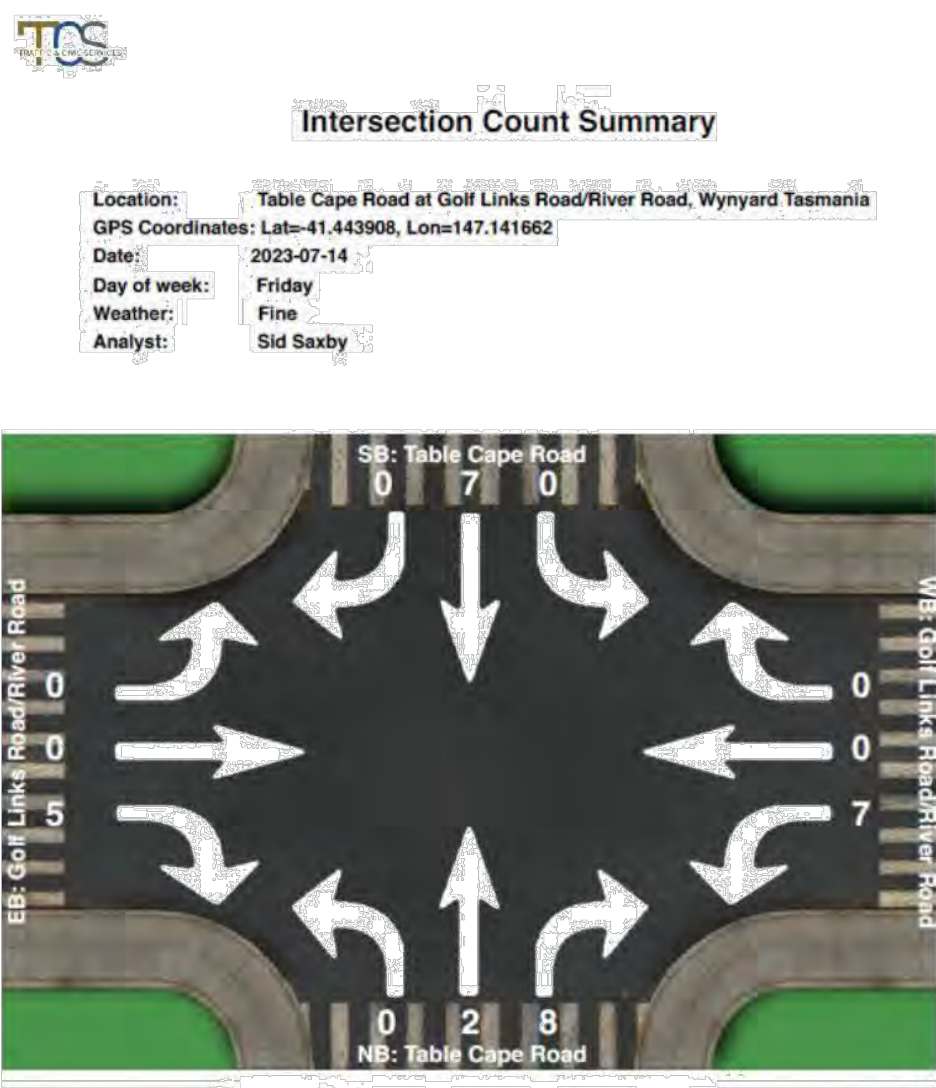
Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	7	0	7	0	0	0	2	8	0	0	3	27
Truck	0	0	0	0	0	0	0	0	0	0	0	1	1
Bicycle	0	0	0	0	0	0	0	0	0	0	0	1	1

Pedestrians Summary

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	0	1	1	0	0	0	1

Traffic Impact Assessment



Intersection Count Summary

08:00 - 08:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	7	0	7	0	0	0	2	8	0	0	5	29

Enclosure 5 Consolidated application documents

Traffic Impact Assessment



Location: Table Cape Rd at Golf Links Rd, Wynyard, Tasmania
GPS Coordinates: Lat=-41.443908, Lon=147.141662
Date: 2023-07-13
Day of week: Thursday
Weather: Fine
Analyst: Sid Saxby

Total vehicle traffic

Interval starts	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:30	0	0	0	2	0	1	2	1	2	0	0	0	8
16:35	0	0	0	1	0	0	0	0	1	0	0	0	2
16:40	0	1	0	1	0	1	1	2	3	0	1	1	11
16:45	0	0	0	2	0	0	1	6	6	0	0	1	16
16:50	0	4	0	6	0	0	1	1	1	0	0	0	13
16:55	0	1	0	0	0	0	2	2	2	0	0	1	8

Car traffic

Interval starts	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:30	0	0	0	2	0	1	2	1	2	0	0	0	8
16:35	0	0	0	1	0	0	0	0	1	0	0	0	2
16:40	0	1	0	1	0	1	1	2	3	0	1	1	11
16:45	0	0	0	2	0	0	1	6	6	0	0	1	16
16:50	0	4	0	6	0	0	1	1	1	0	0	0	13
16:55	0	1	0	0	0	0	1	2	2	0	0	0	6

Truck traffic

Interval starts	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	0	0	0	0	0	0
16:40	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	0	0	0	1	0	0	0	0	1	2

Bicycle traffic

Interval starts	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:35	0	0	0	0	0	0	0	0	0	0	0	0	0
16:40	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:50	0	0	0	0	0	0	0	0	0	0	0	0	0
16:55	0	0	0	0	0	0	0	0	0	0	0	0	0

Traffic Impact Assessment



Intersection Count Summary

16:30 - 16:58

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	6	0	12	0	2	7	12	15	0	1	3	58

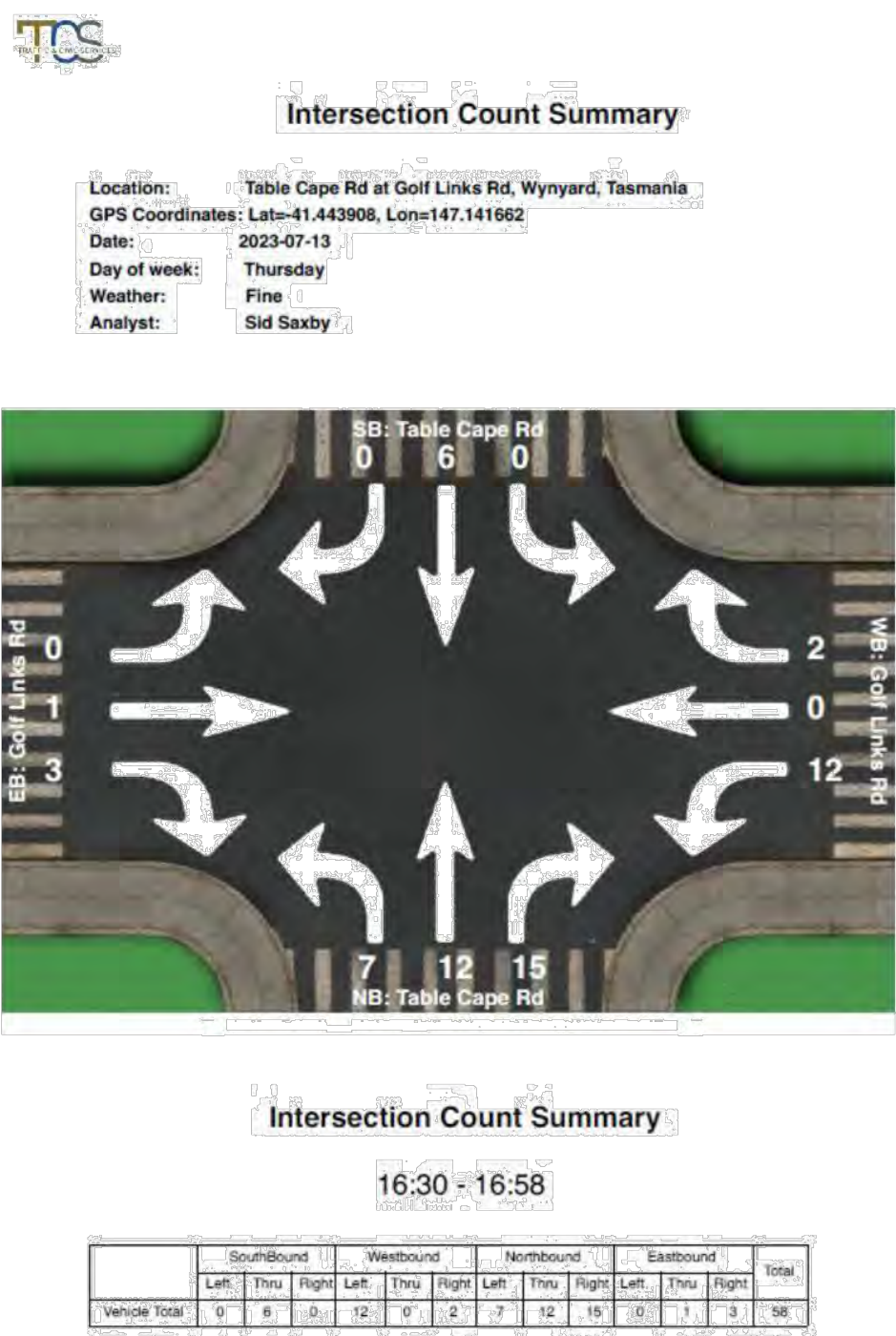
Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	6	0	12	0	2	6	12	15	0	1	2	56
Truck	0	0	0	0	0	0	1	0	0	0	0	1	2
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians Summary

	NE			NW			SW			SE			Total
	Left	Right	Total	Left	Right	Total	Left	Right	Total	Left	Right	Total	
Pedestrians	0	0	0	0	0	0	1	0	1	0	0	0	1

Traffic Impact Assessment



Traffic Impact Assessment



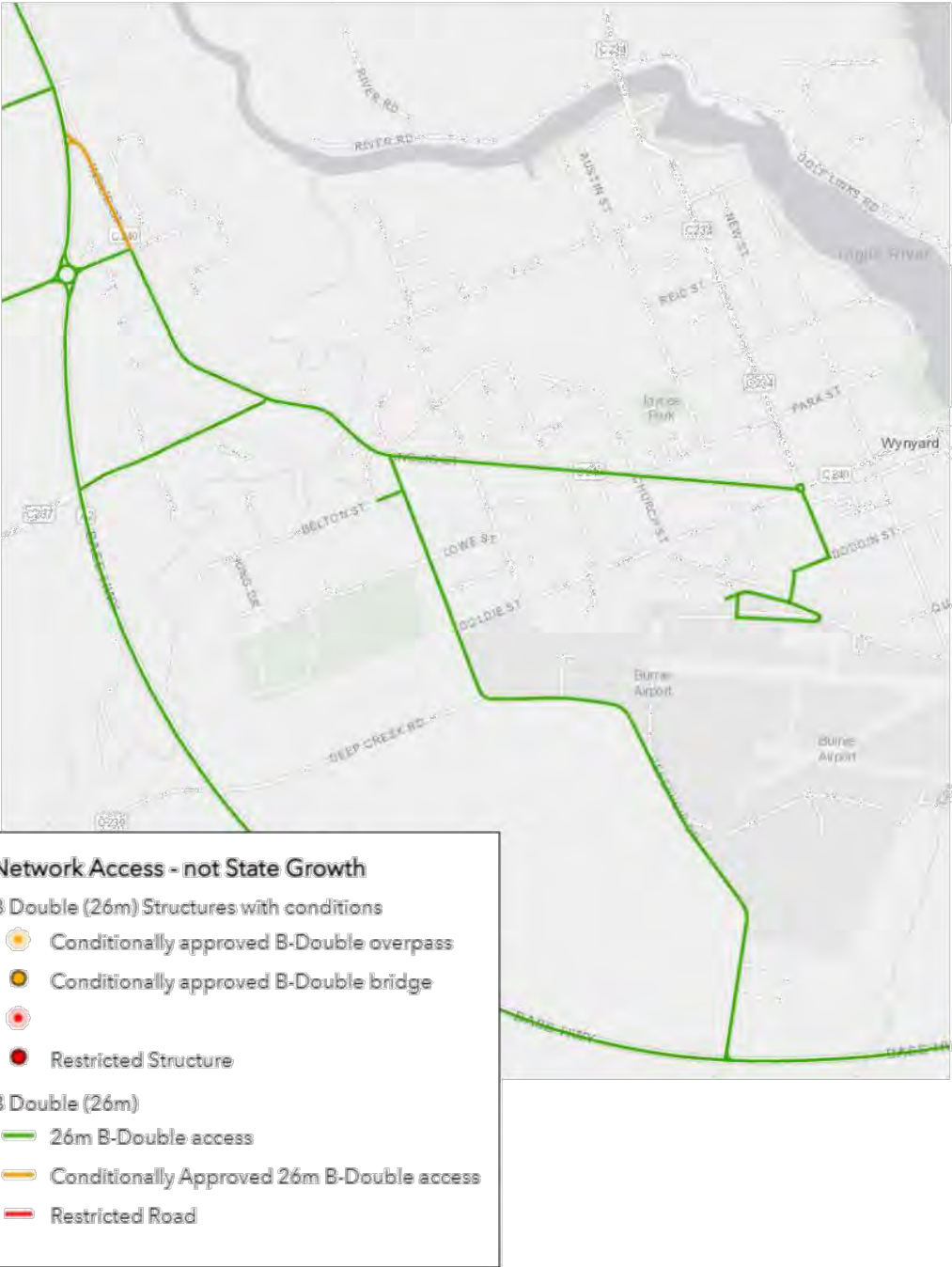
Appendix C - Safe Systems Assessment

Safe System Assessment		Golf Links Road							
Exposure	Justification (AADT 450vpd)	Run-off-road	Head-on	Intersection	Other	Pedestrian	Cyclist	Motorcyclist	
		Low AADT, two Minor injury Leaving the Road type crashes	Low AADT, no propensity for head on type crashes	Low Table Cape Road AADT (850vpd), Low Golf Link Road AADT (450vpd), 1 PDO crash.	Bus Route	Negligible pedestrian activity, no crashes	Low cyclist activity, no crashes	Low AADT, no crashes	
Likelihood	Score / 4	2	2	1	1	1	1	1	
	Justification	Windy sealed road with 5.4m width and no shoulders. Delineation provided by barrier line.	Windy sealed road with 5.4m width and no shoulders. Delineation provided by barrier line.	Simple intersection layout with Table Cape Road the priority road.	No bus stops.	No footpaths.	Windy sealed road with 5.4m width and no shoulders. Delineation provided by barrier line.	Windy sealed road with 5.4m width and no shoulders. Delineation provided by barrier line.	
Severity	Score / 4	2	2	2	3	4	4	2	
	Justification (60km/h speed limit)	Low Speed	Low Speed	Low Speed	Low Speed	High speed for pedestrians	High speed for cyclists	High speed for Motorcyclists	
Product	Score / 4	1	1	1	1	4	4	4	
	Total Score /	4	4	2	3	16	16	8	
	Total							Total / 448	53

Traffic Impact Assessment



Appendix D - Tas. 26m B Double Network



Traffic Impact Assessment



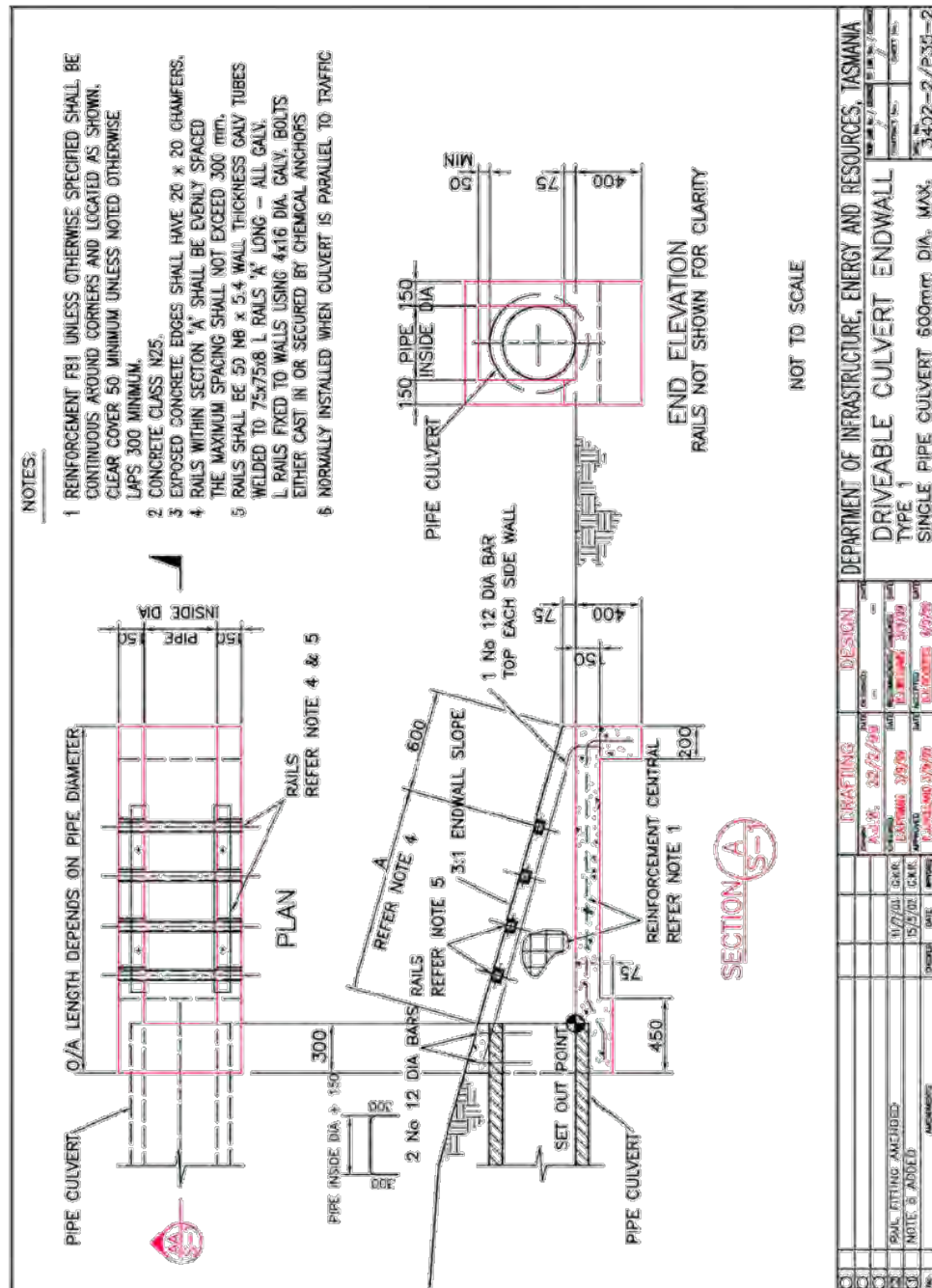
Appendix E - Level of Service Descriptions

Level of service A	A condition of free-flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.
Level of service B	In the zone of stable flow where drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is a little less than with level of service A.
Level of service C	Also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.
Level of service D	Close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.
Level of service E	Traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause breakdown.
Level of service F	In the zone of forced flow, where the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow breakdown occurs, and queuing and delays result.

Traffic Impact Assessment



Appendix F - Driveable Culvert Endwall Spec



Traffic Impact Assessment





**GEOTECHNICAL INVESTIGATION,
KARST ASSESSMENT AND
LANDSLIDE RISK ASSESSMENT**

Bluff Developments Estate Pty Ltd

Lot 2 Golf Links Road, Wynyard (PID
2758376)

GL24537Ab_Rev1
10 July 2025



Geoton Pty Ltd ABN 81 129 764 629
PO Box 522 Prospect TAS 7250
Unit 24, 16-18 Goodman Court
Invermay TAS 7248
Tel (+61) (3) 6326 5001
www.geoton.com.au

10 July 2025

Reference No. GL24537Ab_Rev1

Bluff Developments Estate Pty Ltd
32 Dress Circle Drive
LENNOX HEAD NSW 2478

Attention: Mr Alistair Carter

Dear Sir

**RE: Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment
Lot 2 Golf Links Road, Wynyard (PID 2758376)**

We have pleasure in submitting herein our report detailing the results of the geotechnical investigation conducted at the above site.

Should you require clarification of any aspect of this report, please contact Anne Foster on (03) 6326 5001.

For and on behalf of

Geoton Pty Ltd



Tony Barrier

Director – Principal Geotechnical Engineer

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

Document History and Status

Rev	Date	Written By	Reviewed By	Revision Details
0	11 December 2024	A Foster	T Barriera	
1	10 July 2025	A Foster	T Barriera	Update subdivision plan and provide preliminary on-site wastewater site evaluation for proposed Lots 11 and 12

File Name:	GL24537Ab_Rev1
Author:	A Foster
Client:	Bluff Developments Estate Pty Ltd
Project:	Lot 2 Golf Links Road, Wynyard (PID 2758376)
Subject:	Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment
Document	Report
Document Version	1
Job No.	GL24537Ab_Rev1

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

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Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

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Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

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Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

1 INTRODUCTION

At the request of Mr Allan Brooks of PDA Surveyors, Engineers & Planners on behalf of Bluff Developments Estate Pty Ltd, Geoton Pty Ltd has carried out a geotechnical investigation, karst assessment and landslide risk assessment for a proposed residential subdivision at Lot 2 Golf Links Road, Wynyard (PID 2758376).

It is understood the Council has indicated that the site is partially located within an area of doubtful slope stability, and as such a landslide risk assessment is required to satisfy the Landslide Hazard Code of the Tasmanian Planning Scheme – Waratah-Wynyard (Section C15.6.1 - Building and works within a landslip hazard area & Section C15.7.1 - Subdivision within a landslip hazard area).

Examination of the Land Information System Tasmania (LIST) website indicates that part of the site is within the mapped Wynyard Karst formation.

The investigation has been conducted to provide the following:

- A landslide risk assessment;
- An assessment of the potential adverse impacts of the proposed development on the high Integrated Conservation Value of the Wynyard Karst formation, and if any karst related geohazards may affect the integrity of the proposed development in the future;
- An assessment of the subsurface conditions at the site and provide recommendations for subdivision development and geotechnical parameters for pavement design; and
- An assessment to determine if the proposed new Lots 11 and 12 can support an on-site wastewater disposal systems (in accordance with AS/NZS 1547:2012 "On-site domestic-wastewater management") for the purposes of subdivision approval. .

The landslide risk assessment has been conducted in accordance with AS1726:2017 - Geotechnical Site Investigation; and the Australian Geomechanics Society 2007 - Guidelines on Landslide Risk Management.

1.1 Proposed Development

A draft subdivision plan was provided, prepared by PDA Surveyors, Engineers & Planners, Job/Drawing No. 49895AB-PA-05, dated 20 June 2025. We understand that it is proposed to subdivide the existing site into 10 residential lots of 1,970m² to 1.74 hectares in size, and 2 road lots with sizes of 288m² and 305m². All weather sealed access roads will service the 8 lots within the eastern portion of the site.

A locality plan is provided as Figure 1 below with a subdivision plan attached as Drawing 1.

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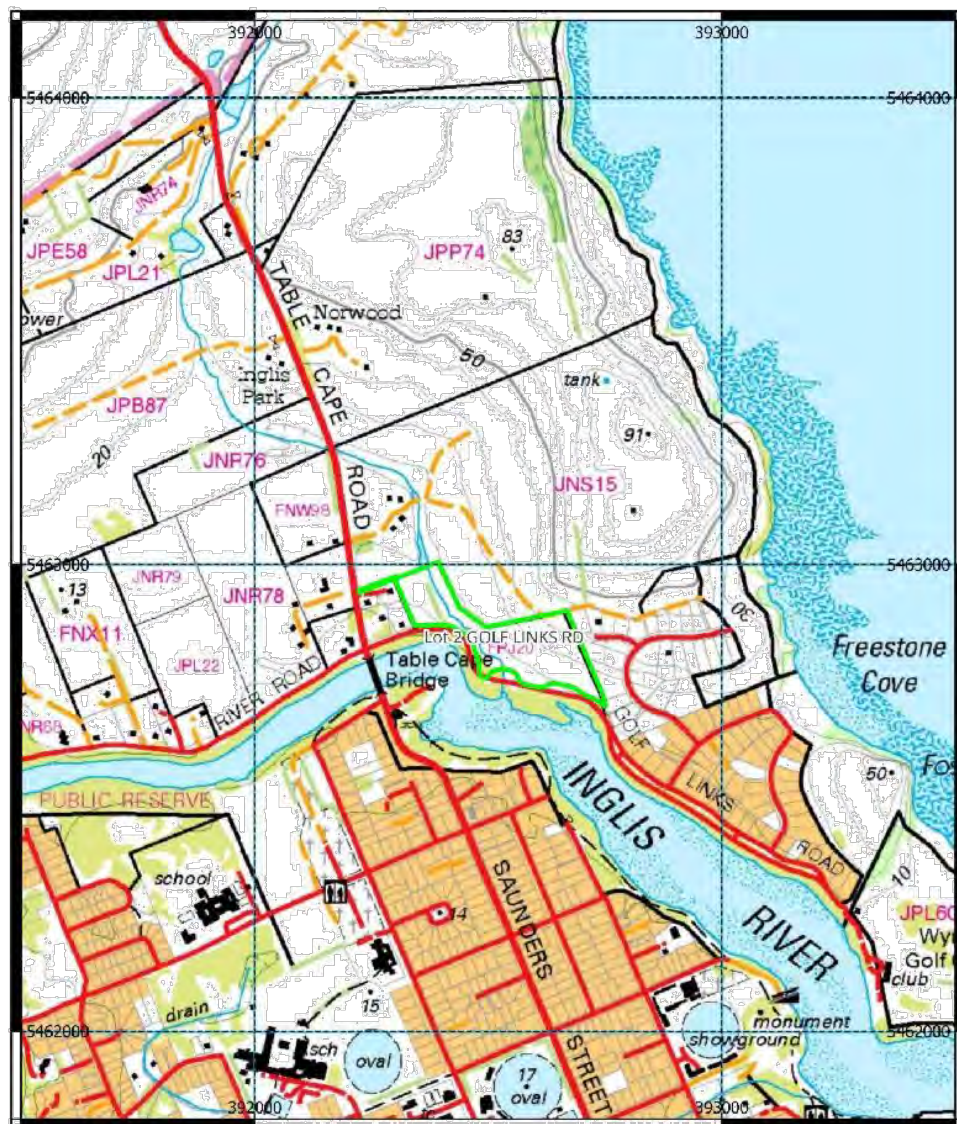


Figure 1: Locality Plan (TasMap 1:25,000 Scale)

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

2 BACKGROUND

2.1 Geology

The Mineral Resources Tasmania (MRT) Tasmanian Landslide Map Series, Wynyard – Geology Map, 1:25,000 Scale, indicates that the south-western portion of the site is mapped as being underlain by Quaternary period sediments comprising older sand, gravel and clay on coastal plains. A small area within the northeastern portion of the site is mapped as being underlain by Paleogene-Neogene period predominantly deeply weathered basalt. The remainder of the site is mapped as being underlain by Paleogene-Neogene period sedimentary rocks comprising calcareous sandstone and calcarenite with Lower Miocene/Upper Oligocene marine fossils (Table Cape Group). This was generally confirmed by our field investigation.

An extract of the Geology Map is provided as Figure 2.

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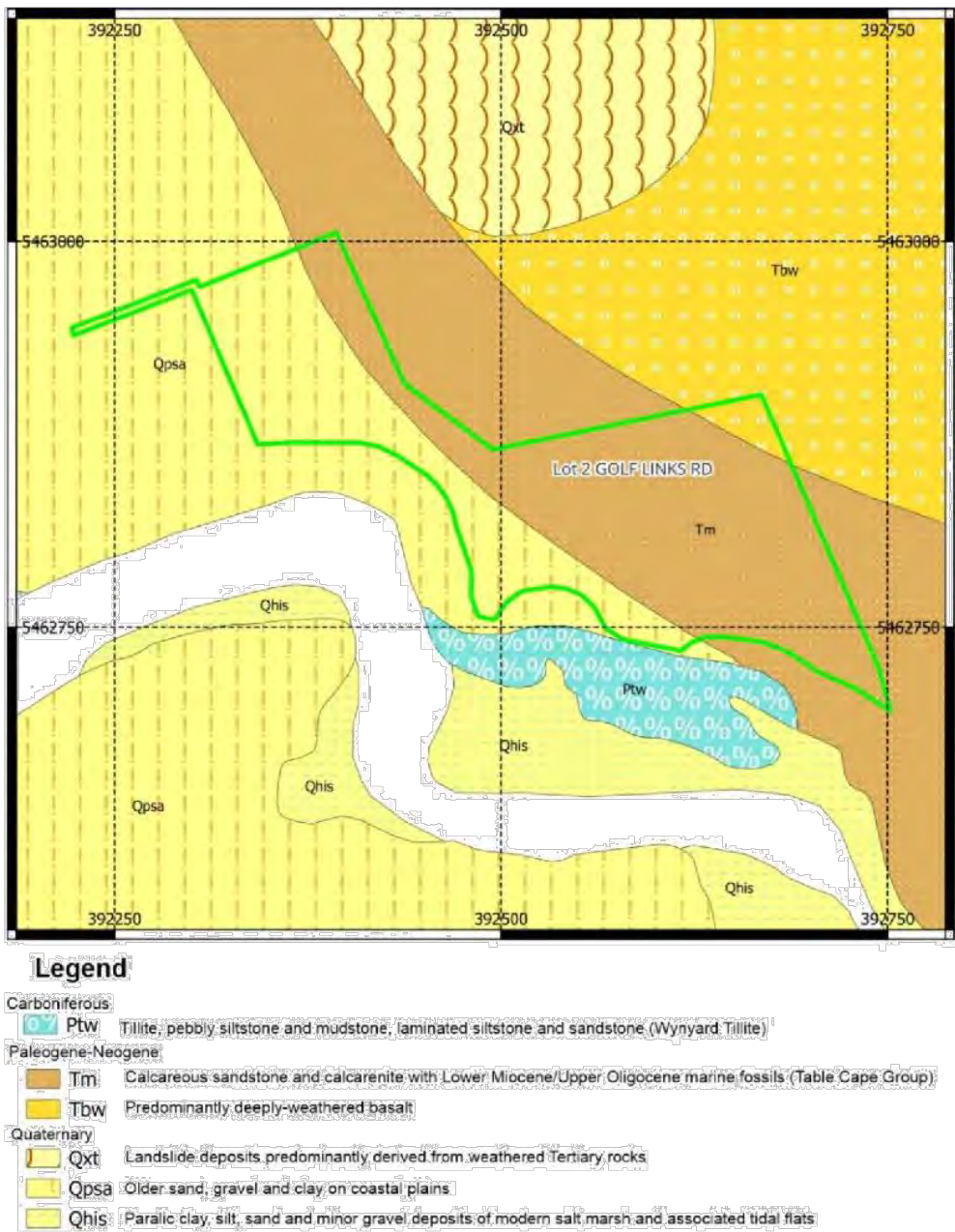


Figure 2: MRT 1:25,000 Scale Wynyard Geology Map Extract

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2.2 Landslide Susceptibility

2.2.1 LIST Landslide Hazard Bands

Examination of the LIST Landslide Planning Map – Hazard Bands Overlay, indicates that several steeper areas within the eastern portion of the site are within mapped low landslide hazard bands. The remainder of the site is not within a mapped landslide hazard band. The landslide hazard bands are shown on Drawings 1 and 2, attached.

2.2.2 MRT Landslide Inventory

Examination of the MRT Tasmanian Landslide Map Series, Wynyard – Landslide Inventory Map, indicates that there are no known mapped landslide features within the site. A recent or active rock or soil slide (Landslide I.D. No. 179) is located approximately 140m to the northeast of the site. Two recent or active earth or debris flows are located between 360m and 450m to the northeast of the site (Landslide I.D. Nos. 180 and 3120). Several rock or soil slides with unknown activity (Landslide I.D. Nos. 3109 to 3119, 3121 and 3122) are located to the north, east and west of the site, and extending many kilometres to the west of the site. The location of the landslides corresponds with mapped deeply weathered basalt and the Wynyard Tillite unit.

An extract of the Landslide Inventory Map is provided as Figure 3.

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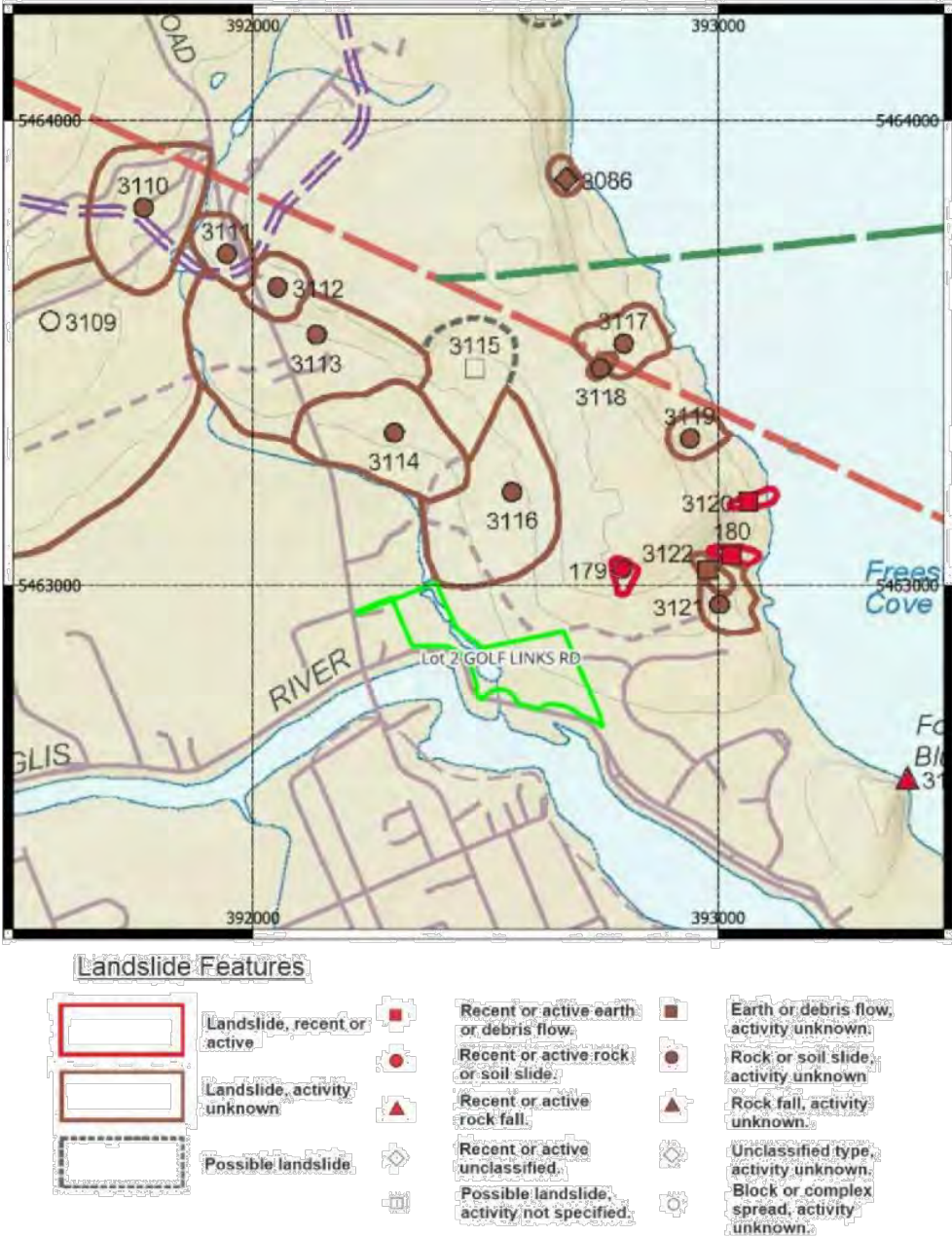


Figure 3: MRT Wynyard 1:25,000 Scale Landslide Inventory Map Extract

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2.2.3 MRT Geomorphology

Examination of the MRT Tasmanian Landslide Map Series, Wynyard – Geomorphology Map, 1:25,000 scale, indicates that the low-lying western portion of the site is mapped as having slopes of 0° to 7°. The elevated eastern portion of the site is mapped as having slopes of 7° to 35°. The western portion of the site is mapped as a marine terrace and the eastern portion of the site is mapped as an abandoned coastal cliff.

An extract of the Geomorphology Map is provided as Figure 4.

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2.2.4 MRT Shallow Slide and Flow Susceptibility

Examination of the MRT Tasmanian Landslide Map Series, Wynyard – Shallow Slide and Flow Susceptibility Map, indicates that the steeper eastern portion of the site is mapped within a low to moderate susceptibility source area for shallow landslides. The western portion of the site is not mapped within a susceptibility source area.

An extract of the Shallow Slide and Flow Susceptibility Map is provided as Figure 5.

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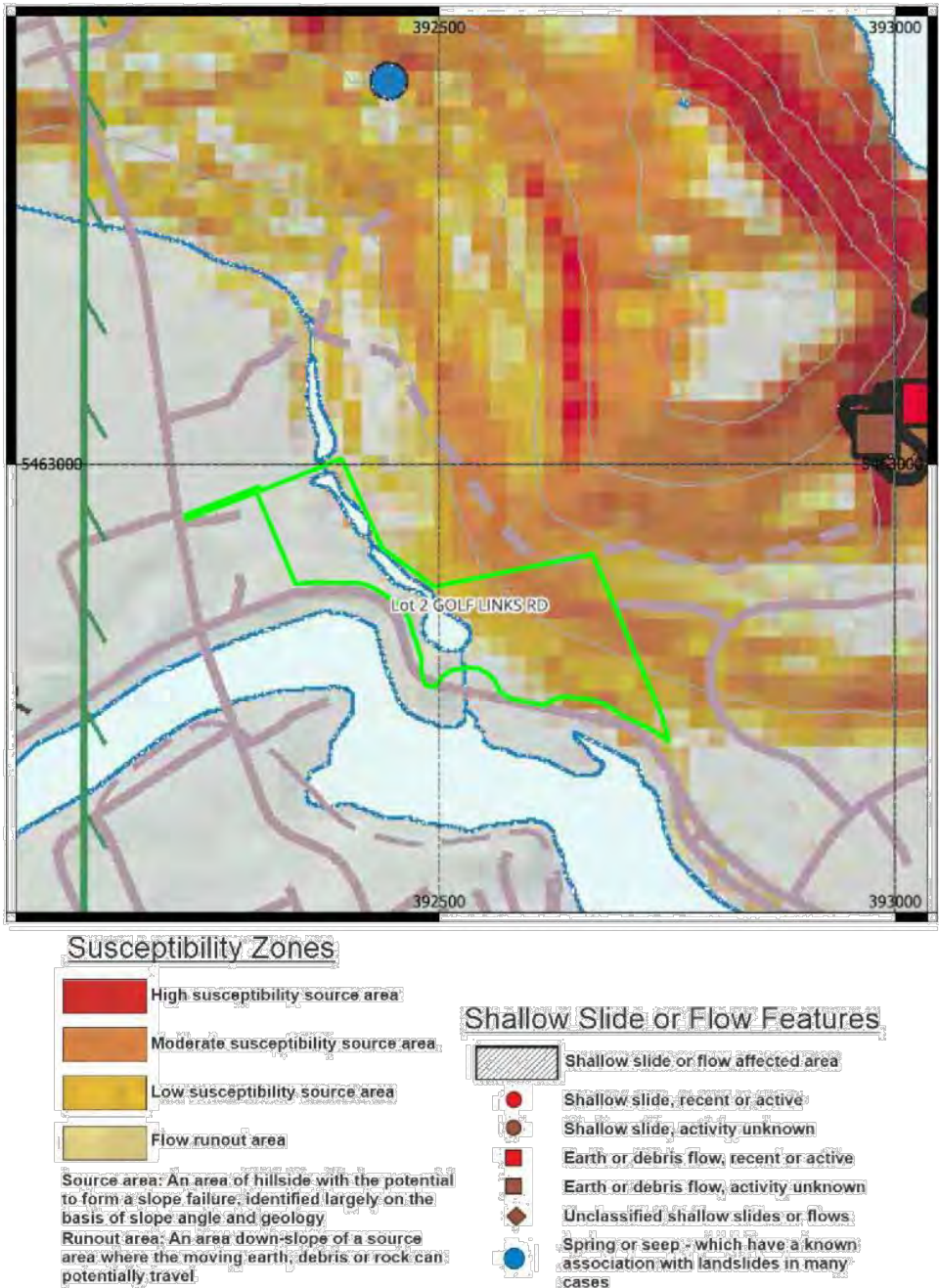


Figure 5: MRT Wynyard 1:25,000 Scale Shallow Slide and Flow Susceptibility Map Extract

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2.2.5 MRT Deep Seated Landslide Susceptibility

Examination of the MRT Tasmanian Landslide Map Series, Wynyard – Deep Seated Landslide Susceptibility Map, indicates that the majority of the site is not mapped within a susceptibility area for first time failures. The steepest slopes within Lots 1 to 5 and Lot 8 are mapped within a source area for first time failures, i.e., an area of hillside with the potential to form a slope failure, identified largely on the basis of slope angle and geology. Runout areas are mapped immediately downslope of the source areas, i.e., areas down-slope of a source area where the moving earth, debris or rock can potentially travel.

An extract of the Deep-Seated Landslide Susceptibility Map is provided as Figure 6.

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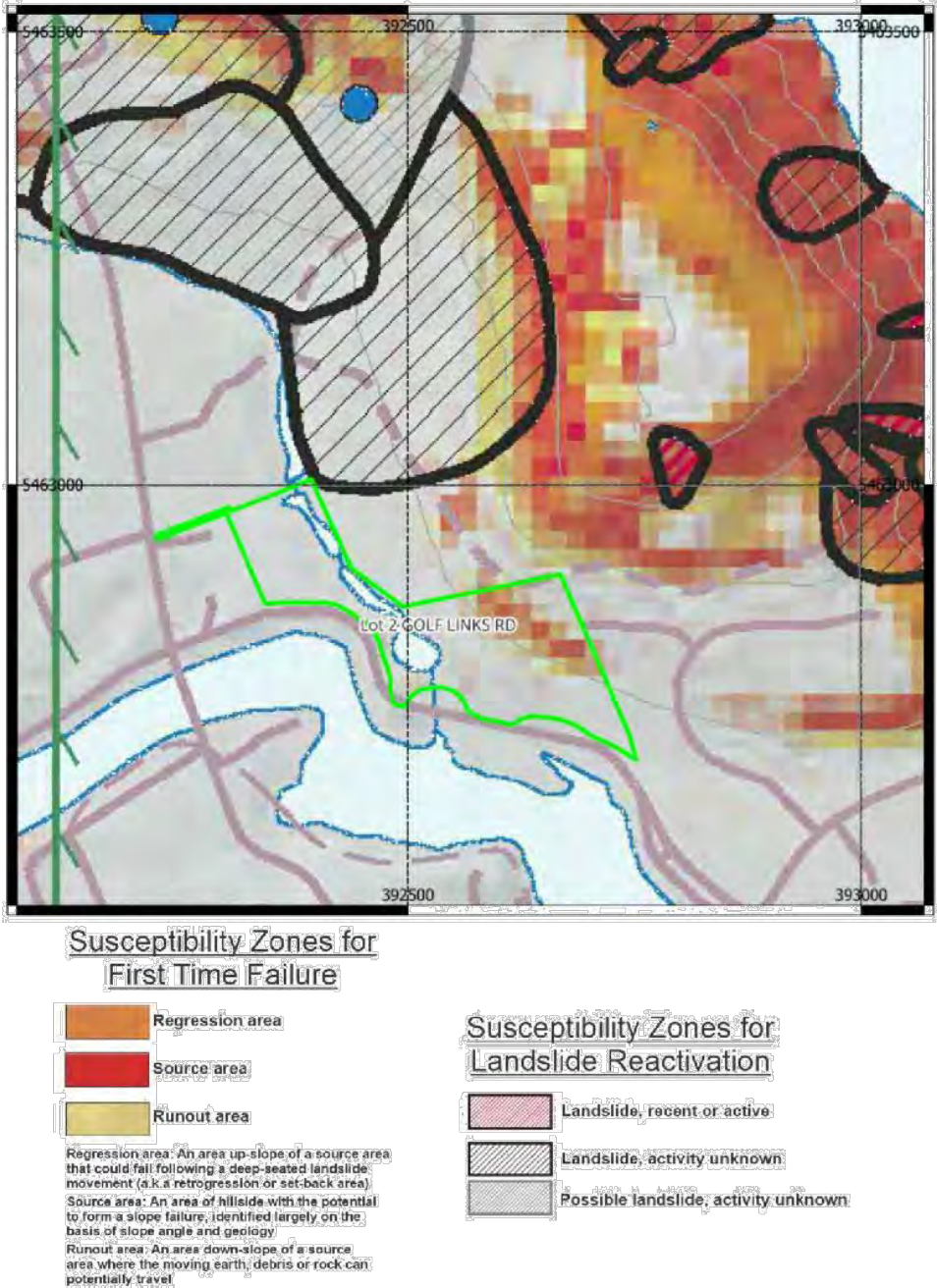


Figure 6: MRT Wynyard 1:25,000 Scale Deep Seated Landslide Susceptibility Map Extract

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2.3 MRT Reports

No reports relating to the subject site were found on the MRT database. However, several reports on landslides in other areas of Wynyard and Burnie, with similar geology and geomorphology, were reviewed, in addition to a general paper on landslides in Burnie, and on the geology of Burnie. The reports provide a good historical background to the area in addition to their technical content. Data and findings of the reports relevant to this study are summarised in point form below:

- Elmer determined that minor landslide movement in slopes greater than 15° had occurred in soils underlain by calcareous siltstone, limestone and tillite, particularly where the toe of the slopes are being undercut by wave action. It was determined that the geological unit should be suitable for building on provided that buildings are situated away from the steeper slopes. The second site investigated was located on basalt bedrock with a thin mantle of soil and determined to be stable despite the steep slopes (Elmer, 1971).
- Old slips and recent movements were mapped near Shorewell Creek in Burnie, in Tertiary basalt which contained a bed of quartz grit. The recent movements took place on a slope of around 10° (Matthews, 1964).
- Jennings describes a large landslide near the Bass Highway in Parklands that occurred within talus consisting of blocks of basalt, dolerite, and sandstone, set in an abundant clay matrix. The material in the slide was found to be soft brown clay, and the slip surface was found to dip at 65°. The water table is high, and normal groundwater is considerably augmented by water entering the talus from the hills behind, partly as runoff and partly by conduction through the basalt. Jennings concluded that geologically the same problems which led to the Parklands landslips persist over much of the steep land within the town of Burnie. That is, the most desirable and expensive building sites are located on steep talus slopes which flank the basalt plateau south of Burnie (Jennings, 1962).
- Jennings (TR8) "In addition to the identifiable slides, both ancient and modern, there are areas where unusual topographic features have been noted. On the geological map they are indicated as breaks in topography. They may simply be due to the effects of differential erosion on basalt flows of varying competence or they could represent the heels of ancient landslides". Also... "A feature of basalt country is that the bedrock is thoroughly shattered by a series of closely spaced joints. This allows ready access for water to percolate through the rocks thus leading to the formation of springs and seepages in favourable localities, where this water emerges at the surface along the side of steep hillside conditions that are favourable for the formation of landslides". Also "a number of beds of sand gravel and clay have been mapped interbedded between basalt flows. Some of these units are highly permeable and may act as aquifers which locally control the groundwater flow. Where such a bed intersects the side of a steep hillside covered with talus it tends to promote landslides" (Jennings, 1964).
- Matthews stated that the proposed subdivision south of View Road envisages a drainage scheme and extensive road building activities. Drainage may well improve

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the stability in the long term, but earthworks of any kind are likely to have a detrimental effect. As the most recent movement appears to have taken place on a slope of little more than 10° it must be appreciated that steepening the existing slopes to any extent is fraught with danger (Matthews, 1969).

2.4 Karst

Karst landscapes can form unique landforms due to particular rock types, commonly limestone and dolomite, having the potential to be dissolved by natural waters. Through the process of dissolution, surface waters are allowed to be diverted underground, and this can be evident within the karst landscape by the presence of dry valleys, sinkholes and springs, for example.

When fully expressed and developed, karst landscapes form a complex and highly efficient network of underground drainage. The developed drainage systems often provide underground flow paths that do not correlate to the surface topography. It is within well-developed karst areas that large cavities and caves can form as drainage conduits.

Karst landscapes can present unique geomorphic hazards such as easily erodible soils (including soil piping), risk of sudden ground collapse, flooding, and efficient drainage allowing for contamination of aquifers which can be some distance from the pollution source.

Karst hazards are often difficult to identify. Subsidence, collapse, and associated mass movements are natural processes within karst landscapes, which can be greatly accelerated through changes to local hydrology and land surface features.

Karst areas present many unique engineering challenges, such as, construction within unstable terrain, and remediation of any subsidence and associated mass movement that may occur.

It is estimated that around 4.4% of the Tasmanian landscape is underlain by karst, which is an area of approximately 277,000 hectares (Tasmanian Government - Department of Natural Resources and Environment Tasmania, 2024).

The site is partially located within the Wynyard Karst.

2.5 Conservation of Freshwater Ecosystem Values (CFEV) – Integrated Conservation Value

Examination of the LIST CFEV Integrated Conservation Value layer indicates that the majority of the site is located within a High Integrated Conservation Value area as shown in Figure 7.

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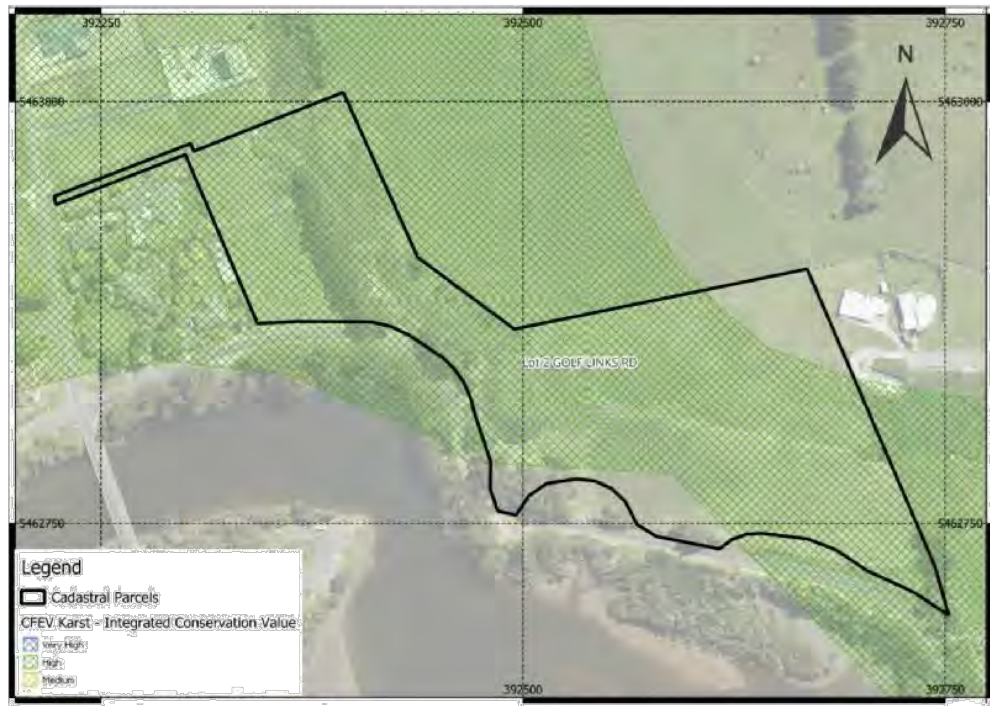


Figure 7: LIST CFEV Karst – Integrated Conservation Value Overlay

2.6 Tasmanian Planning Commission – Tasmanian Planning Scheme

Neither the Tasmanian Planning Commission – Tasmanian Planning Scheme nor the Waratah-Wynyard Local Provisions Schedule make reference to karst. However, the Meander Valley Local Provisions Schedule MEA-S5.0, Karst Management addresses karst and is considered applicable.

Planning conditions applied by the Meander Valley Council for use and development within High Sensitivity Karst Areas include no damage to sites of scientific significance or karst features, minimisation of erosion and prevention of sediment and pollution entering the Karst system, not increasing the potential for ground surface or land instability, not increasing the subterranean water flow, or significantly altering the surface hydrology.

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2.7 An Atlas of Tasmanian Karst

The most comprehensive information on karst areas in Tasmania can be found within Kiernan's (1995) *An Atlas of Tasmanian Karst*.

A review of the Karst Atlas indicates that the site is located within an area mapped as NW 37 (Wynyard) which is mapped as Category C (possibly karstified) as shown in Figure 8 and described in Figure 9.

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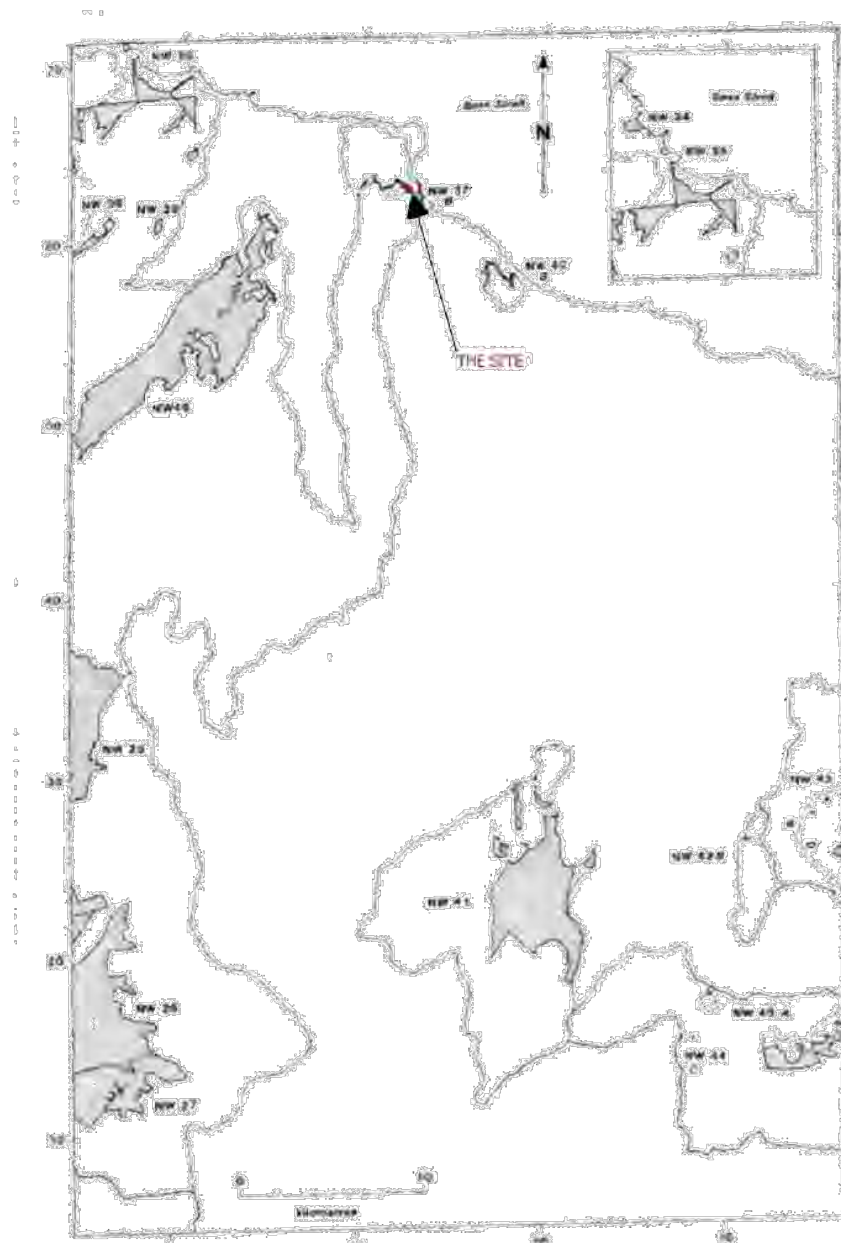


Figure 8: An Atlas of Tasmanian Karst – Inglis Sheet, 1:250,000 Scale

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WYNYARD

NW 37

Topographic sheet 1: 100 000	Ingle (at 929 633)
Topographic sheet 1: 25 000	Wynyard
Geological sheet	Table Cape 1:63 300

SYSTEM CONTEXT

Lithological system/subsystem:	Tertiary calcareous sandstone and calcarenite
Structural system/subsystem:	faulted
Climate-geomorphic system:	
Contemporary:	coastal
Annual rainfall/station:	1645 mm at Wynyard, 1 km to S
Pedoclimatic:	flank
Soil system/s:	fresh, marine and brackish
Densitation system:	mixed alluvial and autogenic
Topographic system -	
Contemporary:	coastal
Altitudinal range:	150 m (-0-150 m a.s.l.)
Extent of outcrop:	~ 2 km ²
Past variation:	-
Exposure style system:	exposed retreat and downstream stripping

KARST EXTENT & INVESTIGATIONS

Karst development:	surface solution forms and sea caves
Documentation:	poor
Number of investigation trips:	numerous
Investigators:	local residents, geologists
Elated during Atlas compilation:	yes
Potential for further discoveries:	
Surface karst landforms:	possible
Caves:	unlikely
Land tenure:	private and Crown
Management issues:	geological significance
Category:	C

FURTHER INFORMATION

Tertiary limestone crops out along the northern bank of the Ingle River to the coast and ~1 km westwards along the coast from the river mouth. It disconformably overlies the Permian age Wynyard Tiltite. There is little evidence of the limestone on the slopes that flank the Ingle River estuary, but small cliffs up to 5-6 m high occur along the coast.

At the eastern end of the coastal outcrop, broad shore platforms have been cut in the tiltite and some small sea caves have formed, primarily in the tiltite, at the interface between the Permian rock and the overlying limestone. Limestone shore platforms up to 5 m wide occur further westwards at ~1.5 m above low sea level, with some minor solution pits. Smoothed scabbles up to 1.5 m deep and 1 m high are prominent at present sea level. Ledges that mimic the attitude of the shore platforms occur at up to 8 m above present sea level but tend to be narrower, seldom more than 3 m wide, and are interpreted as being controlled by bedding planes. Cave entrances have been cut in the limestone at sea level (Figure 2.4b). At least one of these caves contains ribs of carbonate and rudimentary stalactites up to 30 cm long.

In addition to the geomorphological significance of this area as perhaps Tasmania's best developed coastal karst in Tertiary marine limestone and a good example of cave development being focussed at the interface between carbonate rocks and non-carbonate rocks, Eastoe (1974) also regards it as a significant geological site for its exposure of the Tertiary marine rocks and Carboniferous glacial sediments.

Figure 9: An Atlas of Tasmanian Karst – Wynyard Karst

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

2.8 Borehole Database

2.8.1 MRT Borehole Database

Four boreholes are currently recorded on the MRT database approximately 4km to the southeast of the site, all of which had borehole logs available for inspection, and none of which encountered limestone or cavities.

2.8.2 Department of Natural Resources and Environment Tasmania Groundwater Bore Database

Information of twenty groundwater bores with depths of 9.1m to 103.6m are currently recorded on the NRE –Groundwater Information Access Portal within approximately 3.1km of the site.

The boreholes encountered the following lithologies as shown in Table 1:

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Table 1: Details of Groundwater Bores

Borehole I.D.	Distance from site	Lithologies encountered
641	1.5km	Unknown
644	2.3km	Mudstone
663	1.1km	Basalt underlain by sand
664	1.1km	Weathered basalt
666	1.5km	Tillite? and quartz
674	2.6km	Gravel and river wash
701	1.9km	Basalt
4759	980m	Basalt
16986	2km	Mudstone
31367	2km	Basalt underlain by mudstone
31513	3.1km	Mudstone
31514	3.1km	Mudstone
31515	3.1km	Mudstone
40258	1.9km	Mudstone
40281	580m	Basalt underlain by mudstone
40282	400m	Clay with shells underlain by mudstone
40766	1.8km	Basalt
41755	130m	Mudstone
42618	2.1km	Mudstone underlain by shingle and gravel
42714	2.3km	Mudstone underlain by sand, shingle and gravel

None of the boreholes encountered limestone or cavities indicative of karstified rocks. Detailed information of the relevant groundwater bores is provided in Appendix A.

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2.9 Tasmania Topographic Maps

The LIST digital 1:25 000 series Tasmania TasMap topographic maps were accessed and examined to establish if there are any features that have been identified and interpreted as karst features, such as sinkholes. There were no karst features mapped within 10km of the site.

2.10 Aerial Photography and Satellite Imagery

A review of historical aerial photographs and satellite imagery covering the site and immediate surrounds was conducted using the Land Tasmania Aerial Photo Viewer and Google Earth. Historical images from 1969 up to 2023 were available for review. The review of the images was primarily to look at any recent spring and landslide activities and to identify if there are any karst or landslide features that will require inspection during a site visit, in addition to gaining a general understanding of the recent history of the site.

Generally, no recent spring or landslide activities were observed. No features within or near the development site were identified as potentially karstified. Additionally, no significant changes to the site were identifiable at the site over this period.

2.11 LiDAR – Spatial Data

Hillshade images, generated from publicly available LiDAR data, shows that the ground surface within the site and surrounds have no features indicative of sinkholes that require further investigation. A small feature located within the eastern portion of the site was investigated and is not a landslide or sinkhole.

Hillshade images based on LiDAR are provided as Figures 10 and 11.

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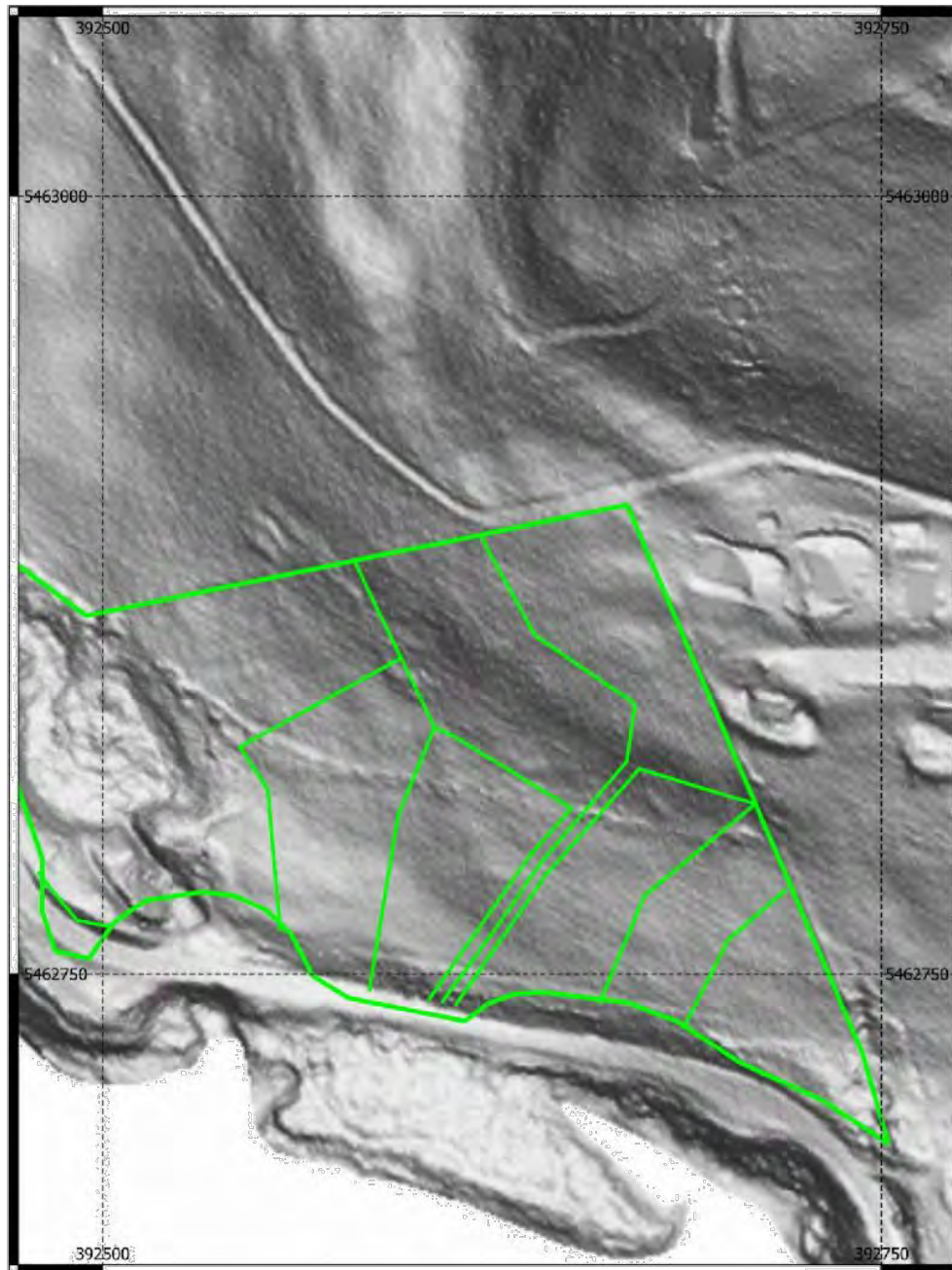


Figure 10: Hillshade Image – Eastern Portion of Site

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Figure 11: Hillshade Image – Western Portion of Site

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3 FIELD INVESTIGATION

The field investigation was conducted on 05, 06 and 11 November 2024 and involved the following:

- Underground service location of underground Telstra and NBN cables;
- Site walk-over and geomorphology mapping of the site and surrounds;
- Drilling of 19 boreholes by 4WD mounted auger rig to depths of 1.5m to 5.4m;
- Carrying out insitu vane shear strength tests and pocket penetrometer readings at regular intervals during the investigation;
- Obtaining samples of soils for subsequent laboratory characterisation;
- Carrying out Dynamic Cone Penetrometer (DCP) testing at 3 locations; and
- The installation and monitoring of two groundwater monitoring wells.

The results of the field tests are shown on the borehole logs. The borehole logs are included in Appendix B and their locations are shown on Drawings 2 and 3, attached. The results of the laboratory testing are shown in Section 4.3, and Tables 2 and 3, below.

4 SITE CONDITIONS

4.1 Surface Conditions

The site is 4.69 hectares in size and is located to the north of the Inglis River and Golf Links Road. The site is currently undeveloped. An unnamed tributary of the Inglis River flows from northwest to southeast through proposed Lot 3, dividing the site into two different topologies and geologies (Plate 1).



Plate 1: Unnamed tributary of the Inglis River looking southwest

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The ground surface to the east of the unnamed tributary rises from Golf Links Road towards the northeast, initially at approximately 4° to 11° before becoming steeper mid-property, with slope angles up to approximately 27°. The uphill north-eastern portion of the slope has slope angles of approximately 10° to 12° (Plates 2 and 3).



Plate 2: Eastern portion of the site looking northwest



Plate 3: Eastern portion of the site looking south

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The ground surface to the west of the unnamed tributary falls very gently towards the northeast from Golf Links Road towards the eastern boundaries of proposed Lots 11 and 12, from where the ground surface falls at approximately 10° to 12° towards the creek (Plate 4). The northern portion of proposed Lot 12 has been subject to standing water during recent times.



Plate 4: Western portion of the site looking northwest

Vegetation across the proposed residential lots (Lots 1 to 8, 11 and 12) comprises a moderate to tall cover of grass. Trees and shrubs are present along the southern site boundary and adjoining the creek. The ground surface over the majority of the site was puggy, indicating that the underlying clays have been soft and saturated during the wetter months.

The slopes across the site and surrounding area were observed to comprise generally smooth convex slopes, with no features indicative of recent landslide movement observed (no longitudinal surface cracking, slumping etc).

Furthermore, no springs or seeps were observed on the site.

No evidence of sinkholes or karst processes were observed within the site or surrounds.

Observation of dwellings to the east and west, along Golf Links Road, generally found no clear evidence of settlement or landslide movement with all dwellings being in satisfactory condition.

4.2 Subsurface Conditions

The investigation indicated that the soil profile varied across the site. Three distinct geological units were encountered during the subsurface investigation:

- **Unit 1** – Paleogene-Neogene period sedimentary rocks comprising calcareous sandstone and calcarenite (**limestone**) with Lower Miocene/Upper Oligocene marine

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fossils (Table Cape Group) generally comprising clayey silt topsoil, overlying **residual** silty clay and clayey silt, underlain by extremely weathered limestone (rock weathered to such an extent that it has soil properties while retaining a rock fabric) and inferred highly weathered limestone;

- **Unit 2** – Paleogene-Neogene period predominantly deeply weathered **basalt** generally comprising clayey silt topsoil overlying **residual** clayey silt, underlain by extremely weathered basalt and inferred highly weathered basalt; and
- **Unit 3** – Quaternary period **sediments** comprising older sand, gravel and clay on coastal plains, with the encountered materials generally comprising topsoil, overlying sand, underlain by clay.

Unit 1 was encountered in Boreholes BH01 to BH06 and BH08 to BH16. Generally, clayey silt topsoil was encountered to depths of 0.2m to 0.3m, overlying natural silty clay and clayey silt to depths of 1.3m to 3.9m, underlain by extremely weathered limestone to the auger refusal or investigated depths of 1.5m to 5.4. The exceptions were:

- Boreholes BH02 to BH04, BH09, BH12 and BH14 to BH16 did not encounter extremely weathered limestone.

Unit 2 was encountered in Borehole BH07. Clayey silt topsoil was encountered to a depth of 0.3m, overlying silt clay to a depth of 3.2m, underlain by extremely weathered basalt to the auger refusal depth of 4.9m.

Unit 3 was encountered in Boreholes BH17 to BH19. Generally, silty sand topsoil was encountered to depths of 0.1m, overlying silty sand to depths of 0.4m to 0.5m, underlain by gravelly to sandy to silty clay to the investigated depths of 1.5m.

Auger refusal in Boreholes BH04 to BH06, BH08 to BH11, BH13 and BH14 was inferred to be on highly weathered limestone, and in Borehole BH07 auger refusal was inferred to be on highly weathered basalt.

The moisture content of the residual silty clay and clayey silt was typically greater than the plastic limit and less than the liquid limit of the soil.

The residual silty clay and clayey silt soils were typically stiff to very stiff, however they were firm within the road alignment.

The boreholes did not encounter any soils interpreted to be landslide talus/deposits, with the natural soils interpreted as being residual limestone and basalt soils and non-colluvial sediments.

Groundwater monitoring wells were installed in Boreholes BH07 and BH09.

Groundwater seepage was encountered in Borehole BH09 (drilled on 06 November 2024), with the groundwater level measured at a depth of 1.1m on 11 November 2024. The groundwater monitoring well installed in Borehole BH07 (drilled on 06 November 2024) remained dry on 11 November 2024. The configurations of the installed groundwater monitoring wells installed in Boreholes BH07 and BH09 are shown on Drawing 4, attached.

Full details of soil conditions encountered are presented on the borehole logs.

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4.3 Laboratory Testing

The laboratory test results are summarised below with the test certificates provided in Appendix C:

Table 2: Summary of Laboratory Test Results

Sample	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)	Moisture Content (%)	Classification
BH04 0.8-1.0m	78	30	48	16.0	53.5	CH
BH07 1.4-1.6m	62	34	28	15.0	44.9	MH
BH08 0.8-1.0m	75	42	33	15.5	56.5	MH
BH09 3.4-3.6m	67	39	28	11.5	81.5	MH

Table 3: Summary of Laboratory Test Results

Sample	4-Day Soaked CBR (%)	Maximum Dry Density (t/m ³)	Optimum Moisture Content (%)	Field Moisture Content (%)
BH01 0.3m-0.7m	1.5	1.47	44.0	48.8
BH02 0.2m-0.6m	2.5	1.25	26.5	33.2

An assessment of the plasticity characteristics of the materials encountered indicates that the clay soils at this site possess a high shrink/swell potential.

Published correlations between Plastic Index and angle of internal friction indicated that the laboratory tested high plasticity silty clay soils would have peak strength angle of internal friction values of between approximately 24° to 28° and residual values of about 7° to 10°.

5 INFERRED GEOLOGICAL MODEL

The general geological model for the site has been interpreted as consisting of shallow residual basalt and limestone soils overlying Paleogene-Neogene period sedimentary rocks comprising calcareous sandstone and calcarenite (limestone) and basalt within the eastern portion of the site. Quaternary period sediments are located within the eastern portion of the site. The site did not display any distinct landslide or karst features. A localised groundwater table was encountered in Borehole BH09 at a depth of 1.1m during the investigation.

The geological model for the site is provided as Drawings 5 to 7, attached.

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

6 LANDSLIDE RISK

6.1 Assessment Methodology

As per the AGS "Guideline for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning" (2007a), a landslide risk assessment:

"... takes the outcomes of hazard mapping and assesses the potential damage to persons (annual probability the person most at risk loses his or her life) and to property (annual value of property loss) for the elements at risk, accounting for probability and vulnerability."

Therefore, the methodology adopted for this assessment was to:

- Develop a landslide inventory for the site, employing the publicly available landslide mapping carried out by the Mineral Resources Tasmania (MRT), in conjunction with aerial photograph interpretation employing current and historical photos, and ground truthing;
- Undertake assessments of the landslides relating to the site in terms of historical likelihood; and
- Undertake risk assessments, in terms of both risk-to-property and risk-to-life for critical structures within the site and relevant surrounding areas.

6.2 Landslide Risk Assessment

Based on the desk study, geological and geomorphological settings of the site, the following possible landslide scenarios are identified for the site.

- Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period sedimentary rocks affecting the steeper slopes of the proposed subdivision development;
- Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period basalt affecting the steeper slopes of the proposed subdivision development; and
- Runout failure from deep-seated landslide occurring upslope within Paleogene-Neogene period basalt affecting the proposed subdivision development.

The qualitative likelihood, consequence and risk terms used in this report for risk to property are given in Appendix D. The risk terms are defined by a matrix that brings together different combinations of likelihood and consequence. Risk matrices help to communicate the results of risk assessment, rank risks, set priorities and develop transparent approaches to decision making. The notes attached to the tables and terms and the comments on response to risk in Appendix D are intended to help explain the risk assessment and management process.

The site did not display any distinct landslide features. As such, the qualitative values associated with the likelihood of occurrence are based on the broader geological and geomorphic understanding of the region.

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

In light of the findings of this investigation (topography, shallow depth to bedrock, stiff/very stiff soils, residual soils, setback of site from steeper basalt slopes to the northeast), the likelihood of small-scale and runout failures occurring on the site affecting the proposed development is considered RARE.

Accordingly, the likelihoods estimated for the possible landslide scenarios are summarised in Table 4 as follows:

Table 4: Summary of Landslide Hazards

Possible Landslide Scenarios	Indicative Annual Probability (pa)	Indicative Recurrence Interval (yrs)	Descriptor (AGS 2007c)
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period sedimentary rocks affecting the steeper slopes of the proposed subdivision development	10^{-5}	100,000	Rare
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period basalt affecting the steeper slopes of the proposed subdivision development	10^{-5}	100,000	Rare
Runout failure from deep-seated landslide occurring upslope within Paleogene-Neogene period basalt affecting the proposed subdivision development	10^{-5}	100,000	Rare

6.3 Incremental Landslide Hazards

The alterations to the site as a result of the proposed subdivision development can generally be classified into two categories:

- Disturbance to the site due to the proposed development; and
- Introduction of additional water into the ground affecting the groundwater regime.

It is considered that the proposed subdivision development would not adversely impact on the site and immediate surroundings nor significantly increase the pre-existing landslide hazard, provided that the development adheres to the principles of good hillside practice and the recommendations provided in Section 7 below.

Geoton Pty Ltd understands that the eastern portion of the subdivision (steeper slopes) is to be fully serviced, and that stormwater is to be discharged to the unnamed tributary.

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

6.4 Landslide Consequences

Developments within the proposed lots are considered as the elements at risk in this assessment.

The landslide consequences for different scenarios are summarised in Table 5 as follows:

Table 5: Summary of Consequences for Different Landslide Scenarios

Possible Landslide Scenarios	Assessed Landslide Consequences	Descriptor (AGS 2007c)
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period sedimentary rocks affecting the steeper slopes of the proposed subdivision development	The landslide may displace the footing system of structures within the proposed lots causing minor damage	Minor
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period basalt affecting the steeper slopes of the proposed subdivision development	The landslide may displace the footing system of structures within the proposed lots causing minor damage	Minor
Runout failure from deep-seated landslide occurring upslope within Paleogene-Neogene period basalt affecting the proposed subdivision development	The landslide may displace the footing system of structures within the proposed lots causing minor damage	Minor

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

6.5 Landslide Risk to Property

Based on the outcomes of the landslide hazards and landslide consequences assessments detailed above. The assessed landslide risks to property (being the proposed house sites) are summarised in Table 6 as follows.

Table 6: Summary of Assessed Landslide Risks to Property (AGS 2007c)

Possible Landslide Scenarios	Assessed Landslide Hazards	Assessed Landslide Consequences	Qualitative Landslide Risk to Property
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period sedimentary rocks affecting the steeper slopes of the proposed subdivision development	Rare	Minor	Very Low
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period basalt affecting the steeper slopes of the proposed subdivision development	Rare	Minor	Very Low
Runout failure from deep-seated landslide occurring upslope within Paleogene-Neogene period basalt affecting the proposed subdivision development	Rare	Minor	Very Low

According to Table C10 of AGS 2007d, the acceptable qualitative risk to property criteria suggested by AGS is LOW, given that the importance level of the elements at risk is determined according to Appendix A, AGS 2007c.

6.6 Landslide Risk to Life

The person most at risk is considered to be the resident living in each of the dwellings that will be constructed within the proposed building envelopes.

The landslide risk to life for the identified person most at risk is calculated in Table 7 as follows.

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

Table 7: Landslide Risk to Life for Person Most at Risk

Possible Landslide Scenarios	Adopted Annual Landslide Probability, P(H)	Spatial Probability of Landslide Impacting Buildings at Risk, P(S:H)	Temporal Spatial Probability of Person Most at Risk at Buildings at Risk, P(T:S)	Vulnerability of Person Most at Risk, V(D:T)	Risk to Life, R(LoL)
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period sedimentary rocks affecting the steeper slopes of the proposed subdivision development	10 ⁻⁵	0.5	0.67 (16hrs/day)	0.005 (Building suffers minor damage but is highly unlikely to collapse, may cause injury but death is highly unlikely)	1.7 x 10 ⁻⁸
Shallow/small-scale landslide occurs within the soil derived from Paleogene-Neogene period basalt affecting the steeper slopes of the proposed subdivision development	10 ⁻⁵	0.1		0.005 (Building suffers minor damage but is highly unlikely to collapse, may cause injury but death is highly unlikely)	3.3 x 10 ⁻⁹
Runout failure from deep-seated landslide occurring upslope within Paleogene-Neogene period basalt affecting the proposed subdivision development	10 ⁻⁵	0.05		0.005 (Building suffers minor damage but is highly unlikely to collapse, may cause injury but death is highly unlikely)	1.7 x 10 ⁻⁹
Total: 2.2 x 10 ⁻⁸					

Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment

According to Table 1 of AGS 2007c, the **tolerable** risk to life criteria for the person most at risk suggested by AGS is 10^{-5} . Acceptable risks are usually considered to be one order of magnitude lower than the tolerable risks, which in this case is 10^{-6} . However, AGS suggests that, for most development in existing urban areas, criteria based on Tolerable Risk Level is applicable.

Therefore, subject to compliance with the recommendations within Section 7 of this report, the corresponding quantitative risk posed by landslide to life by the proposed subdivision development is assessed as **ACCEPTABLE**.

7 DISCUSSION AND RECOMMENDATIONS

7.1 General

The outcomes of the assessments for landslide risk to property (Section 6.5) and landslide risk to life (Section 6.6) only apply if the principles of good hillside practice and the recommendations provided herein are adhered to.

An information sheet entitled "Some Guidelines for Hillside Construction" adapted from the Journal of the Australian Geomechanics Society, volume 42, Number 1, dated March 2007, is presented in Appendix E.

Therefore, provided the development of the site is in accordance with the recommendations within our report, we consider that an acceptable level of risk can be achieved for the development of each lot in accordance with section C15.7.1 (Subdivision within a landslip hazard area) and C15.6.1 (Building and works within a landslip hazard area) of the Landslide Hazard Code of the Tasmanian Planning Scheme – Waratah-Wynyard. An Engineering Certificate addressing the Landslide Hazard Code is provided in Appendix F.

7.2 Buildings

- Individual geotechnical assessments and Site Classifications should be undertaken for each lot.

7.3 Cuts and Fills

- Fills across the steeper portions of the site should be minimised and should be limited to less than 1.5m in height and battered at slope angles no steeper than 1 vertical to 3 horizontal (1V:3H) or alternatively should be retained;
- Cuts across the steeper portions of the site should be minimised and should be limited to less than 1.5m in height and battered at slope angles no steeper than 1 vertical to 2.5 horizontal (1V:2.5H) or alternatively should be retained;
- Any proposed cuts and fills greater than 1.5m should be reviewed by an experienced geotechnical practitioner;
- Cuts and fills greater than 1.5m in height should be retained with retaining walls designed by a suitably qualified engineer;

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- Surface water cut-off drains should be provided uphill of any structures (retaining walls and/or the cut/fill batters) to direct surface water runoff from these slopes. The collected water should be piped to the natural watercourse, the council stormwater system or the street drainage system; and
- Excavations for the construction of retaining walls may result in a temporary reduction in the stability of the adjacent area particularly during wet weather until the wall is complete. This increased risk can be managed or reduced by appropriate construction planning, using temporary support, staged excavation and control of drainage.

7.4 Drainage

- All stormwater, including stormwater from cut-off drains, should be piped to the natural watercourse, the council stormwater system or the street drainage system;
- Should any seepage or groundwater be encountered during site excavations, it is recommended that subsoil drainage be provided to discharge to the stormwater system; and
- No uncontrolled discharge of water onto the ground surface or through absorption trenches is permitted without a further geotechnical assessment within the eastern portion of the site.

7.5 Vegetation and Erosion Control

- Maintain vegetation on the surrounding slopes.

7.6 Proposed Development Review

- It is recommended that the drawings for the area of the subdivision within the low landslide hazard band be reviewed by an experienced geotechnical practitioner to ensure that they are in keeping with good hillside practices and the recommendations provided within this report.

8 PAVEMENT SUBGRADE INVESTIGATION

8.1 Subgrade Evaluation

A published correlation between in-situ California Bearing Ratio (CBR) values and DCP test results is sourced from the Austroads Guide to Pavement Technology – Part 2: Pavement Structural Design. This correlation indicates that the natural subgrade materials within the boreholes along the proposed all weather access roads generally have minimum in-situ CBR values of approximately 2.5% to 8%.

The laboratory 4-day soaked CBR tests on the collected natural silty clay samples from Boreholes BH01 and BH02 returned CBR values of 1.5% to 2.5%.

Based on the findings of the investigation, a **design CBR value of 1.5%** for the natural silty clay can be used for road pavement design.

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8.2 Construction

Should any area of the road or exposed subgrade deflect excessively during proof rolling, it is recommended that these areas be either ripped dried and compacted or alternatively be excavated and replaced with quarry rock run, compacted crushed rock fill or a quarry road base material as appropriate.

Variations in the exposed subgrade may occur across the site. It is therefore recommended that a visual inspection be carried out during the pavement preparation earthworks to ensure the exposed subgrade soils are uniform across the proposed paved area. Where variations in subgrade conditions are encountered it is recommended that additional CBR tests be carried out and the pavement design adjusted accordingly.

Adequate surface and subsurface drainage should be provided beneath and to the sides of the road discharging to the natural watercourse or stormwater system.

The exposed subgrade shall be compacted to at least 98% standard compaction.

It is recommended that a geotextile such as Triax be used to mechanically stabilise the subgrade, thereby allowing a reduction of the high pavement thickness required by the low CBR value of 1.5%.

Pavement materials should be compacted to a density ratio of at least 98% standard compaction in layers not exceeding 200mm compacted thickness and a moisture content within 2% of optimum.

9 DRAINAGE WITHIN PROPOSED LOT 12

The northern portion of proposed Lot 12 is subject to standing water during wet weather. It is recommended that the low-lying portion of the site be built up by the placement of granular fill, and that a drain be constructed near the northern site boundary as shown on Drawing 3 to capture stormwater runoff and create suitable building and on-site wastewater disposal areas, and access for the property.

10 ON-SITE WASTEWATER DISPOSAL LOTS 11 AND 12

10.1 Permeability of Soil and Soil Classification

Based on the findings of the borehole investigation, the soil has been classified as follows:

- Texture – Heavy clay (Table E1 from AS1547-2012);
- Structure – Massive (Table E4 from AS/NZS1547-2012); and
- Category – 6 (Table E1 from AS/NZS1547:2012).

For massive Category 6 soils the indicative permeability from AS1547 Table L1 is <0.06m/day.

- Adopted Permeability – 0.02m/day.

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10.2 Disposal and Treatment Method

The soil within the proposed effluent disposal area is assessed as having sufficient depth and clay content to provide an adequate attenuation period for the breakdown of pathogens within the treated effluent.

As the site contains Category 6 soils that have a very low permeability primary treated effluent (eg septic tank and absorption trenches) is not be suitable for disposal within these soils.

Therefore, based on the findings of the investigation and provided the setback distances are adhered to, this site assessment indicates that proposed Lots 11 and 12 are suitable for the disposal of secondary treated effluent by way of a Secondary Treatment System (STS) and sub-surface irrigation.

10.3 Setbacks

The area of previous standing water within proposed Lot 12 is unsuitable for the disposal of effluent without earthworks to raise the surface level of the ground to at least 9m Australian Height Datum (AHD).

The minimum separation distance between the disposal area and downslope features is based on Appendix R from AS/NZS 1547:2012 "Recommended Setback Distances for Land Application Systems" and Section 3.1 from the *Building Act 2016*: Director's Guidelines for On-site Wastewater Management Systems. The following setbacks are required for secondary treated effluent:

- 27.0m from downslope sensitive features such as watercourses;
- 4.5m from downslope property boundaries;
- 1.5m from cross slope or upslope property boundaries;
- 3.8m from downslope buildings;
- 3.0m from upslope or cross-slope buildings; and
- 50.0m from groundwater bores.

The closest groundwater bore mapped on the LIST is more than 130m from the site.

10.4 Example of Minimum System Requirements

Aerated Wastewater Treatment System

About 900m² (450m² for the effluent disposal area and 450m² as a backup area) would be required for a STS and sub-surface irrigation system to support a standard 4-bedroom dwelling on reticulated water within the assessed area of proposed Lots 11 and 12.

10.5 On-site Wastewater Disposal Conclusions

The results of the investigation indicate that proposed Lots 11 and 12 have adequate area available for the disposal of domestic effluent by way of secondary treated wastewater via a STS and subsurface irrigation, including sufficient reserve area.

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Due to the size of the proposed Lots 11 and 12 (i.e. 3,085m² to 4,000m²), careful planning will be required to ensure that any proposed buildings do not significantly reduce the area available for the disposal of onsite wastewater. The future dwelling within Proposed Lot 12 shall be located within the indicative building envelope, and no shed is permitted within this lot. Dwellings within proposed Lots 11 and 12 shall be restricted to a maximum of 4 bedrooms.

11 LIMITATIONS

Although the borehole data provides an indication of subsurface conditions at the site, variations in soil conditions may occur in areas of the site not specifically covered by the field investigation.

The findings contained in the report are the result of discrete/specific sampling methodologies used in accordance with normal practices and standards, with some variations as indicated in the report. To the best of our knowledge, they represent a reasonable interpretation of the general condition of the site at the locations where boreholes were drilled. Under no circumstances, however, can it be considered that these findings represent the actual state of the site at all points within the site.

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Geotechnical Consultants - Limitations of report

These notes have been prepared to assist in the interpretation and understanding of the limitations of this report.

Project specific criteria

The report has been developed on the basis of unique project specific requirements as understood by Geoton and applies only to the site investigated. Project criteria are typically identified in the Client brief and the associated proposal prepared by Geoton and may include risk factors arising from limitations on scope imposed by the Client. The report should not be used without further consultation if significant changes to the project occur. No responsibility for problems that might occur due to changed factors will be accepted without consultation.

Subsurface variations with time

Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. In the event of significant delays in the commencement of a project, further advice should be sought.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and at the time they are taken. All available data is interpreted by professionals to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, as it is virtually impossible to provide a definitive subsurface profile which includes all the possible variabilities inherent in soil and rock masses.

Report Recommendations

The report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until earthworks and/or foundation construction is almost complete and therefore the report recommendations can only be regarded as preliminary. Where variations in conditions are encountered, further advice should be sought.

Specific purposes

This report should not be applied to any project other than that originally specified at the time the report was issued.

Interpretation by others

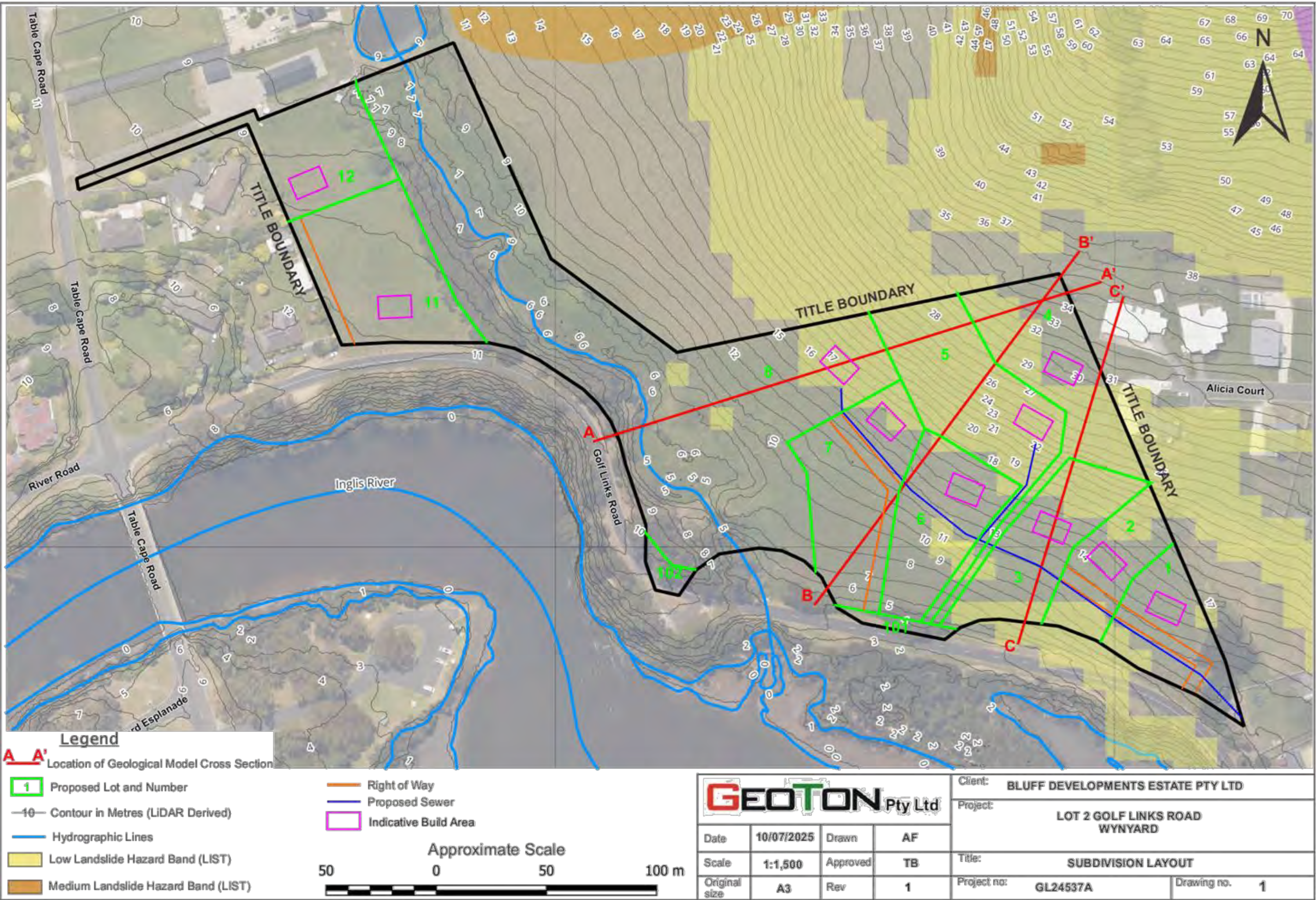
Geoton will not be responsible for interpretations of site data or the report findings by others involved in the design and construction process. Where any confusion exists, clarification should be sought from Geoton.

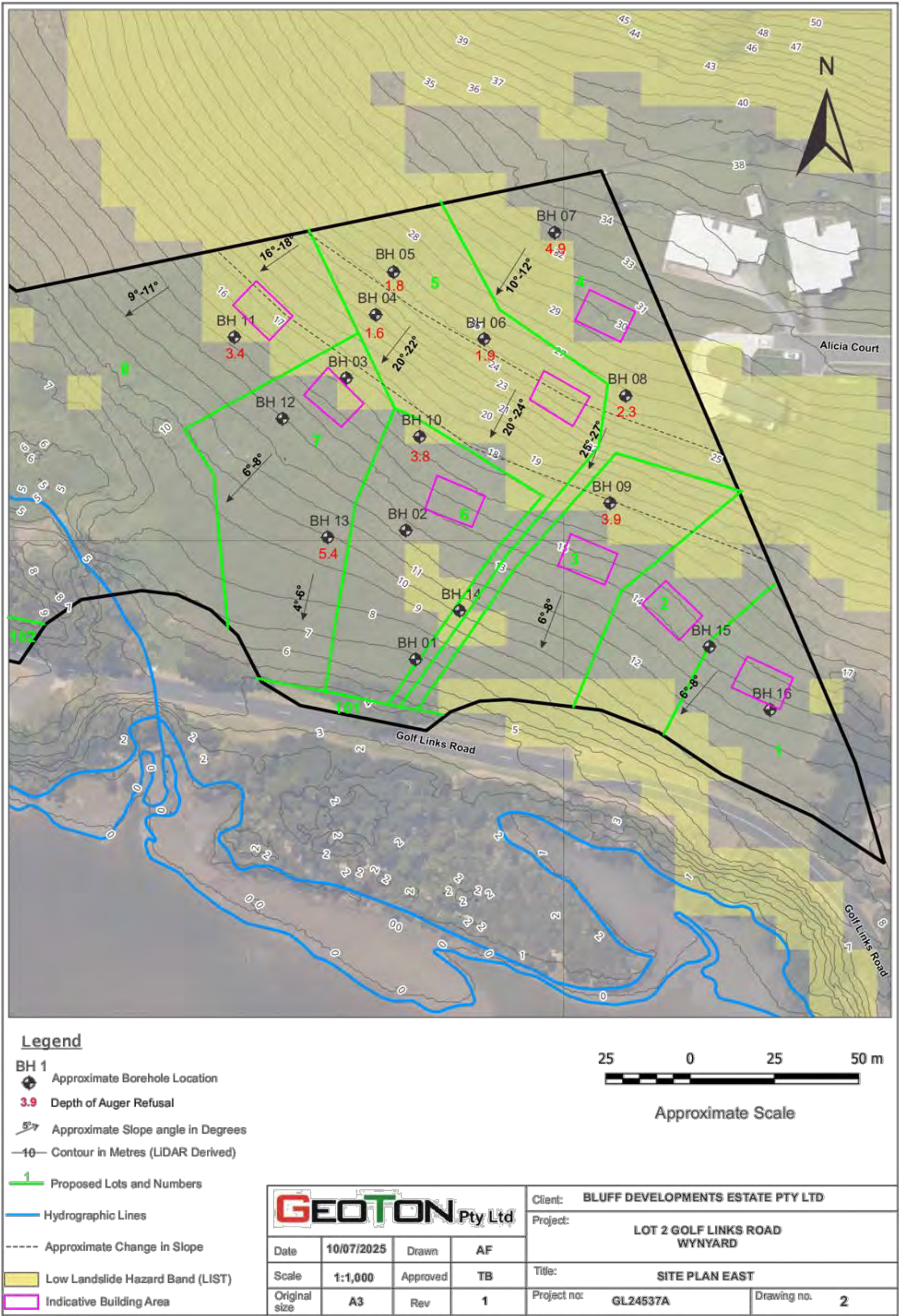
Report integrity

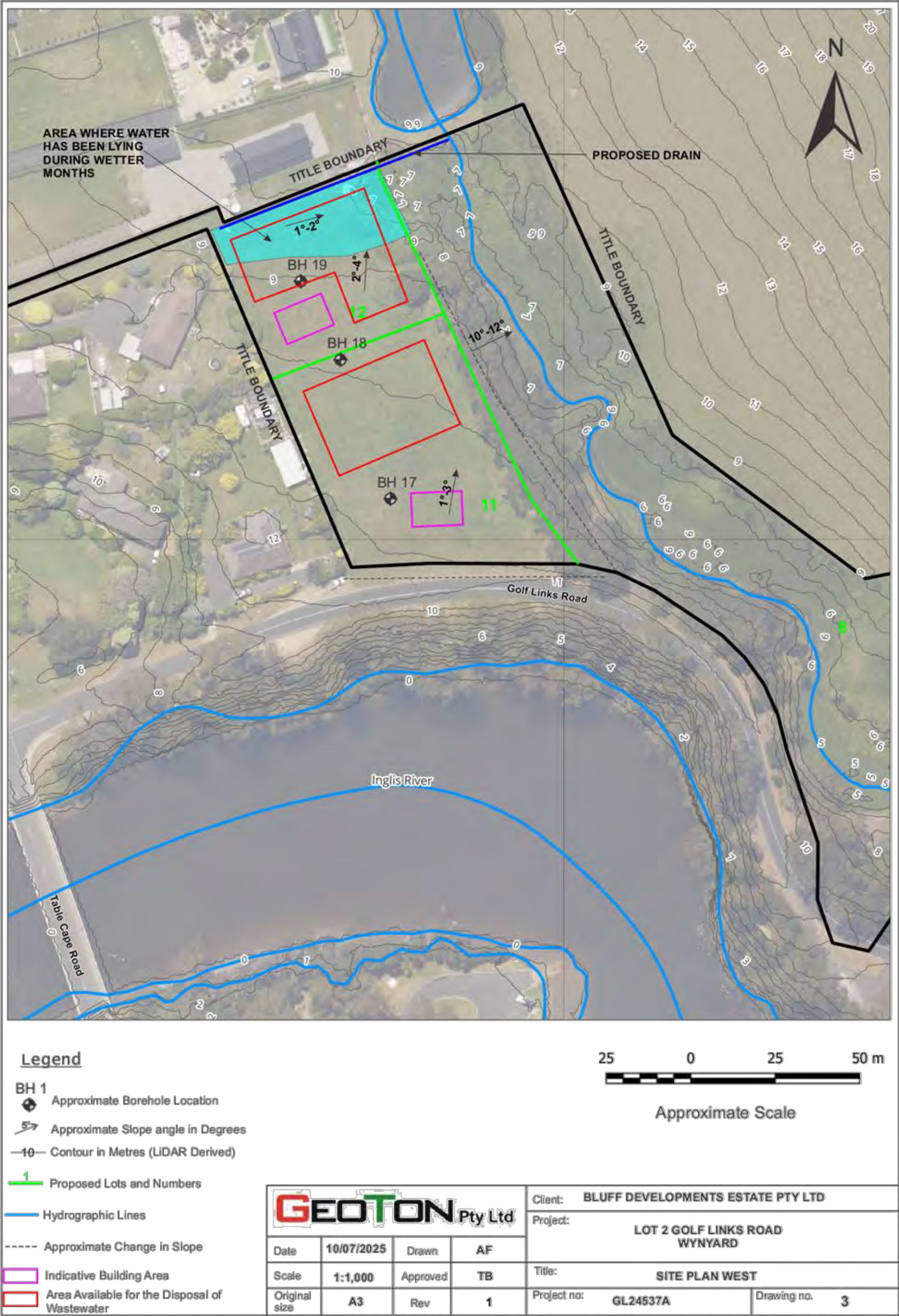
The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

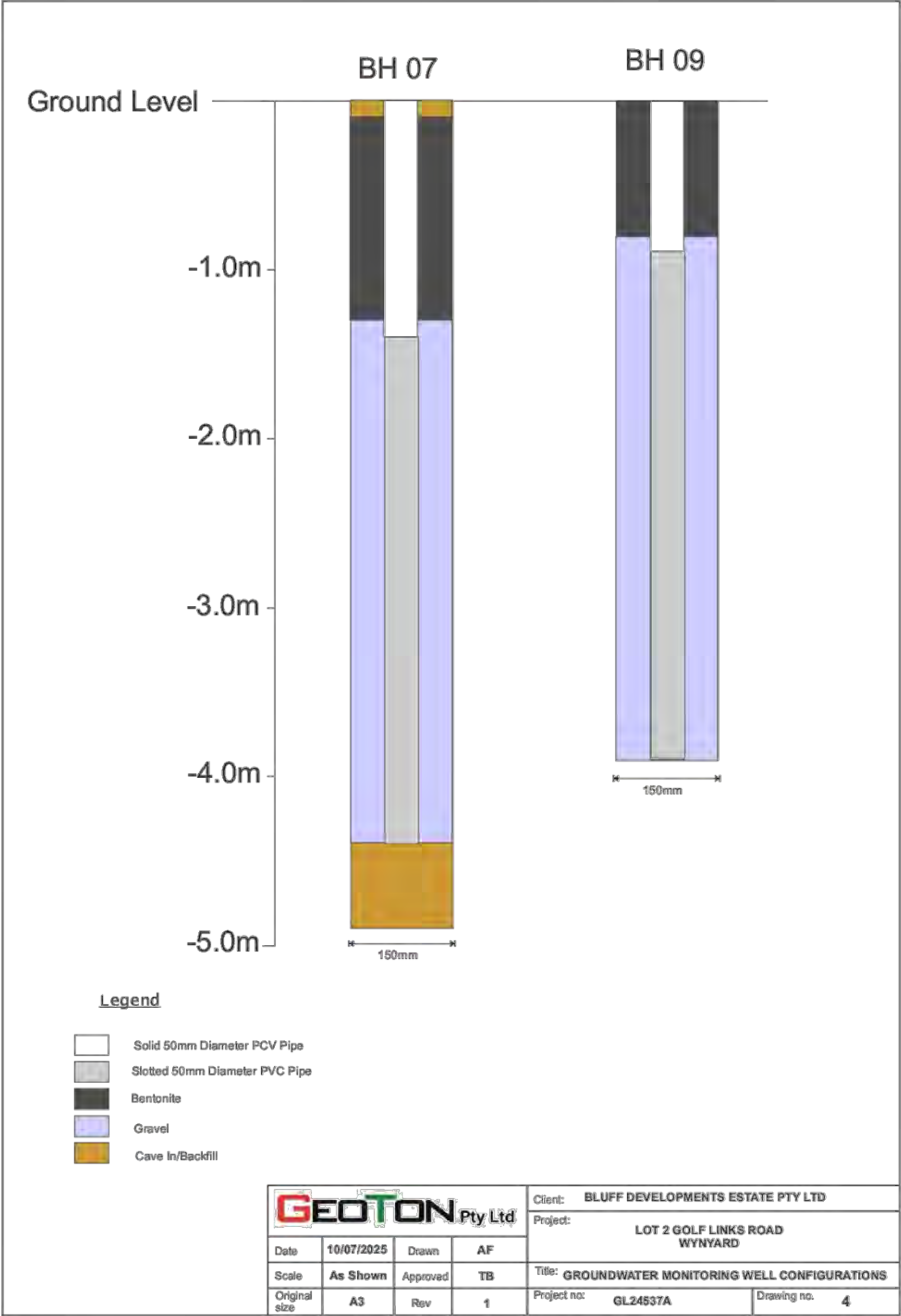
Geoenvironmental issues

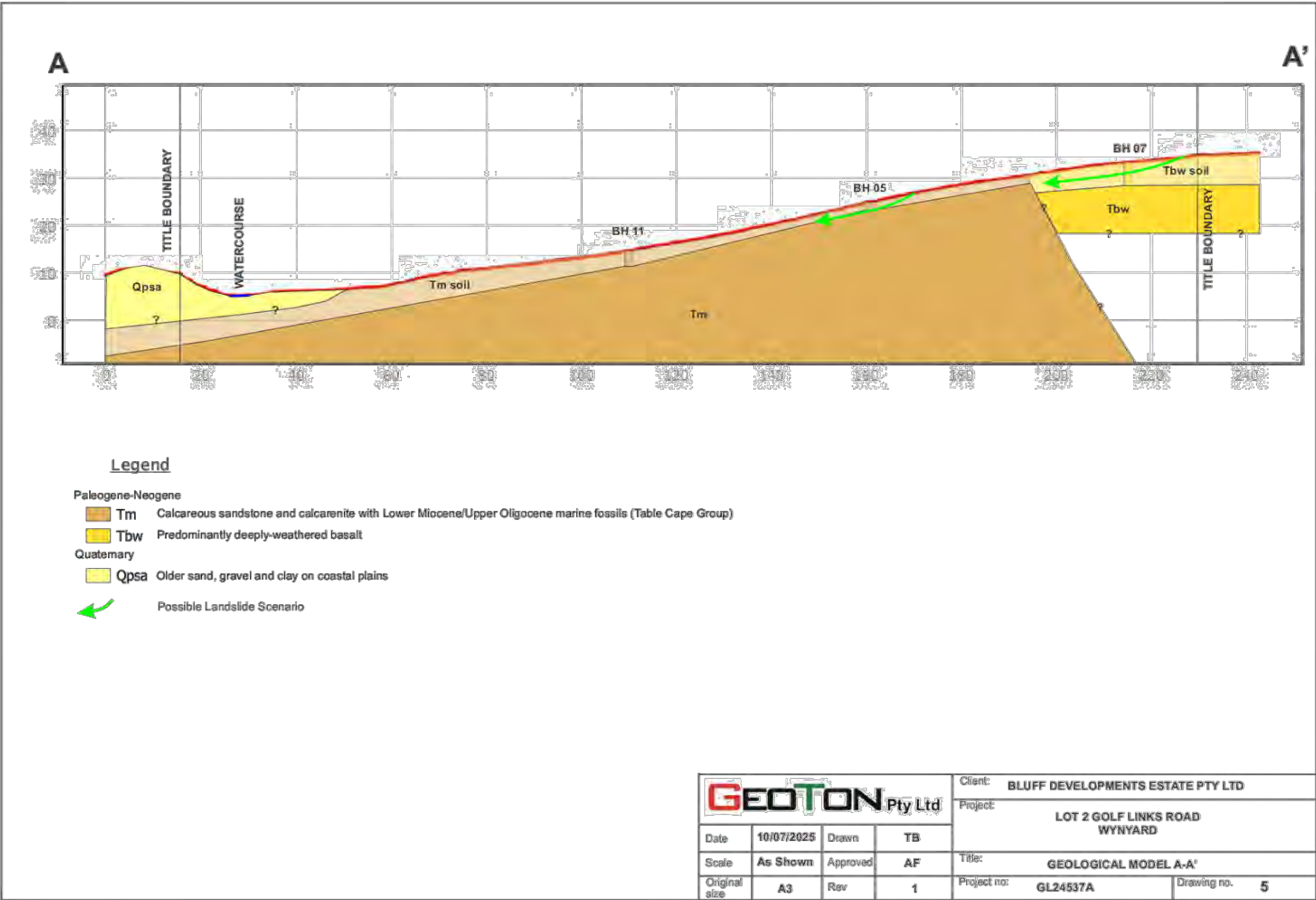
This report does not cover issues of site contamination unless specifically required to do so by the client. In the absence of such a request, Geoton take no responsibility for such issues.

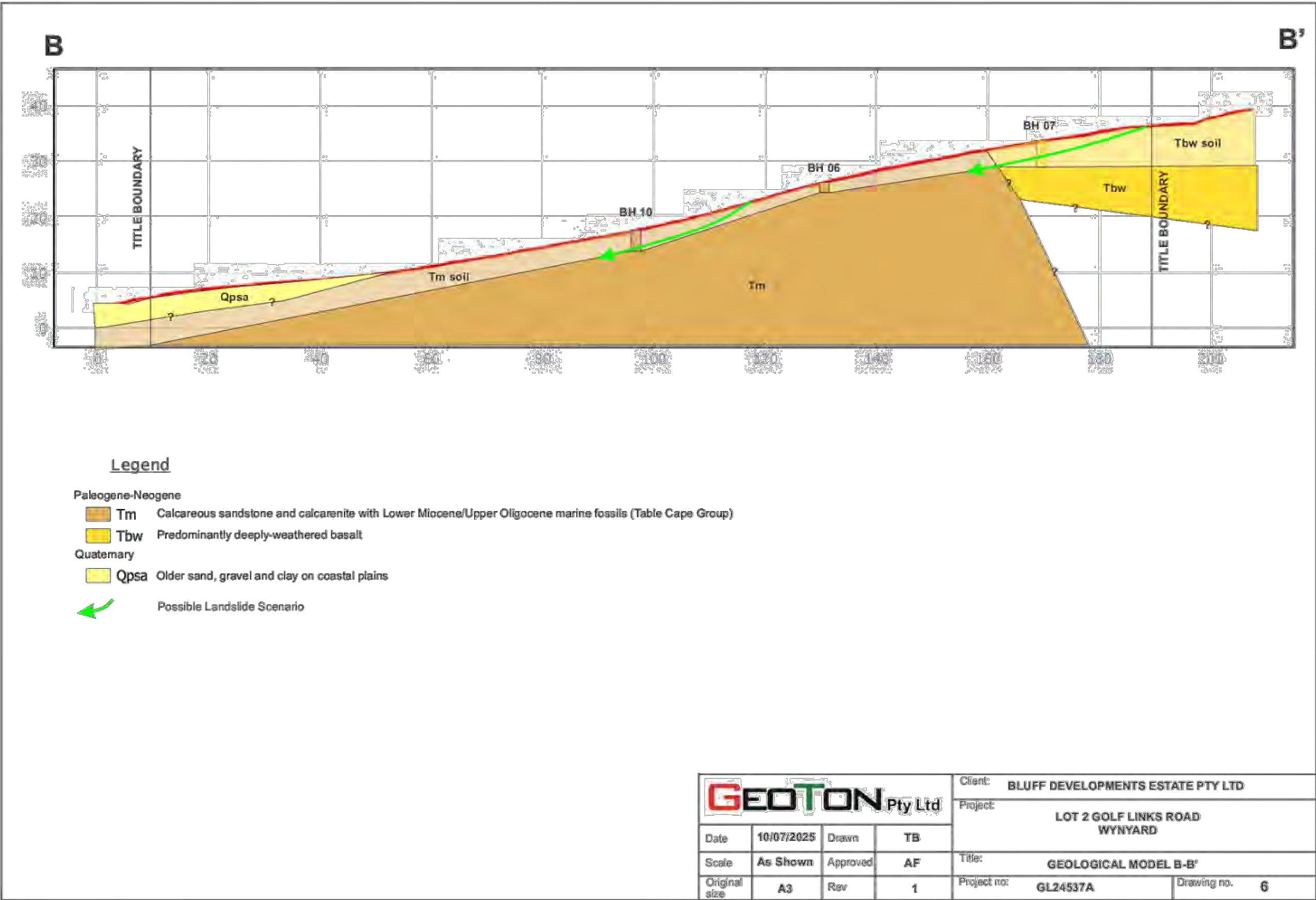


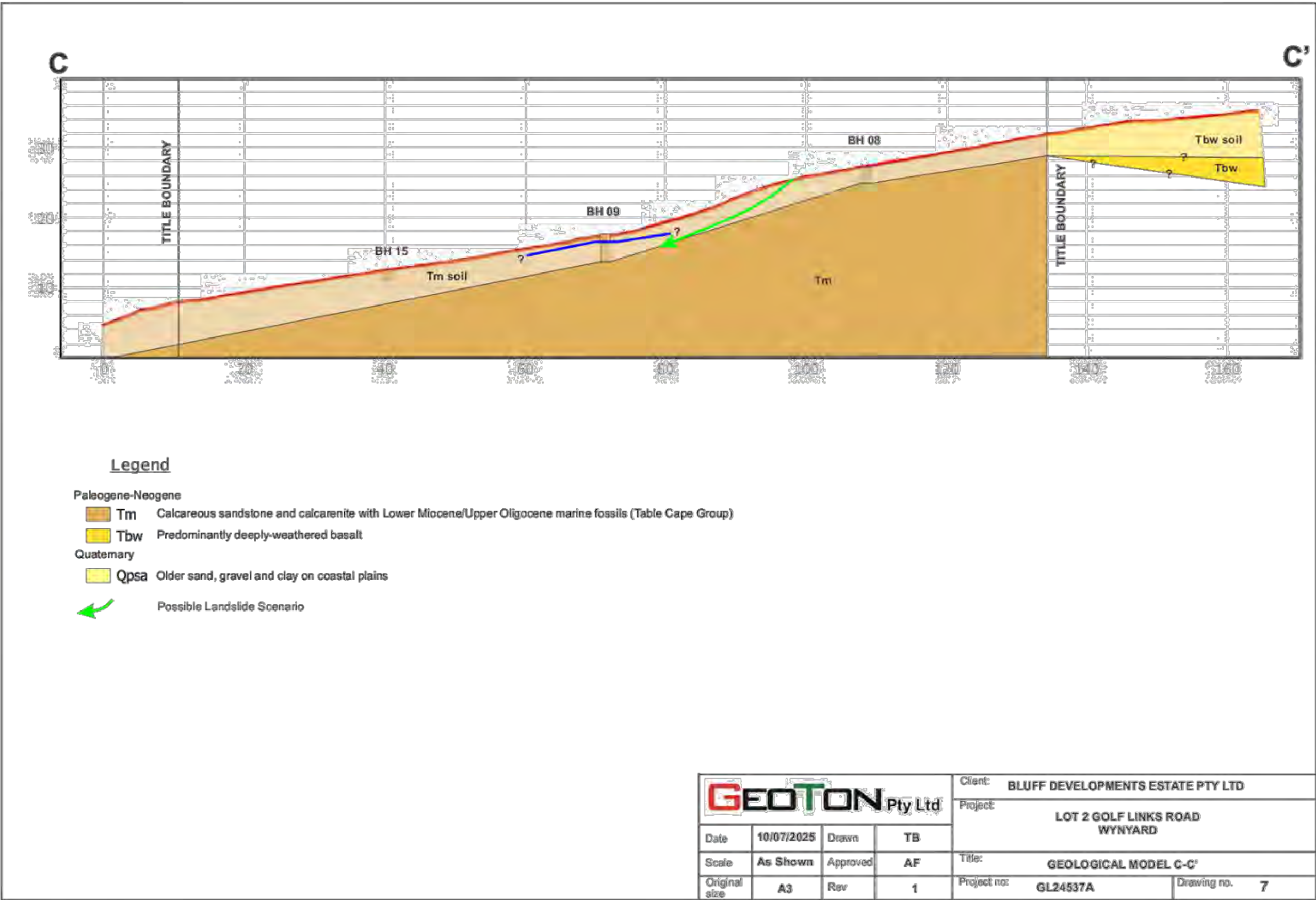








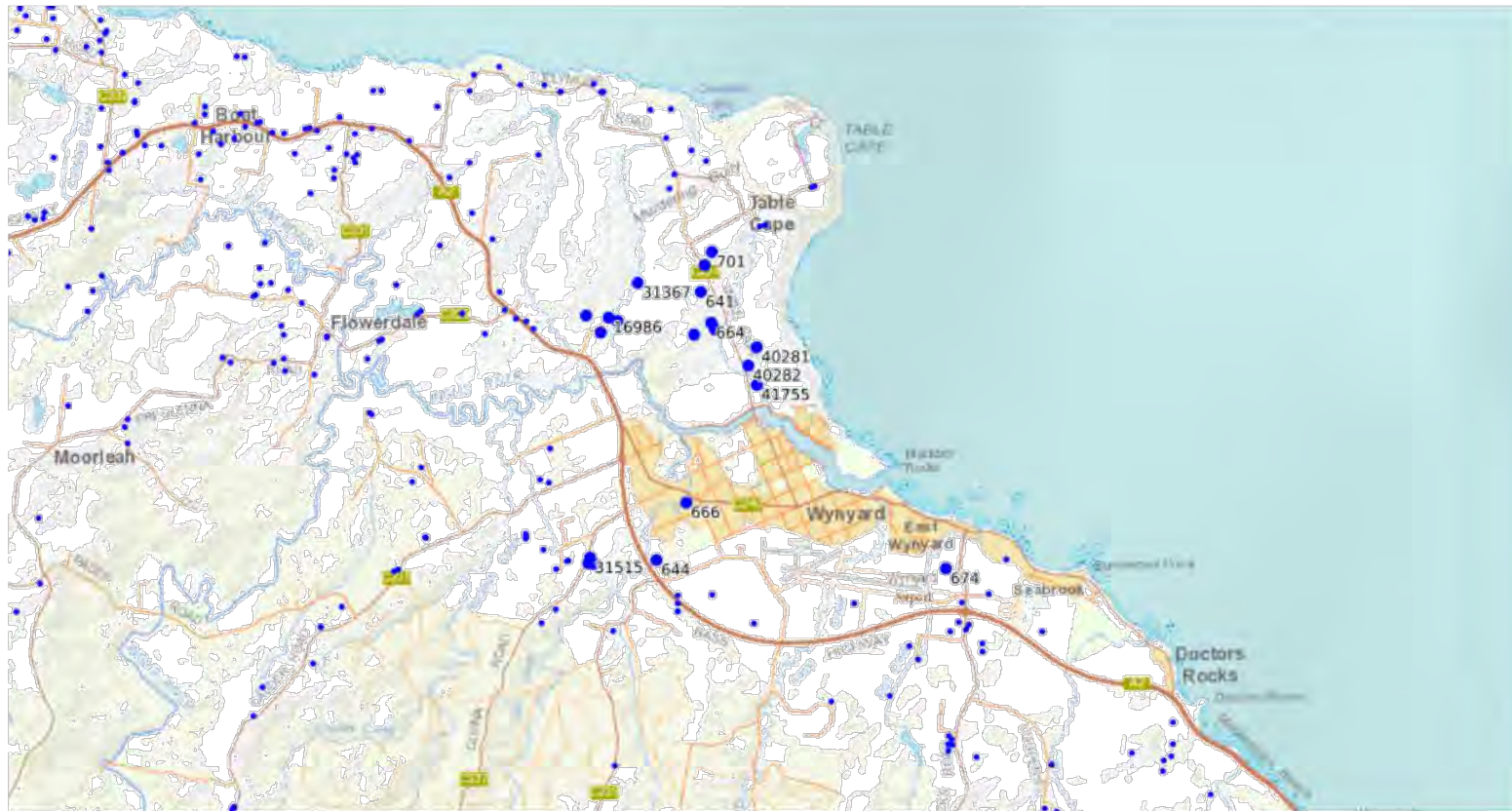




Appendix A

Detailed Information of Groundwater Bores

Groundwater Feature Detailed Report



Disclaimer and Copyright. Map data is compiled from a variety of sources and hence its accuracy is variable. If you wish to make decisions based on this data you should consult with professional advisers. Topographic map base layer is sourced from the LIST (<https://www.thelist.tas.gov.au>). Apart from any use permitted under the Copyright Act 1968, no part of this report may be copied without the permission of the General Manager, Agriculture and Water Business Unit, Department of Natural Resources and Environment Tasmania, PO Box 41, Hobart, TAS 7001.

Groundwater Feature
Detailed Report

Identification

Feature id: 641

Feature type: Bore

Location

Locality: Wynyard

Easting: 391600.000

Datum: GDA94

Northing: 5464271.000

Accuracy: 2000

Ground level (m ASL):

Construction

Date drilled: 29/05/1975

Drilling company: Mono Pumps Australia Pty Ltd

Depth (metres): 39.30

Initial yield (L/sec): 0.90

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	39.3	140.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	39.3		152.00	unknown

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
NA		

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
29/05/1975	35.7		0.90

Main aquifer geology: Permian

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	



Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	29/05/1975
purpose	Unknown	29/05/1975

Groundwater Feature
Detailed Report

Identification	Feature id:	644	Feature type:	Bore
Location	Locality:	Wynyard		
	Easting:	391047.000	Datum:	GDA94
	Northing:	5460925.000	Accuracy:	2000
	Ground level (m ASL):			
Construction	Date drilled:	15/07/1973		
	Drilling company:	Mono Pumps Australia Pty Ltd		
	Depth (metres):	59.00		
	Initial yield (L/sec):	1.01		
	Initial EC (µS/cm):			

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	59.0		Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	14.9		152.00	unknown

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological /
Hydrogeological
Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	0.3	top soil
0.3	1.5	black sandy clay
1.5	3.7	brown sandy clay
3.7	5.2	decomposed materials
5.2	6.1	grey sandy clay
6.1	11.0	brown sandy clay
11.0	12.8	sandy clay
12.8	21.3	mudstone
21.3	21.9	clay and fossilised shells
21.9	30.5	mudstone

Groundwater Feature
Detailed Report

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
15/07/1973	27.4		
15/07/1973	50.3		
15/07/1973	56.0		1.01

Main aquifer geology: Permian
Final TDS (mg/L): 1100

Standing Water Levels

Standing water levels

Date	SWL (metres)
15/07/1973	18.30

Current status

Last recorded statuses

Type	Value	Date recorded
function	Unknown	15/07/1973
purpose	Unknown	15/07/1973

Groundwater Feature
Detailed Report

Identification

Feature id: 663

Feature type: Bore

Location

Locality: Table Cape

Easting: 391517.000

Datum: GDA94

Northing: 5463736.000

Accuracy: 2000

Ground level (m ASL):

Construction

Date drilled: 18/04/1979

Drilling company: Mono Pumps Australia Pty Ltd

Depth (metres): 42.70

Initial yield (L/sec): 1.50

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	42.7	140.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological /
Hydrogeological
Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	1.5	top soil
1.5	6.1	clay
6.1	39.7	decomposed basalt
39.7	42.7	sand

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
18/04/1979	18.3	42.7	1.50

Main aquifer geology: Tertiary Basalt

Final TDS (mg/L):

Groundwater Feature
Detailed Report

Standing Water
Levels

Standing water levels

Date	SWL (metres)
NA	

Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	18/04/1979

Groundwater Feature
Detailed Report

Identification

Feature id: 664

Feature type: Bore

Location

Locality: Table Cape

Easting: 391730.000

Datum: GDA94

Northing: 5463884.000

Accuracy: 2000

Ground level (m ASL):

Construction

Date drilled: 20/04/1979

Drilling company: Mono Pumps Australia Pty Ltd

Depth (metres): 38.10

Initial yield (L/sec): 5.05

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	38.1	152.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	38.1		152.00	unknown

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	4.6	red topsoil
4.6	10.7	clay
10.7	38.1	decomposed basalt

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
20/04/1979	13.7	36.6	5.05

Main aquifer geology: Tertiary Basalt

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

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Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	20/04/1979

Groundwater Feature
Detailed Report

Identification

Feature id: 666

Feature type: Bore

Location

Locality: Wynyard

Easting: 391418.000

Datum: GDA94

Northing: 5461642.000

Accuracy: 100

Ground level (m ASL):

Construction

Date drilled: 12/10/1971

Drilling company: Mono Pumps Australia Pty Ltd

Depth (metres): 103.60

Initial yield (L/sec): 0.38

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	103.6	152.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	4.6		152.00	unknown

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	1.8	top soil and clay
1.8	3.7	clay and gravel
3.7	103.6	tillite ?? and quartz

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
12/10/1971	24.4		0.38

Main aquifer geology: Permian

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
12/10/1971	4.60

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Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	12/10/1971

Groundwater Feature Detailed Report

Identification	Feature id:	674	Feature type:	Bore
Location	Locality:	Wynyard		
	Easting:	394658.000	Datum:	GDA94
	Northing:	5460818.000	Accuracy:	2000
	Ground level (m ASL):			
Construction	Date drilled:	10/12/1980		
	Drilling company:	G and G Drilling Pty Ltd		
	Depth (metres):	9.10		
	Initial yield (L/sec):	1.55		
	Initial EC (µS/cm):			

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	9.1	190.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	7.6		152.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	2.5	soft soil
2.5	7.6	gravel
7.6	9.1	river wash

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
10/12/1980	7.6		1.55

Main aquifer geology: Tertiary Sediments
Final TDS (mg/L):

Groundwater Feature
Detailed Report

Standing Water Levels

Standing water levels

Date	SWL (metres)
10/12/1980	0.90

Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	10/12/1980

Groundwater Feature
Detailed Report

Identification

Feature id: 701

Feature type: Bore

Location

Locality: Table Cape

Easting: 391738.000 Datum: GDA94

Northing: 5464769.000 Accuracy: 2000

Ground level (m ASL):

Construction

Date drilled:

Drilling company: Phillips

Depth (metres): 36.60

Initial yield (L/sec):

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	36.6		Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	36.6	basalt

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Tertiary Basalt

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	

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Current status

Last recorded statuses

Type	Value	Date recorded
function	Unknown	

Groundwater Feature
Detailed Report

Identification

Feature id: 4759

Feature type: Bore

Location

Locality: Wynyard

Easting: 391777.000 Datum: GDA94

Northing: 5463803.000 Accuracy: 200

Ground level (m ASL):

Construction

Date drilled: 07/01/1987

Drilling company: Gerald Spaulding Drillers Pty Ltd

Depth (metres): 36.60

Initial yield (L/sec): 1.26

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	36.6	203.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	36.6		152.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	12.2	clay
12.2	36.6	basalt

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology:

Tertiary Basalt

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
07/01/1987	18.30

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Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	07/01/1987

Groundwater Feature
Detailed Report

Identification

Feature id: 16986

Feature type: Bore

Location

Locality: Wynyard

Easting: 390450.000

Datum: GDA94

Northing: 5463950.000

Accuracy: 500

Ground level (m ASL):

Construction

Date drilled: 28/01/1997

Drilling company: Gerald Spaulding Drillers Pty Ltd

Depth (metres): 29.00

Initial yield (L/sec): 1.01

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	29.0	203.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	29.0	147.00	160.00	"unplasticised polyvinylchloride uPVC, Class 9"

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological /
Hydrogeological
Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	4.6	clay
4.6	25.9	soft grey mudstone
25.9	29.0	Calder gravel and sand (2 to 30 mm diameter)

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
28/01/1997	25.9	29.0	1.01

Main aquifer geology: Tertiary Sediments

Final TDS (mg/L):

Groundwater Feature
Detailed Report

Standing Water Levels

Standing water levels

Date	SWL (metres)
28/01/1997	15.20

Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	28/01/1997

**Groundwater Feature
Detailed Report**

Identification **Feature id:** 31367 **Feature type:** Bore

Location **Locality:** Table Cape
Easting: 390813.000 **Datum:** GDA94
Northing: 5464383.000 **Accuracy:** 500
Ground level (m ASL):

Construction **Date drilled:** 01/01/2003
Drilling company: Gerald Spaulding Drillers Pty Ltd
Depth (metres): 100.00
Initial yield (L/sec): 6.32
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	100.0	203.00	Unknown

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	24.0	152.00	152.00	"unplasticised polyvinylchloride uPVC, Class 12"
24.0	80.0	152.00	152.00	"unplasticised polyvinylchloride uPVC, Class 9"

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

**Geological /
Hydrogeological
Information**

Lithological Log

From (m)	To (m)	Lithological description
0.0	9.0	clay
9.0	13.0	loose basalt
13.0	18.0	sandy clay
18.0	23.0	basalt
23.0	100.0	mudstone

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Tertiary Sediments
Final TDS (mg/L):

Groundwater Feature
Detailed Report

Standing Water
Levels

Standing water levels

Date	SWL (metres)
NA	

Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	01/01/2003
purpose	Unknown	01/01/2003

Groundwater Feature
Detailed Report

Identification

Feature id: 31513

Feature type: Bore

Location

Locality: Wynyard

Easting: 390266.000

Datum: GDA94

Northing: 5460872.000

Accuracy: 100

Ground level (m ASL):

Construction

Date drilled: 03/02/2000

Drilling company: Gerald Spaulding Drillers Pty Ltd

Depth (metres): 61.00

Initial yield (L/sec):

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
NA			

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	12.0	clay
12.0	61.0	mudstone

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Permian

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	



Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	03/02/2000
purpose	Unknown	03/02/2000

Groundwater Feature
Detailed Report

Identification

Feature id: 31514

Feature type: Bore

Location

Locality: Wynyard

Easting: 390198.000

Datum: GDA94

Northing: 5460884.000

Accuracy: 100

Ground level (m ASL):

Construction

Date drilled: 03/02/2000

Drilling company: Gerald Spaulding Drillers Pty Ltd

Depth (metres): 79.00

Initial yield (L/sec):

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
NA			

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	9.0	clay
9.0	79.0	mudstone

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Permian

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	



Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	03/02/2000
purpose	Unknown	03/02/2000

Groundwater Feature
Detailed Report

Identification

Feature id: 31515

Feature type: Bore

Location

Locality: Wynyard

Easting: 390218.000

Datum: GDA94

Northing: 5460953.000

Accuracy: 25

Ground level (m ASL):

Construction

Date drilled: 03/02/2000

Drilling company: Gerald Spaulding Drillers Pty Ltd

Depth (metres): 61.00

Initial yield (L/sec):

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
NA			

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
NA				

Screens

From (m)	To (m)	Inlet type
NA		

Seals

From (m)	To (m)	Material type
NA		

Geological / Hydrogeological Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	0.6	clay
0.6	61.0	mudstone shale

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
NA			

Main aquifer geology: Permian

Final TDS (mg/L):

Standing Water Levels

Standing water levels

Date	SWL (metres)
NA	



Current status

Last recorded statuses

Type	Value	Date recorded
function	abandoned	03/02/2000
purpose	Unknown	03/02/2000

**Groundwater Feature
Detailed Report**

Identification	Feature id:	40258	Feature type:	Bore
Location	Locality:	Flowerdale		
	Easting:	390560.000	Datum:	GDA94
	Northing:	5463909.000	Accuracy:	50
	Ground level (m ASL):			
Construction	Date drilled:	09/04/2009		
	Drilling company:	Gerald Spaulding Drillers Pty Ltd		
	Depth (metres):	24.00		
	Initial yield (L/sec):	4.42		
	Initial EC (µS/cm):			

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
4.0	24.0	162.00	Downhole Hammer (Rotary Hammer)
0.0	4.0	162.00	Rotary (Rotary Mud)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	6.0	125.00	140.00	"unplasticised polyvinylchloride uPVC, Class 12"
18.0	24.0	125.00	140.00	"unplasticised polyvinylchloride uPVC, Class 12"

Screens

From (m)	To (m)	Inlet type
6.0	18.0	slotted casing

Seals

From (m)	To (m)	Material type
NA		

**Geological /
Hydrogeological
Information****Lithological Log**

From (m)	To (m)	Lithological description
0.0	6.0	Clay
6.0	12.0	Decomposed mudstone
12.0	18.0	Mudstone
18.0	24.0	Mudstone - Sand & gravel

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
09/04/2009	8.0	10.0	
09/04/2009	16.0	17.0	4.42

Groundwater Feature
Detailed Report

Main aquifer geology: Tertiary Sediments
Final TDS (mg/L):

Standing Water
Levels

Standing water levels

Date	SWL (metres)
09/04/2009	3.50

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	09/04/2009

**Groundwater Feature
Detailed Report**

Identification	Feature id:	40281	Feature type:	Bore
Location	Locality:	Wynyard		
	Easting:	392298.000	Datum:	GDA94
	Northing:	5463582.000	Accuracy:	25
	Ground level (m ASL):			
Construction	Date drilled:	04/05/2009		
	Drilling company:	Gerald Spaulding Drillers Pty Ltd		
	Depth (metres):	96.00		
	Initial yield (L/sec):	2.53		
	Initial EC (µS/cm):			

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
12.0	96.0	200.00	Downhole Hammer (Rotary Hammer)
0.0	12.0	200.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	12.0	200.00		steel
0.0	24.0	125.00		unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
24.0	54.0	slotted casing

Seals

From (m)	To (m)	Material type
54.0	96.0	

**Geological /
Hydrogeological
Information****Lithological Log**

From (m)	To (m)	Lithological description
0.0	12.0	Clay with basalt floaters
12.0	24.0	Hard basalt
24.0	30.0	Grey clay with basalt chips
30.0	54.0	Hard basalt little fractures
54.0	78.0	Grey clay, basalt chips, small shells & river silt
78.0	96.0	Mudstone, grey

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
04/05/2009	24.0	42.0	

Groundwater Feature
Detailed Report

Main aquifer geology: Tertiary Basalt
Final TDS (mg/L):

Standing Water
Levels

Standing water levels

Date	SWL (metres)
04/05/2009	16.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	04/05/2009

**Groundwater Feature
Detailed Report**

Identification **Feature id:** 40282 **Feature type:** Bore

Location **Locality:** Wynyard
Easting: 392191.000 **Datum:** GDA94
Northing: 5463352.000 **Accuracy:** 25
Ground level (m ASL):

Construction **Date drilled:** 06/05/2009
Drilling company: Gerald Spaulding Drillers Pty Ltd
Depth (metres): 72.00
Initial yield (L/sec): 1.64
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
6.0	72.0	200.00	Downhole Hammer (Rotary Hammer)
0.0	6.0	200.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	6.0	200.00		steel
0.0	30.0		127.00	unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
6.0	18.0	slotted casing

Seals

From (m)	To (m)	Material type
52.0	72.0	rock

**Geological /
Hydrogeological
Information****Lithological Log**

From (m)	To (m)	Lithological description
0.0	12.0	Topsoil clay
12.0	45.0	Grey clay, sea-shells & river silt
45.0	72.0	Mudstone black with quartz & shale

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
06/05/2009	12.0	24.0	
06/05/2009	36.0	42.0	1.64

Main aquifer geology:

Tertiary Sediments

Groundwater Feature
Detailed Report

Final TDS (mg/L):

Standing Water
Levels

Standing water levels

Date	SWL (metres)
06/05/2009	4.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	functioning	06/05/2009

**Groundwater Feature
Detailed Report**

Identification	Feature id:	40766	Feature type:	Bore
Location	Locality:	Wynyard		
	Easting:	391648.000	Datum:	GDA94
	Northing:	5464605.000	Accuracy:	25
	Ground level (m ASL):			
Construction	Date drilled:	18/01/2007		
	Drilling company:	Gerald Spaulding Drillers Pty Ltd		
	Depth (metres):	96.00		
	Initial yield (L/sec):	0.63		
	Initial EC (µS/cm):			

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
60.0	96.0	162.00	Downhole Hammer (Rotary Hammer)
23.0	60.0	200.00	Downhole Hammer (Rotary Hammer)
0.0	23.0	200.00	Rotary (Rotary Mud)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	23.0	200.00		steel
0.0	36.0	150.00		unplasticised polyvinylchloride uPVC

Screens

From (m)	To (m)	Inlet type
36.0	60.0	slotted casing

Seals

From (m)	To (m)	Material type
NA		

**Geological /
Hydrogeological
Information****Lithological Log**

From (m)	To (m)	Lithological description
0.0	6.0	Top soil
6.0	24.0	Clay
24.0	96.0	Basalt

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
18/01/2007	36.0	42.0	0.32
18/01/2007	42.0	54.0	0.63

Main aquifer geology: Tertiary Basalt

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Groundwater Feature
Detailed Report

Final TDS (mg/L):

Standing Water
Levels

Standing water levels

Date	SWL (metres)
18/01/2007	12.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	18/01/2007

Groundwater Feature
Detailed Report

Identification

Feature id: 41755

Feature type: Bore

Location

Locality: Wynyard

Easting: 392298.000

Datum: GDA94

Northing: 5463110.000

Accuracy: 5

Ground level (m ASL):

Construction

Date drilled: 01/09/2016

Drilling company: Gerald Spaulding Drillers Pty Ltd

Depth (metres): 66.00

Initial yield (L/sec): 0.50

Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	16.0	250.00	Downhole Hammer (Rotary Hammer)
16.0	66.0	200.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	12.0	125.00	140.00	"unplasticised polyvinylchloride uPVC, Class 12"
0.0	15.0	210.00	219.00	steel
30.0	54.0	125.00	140.00	"unplasticised polyvinylchloride uPVC, Class 12"
60.0	66.0	125.00	140.00	"unplasticised polyvinylchloride uPVC, Class 12"

Screens

From (m)	To (m)	Inlet type
12.0	30.0	slotted casing
54.0	60.0	slotted casing

Seals

From (m)	To (m)	Material type
0.0	8.0	spoil-cuttings

Geological /
Hydrogeological
Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	3.0	top soil and clay
3.0	13.0	sand
13.0	14.0	clay
14.0	17.0	gravel
17.0	66.0	mudstone

**Groundwater Feature
Detailed Report**

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
01/09/2016	18.0	18.0	0.20
01/09/2016	54.0	66.0	0.50

Main aquifer geology:

Final TDS (mg/L):

**Standing Water
Levels**

Standing water levels

Date	SWL (metres)
01/09/2016	5.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	01/09/2016

**Groundwater Feature
Detailed Report**

Identification	Feature id:	42618	Feature type:	Bore
Location	Locality:	Flowerdale		
	Easting:	390351.000	Datum:	GDA94
	Northing:	5463762.000	Accuracy:	5
	Ground level (m ASL):			
Construction	Date drilled:	06/05/2022		
	Drilling company:	Gerald Spaulding Drillers Pty Ltd		
	Depth (metres):	18.00		
	Initial yield (L/sec):	6.00		
	Initial EC (µS/cm):			

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
6.0	24.0	178.00	Downhole Hammer (Rotary Hammer)
1.0	6.0	225.00	Air Percussion (Rotary air - R)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	12.0	125.00	140.00	"unplasticised polyvinylchloride uPVC, Class 12"

Screens

From (m)	To (m)	Inlet type
12.0	18.0	slotted casing

Seals

From (m)	To (m)	Material type
0.0	5.0	spoil-cuttings
5.0	6.0	bentonite clay

**Geological /
Hydrogeological
Information****Lithological Log**

From (m)	To (m)	Lithological description
0.0	1.0	Sandy topsoil
1.0	3.0	Clay
3.0	15.0	Mudstone
15.0	24.0	Shingle rock, quartz gravel & silt

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
06/05/2022	15.0	18.0	3.00
06/05/2022	18.0	24.0	6.00

Main aquifer geology:

Tertiary Sediments

29/10/2024

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Groundwater Feature
Detailed Report

Final TDS (mg/L): 310

Standing Water
Levels

Standing water levels

Date	SWL (metres)
06/05/2022	4.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	06/05/2022

**Groundwater Feature
Detailed Report**

Identification **Feature id:** 42714 **Feature type:** Bore

Location **Locality:** Wynyard
Easting: 390167.000 **Datum:** GDA94
Northing: 5463977.000 **Accuracy:** 5
Ground level (m ASL):

Construction **Date drilled:** 25/09/2023
Drilling company: Gerald Spaulding Drillers Pty Ltd
Depth (metres): 64.00
Initial yield (L/sec): 4.00
Initial EC (µS/cm):

Bore diameters

From (m)	To (m)	Diameter (mm)	Drilling technique
0.0	9.0	225.00	Air Percussion (Rotary air - R)
0.0	36.0	250.00	Downhole Hammer (Rotary Hammer)
36.0	66.0	178.00	Downhole Hammer (Rotary Hammer)

Casings

From (m)	To (m)	Inside diameter (mm)	Outside diameter (mm)	Material
0.0	58.0	125.00	140.00	"unplasticised polyvinylchloride uPVC, Class 12"
0.0	66.0	208.00	219.00	steel

Screens

From (m)	To (m)	Inlet type
58.0	64.0	slotted casing

Seals

From (m)	To (m)	Material type
0.0	7.0	spoil-cuttings
7.0	9.0	bentonite clay
9.0	9.3	rubber

Groundwater Feature
Detailed Report

Geological /
Hydrogeological
Information

Lithological Log

From (m)	To (m)	Lithological description
0.0	1.0	Topsoil
1.0	7.0	Clay Decomposed basalt
7.0	9.0	Quartz gravels & clay
9.0	33.0	Grey mudstone
33.0	50.0	Sand, veg/wood & quartz gravels
50.0	66.0	Fine quartz gravel to large shingle rock

Depth to water struck

Date	From (m)	To (m)	Cumulative yield
25/09/2023	33.0	66.0	4.00

Main aquifer geology: Tertiary Sediments
Final TDS (mg/L): 370

Standing Water
Levels

Standing water levels

Date	SWL (metres)
25/09/2023	18.00

Current status

Last recorded statuses

Type	Value	Date recorded
function	capped	25/09/2023

Appendix B

Borehole Logs

Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH01 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392614 Northing : 5462756 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, index	Structure, Additional Observations
ADV				DCP	0		ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	F	
					0.25		CI	Natural- Silty CLAY- medium plasticity, brown grey.	M	F-St	w ~ PL
					0.50		CH	Natural- Silty CLAY- high plasticity, brown mottled grey.	W-M	F-St	w > PL, w < LL
					0.75						
					1						
					1.25						
					1.5		LST	Extremely weathered LIMESTONE- Sandy CLAY soil properties- medium plasticity, orange brown, fine grained sand.	M	St	
					1.75						
					2						
					2.25						
					2.50						
					2.75						
BHD1 Terminated at 1.5m											

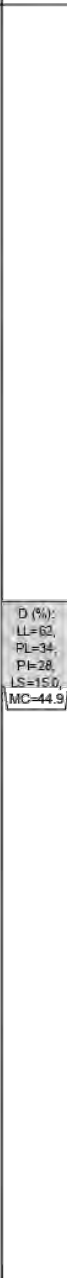
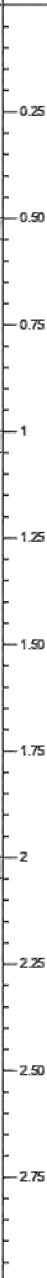
GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH02 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392620 Northing : 5462796 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
ADV			Bs; CBR=2.5%	1			ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	St	
				2							
				3	0.25		CH	Natural- Silty CLAY- high plasticity, brown grey, trace cobbles	W-M	St	w > PL, w < LL
				4							
				5	0.50						
				6							
				7	0.75						
				8							
				9	1						
				10							
				11							
				12	1.25		CH	Becoming brown.	M	VSt	w < PL
								BH02 Terminated at 1.5m			
					1.75						
					2						
					2.25						
					2.50						
					2.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH03											
Client : Bluff Developments Estate Pty Ltd					Easting : 392599		Sheet : 1 OF 1				
Project : Karst Assessment & Geotechnical Investigation					Northing : 5462844		Job No : GL24537A				
Location : Lot 2 Golf Links Road, Wynyard TAS					Inclination : -90deg		Logged : AF				
					Azimuth :		Logged Date : 06/11/2024				
							Drill Rig : DrillTech 150mm				
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				DCP							
ADV							ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	St	
					0.25		CH	Natural- Silty CLAY- high plasticity, brown grey.	W-M	F	w > PL, w < LL
					0.50						
					0.75						
					1.00						
					1.25						
					1.50						
					1.75						
					2.00						
					2.25						
					2.50						
					2.75						
					3.00						
					3.25						
					3.50						
								BH03 Terminated at 1.5m			

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH04 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392602 Northing : 5462857 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
ADV				V (kPa)			ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres, with cobbles	M	St	w > PL, w < LL
					0.25		CH	Natural- Silty CLAY- high plasticity, brown grey, with cobbles	W-M	St	
					0.50						
					0.75						
					1		CH	Becoming brown.	W-M	St	
					1.25						
					1.50		CH		M-D	St	
					1.75			BH04 refusal at 1.6m (auger refusal on inferred highly weathered limestone)			
					2						
					2.25						
					2.50						
					2.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH05 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392606 Northing : 5462870 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH06 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392633 Northing : 5462851 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
ADV				V (kPa)	0.25 0.50 0.75 1 1.25 1.50 1.75		ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	St	
							CH	Natural- Silty CLAY- high plasticity, brown.	M	VSt	w ~ PL
							CH	Becoming grey, trace cobbles	W-M	St	w > PL, w < LL
							LST	Extremely weathered LIMESTONE- Silty CLAY soil properties- high plasticity, pale brown mottled white, trace fine to medium grained sand.	M	VSt	
				Q (%)							poor spoil recovery
					2 2.25 2.50 2.75			BH06 refusal at 1.9m (auger refusal on inferred highly weathered limestone)			

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH07 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392655 Northing : 5462884 Inclination : -90deg Azimuth : Sheet : 1 OF 2 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
ADV							ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	St	Residual basalt soil. Groundwater well installed. Well dry 11/11/2024
							MH	Natural- Clayey SILT- high plasticity, red brown mottled black, trace cobbles	M	VSt	w < PL
							MH		W-M	VSt	w > PL, w < LL
							MH	Becoming brown.	M	VSt	w ~ PL

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH07 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392655 Northing : 5462884 Inclination : -90deg Azimuth : Sheet : 2 OF 2 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm												
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations	
				V (kPa)								
ADV							MH	Becoming brown.	M	VSt		
					3.25		BA S	Extremely weathered BASALT-Clayey SAND soil properties-medium grained, high plasticity clay, brown mottled dark brown, trace cobbles .	M	D		
					3.50							
					3.75							
					4		BA S	Extremely weathered BASALT-Silty CLAY soil properties- high plasticity, brown, with fine to coarse sized gravel.	M	VSt		
					4.25							
					4.50							
					4.75		BA S	With cobbles	M	VSt		
					5			BH07 refusal at 4.9m (auger refusal on inferred highly weathered basalt)				
					5.25							
					5.50							
					5.75							

Enclosure 5 Consolidated application documents

GEOTON Geotechnical Consultants				ENGINEERING BOREHOLE LOG: BH08								
Client : Bluff Developments Estate Pty Ltd				Easting : 392674				Sheet : 1 OF 1				
Project : Karst Assessment & Geotechnical Investigation				Northing : 5462833				Job No : GL24537A				
Location : Lot 2 Golf Links Road, Wynyard TAS				Inclination : -90deg				Logged : AF				
				Azimuth :				Logged Date : 06/11/2024				
								Drill Rig : DrillTech 150mm				
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations	
				V (kPa)								
ADV					0.25		ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	St		
					0.50		CI	Natural- Silty CLAY- medium plasticity, brown, trace fine to medium sized gravel, with cobbles	M	St		
					0.75		MH	Natural- Clayey SILT- high plasticity, grey mottled brown, with cobbles	W-M	VSt		w > PL, w < LL
					1							
					1.25		LST	Extremely weathered LIMESTONE- Silty CLAY soil properties- medium plasticity, yellow brown, with fine grained sand, trace fine to medium sized gravel, with cobbles	M	VSt	poor spoil recovery	
					1.50							
					1.75		LST	Extremely weathered LIMESTONE- Silty CLAY soil properties- high plasticity, yellow brown, with fine grained sand.	M	VSt		
					2							
					2.25		LST	Extremely weathered LIMESTONE- Silty CLAY soil properties- high plasticity, yellow brown, with fine grained sand.	M	VSt		
					2.50							
					2.75							
												BH08 refusal at 2.3m (auger refusal on inferred highly weathered limestone)

GEOTON Geotechnical Consultants				ENGINEERING BOREHOLE LOG: BH09											
Client : Bluff Developments Estate Pty Ltd				Easting : 392670				Sheet : 1 OF 2							
Project : Karst Assessment & Geotechnical Investigation				Northing : 5462801				Job No : GL24537A							
Location : Lot 2 Golf Links Road, Wynyard TAS				Inclination : -90deg				Logged : AF							
				Azimuth :				Logged Date : 06/11/2024							
								Drill Rig : DrillTech 150mm							
Method	Drilling	Water	Samples	Testing		Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations			
				V (kPa)	PP (kPa)										
ADV						0.25		ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	F	Groundwater well installed			
						0.50		CI	Natural- Silty CLAY- medium plasticity, brown, trace medium sized gravel.	W-M	St				
						0.75		CH	Natural- Silty CLAY- high plasticity, grey mottled brown, trace medium sized gravel, trace medium grained sand, trace cobbles	W-M	St	w > PL, w < LL			
						1.00									Groundwater measured @ 1.1m 11/11/2024
						1.25									
						1.50									
						1.75									
						2.00					CH	Becoming brown, trace cobbles	W	St	increasing moisture
						2.25									
						2.50					MH	Natural- Clayey SILT- high plasticity, grey, trace medium grained sand, trace shell fossil fragments	M	VSt	w ~ PL
		2.75													

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH09 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392670 Northing : 5462801 Inclination : -90deg Azimuth : Sheet : 2 OF 2 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm												
Method	Drilling	Water	Samples	Testing		Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)	PP (kPa)							
ADV			U63 Tube: LL=67, PL=36, PI=28, LS=11.5, MC=81.5			3.25		MH	Natural- Clayey SILT- high plasticity, grey, trace medium grained sand, trace shell fossil fragments	M	VSt	
						3.50		MH		W	H	
						3.75						
						4			BH09 refusal at 3.9m (auger refusal on inferred highly weathered limestone)			
						4.25						
						4.50						
						4.75						
						5						
						5.25						
						5.50						
						5.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH10 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392614 Northing : 5462822 Inclination : -90deg Azimuth : Sheet : 1 OF 2 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm												
Method	Drilling	Water	Samples	Testing		Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)	PP (kPa)							
ADV						0.25		ML	Topsoil- Clayey SILT- low plasticity, brown, root fibres	M	St	
						0.50		CH	Natural- Silty CLAY- high plasticity, grey mottled brown, trace cobbles	M	St	w ~ PL
						0.75		CH		W-M	St	w > PL, w < LL
						1						
						1.25						
						1.50						
						1.75						
						2		LST	Extremely weathered LIMESTONE- Sandy CLAY soil properties- medium plasticity, brown mottled pale brown, fine to medium grained sand.	M	VSt	
						2.25						
						2.50						
					2.75							

Enclosure 5 Consolidated application documents

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH10 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392614 Northing : 5462822 Inclination : -90deg Azimuth : Sheet : 2 OF 2 Job No : GL24537A Logged : AF Logged Date : 06/11/2024 Drill Rig : DrillTech 150mm												
Method	Drilling	Water	Samples	Testing		Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)	PP (kPa)							
ADV								LST	Extremely weathered LIMESTONE- Clayey SILT soil properties- low plasticity, pale brown, trace fine to medium sized gravel, trace fine to medium grained sand.	M	VSt	w ~ PL
												w > PL, w < LL
									BH10 refusal at 3.8m (auger refusal on inferred highly weathered limestone)			

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH11 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392559 Northing : 5462851 Inclination : -90deg Azimuth : Sheet : 1 OF 2 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)							
ADV							ML	Topsoil- Clayey SILT- low plasticity, dark brown, root fibres, trace cobbles	D	FR	
					0.25		ML	Natural- Clayey SILT- low plasticity, dark brown, trace cobbles	M	VSt	
					0.50		CH	Natural- Silty CLAY- high plasticity, grey mottled brown, trace medium to coarse sized gravel, trace cobbles	M	St	w > PL, w < LL
					0.75						
					1						
					1.25						
					1.50		CH	Trace cobbles	M	VSt	
					1.75						
					2						
					2.25						
				2.50							
				2.75							

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH11 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392559 Northing : 5462851 Inclination : -90deg Azimuth : Sheet : 2 OF 2 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)							
ADV							CH	Trace cobbles	M	VSt	
					3.25		LST	Extremely weathered LIMESTONE- Silty CLAY soil properties- medium plasticity, pale brown, trace fossil shell fragments	M-D	VSt- H	w < PL
					3.50			BH11 Terminated at 3.4m (near auger refusal on extremely weathered limestone)			
					3.75						
					4						
					4.25						
					4.50						
					4.75						
					5						
					5.25						
					5.50						
					5.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH12 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392574 Northing : 5462827 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm												
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations	
				V (kPa)								
ADV							ML	Topsoil- Clayey SILT- low plasticity, dark brown.	M	St		
							MH	Natural- Clayey SILT- high plasticity, dark brown.	M	St		
							CH	Natural- Silty CLAY- high plasticity, grey brown.	W-M	St	w > PL, w < LL	
							CH		W-M	VSt		
							BH12 Terminated at 1.5m					

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH13 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392587 Northing : 5462793 Inclination : -90deg Azimuth : Sheet : 1 OF 2 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)							
ADV							ML	Topsoil- Clayey SILT- low plasticity, dark brown, trace fine to medium sized gravel, root fibres	M	St	
					0.25						
							ML	Natural- Clayey SILT- low plasticity, dark brown, with fine sized gravel.	M	VSt	
					0.50						
							CH	Natural- Silty CLAY- high plasticity, brown grey.	W-M	St	w > PL, w < LL
					0.75						
					1						
					1.25						
					1.50						
					1.75		CH	Becoming grey mottled orange brown.	W-M	St	decreasing plasticity
					2						increasing moisture
					2.25						
					2.50						
					2.75						
							LST	Extremely weathered LIMESTONE-	M	VSt-	w < PL

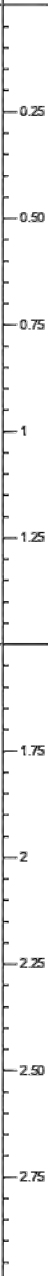
GEOTON Geotechnical Consultants						ENGINEERING BOREHOLE LOG: BH13					
Client : Bluff Developments Estate Pty Ltd						Easting : 392587		Sheet : 2 OF 2			
Project : Karst Assessment & Geotechnical Investigation						Northing : 5462793		Job No : GL24537A			
Location : Lot 2 Golf Links Road, Wynyard TAS						Inclination : -90deg		Logged : AF			
						Azimuth :		Logged Date : 11/11/2024			
								Drill Rig : DrillTech 150mm			
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, index	Structure, Additional Observations
				V (kPa)							
ADV					3.25	LST	LST	Extremely weathered LIMESTONE- Clayey SILT soil properties- low plasticity, brown, trace fossilised shell fragments	M	VSt-H	
						LST		Trace cobbles	M	H	
					3.50	LST		Extremely weathered LIMESTONE- Silty CLAY soil properties- high plasticity, blue grey, with cobbles, trace fossilised shell fragments	M-D	VSt-H	w < PL
					3.75						
					4						
					4.25						
					4.50						
					4.75						
					5						
					5.25						
					5.50			BH13 refusal at 5.4m (auger refusal on inferred highly weathered limestone)			
					5.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH14 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392623 Northing : 5462770 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)							
ADV							ML	Topsoil- Clayey SILT- low plasticity, dark brown, trace medium sized gravel, root fibres	M-D	St	
							ML	Natural- Clayey SILT- low plasticity, dark brown, trace fine to medium sized gravel, trace cobbles	M	VSt	
					0.50		CH	Natural- Silty CLAY- high plasticity, brown.	W-M	St	w > PL, w < LL
					1						
					1.25						
					1.5		CH		W-M	VSt	
					1.75			BH14 Terminated at 1.5m			
					2						
					2.25						
					2.50						
					2.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH15 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392652 Northing : 5462769 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
				V (kPa)							
ADV							ML	Topsoil- Clayey SILT- low plasticity, dark brown, root fibres	M-D	St	
					0.25		CH	Natural- Silty CLAY- high plasticity, brown grey.	W-M	St	w > PL, w < LL
					0.50						
					0.75						
					1		CH	Becoming brown.	W-M	VSt	
					1.25						
					1.50						
					1.75						
					2						
					2.25						
					2.50						
					2.75						
								BH15 Terminated at 1.5m			

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH16 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392713 Northing : 5462754 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
ADV				V (kPa)	0.25		ML	Topsoil- Clayey SILT- low plasticity, dark brown, root fibres	M-D	St	
							MH	Natural- Clayey SILT- high plasticity, dark brown.	M	St	
							CH	Natural- Silty CLAY- high plasticity, brown.	M	St	
							CH		M	VSt	poor spoil recovery
					1.75			BH16 Terminated at 1.5m			
					2						
					2.25						
					2.50						
					2.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH17 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392351 Northing : 5462895 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
ADV							SM	Topsoil- Silty SAND- fine grained, trace fine to medium sized gravel, grey, root fibres .	D	MD	
					0.25		SP	Natural- SAND- fine grained, trace fine to medium sized gravel, grey.	D	MD-D	
					0.50		CL	Natural- Gravelly CLAY- low plasticity, orange brown, fine to medium sized gravel, with low plasticity silt.	M-D	VSt	w < PL
					0.75		CI	Natural- Sandy CLAY- medium plasticity, brown, medium grained sand, with fine to medium sized gravel.	M-D	VSt	w < PL
1											
					1.25						
								BH17 Terminated at 1.5m			
					1.75						
					2						
					2.25						
					2.50						
					2.75						

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH18 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392339 Northing : 5462928 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, Index	Structure, Additional Observations
ADV							SM	Topsoil- Silty SAND- fine grained, grey, root fibres .	D	MD	
							SM	Natural- Silty SAND- fine grained, brown mottled grey.	D	MD	
							CH	Natural- Silty CLAY- high plasticity, brown, trace fine to medium sized gravel.	M-D	VSt	w < PL
								BH18 Terminated at 1.5m			

GEOTON Geotechnical Consultants ENGINEERING BOREHOLE LOG: BH19 Client : Bluff Developments Estate Pty Ltd Project : Karst Assessment & Geotechnical Investigation Location : Lot 2 Golf Links Road, Wynyard TAS Easting : 392329 Northing : 5462949 Inclination : -90deg Azimuth : Sheet : 1 OF 1 Job No : GL24537A Logged : AF Logged Date : 11/11/2024 Drill Rig : DrillTech 150mm											
Method	Drilling	Water	Samples	Testing	Depth (m)	Graphic Log	Classification Code	Material Description	Moisture condition	Consistency density, index	Structure, Additional Observations
ADV					0.25		SM	Topsoil- Silty SAND- fine grained, grey, root fibres .	D	MD	
							SM	Natural- Silty SAND- fine grained, brown mottled grey.	D	MD	
					0.50		CH	Natural- Silty CLAY- high plasticity, brown.	M	VSt	w < PL
					0.75						w ~ PL
					1						
					1.25						
					1.75			BH19 Terminated at 1.5m			
					2						
					2.25						
					2.50						
					2.75						



Investigation Log Explanation Sheet

METHOD – BOREHOLE

TERM	Description
AS	Auger Screwing*
AD	Auger Drilling*
RR	Roller / Tricone
W	Washbore
CT	Cable Tool
HA	Hand Auger
DT	Diatube
B	Blank Bit
V	V Bit
T	TC Bit

* Bit shown by suffix e.g. ADT

METHOD – EXCAVATION

TERM	Description
N	Natural exposure
X	Existing excavation
H	Backhoe bucket
B	Bulldozer blade
R	Ripper
E	Excavator
HT	Hand Tools

SUPPORT

TERM	Description
M	Mud
N	Nil
C	Casing
S	Shoring

PENETRATION

1	2	3	4	
				No resistance ranging to Refusal

WATER

Symbol	Description
	Water inflow
	Water outflow
	17/3/08 water on date shown

NOTES, SAMPLES, TESTS

TERM	Description
U ₅₀	Undisturbed sample 50 mm diameter
U ₆₃	Undisturbed sample 63 mm diameter
U ₈₁	Undisturbed sample 81 mm diameter
D	Disturbed sample
N	Standard Penetration Test (SPT)
N*	SPT – sample recovered
N _c	SPT with solid cone
V	Vane Shear
PP	Pocket Penetrometer
P	Pressumeter
B _s	Bulk sample
E	Environmental Sample
R	Refusal – Material cannot be penetrated
DCP	Dynamic Cone Penetrometer (blows/100mm)
PL	Plastic Limit
LL	Liquid Limit
LS	Linear Shrinkage

CLASSIFICATION SYMBOLS AND SOIL DESCRIPTION

Based on AS 1726:2017

MOISTURE

TERM	Description
D	Dry
M	Moist
W	Wet

CONSISTENCY/DENSITY INDEX

TERM	Description
VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
H	hard
Fr	friable
VL	very loose
L	loose
MD	medium dense
D	dense
VD	Very dense



Soil Description Explanation Sheet (1of 2)

DEFINITION

In engineering terms, soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL AND SOIL NAME

Soils are described in accordance with the AS 1726: 2017 as shown in the table on Sheet 2.

PARTICLE SIZE DEFINITIONS

NAME	SUBDIVISION	SIZE (mm)
BOULDERS		>200
COBBLES		63 to 200
GRAVEL	Coarse	19 to 63
	Medium	6.7 to 19
	Fine	2.36 to 6.7
SAND	Coarse	0.6 to 2.36
	Medium	0.21 to 0.6
	Fine	0.075 to 0.21
SILT		0.002 to 0.075
CLAY		<0.002

MOISTURE CONDITION

Coarse Grained Soils

Dry Non-cohesive and free running.

Moist Soil feels cool, darkened in colour.

Soil tends to stick together.

Wet As for moist but with free water forming when handling.

Fine Grained Soils

Moist, dry of Plastic Limit – $w < PL$

Hard and friable or powdery.

Moist, near Plastic Limit – $w \approx PL$

Soils can be moulded at a moisture content approximately equal to the plastic limit.

Moist, wet of Plastic Limit – $w > PL$

Soils usually weakened and free water forms on hands when handling.

Wet, near Liquid Limit – $w \approx LL$

Wet, wet of Liquid Limit – $w > LL$

CONSISTENCY TERMS FOR COHESIVE SOILS

TERM	UNDRAINED STRENGTH s_u (kPa)	FIELD GUIDE
Very Soft	≤ 12	Exudes between the fingers when squeezed in hand
Soft	12 to 25	Can be moulded by light finger pressure
Firm	25 to 50	Can be moulded by strong finger pressure
Stiff	50 to 100	Cannot be moulded by fingers
Very Stiff	100 to 200	Can be indented by thumb nail
Hard	>200	Can be indented with difficulty by thumb nail
Friable	—	Can be easily crumbled or broken into small pieces by hand

RELATIVE DENSITY OF NON-COHESIVE SOILS

TERM	DENSITY INDEX (%)
Very Loose	≤ 15
Loose	15 to 35
Medium Dense	35 to 65
Dense	65 to 85
Very Dense	> 85

DESCRIPTIVE TERMS FOR ACCESSORY SOIL COMPONENTS

DESIGNATION OF COMPONENT	IN COARSE GRAINED SOILS		IN FINE GRAINED SOILS	TERM
	% Fines	% Accessory coarse fraction	% Sand/ gravel	
Minor	≤ 5	≤ 15	≤ 15	Trace
Secondary	$>5, \leq 12$	$>15, \leq 30$	$>15, \leq 30$	With
	>12	>30	>30	Prefix

SOIL STRUCTURE

ZONING		CEMENTING	
Layer	Continuous across the exposure or sample.	Weakly cemented	Easily disaggregated by hand in air or water.
Lens	Discontinuous layer of different material, with lenticular shape.	Moderately cemented	Effort is required to disaggregate the soil by hand in air or water.
Pocket	An irregular inclusion of different material.		

GEOLOGICAL ORIGIN

WEATHERED IN PLACE SOILS

Extremely Weathered material	Material is weathered to such an extent that it has soil properties. Structure and/or fabric of parent rock material retained and visible.
Residual soil	Structure and/or fabric of parent rock material not retained and visible.

TRANSPORTED SOILS

Aeolian soil	Carried and deposited by wind.
Alluvial soil	Deposited by streams and rivers.
Colluvial soil	Soil and rock debris transported downslope by gravity.
Estuarine soil	Deposited in coastal estuaries, and including sediments carried by inflowing rivers and streams, and tidal currents.
Fill	Man-made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.
Lacustrine soil	Deposited in freshwater lakes.
Marine soil	Deposited in a marine environment.



Soil Description Explanation Sheet (2 of 2)

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES (Excluding particles larger than 63 mm and basing fractions on estimated mass)					GROUP SYMBOL	PRIMARY NAME	
COARSE GRAINED SOIL More than 65% of soil excluding oversize fraction is larger than 0.075 mm	GRAVEL More than half of coarse fraction is larger than 2.36 mm	CLEAN GRAVEL (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes		GW	GRAVEL	
			Predominantly one size or a range of sizes with some intermediate sizes missing		GP	GRAVEL	
		GRAVEL WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML and MH below)		GM	Silty GRAVEL	
			Plastic fines (for identification procedures see CL, CI and CH below)		GC	Clayey GRAVEL	
	SAND More than half of coarse fraction is smaller than 2.36 mm	CLEAN SAND (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate sizes		SW	SAND	
			Predominantly one size or a range of sizes with some intermediate sizes missing		SP	SAND	
		SAND WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML and MH below)		SM	Silty SAND	
			Plastic fines (for identification procedures see CL, CI and CH below)		SC	Clayey SAND	
FINE GRAINED SOIL More than 35% of soil excluding oversize fraction is smaller than 0.075 mm	IDENTIFICATION PROCEDURES ON FRACTIONS <0.075 mm						
	SILT & CLAY (low to medium plasticity, LL ≤ 50)	DRY STRENGTH		DILATANCY		TOUGHNESS	
		None to Low		Slow to Rapid		Low	
		Medium to High		None to Slow		Medium	
	SILT & CLAY (high plasticity, LL > 50)	Low to Medium		Slow		Low	
		Low to Medium		None to Slow		Low to Medium	
		High to Very High		None		High	
	Highly Organic Soil	Medium to High		None to Very Slow		Low to Medium	
		Readily identified by colour, odour, spongy feel and frequently by fibrous texture.				Pt	PEAT

■ LL – Liquid Limit

• LL – Liquid Limit

COMMON DEFECTS IN SOILS

TERM	DEFINITION	DIAGRAM	TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (e.g. bedding). May be open or closed.		SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
FISSURE	A surface or crack across which the soil has little or no tensile strength, but which is not parallel or sub parallel to layering. May be open or closed. May include desiccation cracks.		TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter.	
SHEARED SEAM	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting fissures which divide the mass into lenticular or wedge-shaped blocks.		TUBE CAST	An infilled tube. The infill may be uncemented or weakly cemented soil or have rock properties.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.		INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open defects.	

Appendix C

Laboratory Results

Material Test Report

Report Number: RE24/239-136

Issue Number: 1

Date Issued: 14/11/2024

Client: Geoton Pty Ltd

25, 16-18 Goodman Court, Invermay TAS 7248

Contact: Anne Foster

Project Number: RE24/239

Project Name: Material Evaluation

Project Location: Wynyard

Client Reference: GL24537A

Work Request: 2224

Sample Number: S2224B

Date Sampled: 07/11/2024

Dates Tested: 07/11/2024 - 13/11/2024

Sampling Method: Sampled by Client

The results apply to the sample as received

Preparation Method: In accordance with the test method

Sample Location: BH04 , Depth: 0.8-1.0m

Material: Brown Silty Clay

Atterberg Limit (AS1289.3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	78		
Plastic Limit (%)	30		
Plasticity Index (%)	48		
Linear Shrinkage (AS1289.3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	16.0		
Cracking Crumbling Curling	Cracking & Curling		



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Approved Signatory: Brett Cuthbertson
Laboratory Manager
NATA Accredited Laboratory Number: 20328

Material Test Report

Report Number: RE24/239-136

Issue Number: 1

Date Issued: 14/11/2024

Client: Geoton Pty Ltd

25, 16-18 Goodman Court, Invermay TAS 7248

Contact: Anne Foster

Project Number: RE24/239

Project Name: Material Evaluation

Project Location: Wynyard

Client Reference: GL24537A

Work Request: 2224

Sample Number: S2224C

Date Sampled: 07/11/2024

Dates Tested: 07/11/2024 - 13/11/2024

Sampling Method: Sampled by Client

The results apply to the sample as received

Preparation Method: In accordance with the test method

Sample Location: BH07 , Depth: 1.4-1.6m

Material: Brown Silty Clay

Atterberg Limit (AS1289.3.1.2 & 3.2.1 & 3.5.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	62		
Plastic Limit (%)	34		
Plasticity Index (%)	28		

Linear Shrinkage (AS1289.3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	15.0		
Cracking Crumbling Curling	Cracking & Curling		



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Approved Signatory: Brett Cuthbertson
Laboratory Manager
NATA Accredited Laboratory Number: 20328

Material Test Report

Report Number: RE24/239-136
Issue Number: 1
Date Issued: 14/11/2024
Client: Geoton Pty Ltd
25, 16-18 Goodman Court, Invermay TAS 7248
Contact: Anne Foster
Project Number: RE24/239
Project Name: Material Evaluation
Project Location: Wynyard
Client Reference: GL24537A
Work Request: 2224
Sample Number: S2224D
Date Sampled: 07/11/2024
Dates Tested: 07/11/2024 - 13/11/2024
Sampling Method: Sampled by Client
The results apply to the sample as received
Preparation Method: In accordance with the test method
Sample Location: BH08 , Depth: 0.8-1.0m
Material: Brown Silty Clay

Atterberg Limit (AS1289.3.1.2 & 3.2.1 & 3.5.1)		Min	Max
Sample History	Air Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	75		
Plastic Limit (%)	42		
Plasticity Index (%)	33		
Linear Shrinkage (AS1289.3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	15.5		
Cracking Crumbling Curling	Cracking & Curling		



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Material Test Report

Report Number: RE24/239-136

Issue Number: 1

Date Issued: 14/11/2024

Client: Geoton Pty Ltd

25, 16-18 Goodman Court, Invermay TAS 7248

Contact: Anne Foster

Project Number: RE24/239

Project Name: Material Evaluation

Project Location: Wynyard

Client Reference: GL24537A

Work Request: 2224

Sample Number: S2224E

Date Sampled: 07/11/2024

Dates Tested: 07/11/2024 - 13/11/2024

Sampling Method: Sampled by Client

The results apply to the sample as received

Preparation Method: In accordance with the test method

Sample Location: BH09 , Depth: 3.4-3.6m

Material: Grey Silty Clay

Atterberg Limit (AS1289.3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	67		
Plastic Limit (%)	39		
Plasticity Index (%)	28		
Linear Shrinkage (AS1289.3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	11.5		
Cracking Crumbling Curling	Cracking		



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NATA Accredited Laboratory Number: 20328

Material Test Report

Report Number: RE24/239-136
Issue Number: 1
Date Issued: 14/11/2024
Client: Geoton Pty Ltd
25, 16-18 Goodman Court, Invermay TAS 7248
Contact: Anne Foster
Project Number: RE24/239
Project Name: Material Evaluation
Project Location: Wynyard
Client Reference: GL24537A
Work Request: 2224
Dates Tested: 07/11/2024 - 07/11/2024



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Moisture Content AS 1289.2.1.1			
Sample Number	Sample Location	Moisture Content (%)	Material
S2224B	BH04 , Depth: 0.8-1.0m	53.5 %	Brown Silty Clay
S2224C	BH07 , Depth: 1.4-1.6m	44.9 %	Brown Silty Clay
S2224D	BH08 , Depth: 0.8-1.0m	56.5 %	Brown Silty Clay
S2224E	BH09 , Depth: 3.4-3.6m	81.5 %	Grey Silty Clay

Material Test Report

Report Number: RE24/239-136a
Issue Number: 1
Date Issued: 25/11/2024
Client: Geoton Pty Ltd
25, 16-18 Goodman Court, Invermay TAS 7248
Contact: Anne Foster
Project Number: RE24/239
Project Name: Material Evaluation
Project Location: Wynyard
Client Reference: GL24537A
Work Request: 2224
Sample Number: S2224A
Date Sampled: 07/11/2024
Dates Tested: 07/11/2024 - 22/11/2024
Sampling Method: Sampled by Client
The results apply to the sample as received
Preparation Method: In accordance with the test method
Sample Location: BH02, Depth: 0.2-0.6m
Material: Brown Silty Clay



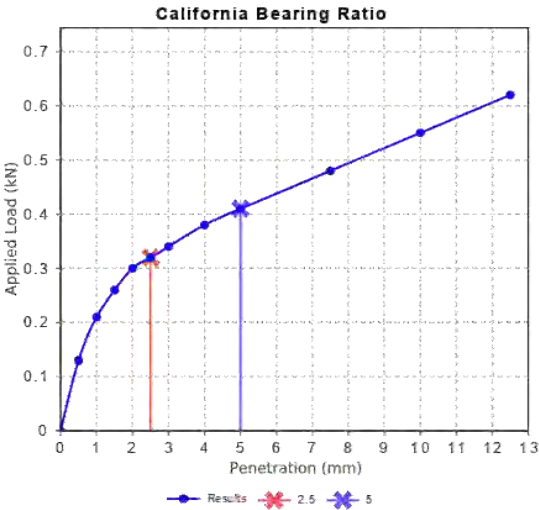
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Email: arien@rareearthcmt.com.au



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Approved Signatory: Arien Thompson
Quality Manager
NATA Accredited Laboratory Number: 20328

Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)				Min	Max
Mould Type	1 LITRE MOULD A				
Compaction	Standard				
Maximum Dry Density (t/m³)	1.25				
Optimum Moisture Content (%)	44.0				
Oversize Sieve (mm)	19.0				
Oversize Material Wet (%)	9				
Method used to Determine Plasticity	Visual Assessment				
Curing Hours (h)	113.6				
Moisture Content (AS 1289 2.1.1)					
Moisture Content (%)				48.8	
California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)				Min	Max
CBR taken at	2.5 mm				
CBR %	2.5				
Method of Compactive Effort	Standard				
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1				
Method used to Determine Plasticity	Visual Assessment				
Maximum Dry Density (t/m³)	1.25				
Optimum Moisture Content (%)	44.0				
Laboratory Density Ratio (%)	97.5				
Laboratory Moisture Ratio (%)	100.5				
Dry Density after Soaking (t/m³)	1.19				
Field Moisture Content (%)	48.8				
Moisture Content at Placement (%)	44.0				
Moisture Content Top 30mm (%)	56.2				
Moisture Content Rest of Sample (%)	49.5				
Mass Surcharge (kg)	4.5				
Soaking Period (days)	4				
Curing Hours	116.8				
Swell (%)	3.0				
Oversize Material (mm)	19				
Oversize Material Included	Excluded				
Oversize Material (%)	8.5				



Material Test Report

Report Number: RE24/239-136a

Issue Number: 1

Date Issued: 25/11/2024

Client: Geoton Pty Ltd

25, 16-18 Goodman Court, Invermay TAS 7248

Contact: Anne Foster

Project Number: RE24/239

Project Name: Material Evaluation

Project Location: Wynyard

Client Reference: GL24537A

Work Request: 2224

Sample Number: S2224F

Date Sampled: 07/11/2024

Dates Tested: 07/11/2024 - 22/11/2024

Sampling Method: Sampled by Client

The results apply to the sample as received

Preparation Method: In accordance with the test method

Sample Location: BH01, Depth: 0.3-0.7m

Material: Brown Silty Clay



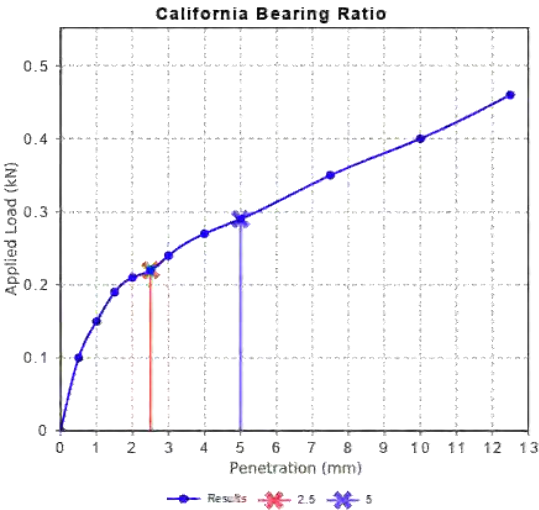
Rare Earth CMT Laboratories Pty Ltd
Launceston Laboratory
23/16 - 18 Goodman Court Invermay Tasmania 7248
Phone: 0439 351 452
Email: arlen@rareearthcmt.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Arlen Thompson
Quality Manager
NATA Accredited Laboratory Number: 20328

Dry Density - Moisture Relationship (AS 1289 5.1.1 & 2.1.1)				Min	Max
Mould Type	1 LITRE MOULD A				
Compaction	Standard				
Maximum Dry Density (t/m ³)	1.47				
Optimum Moisture Content (%)	26.5				
Oversize Sieve (mm)	19.0				
Oversize Material Wet (%)	0				
Method used to Determine Plasticity	Visual Assessment				
Curing Hours (h)	116.0				
Moisture Content (AS 1289 2.1.1)					
Moisture Content (%)				33.2	
California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)				Min	Max
CBR taken at	2.5 mm				
CBR %	1.5				
Method of Compactive Effort	Standard				
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1				
Method used to Determine Plasticity	Visual Assessment				
Maximum Dry Density (t/m ³)	1.47				
Optimum Moisture Content (%)	26.5				
Laboratory Density Ratio (%)	98.0				
Laboratory Moisture Ratio (%)	100.5				
Dry Density after Soaking (t/m ³)	1.39				
Field Moisture Content (%)	33.2				
Moisture Content at Placement (%)	26.9				
Moisture Content Top 30mm (%)	35.1				
Moisture Content Rest of Sample (%)	28.1				
Mass Surcharge (kg)	4.5				
Soaking Period (days)	4				
Curing Hours	97.3				
Swell (%)	3.5				
Oversize Material (mm)	19				
Oversize Material Included	Excluded				
Oversize Material (%)	0.0				



Appendix D

Qualitative Terminology for Use in Assessing Risk to Property

QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY**QUALITATIVE MEASURES OF LIKELIHOOD**

Approximate Annual Probability		Implied Indicative Landslide Recurrence Interval		Description	Descriptor	Level
Indicative Value	Notional Boundary					
10 ⁻¹	5x10 ⁻²	10 years	20 years	The event is expected to occur over the design life.	ALMOST CERTAIN	A
10 ⁻²		100 years		The event will probably occur under adverse conditions over the design life.	LIKELY	B
10 ⁻³	5x10 ⁻³	1000 years	200 years	The event could occur under adverse conditions over the design life.	POSSIBLE	C
10 ⁻⁴	5x10 ⁻⁴	10,000 years	2000 years	The event might occur under very adverse circumstances over the design life.	UNLIKELY	D
10 ⁻⁵	5x10 ⁻⁵	100,000 years	20,000 years	The event is conceivable but only under exceptional circumstances over the design life.	RARE	E
10 ⁻⁶	5x10 ⁻⁶	1,000,000 years		The event is inconceivable or fanciful over the design life.	BARELY CREDIBLE	F

Note: (1) The table should be used from left to right; use Approximate Annual Probability or Description to assign Descriptor, not *vice versa*.

QUALITATIVE MEASURES OF CONSEQUENCES TO PROPERTY

Approximate Cost of Damage		Description	Descriptor	Level
Indicative Value	Notional Boundary			
200%	100%	Structure(s) completely destroyed and/or large scale damage requiring major engineering works for stabilisation. Could cause at least one adjacent property major consequence damage.	CATASTROPHIC	1
60%		Extensive damage to most of structure, and/or extending beyond site boundaries requiring significant stabilisation works. Could cause at least one adjacent property medium consequence damage.	MAJOR	2
20%	40%	Moderate damage to some of structure, and/or significant part of site requiring large stabilisation works. Could cause at least one adjacent property minor consequence damage.	MEDIUM	3
5%	10%	Limited damage to part of structure, and/or part of site requiring some reinstatement stabilisation works.	MINOR	4
0.5%	1%	Little damage. (Note for high probability event (Almost Certain), this category may be subdivided at a notional boundary of 0.1%. See Risk Matrix.)	INSIGNIFICANT	5

- Notes:**
- (2) The Approximate Cost of Damage is expressed as a percentage of market value, being the cost of the improved value of the unaffected property which includes the land plus the unaffected structures.
 - (3) The Approximate Cost is to be an estimate of the direct cost of the damage, such as the cost of reinstatement of the damaged portion of the property (land plus structures), stabilisation works required to render the site to tolerable risk level for the landslide which has occurred and professional design fees, and consequential costs such as legal fees, temporary accommodation. It does not include additional stabilisation works to address other landslides which may affect the property.
 - (4) The table should be used from left to right; use Approximate Cost of Damage or Description to assign Descriptor, not *vice versa*.

Geoton Pty Ltd (adapted from Australian Geomechanics Vol 42 No 1 March 2007)

1

QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY (CONTINUED)**QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY**

LIKELIHOOD		CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage)				
	Indicative Value of Approximate Annual Probability	1: CATASTROPHIC 200%	2: MAJOR 60%	3: MEDIUM 20%	4: MINOR 5%	5: INSIGNIFICANT 0.5%
A – ALMOST CERTAIN	10 ⁻¹	VH	VH	VH	H	M or L (5)
B - LIKELY	10 ⁻²	VH	VH	H	M	L
C - POSSIBLE	10 ⁻³	VH	H	M	M	VL
D - UNLIKELY	10 ⁻⁴	H	M	L	L	VL
E - RARE	10 ⁻⁵	M	L	L	VL	VL
F - BARELY CREDIBLE	10 ⁻⁶	L	VL	VL	VL	VL

Notes: (5) For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.

(6) When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current time.

RISK LEVEL IMPLICATIONS

Risk Level		Example Implications (7)
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

Note: (7) The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide

Appendix E

Some Guidelines for Hillside Construction

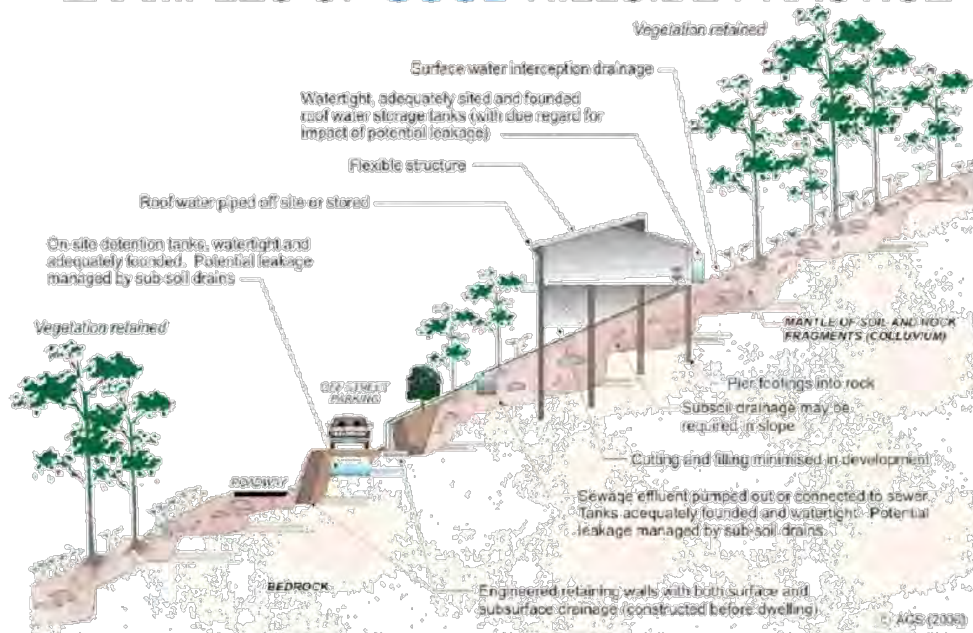
PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

APPENDIX - SOME GUIDELINES FOR HILLSIDE CONSTRUCTION

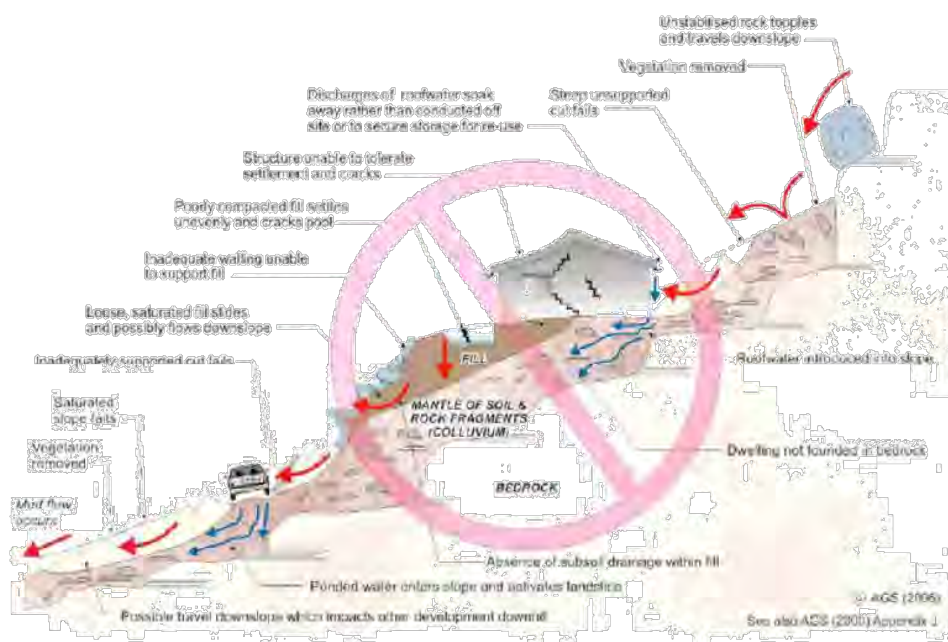
ADVICE		GOOD ENGINEERING PRACTICE	POOR ENGINEERING PRACTICE
GEOTECHNICAL ASSESSMENT		Obtain advice from a qualified, experienced geotechnical practitioner at early stage of planning and before site works.	Prepare detailed plan and start site works before geotechnical advice.
PLANNING			
SITE PLANNING		Having obtained geotechnical advice, plan the development with the risk arising from the identified hazards and consequences in mind.	Plan development without regard for the Risk.
DESIGN AND CONSTRUCTION			
HOUSE DESIGN		Use flexible structures which incorporate properly designed brickwork, timber or steel frames, timber or panel cladding. Consider use of split levels. Use decks for recreational areas where appropriate.	Floor plans which require extensive cutting and filling. Movement intolerant structures.
SITE CLEARING		Retain natural vegetation wherever practicable.	Indiscriminately clear the site.
EARTHWORKS		Retain natural contours wherever possible.	Indiscriminatory bulk earthworks.
CUTS		Minimise depth. Support with engineered retaining walls or batter to appropriate slope. Provide drainage measures and erosion control.	Large scale cuts and benching. Unsupported cuts. Ignore drainage requirements.
FILLS		Minimise height. Strip vegetation and topsoil and key into natural slopes prior to filling. Use clean fill materials and compact to engineering standards. Batter to appropriate slope or support with engineered retaining wall. Provide surface drainage and appropriate subsurface drainage.	Loose or poorly compacted fill, which if it fails, may flow a considerable distance including onto property below. Block natural drainage lines. Fill over existing vegetation and topsoil. Include stumps, trees, vegetation, topsoil, boulders, building rubble etc in fill.
ROCK OUTCROPS & BOULDERS		Remove or stabilise boulders which may have unacceptable risk. Support rock faces where necessary.	Disturb or undercut detached blocks or boulders.
RETAINING WALLS		Found on rock where practicable. Provide subsurface drainage within wall backfill and surface drainage on slope above. Construct wall as soon as possible after cut/fill operation.	Construct a structurally inadequate wall such as sandstone flagging, brick or unreinforced blockwork. Lack of subsurface drains and weepholes.
FOOTINGS		Found within rock where practicable. Use rows of piers or strip footings oriented up and down slope. Design for lateral creep pressures if necessary. Backfill footing excavations to exclude ingress of surface water.	Found on topsoil, loose fill, detached boulders or undercut cliffs.
SWIMMING POOLS		Engineer designed. Support on piers to rock where practicable. Provide with under-drainage and gravity drain outlet where practicable. Design for high soil pressures which may develop on uphill side whilst there may be little or no lateral support on downhill side.	
DRAINAGE		Provide at tops of cut and fill slopes. Discharge to street drainage or natural water courses. Provide general falls to prevent blockage by siltation and incorporate silt traps. Line to minimise infiltration and make flexible where possible. Special structures to dissipate energy at changes of slope and/or direction.	Discharge at top of fills and cuts. Allow water to pond on bench areas.
SURFACE		Provide filter around subsurface drain. Provide drain behind retaining walls. Use flexible pipelines with access for maintenance. Prevent inflow of surface water.	Discharge roof runoff into absorption trenches.
SUBSURFACE			
SEPTIC & SULLAGE		Usually requires pump-out or mains sewer systems; absorption trenches may be possible in some areas if risk is acceptable. Storage tanks should be water-tight and adequately founded.	Discharge sullage directly onto and into slopes. Use absorption trenches without consideration of landslide risk.
EROSION CONTROL & LANDSCAPING		Control erosion as this may lead to instability. Revegetate cleared area.	Failure to observe earthworks and drainage recommendations when landscaping.
DRAWINGS AND SITE VISITS DURING CONSTRUCTION			
DRAWINGS		Building Application drawings should be viewed by geotechnical consultant	
SITE VISITS		Site Visits by consultant may be appropriate during construction/	
INSPECTION AND MAINTENANCE BY OWNER			
OWNER'S RESPONSIBILITY		Clean drainage systems; repair broken joints in drains and leaks in supply pipes. Where structural distress is evident see advice. If seepage observed, determine causes or seek advice on consequences.	

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE



Australian Geomechanics Vol 42 No 1 March 2007

Appendix F

Certificate Forms

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

FORM	A	Geotechnical Declaration and Verification Development Application		Page 1 of 2
		Office Use Only		Regulator: <Waratah-Wynyard Council>
To be submitted with a development application. If this form is not submitted with the geotechnical report the report will be refused. This form is essential to verify that the geotechnical report has been prepared in accordance with <Regulator's geotechnical DCP> and that the author of the geotechnical report is a geotechnical engineer or engineering geologist as defined by <Regulator's geotechnical DCP>. Alternatively, where a geotechnical report has been prepared for subdivision or is greater than two years old or by a professional person not recognised by <Regulator's geotechnical DCP>, then this form may be used as technical verification of the geotechnical report if signed by a geotechnical engineer or engineering geologist as defined by <Regulator's geotechnical DCP>.				
Section 1 Related Application				
Reference		What is the Council development application number?		
DA Site Address		Lot 2 Golf Links Road, Wynyard (PID 2758376)		
DA Applicant		Bluff Developments Estate Pty Ltd		
Section 2 Geotechnical Report				
Details		Title: Geotechnical Investigation, Karst Assessment and Landslide Risk Assessment		
		Author's Company/ Organisation Name: Geoton Pty Ltd	Report Reference No: GL24537Ab_Rev1	
		Author: Tony Barriera/Anne Foster	Dated: 10 / 07 / 2025	
Section 3 Checklist				
Geotechnical Requirements (Tick as appropriate, either Yes or No)		The following checklist covers the minimum requirements to be addressed in a geotechnical report. This checklist is to accompany the report. Each item is to be cross-referenced to the section or page of the geotechnical report which addresses that item.		
Yes	No			
☒	☐	A review of readily available history of slope instability in the site or related land		
☒	☐	An assessment of the risk posed by all reasonably identifiable geotechnical hazards		
☒	☐	Plans and sections of the site and related land		
☒	☐	Presentation of a geological model		
☒	☐	Photographs and/or drawings of the site		
☒	☐	A conclusion as to whether the site is suitable for the development proposed to be carried out either conditionally or unconditionally		
☐	☒	If any items above are ticked No, an explanation is to be included in the report to justify why. N/A		
Yes	No	Subject to recommendations and conditions relevant to:		
☐	☒	selection and construction of footing systems, (as per future recommended site classification reports)		
☒	☐	earthworks,		
☒	☐	surface and sub surface drainage,		
☒	☐	recommendations for the selection of structural systems consistent with the geotechnical assessment of the risk,		
☐	☒	any conditions that may be required for the ongoing mitigation and maintenance of the site and the proposal, from a geotechnical viewpoint,		
☐	☒	highlighting and detailing the inspection regime to provide the <PCA> and builder with adequate notification for all necessary inspections.		
☒	☐	State Design life adopted: 50 Years		

Note: <Add reference>: Add in the relevant section or page number of the listed geotechnical report which addresses each item.

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

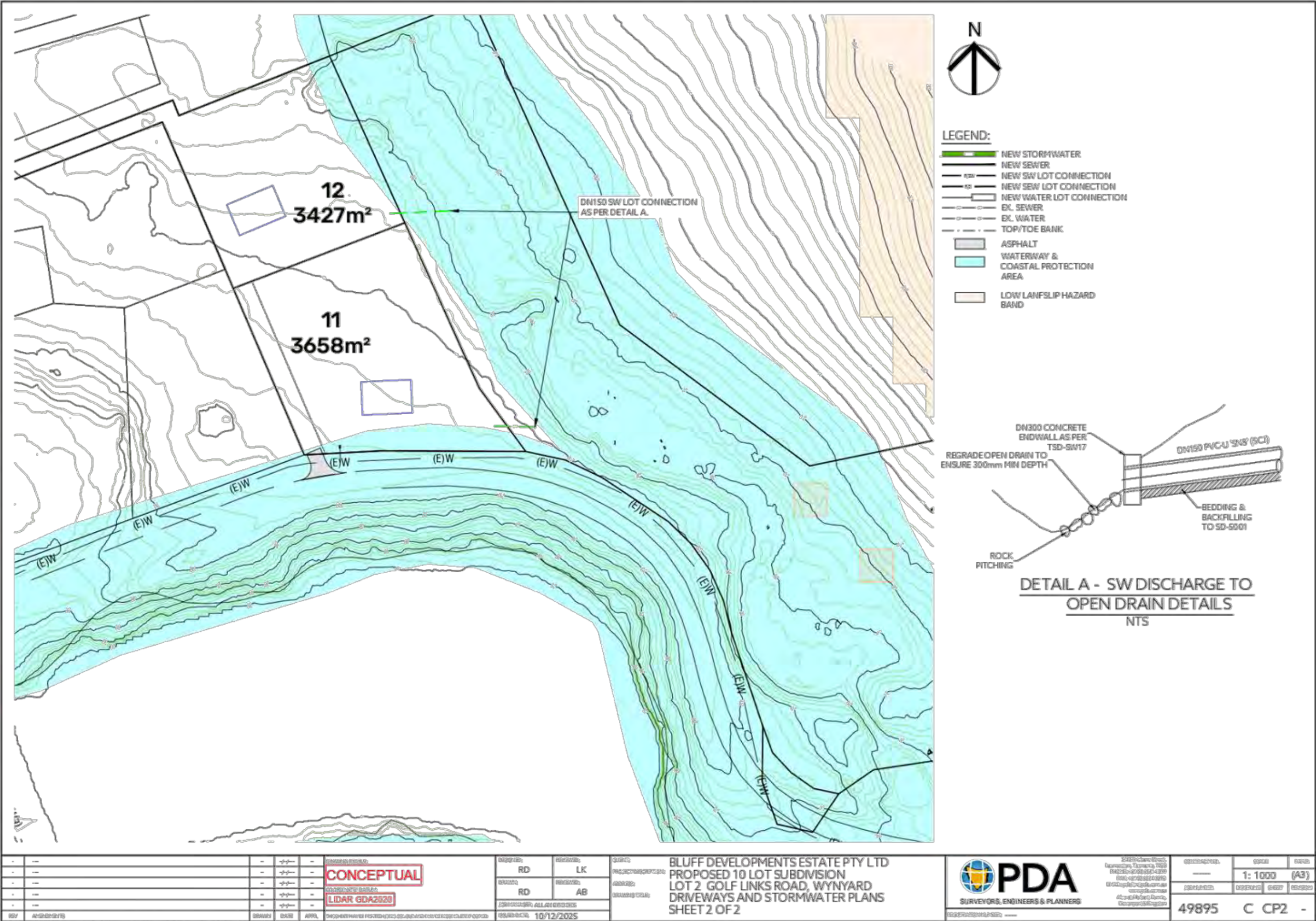
FORM	A	Page 2 of 2				
		Geotechnical Declaration and Verification Development Application				
Section 4		List of Drawings referenced in Geotechnical Report				
Design Documents		Description	Plan or Document No.	Revision or Version No.	Date	Author
		Preliminary subdivision plans – PDA Surveyors, Engineers & Planners	Job No. 49895, Sheets 01 to 06	01	19/04/2023	AB
		Draft subdivision plans – PDA Surveyors, Engineers & Planners	49895AB-PA-05	-	20/06/2025	AB
Section 5		Declaration				
Declaration (Tick all that apply)		I am a geotechnical engineer or engineering geologist as defined by the «Regulator's geotechnical DCP» and on behalf of the company below, I:				
Yes ☒ No ☐		am aware that the geotechnical report I have either prepared or am technically verifying (referenced above) is to be submitted in a support of a development application for the proposed development site (referenced above) and its findings will be relied upon by Waratah-Wynyard Council in determining the development application.				
☒ N/A ☐		prepared the geotechnical report referenced above in accordance with the AGS (2007c) as amended and the Tasmanian Planning Scheme - Waratah-Wynyard.				
☒ N/A ☐		am willing to technically verify that the Geotechnical Report referenced above has been prepared in accordance with the AGS (2007c) as amended and the Tasmanian Planning Scheme -Waratah-Wynyard.				
☒ No ☐		am willing to technically verify that the geotechnical report prepared for the development application for the site confirms the land will achieve the level of <acceptable risk> of slope instability as a result of the considerations described in Sections C15.6.1 and C15.7.1 of the Tasmanian Planning Scheme -Waratah-Wynyard taking into account the total development and site disturbances proposed.				
☐ N/A ☒		am willing to technically verify that the geotechnical report prepared for the site and related land being greater than two years old confirms the land will achieve the level of <acceptable risk> of slope instability as a result of the considerations described in Sections C15.6.1 and C15.7.1 of the Tasmanian Planning Scheme -Waratah-Wynyard taking into account the total development and site disturbances proposed.				
☒ No ☐		have professional indemnity insurance in accordance with the Tasmanian Planning Scheme - Waratah-Wynyard of not less than \$5 million, being in force for the year in which the report is dated, with retroactive cover under this insurance policy extending back to the engineer's first submission to Waratah-Wynyard Council.				
Section 6		Geotechnical Engineer or Engineering Geologist Details				
Company/ Organisation Name		Geoton Pty Ltd				
Name (Company Representative)		Surname: Barriera		Mr /Mrs /Other: Mr		
		Given Names: Antonio Jose				
		Chartered Professional Status: CPEng, NER		Registration No: 471929		
				Dated: 10 / 07 / 2025		

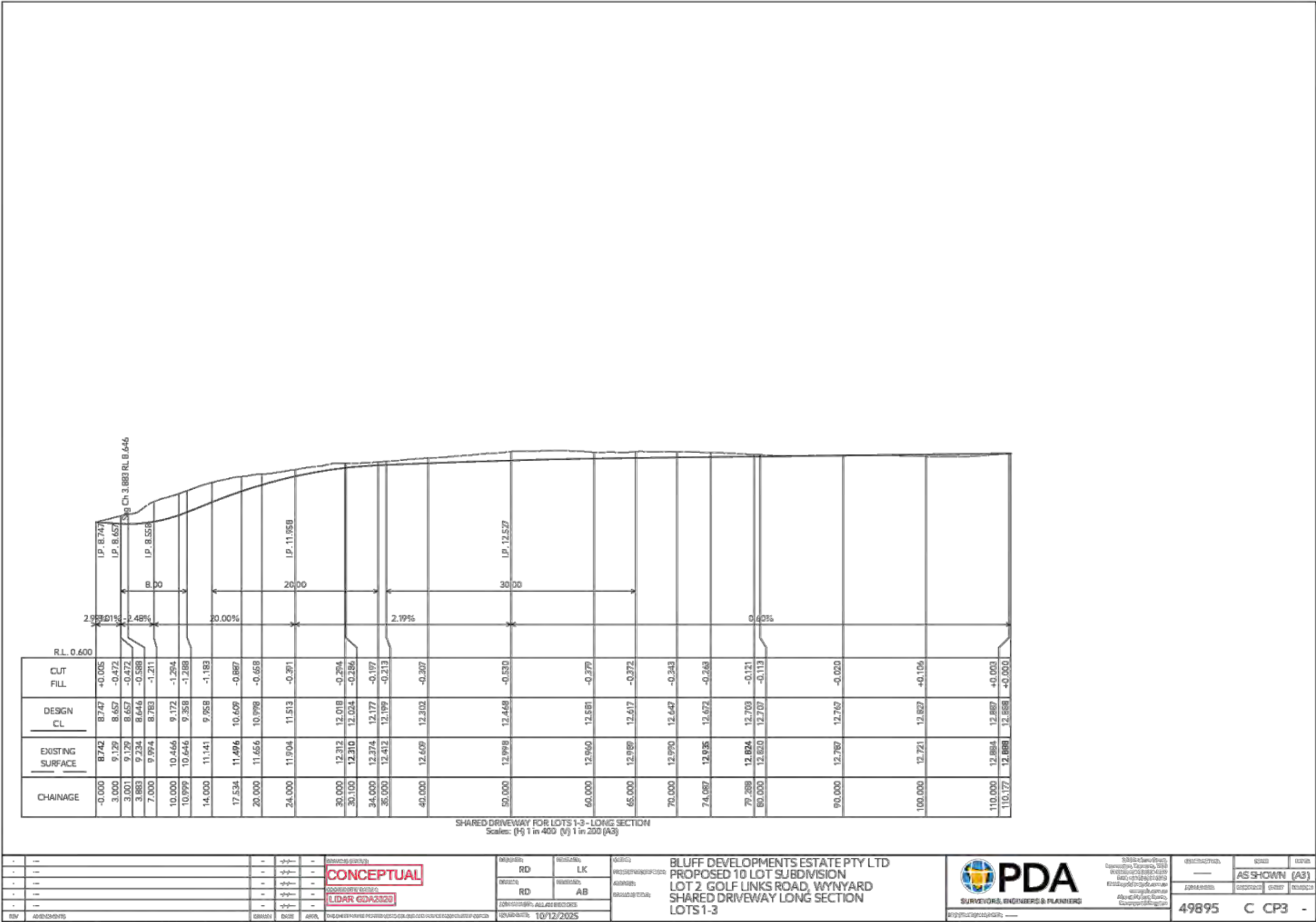
Reference: AGS (2007c) "Practice Note Guidelines for Landslide Risk Management". Australian Geomechanics Society, Australian Geomechanics, V42, N1, March 2007.

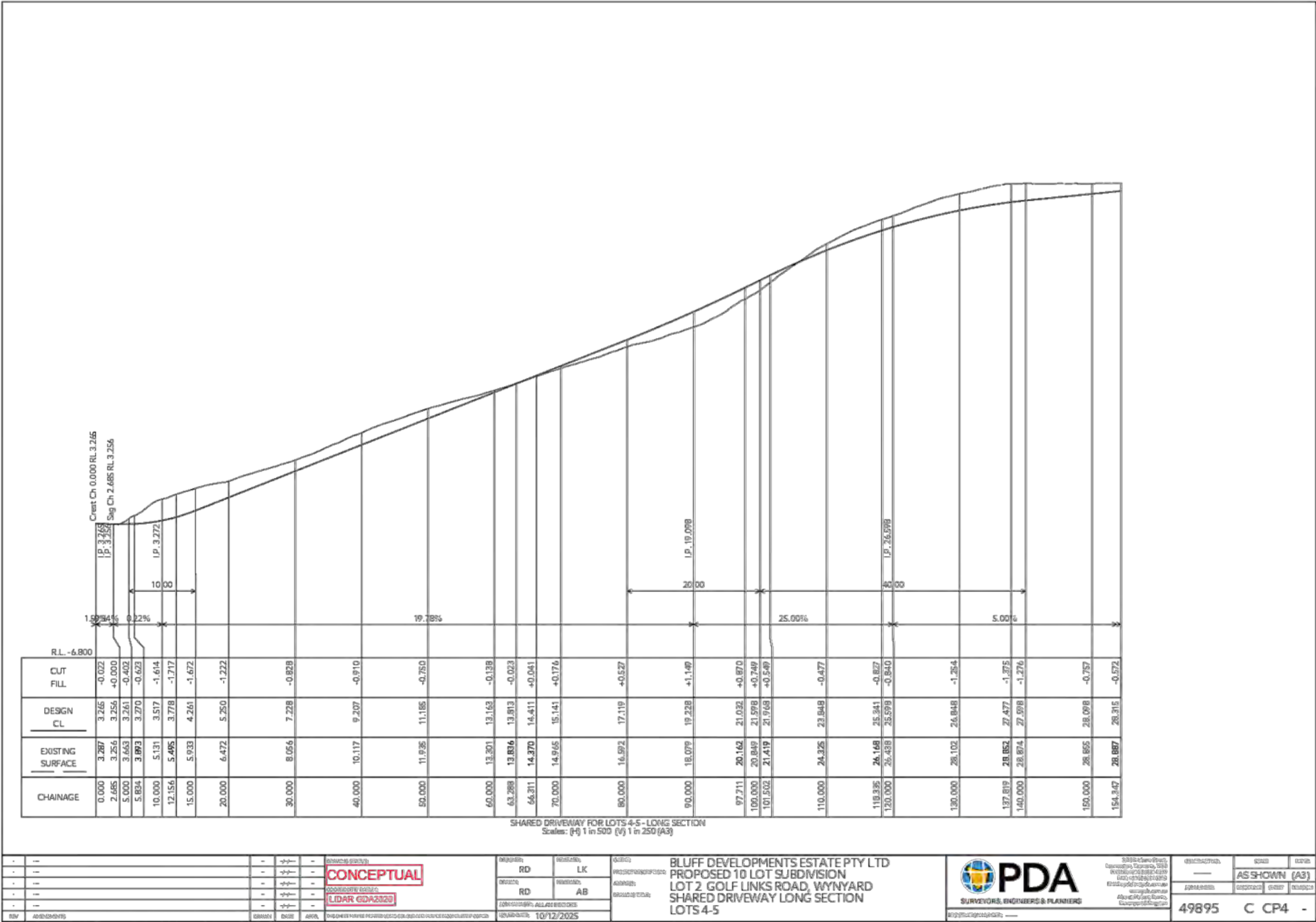
Note: N/A = Not Applicable.

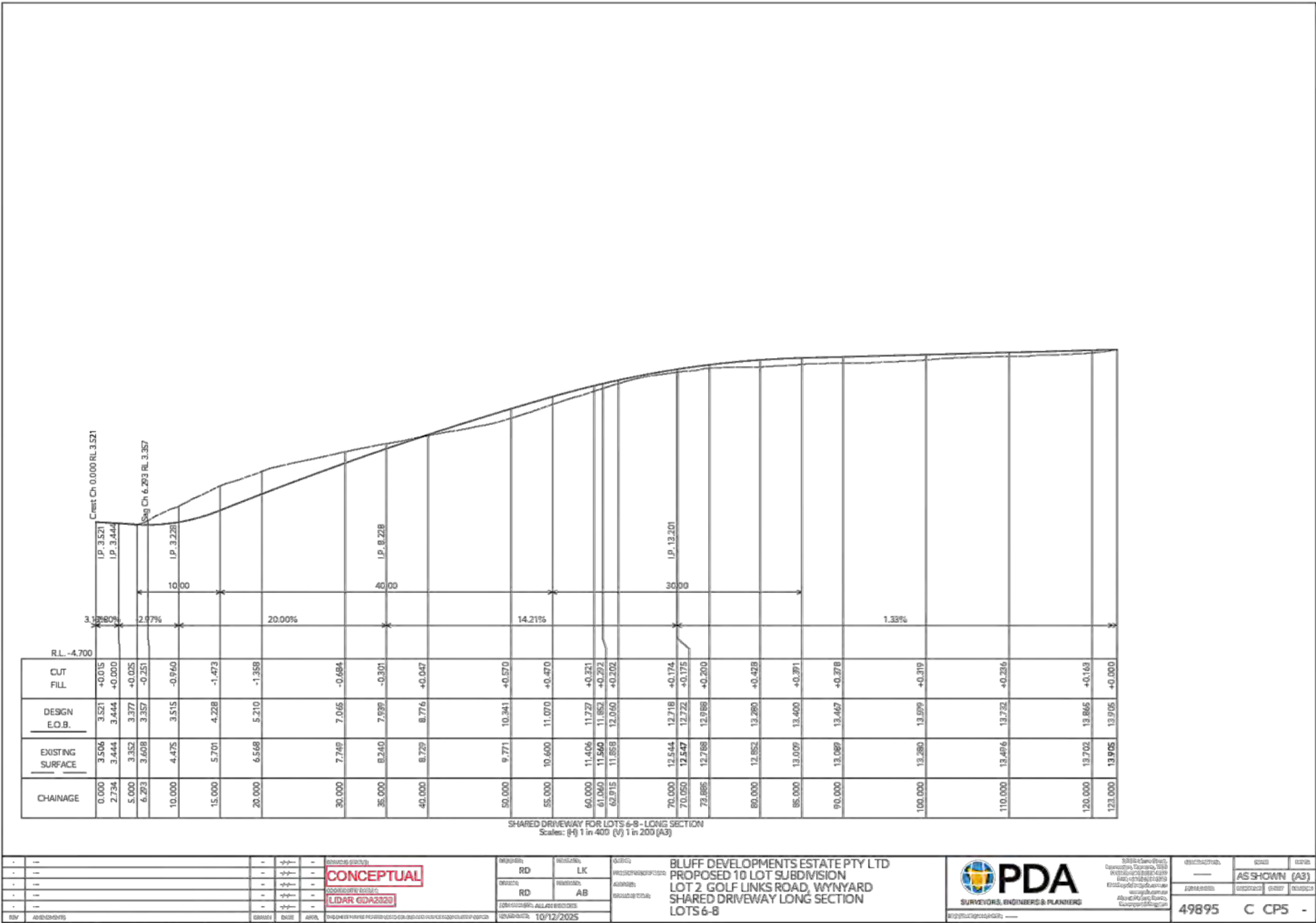


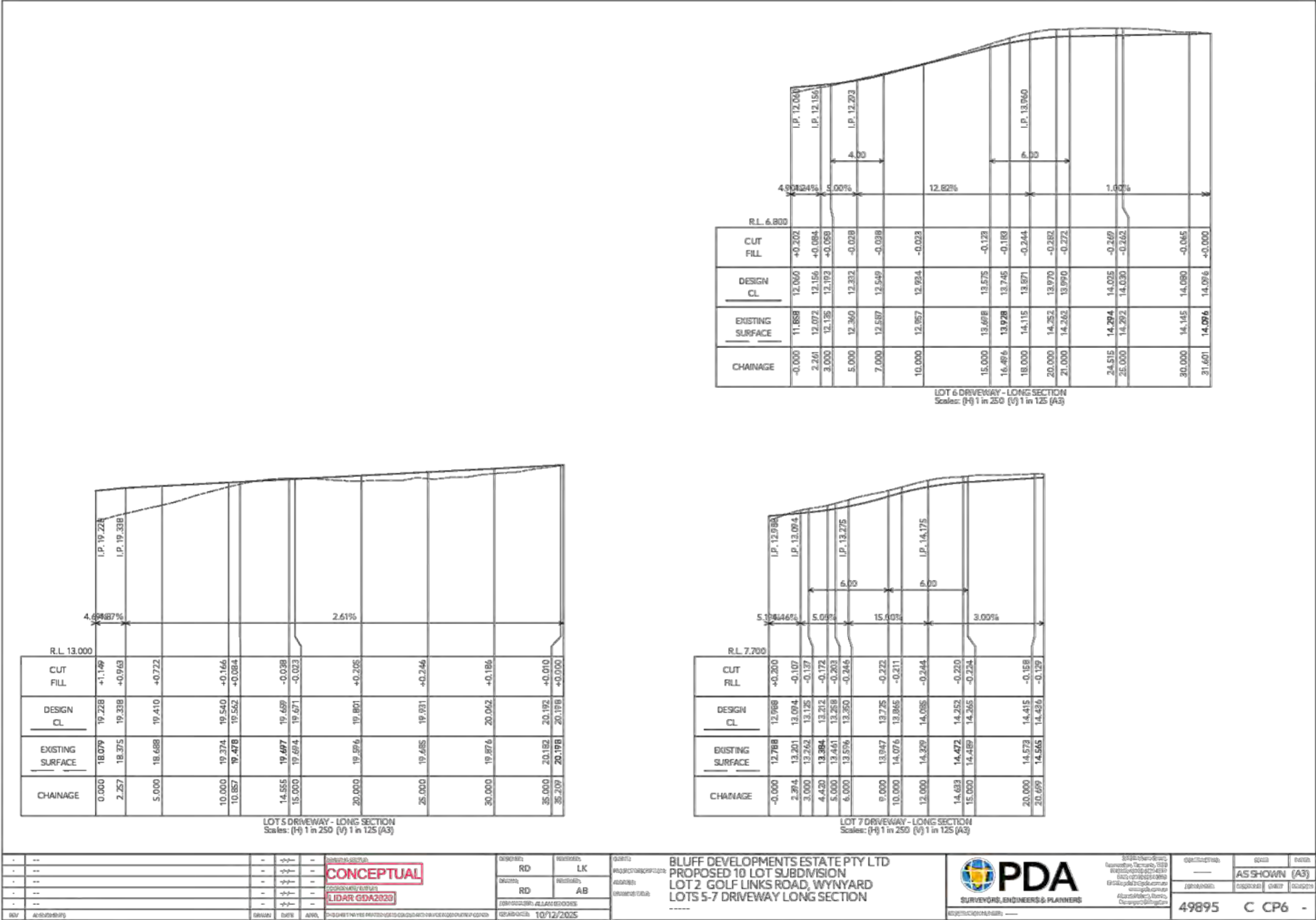


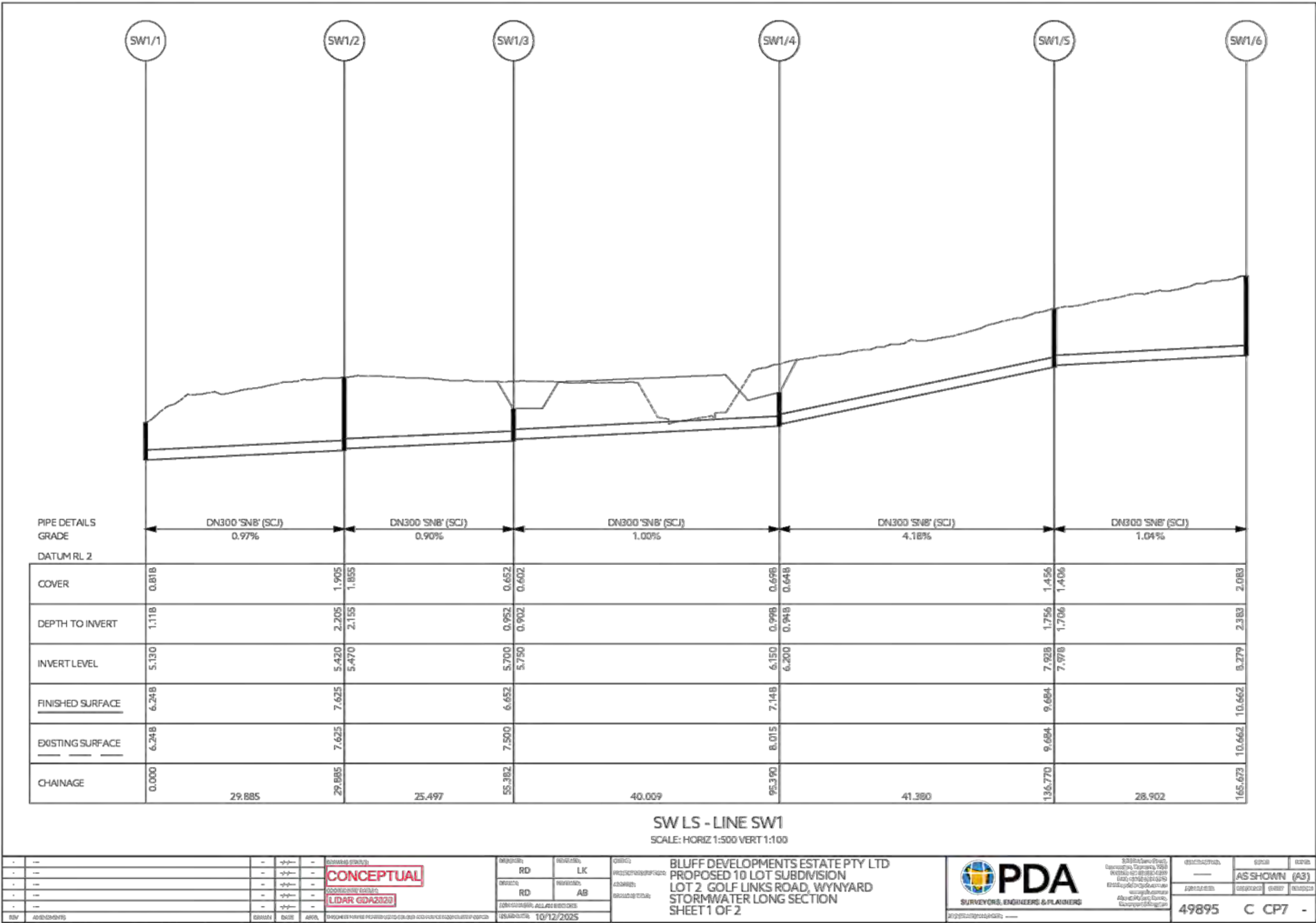


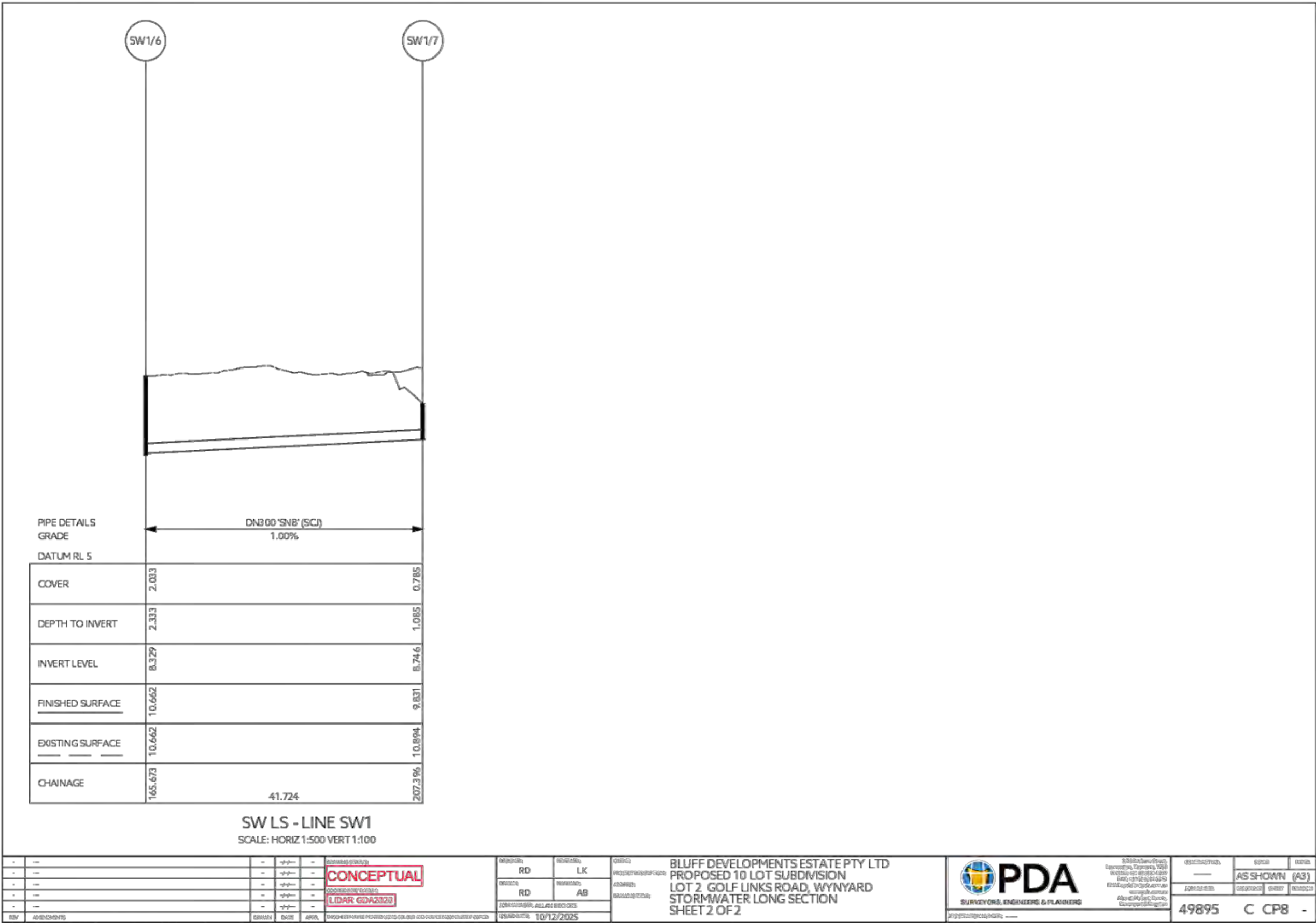


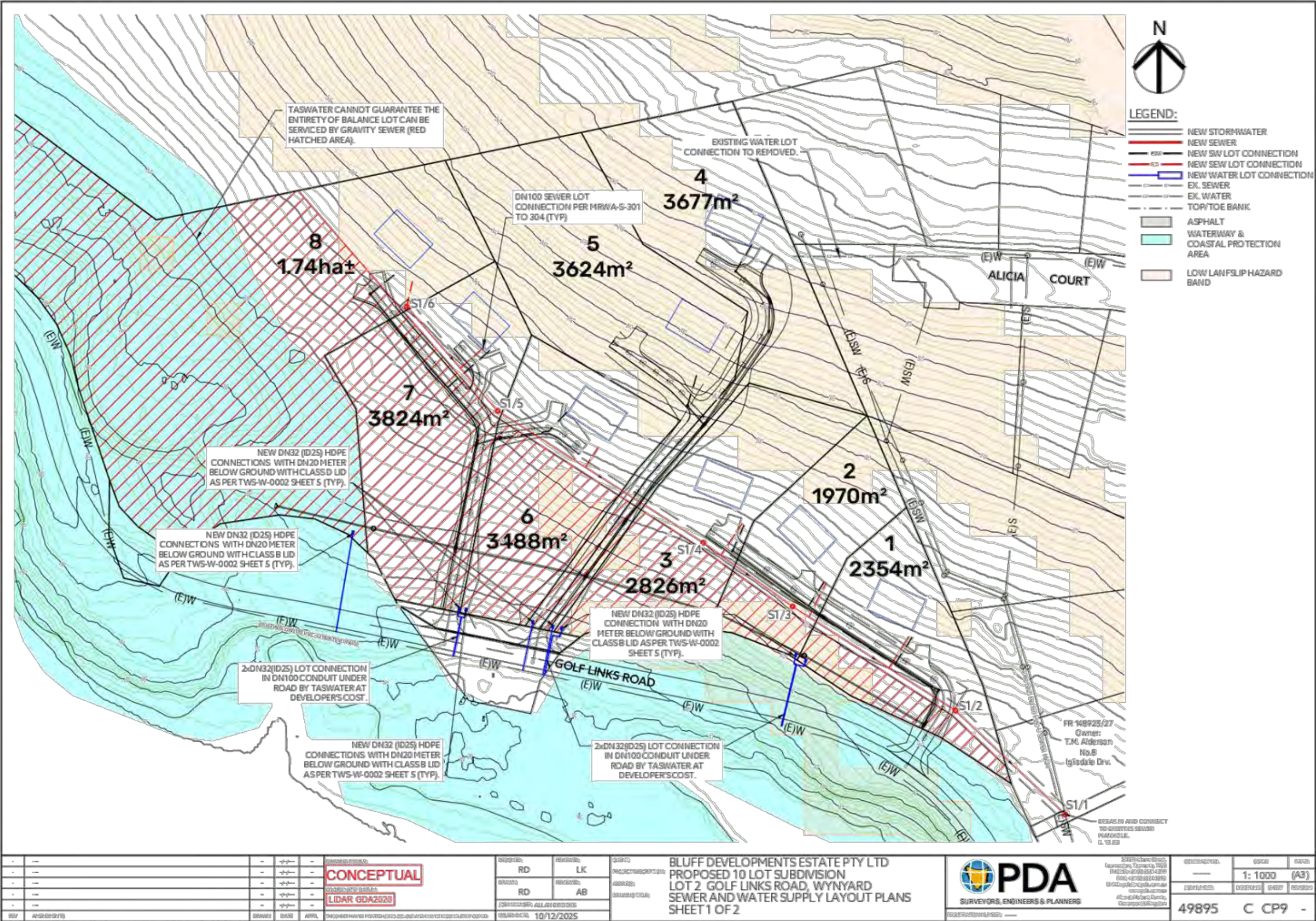


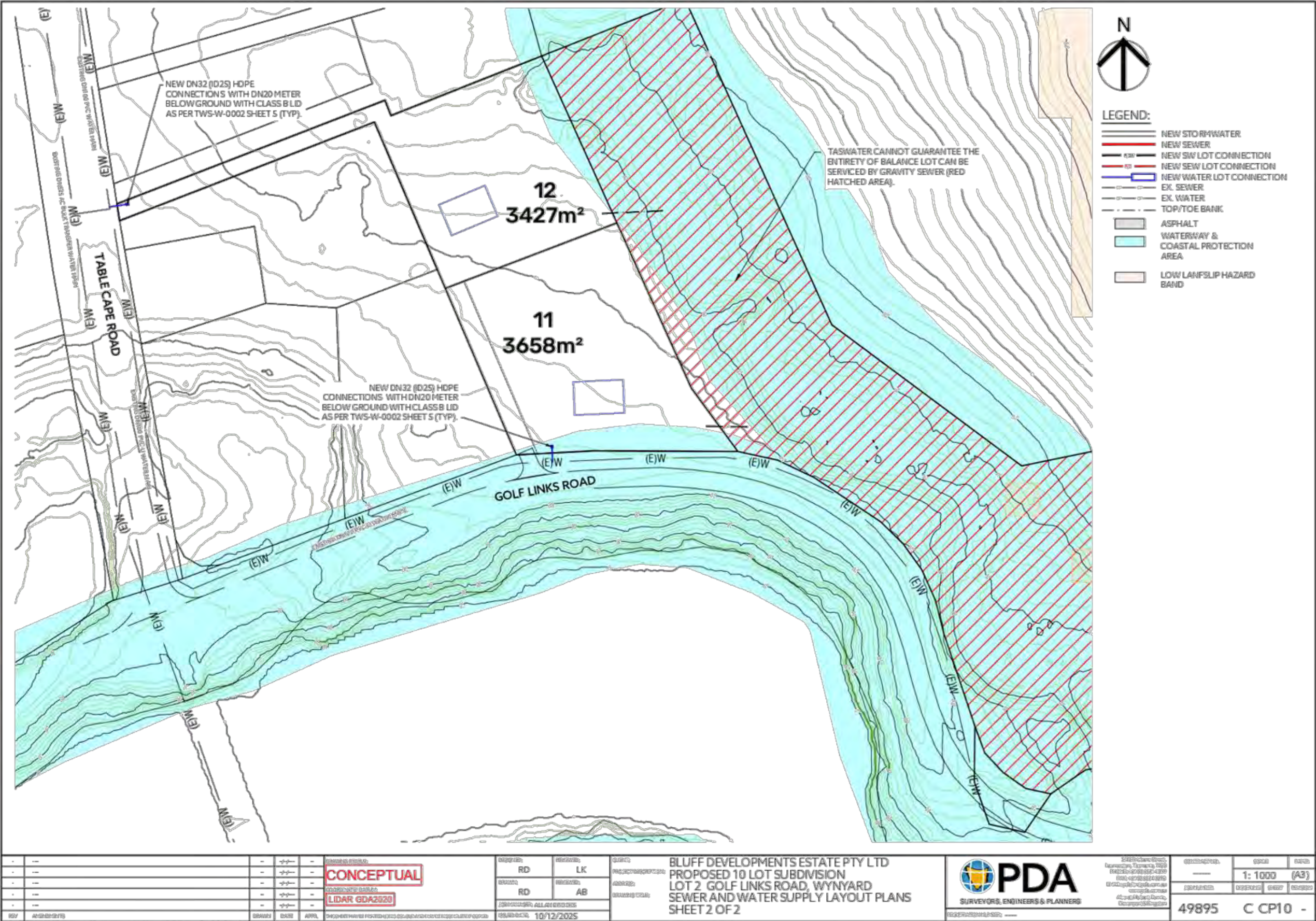


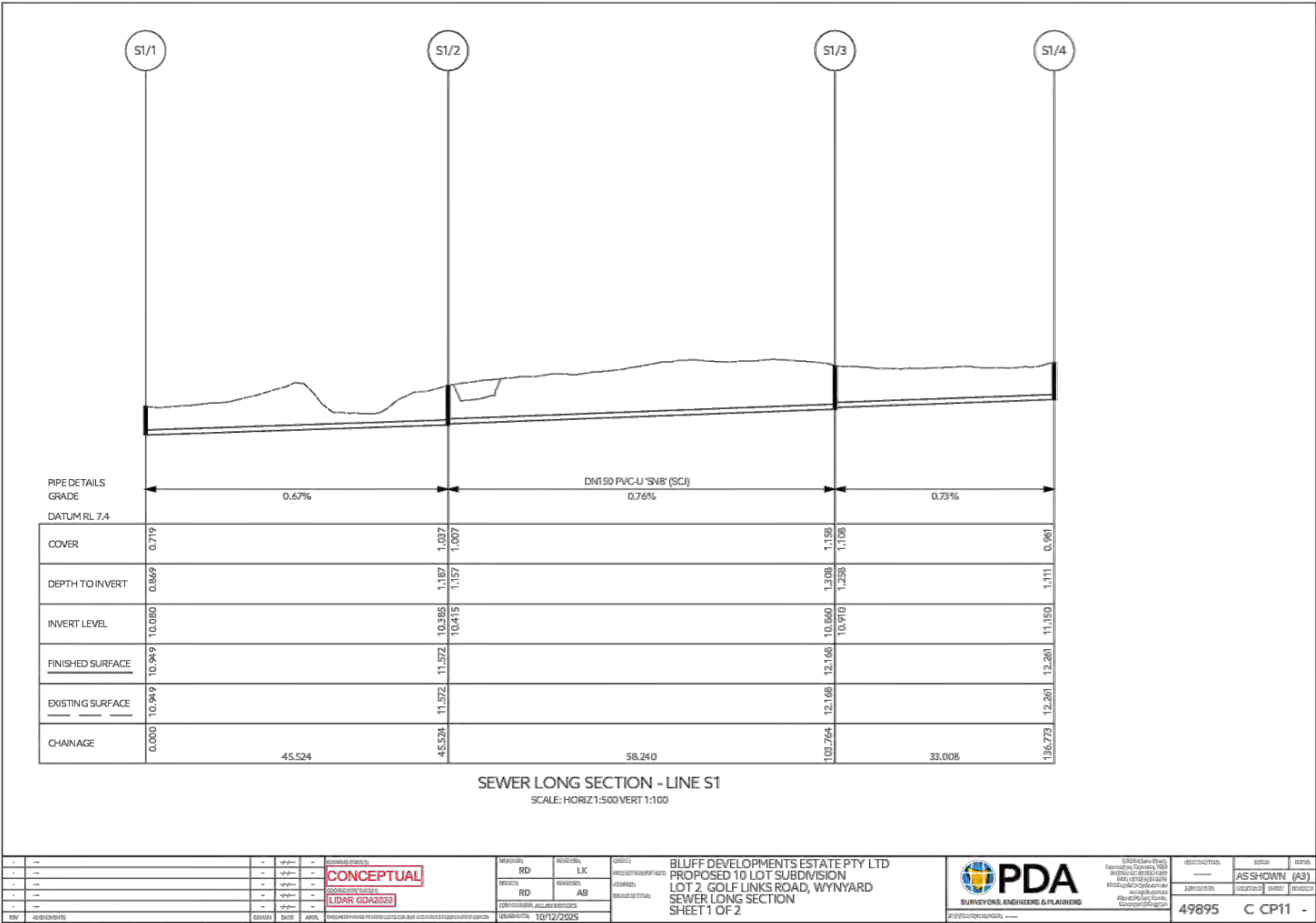


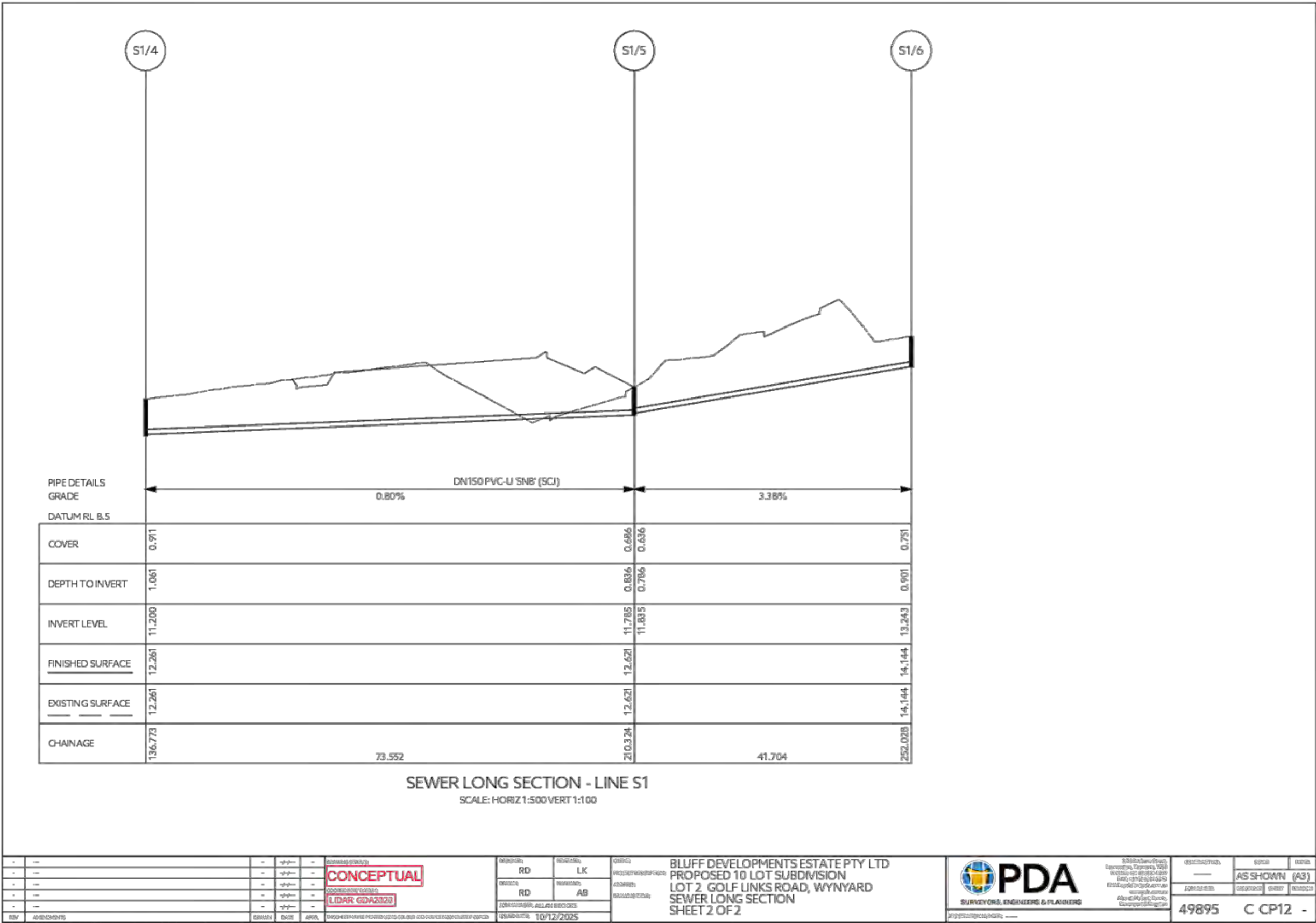


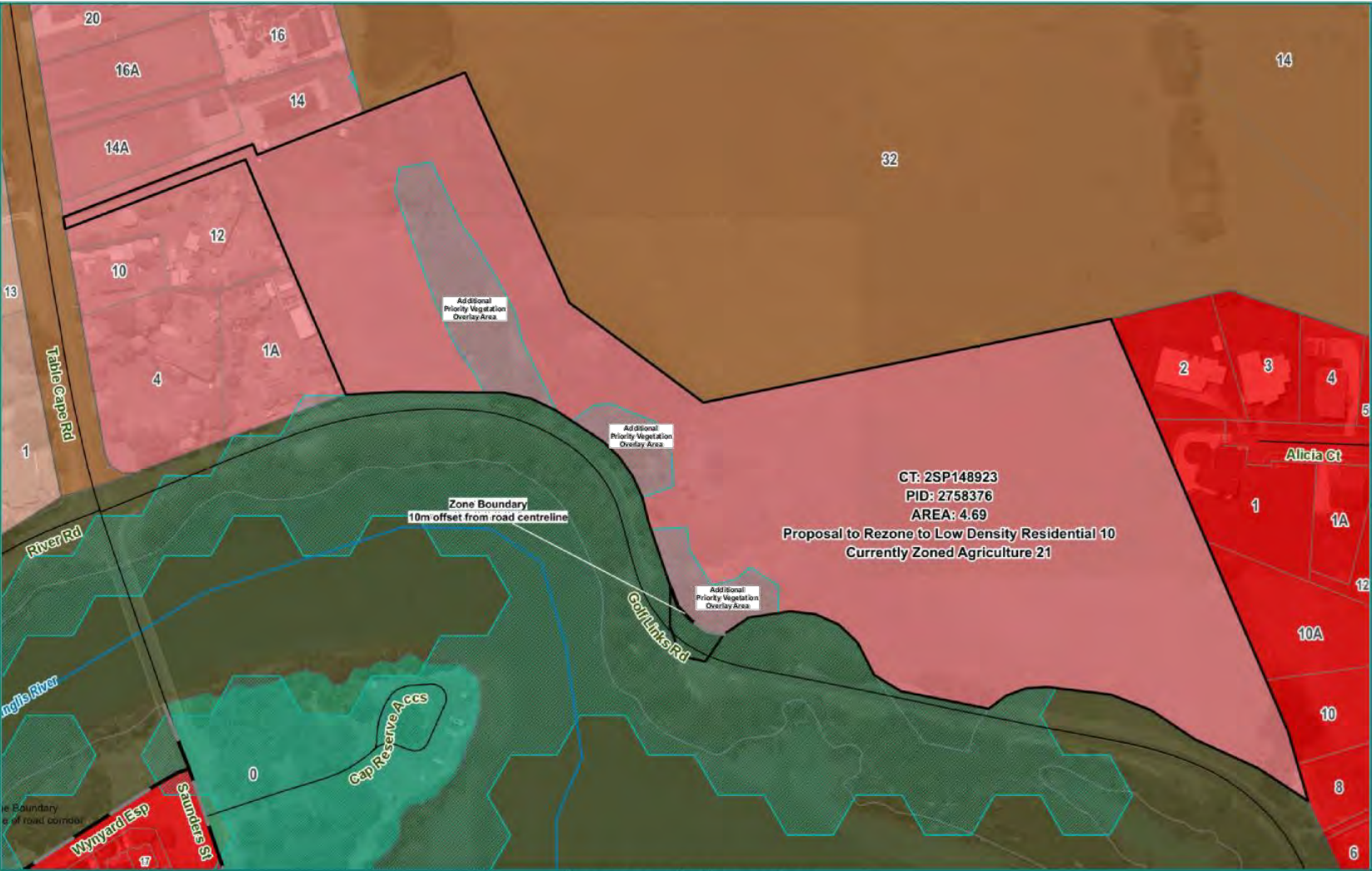












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Proposed Rezoning
(Proposal to Rezone current Agriculture to Low Density Residential)

0 100
Metres
Scale 1: 2,100 (A4 Original Size)
(Universal Transverse Mercator (UTM) projection, GDA94, AMG Zone 50)

