pitt&sherry

Weasel Solar Farm

Traffic Impact Assessment

Prepared for

Weasel Solar Farm Pty Ltd
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Client representative

Emanuele Raffaele

Date

21 May 2025

Rev03

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Revision History

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A	Draft Traffic Impact Assessment	S Diaz	R Ramm	R Ramm	19/04/2024
00	Traffic Impact Assessment	S Diaz	R Ramm	R Ramm	17/07/2024
01	Updated Plans and Site Access C Added	S Diaz	R Ramm	R Ramm	16/9/2024
02	Inclusion of Site Access Plans	S Diaz	R Ramm	R Ramm	28/02/2025
03	Update of Site Access Plans	S Diaz	R Ramm	R Ramm	21/05/2025

1. Introduction

1.1 Background

Weasel Solar Farm Pty Ltd is seeking to develop a portion of their land in the Central Highlands, Tasmania into a large-scale solar farm. The development will include approximately 435Ha of solar panels (approximately 250MWp AC). It will be accompanied by a battery energy storage system (BESS) and electricity infrastructure including inverters and a switchyard containing an electrical substation to feed into the existing 220kV transmission line. The proposal includes land for construction, maintenance, and operation, new access tracks and upgrades to existing tracks, laydown areas, security infrastructure, and landscaping.

The site is located approximately 9km north of Bothwell on Highland Lakes Road. The land is conveniently sited alongside existing TasNetworks 220 kV transmission lines that run parallel to the Highland Lakes Road on the western boundary of the site.

1.2 Traffic Impact Assessment (TIA) scope

Robert Luxmoore Project Management, on behalf of Weasel Solar Farm Pty Ltd, has engaged pitt&sherry to prepare a Traffic Impact Assessment (TIA) to investigate the impacts from the proposed Weasel Solar Farm development for submission as part of the Development Application (DA).

This report has been prepared in accordance with the *Department of State Growth (State Growth)'s Publication Traffic Impact Assessment (TIA) Guidelines* and with reference to the *Tasmanian Planning Scheme – Central Highlands* (the Planning Scheme).

2. Existing conditions

2.1 Site location

Weasel Solar Farm site is located on Highland Lakes Road, approximately 9 km north of Bothwell (Figure 1). The development area is spread across three titles: 3415 Highland Lakes Road (‘The Weasel’, Property ID 2538314; Title Reference 140433/1), 3236 Highland Lakes Road (‘Weasel Plains’, Property ID 2538322; Title Reference 140581/1) and 3759 Highland Lakes Road (‘Rockford’, Property ID 5014022; Title Reference 104298/1).

The site has land use classification 21.0 – Agriculture and surrounding land is a combination of 21.0 – Agriculture, 20.0 – Rural and 26.0 – Utilities (Highland Lakes Road). An electricity transmission corridor runs adjacent to the west boundary of the site and approximately follows the Highland Lakes Road in this section.

Figure 1: Weasel Solar farm location

2.2 Existing operation

The southern properties (‘The Weasel’ and ‘Weasel Plains’) are currently accessed via Weasel Plains Road, an unsealed track off the Highland Lakes Road. There are two additional farm accesses with gated entrances off Highland Lakes Road: opposite the Waddamana Road intersection; and at the Natural Resources and Environment (NRE Tas) laydown area.

The ‘Rockford’ property at the north of the development straddles the Highland Lakes Road and has various accesses. The access relevant to this project is a farm access with gated entrance off Highland Lakes Road, approximately 1.5km north of the Highland Lakes Road/ Waddamana Road intersection.

Most of the land is currently used for broadacre sheep grazing, with some irrigated cropping to the east of the development. The site is relatively cleared of vegetation and the project will largely avoid the woodland/forest areas within the site. Two houses located on Weasel Plains Road are outside of the development area and there are no existing agricultural buildings or structures of significance within the development area.

2.3 Surrounding road network

2.3.1 Weasel Plains Road

The initial 1.4km of Weasel Plains Road is a Central Highlands Council (Council) Access Road[1] (Figure 2 and Figure 3). After this point it continues as a private farm access road (Figure 4). Weasel Plains Road is 4.1m wide, unsealed, and subject to the Tasmanian unsealed rural road default speed limit of 80 km/h. A 4.1m wide cattle grid is installed near the start of Weasel Plains Road (Figure 5) and the road appears to carry very low traffic volumes. It will be utilised as the primary site access for the proposed Weasel Solar Farm.

Figure 2: Weasel Plains Road, looking east

Figure 3: Weasel Plains Road, looking west

Figure 4: Weasel Plains Road continues as a private road

Figure 5: cattle grid at entrance to Weasel Plains Road

[1] Transport Class based on the LISTmap Road Centrelines layer.

2.3.2 Highland Lakes Road

Highland Lakes Road (A5), also known as Lake Secondary Road, is a Department of State Growth (State Growth) Category 5[2] road under the State Road Hierarchy, and has a speed limit of 100km/h. Highland Lakes Road typically runs in a north-south direction between Deloraine in the north of Tasmania, to the Midland Highway just past Bothwell in the south of Tasmania and is a significant arterial route and the secondary arterial route between the south and north-west of Tasmania after the Midland and Bass Highways. In the vicinity of the site, the road traverses gently rolling countryside and has long straights interspersed with gentle curves and undulations. The sealed road is configured with one lane in each direction and carries approximately 340 vehicles per day[3] near the site, of which approximately 18% are heavy vehicles[3]. At the intersection with the Midland Highway, Highland Lakes Road carries approximately 1,000 vehicles per day[4]. South of Weasel Plains Road, the road had 3.0m lanes plus 1.0m sealed shoulders (Figure 6). North of Weasel Plains Road, the sealed road measured 6.0 – 7.0m with unsealed shoulders (Figure 7). This section of Highland Lakes Road is conditionally approved for 26m B-Double access[5].

Figure 6: Highland Lakes Road near the south of the site, looking north

Figure 7: Highland Lakes Road near Waddamana Road intersection, looking north

[2] Road hierarchy sourced from the Department of State Growth *State Road Hierarchy* publication.

[3] Traffic data sourced from State Growth's traffic data website: station ID A2100140, Lake Secondary Road 100m S of Waddamana Rd. AADT based on 2022 traffic counts. %HV from 2021.

[4] Traffic data sourced from State Growth's traffic data website: station ID A2100102P, Lake Secondary Road 200m W of Midland Hwy. AADT based on 2021 traffic counts.

[5] Tasmanian 26 metre B-double network.

2.3.3 Waddamana Road

Waddamana Road is an unsealed council owned Collector Road[1] subject to the Tasmanian unsealed rural road default speed limit of 80km/h. Waddamana Road intersects Highland Lakes Road opposite the northern part of the Weasel Solar Farm site.

Figure 8: Waddamana Road, looking west

2.4 Traffic volumes

2.4.1 Traffic data

The traffic data available on State Growth's traffic counts website station ID A2100140, Lake Secondary Road 100m S of Waddamana Rd, indicates that weekday peak hours for Highland Lakes Road are:

- AM peak hour 10:00am to 11:00am; and
- PM peak hour 3:00pm to 4:00pm.

2.4.2 Traffic volumes

Current Highland Lakes Road traffic volumes were estimated using the traffic counter data from station ID A2100140, Lake Secondary Road 100m S of Waddamana Rd recorded from 3 – 10 June 2021. The data shows AADT for 2021 of 340 vehicles per day. Applying a compounding growth rate of 3% per year (typical regional growth), the AADT for 2024 is estimated to be 372 vehicles per day.

The percentage of heavy vehicles was recorded as 18.4% and this value has been assumed for this assessment.

A summary of the estimated current traffic parameters on Highland Lakes Road in the vicinity of the Weasel Solar Farm site, are shown below in Table 1.

Table 1: 2024 traffic estimates

Location	AADT	% Heavy Vehicles	AM peak volume (AM peak hour)	PM peak volume (PM peak hour)
Highland Lakes Road	372	18 %	37 (10.00am – 11.00am)	35 (3.00pm – 4.00pm)

2.5 Road safety

State Growth have provided crash data for the most recent 10-year period on Highland Lakes Road within 1km of the site. The crash history shows that six crashes have occurred in the last 10 years, one of these was a fatality, and the other five were first aid or property damage only. Table 2 shows the crash severity and classifications of the crashes and the crash locations are shown in Figure 9, below.

Table 2: Crash history on Highland Lakes Road in the vicinity of Weasel Solar Farm

Crash Severity	Crash Type	Count
Fatal	189 - Other curve	1
First Aid	179 - Other straight	1
	181 - Off right bend into object/parked vehicle	1
Property Damage Only	189 - Other curve	3
Total		6

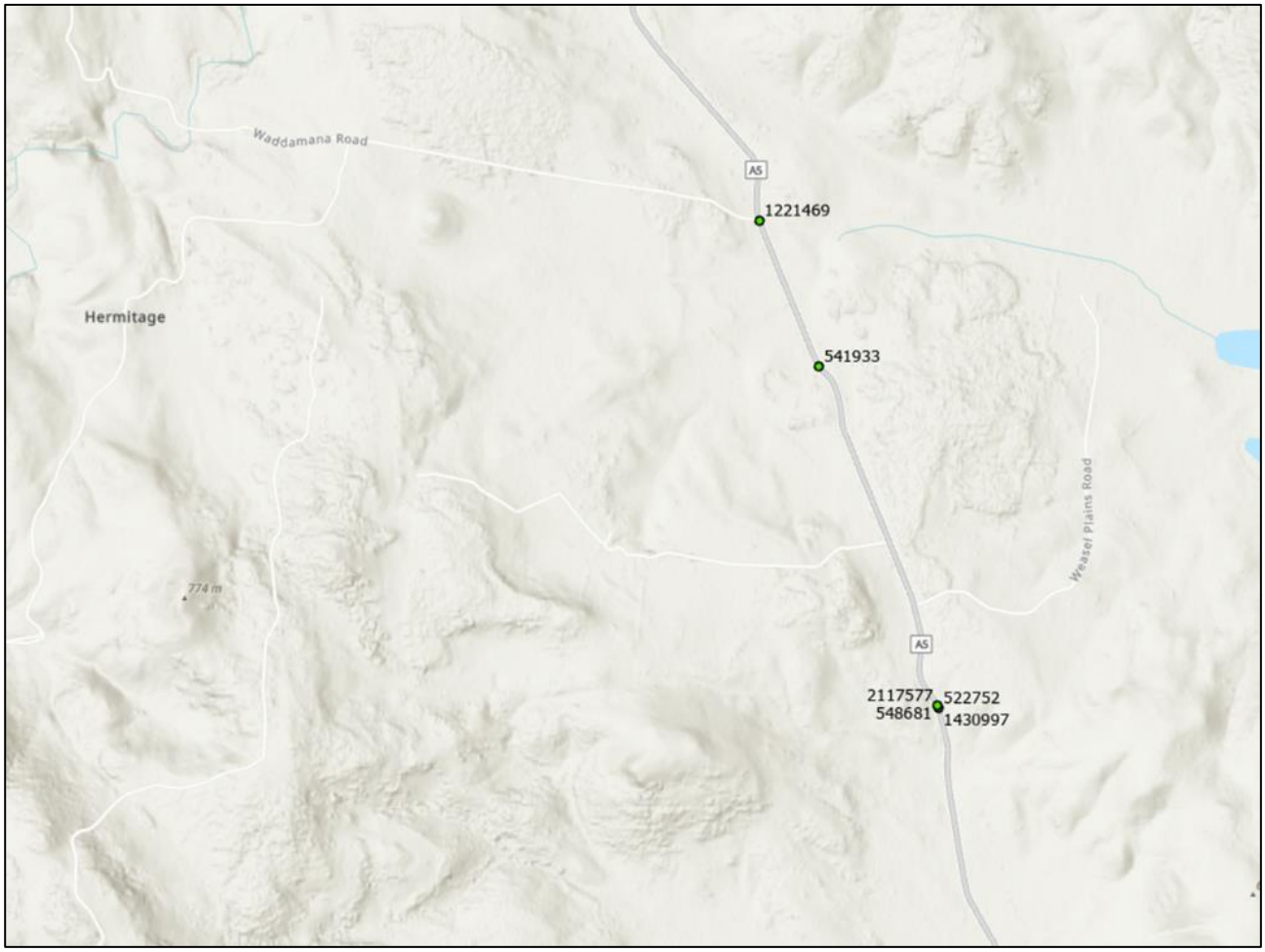

Figure 9: Crash locations

A cluster of four crashes has occurred on a minor bend in Highland Lakes Road south of Weasel Plains Road. This location was inspected during the site visit. It was observed to be a gentle curve, with moderate downhill gradient for southbound traffic, a V-drain on the east side and a sloping embankment on the west side. The road is a sealed road with 100km/h posted speed limit and all four crashes occurred during daylight hours. The four crashes were minor (first aid or property damage only) – this was not the location of the fatality.

Figure 10: previous crash site on Highland Lakes Road, looking north

2.6 Public transport

A school bus route is signed on Highland Lakes Road. No other public transport is known to operate in the area.

2.7 Pedestrian and cycling infrastructure

No existing pedestrian or cycling infrastructure in the vicinity of the site.

3. Proposed development

3.1 Overview

Weasel Solar Farm development is a large-scale solar project of approximately 435Ha. The site will accommodate solar panels, a Battery Energy Storage System (BESS), internal 33kV transmission, substation, internal access roads and construction compound area. The proposed site layout is shown in Figure 11, below, and the design layout plan is included in Appendix A.

The project will be connected to the National Energy Market (NEM) via an interconnection to the existing TasNetworks 220 kV transmission line that lies within the western boundary of the site, parallel to Highland Lakes Road. The development has been assessed under the “Utilities” use class.

The land is currently used primarily for sheep grazing, and this will continue post construction.

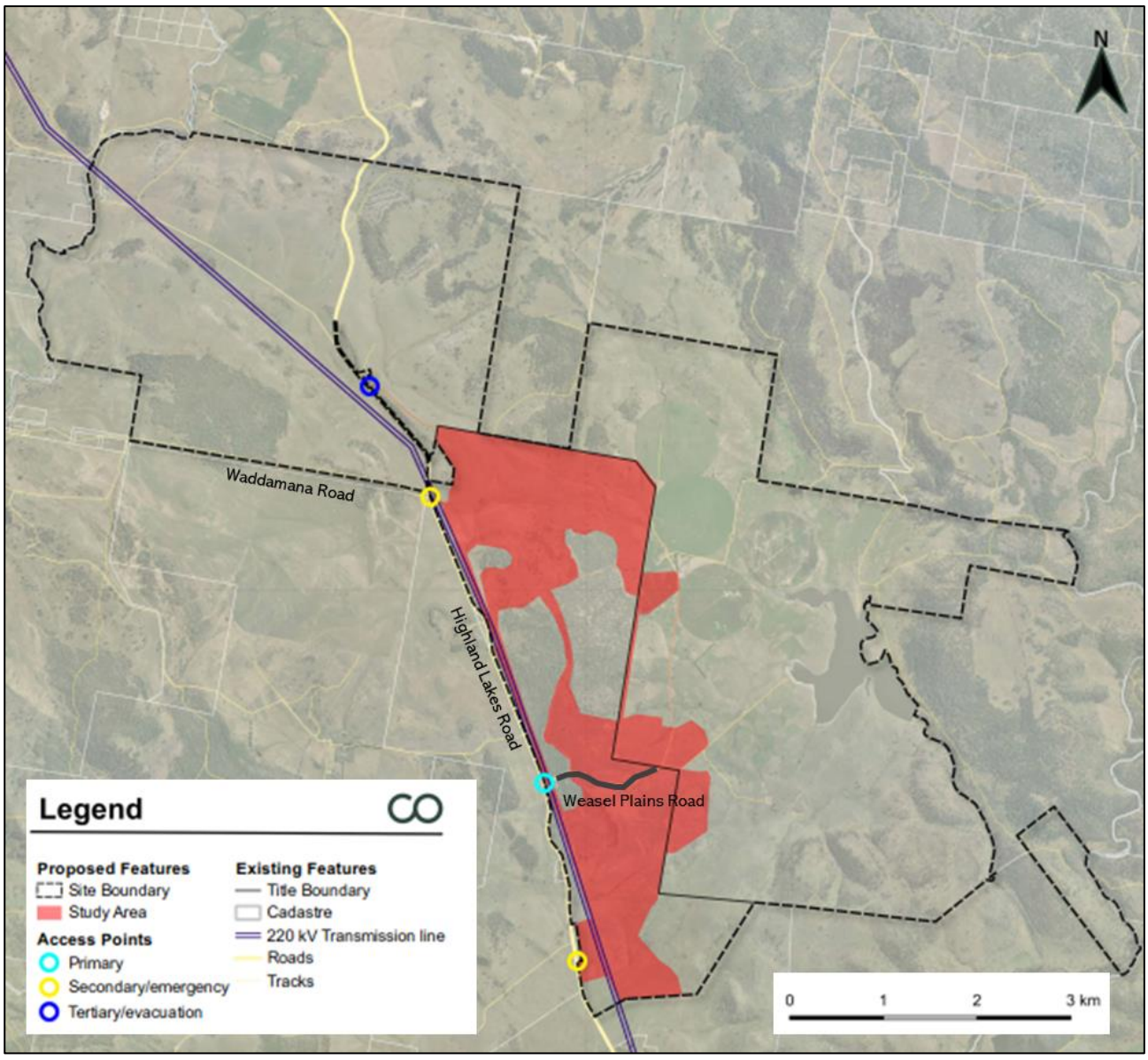

Figure 11: Weasel Solar farm site layout

3.1.1 Construction phase

Construction of the Weasel Solar Farm is expected to take approximately 18 months and involve up to 245 workers onsite at the peak[6]. Proposed site hours are shown in Table 3. Employees are expected to carpool or travel by bus to and from the site with most vehicles coming from Hobart. Deliveries will be expected throughout the day.

Table 3: Site hours

Day of week	Site hours
Monday to Friday	6.00am – 6.00pm
Saturday	8.00am – 6.00pm
Sunday and Public holidays	10.00am – 6.00pm

3.1.2 Operation phase

Once construction is complete and the solar farm is operational, the ongoing access requirements will reduce dramatically.

Onsite functions relating to the solar operation will require minimal staff. Operational jobs are estimated at 8 direct jobs[7]. The agricultural operations of the properties will continue similar to how they were prior to construction of the solar farm.

[6] Contractor estimates based on similar sized projects

[7] Extracted from draft Urban Enterprise Socioeconomic report.

4. Construction phase assessment

4.1 Site access

Weasel Plains Road will be used as the primary access for construction traffic to the site (northern and southern parts). Two additional access points are proposed for use during construction and as emergency accesses once the solar farm is operational, and a third access is a tertiary or emergency evacuation access. All four access points are shown in Figure 12 below. The summary of additional possible access points considered for the project is included in Appendix B.

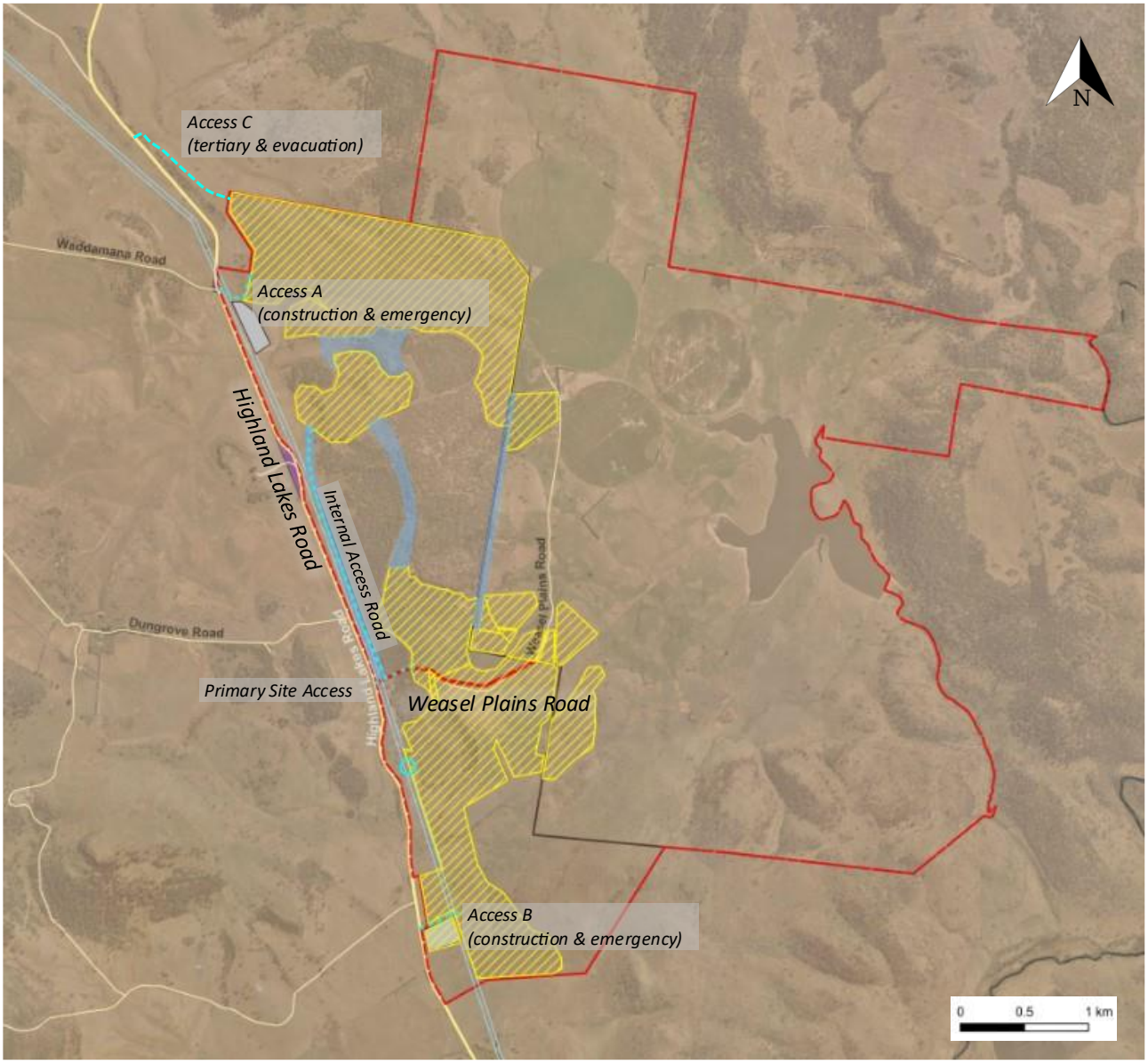

Figure 12: Weasel Solar Farm site access points

4.1.1 Weasel Plains Road – Primary access

Weasel Plains Road junction off Highland Lakes Road has a wide unsealed entrance. A 4.1m wide cattlegrid is installed near the entrance.

Sight distance is sufficient in both directions. Weasel Plains Road will provide primary access to the Weasel Solar Farm site for all vehicles during both the construction phase and operational phase.

The entrance to Weasel Plains Road should be sealed for the length of the longest vehicle that accesses the site to prevent tracking of mud or gravel onto Highland Lakes Road. If a B-double truck is the largest vehicle that exits the site, then the seal should extend for the first 30m of Weasel Plains Road. Concept plans of the proposed access are included in Appendix C.

It is also suggested that the existing transverse culvert opposite the entrance is lengthened to resolve the narrowing of the unsealed shoulder at the junction (refer Appendix D).

Figure 13: Weasel Plains Road entrance

Figure 14: Highland Lakes Road, south approach to Weasel Plains Road

Figure 15: Highland Lakes Road, north approach to Weasel Plains Road

4.1.2 Construction and Emergency Access A

An existing 4.1m wide farm gate is installed opposite the Waddamana Road intersection and provides access to the Weasel Solar Farm site.

Sight distance is excellent in both directions along Highland Lakes Road, and also up Waddamana Road. Note that realignment of existing road signage would be recommended to prevent visual obstructions.

A suitable all-weather access should be constructed and the entrance sealed to prevent tracking of mud or gravel onto Highland Lakes Road. Concept plans of the proposed access are included in Appendix C.

Figure 16: Entrance of Access A, opposite Waddamana Road intersection (image source: Google Maps street view)

Figure 17: Highland Lakes Road, south approach to Access A, opposite Waddamana Road

Figure 18: Highland Lakes Road, north approach to Access A, opposite Waddamana Road

4.1.3 Construction and Emergency Access B

Near the south of the site, an existing access services a laydown area constructed on land owned by Department of Natural Resources and Environment (NRE Tas). At the rear of the laydown is an existing gated entrance to the Weasel Solar Farm site.

The existing access is located on a long straight on Highland Lakes Road and sight distance is excellent in both directions.

The entrance should be sealed to prevent tracking of mud or gravel onto Highland Lakes Road. Concept plans of the proposed access are included in Appendix C.

Figure 19: Access B entrance

Figure 20: Highland Lakes Road, south approach to Access B

Figure 21: Highland Lakes Road, north approach to Access B

4.1.4 Tertiary and Evacuation Access C

To the north of the Weasel Solar Farm site, a 4.1m farm gate provides access from Highland Lakes Road to an existing farm track.

Sight distance is excellent in both directions.

The entrance should be sealed to prevent tracking of mud or gravel onto Highland Lakes Road. Concept plans of the proposed access are included in Appendix C.

Figure 22: North-A access entrance

Figure 23: Highland Lakes Road, south approach to North-A access

Figure 24: Highland Lakes Road, north approach to North-A access

4.1.5 Swept paths

A swept path assessment has been undertaken for the primary construction access Weasel Plains Road, considering 19.0m semi-trailer and B-double trucks. The swept paths for B-double trucks are shown in Figure 25 and full plans for each vehicle type are included in Appendix E.

Figure 25: swept paths for B-double trucks entering and exiting Weasel Plains Road and the proposed site access road

The swept paths demonstrate that widening of the access into Weasel Plains Road will be required, and this will require relocation of the existing timber structure and extension of the corresponding longitudinal culvert to suit.

The plans also show indicative swept paths for the proposed site access road and an indicative entrance into the approximate location of the proposed site compound. These new entrances should be constructed to suit the swept paths of the largest vehicles expected to access the site.

4.1.6 Sight distance assessment

The Austroads *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (AGRD Part 4A) specifies that "*Desirably, sight distances at accesses should comply with the sight distance requirements for intersections*".

The Safe Intersection Sight Distance (SISD) at each access point has been assessed against the requirements of the AGRD Part 4A. The SISD was measured and recorded on site on 18 March 2024 in accordance with AGRD Part 4A.

The speed limit on Highland Lakes Road is 100km/h resulting in a required sight distance of 248m. The default speed limit on Weasel Plains Road (unsealed) is 80km/h resulting in a required sight distance of 181m.

It is noted that vehicle speed refers to the 85th percentile speed vehicles travel throughout the site, which was observed during the site visit.

The SISD requirements and the observed sight distances for each access are shown below in Table 4.

Table 4: Safe intersection sight distance (SISD) assessment of Weasel Solar Farm site accesses

Access	**Approach**	**Speed**	**SISD Requirement – Austroads** *(with desirable 2s reaction time)*	**Observed sight distance**	**Meets Requirements?**
Primary Accesses					
Weasel Plains Road	North	100	248m	>300m	✓
	South	100	248m	260m	✓
Construction and Emergency Accesses					
Access A	North	100	248m	>300m	✓
	South	100	248m	>300m	✓
Access B	North	100	248m	>300m	✓
	South	100	248m	>300m	✓
Access C	North	100	248m	>300m	✓
	South	100	248m	>300m	✓

4.2 Transport routes

4.2.1 Staff vehicles

All staff vehicles will enter and exit the site via the site accesses described above. Routes taken to access the site by staff vehicles will depend on their origin, with the majority expected to travel from the south, predominantly Hobart and surrounding townships.

4.2.2 Freight vehicles

Standard heavy vehicles

Heavy vehicles will be required for transporting materials, plant, and equipment to site. Most heavy vehicles are expected to travel to and from Hobart along the Midland Highway. Resources from the mainland may arrive by sea to Burnie or Devonport ports and travel along the Bass Highway. Any vehicles travelling to or from Launceston are likely to utilise Cressy Road/ Poatina Road.

Heavy vehicles will utilise the approved Tasmanian 26 metre B-double network of roads where possible. The majority of vehicles accessing the site will be trucks up to the size of a 26 metre B-double. At the time of writing this report, there do not appear to be any restrictions for access using the Midland Highway, Bass Highway, Cressy Road and Poatina Road which are approved B-double routes. This should be checked closer to the construction date including any load limits on bridges.

Highland Lakes Road in the vicinity of Weasel Solar Farm is a conditionally approved B-Double access route with the following condition:

> *Not to be used as a through road - For pick up from or delivery to properties or side roads connecting Highland Lakes Road between intersections with Poatina Road and Midland Highway.*

The northern stretch of Highland Lakes Road between Deloraine and Miena is a conditionally approved B-Double access route with the following condition applying to several sections:

> *Maximum speed 80km/hr unless signage indicates a lower maximum. Access is suspended during prolonged rain where the 24 hour rainfall from 9 am exceeds 10mm (as measured at Liawenee station) with suspension of travel of 1 day following the rainfall event.*

The preferred primary transport routes for the Weasel Solar Farm project are shown in Figure 26, below:

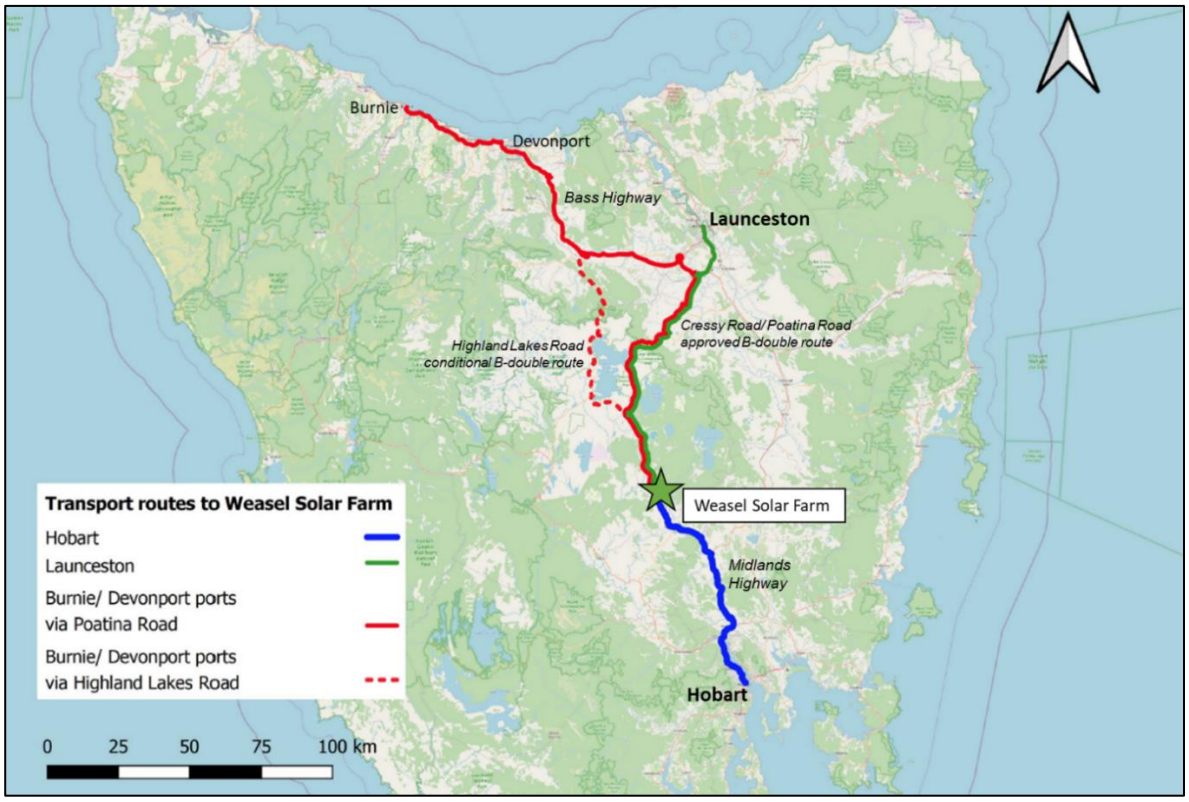

Figure 26: Transport routes to Weasel Solar Farm

Over Size Over Mass (OSOM)

It is understood that the following OSOM components are required to enter the site:

- Poles up to 30m in length; and
- Transformers in the vicinity of 90 tonnes in weight.

The following assessments should be completed for OSOM vehicles:

- An OSOM route assessment, completed by a suitably qualified person, which assesses the suitability of routes for the proposed OSOM vehicle and if there are any modifications that are required to be made to the road and nearby infrastructure (e.g. moving powerlines, widening pavements, removing traffic islands, moving/ removing signage)
- A construction traffic management plan which considers the impact to traffic operation
- A structural assessment of any impacted bridges to determine their suitability; and
- A dilapidation report may be required for Macquarie Road.

OSOM movements should occur on the highest order roads and B-double approved routes as much as possible as shown in Figure 26.

4.3 Internal access roads

It is understood that internal access roads throughout the site will provide access to all sections of the solar farm.

The network of internal roads should ensure all vehicles can access site and turn around to safely egress the site in a forward direction. Internal road design has not been finalised and swept paths have not been assessed for the internal access roads. Due to the size of the site, it is expected there will be sufficient space for vehicles to turn around on site.

The internal roads will be all weather access tracks constructed 4m wide, to suit 20 tonne vehicles and with passing bays every 200m to allow two-way use.

The following guidance has been provided for the design of the internal access roads:

- New access roads should be developed with a width of 5.5m to provide two-way access, or minimum of 4m for one-way access (based on Tasmania Fire Service requirements)
- Vehicular traffic must be able to enter and leave a major road in a forward direction as per *Clause A1.5 of C3.0 Roads and Railway Assets Code* of the planning scheme
- New access roads providing access for articulated vehicles must not exceed a grade of 1:6.5 (15.4%) and the rate of change of grade must not exceed 1:16 (6.25%) as specified in AS2890.2
- A minimum turning radius for an articulated vehicle must not exceed 12.5m as specified in AS2890.1; and
- Swept paths should be completed along all access roads for the largest vehicle travelling through the site to determine where additional widening is required around bends or at intersections.

4.4 Parking and loading bays

Construction compound areas are proposed for the site close to each of the primary and secondary accesses (see the Preliminary design plans, Appendix A, and Concept site access plans, Appendix C).

The parking area should be sized to accommodate the parking requirements of the construction vehicles. Car parking should be designed in accordance with AS2890.1 – Off street car parking. Some example parking requirements are shown in Table 5.

Table 5: Example car parking requirements

Item	Employee Car Parking (User Class 1A)	Visitor Car Parking (User Class 2)
Car parking space width	2.4m	2.5m
Car parking space length	5.4m	5.4m
Aisle width	6.2m	5.8m
Car park crossfall	1:16 (6.25%)	

A sample car park layout has been overlaid on each construction lay down area to demonstrate that the space available will exceed the expected parking requirements of the construction staff. As show, the size of each construction compound is large enough to allow ample space for unloading areas, storage of plant and materials, and circulation of heavy vehicles. Laydown areas should be sited to allow delivery vehicles to be clear of other circulating vehicles during unloading.

The ground conditions onsite have not been assessed but compacted gravel hardstands are expected to be sufficient. If oversized or heavy loads are required, specific checks should be carried out to confirm ground capacity and prevent bogging or overturning onsite.

4.5 Traffic impact assessment – construction phase

4.5.1 Traffic generation

Traffic impacts at the site are expected to predominantly occur during the construction phase. Construction of the project is estimated to take approximately 18 months. Each activity will have varying requirements for traffic access, and the client has provided estimates of traffic movements during construction, shown in Table 6 below.

Table 6: Weasel Solar Farm estimated construction traffic

Construction Activity	Duration	Work force	Light Vehicle	Medium Truck	Large Truck
	(weeks)	(workers per day)	(vehicle movements per day)		
Logistics	27	20	10		20
Civil	34	40	20		20
Mechanical	39	90	30	4	
Electrical	39	75	30	2	
Completion and Commission	25	20	10		
TOTAL		**245**	**100**	**6**	**40**

Construction activities will overlap, so for the purposes of this traffic impact assessment we have based the peak construction traffic generation on the total of all stages. This is a conservative approach, as it is more likely that demands from each stage will be staggered.

4.5.2 Traffic distribution and assignment

Construction traffic is expected to predominantly access the site from Weasel Plains Road.

Light vehicle movements are likely to occur clustered, with vehicles arriving 6:00am-7:00am and departing 6.00pm-7.00pm, coinciding with the hours of operation of the construction site.

It has been assumed that trucks will access and egress the site throughout the day from 6:00am to 6:00pm on weekdays, 8:00am – 6:00pm on Saturday and 10:00am – 6:00pm on public holidays or Sunday.

4.5.3 Traffic impacts – during construction

The traffic impact of the construction phase of the Weasel Solar Farm development has been assessed based on the following assumptions:

- A growth rate of 3% per year has been applied to the recorded traffic volumes along Highland Lakes Road to calculate existing traffic volumes (see Section 2.4.2)
- No other significant developments in the immediate vicinity of the site are expected to be constructed concurrently with this development; and
- Construction staff would travel to and from the site outside the current Highland Lakes Road peak times and therefore would not contribute to the current peak hour traffic flows.

Conservatively, up to 100 light vehicle movements plus approximately 46 medium and heavy vehicle movements could potentially travel to and from the site per day during peak construction. An increase of 146 vehicle movements per day on Highland Lakes Road would represent an increase in daily traffic volumes of 40%. The Planning Scheme states that the maximum acceptable increase in AADT from vehicles travelling to and from site is 20% of vehicle movements per day (for both light vehicles and for vehicles longer than 5.5m) (as per Table C3.1 of the Planning Scheme). The estimated traffic generated by the proposed Weasel Solar Farm development will exceed these criteria during the construction phase, however given that the surrounding roads are currently operating well below capacity, the additional traffic associated with the development is not anticipated to adversely affect the function or safety of the local network for the relatively short period of construction (18 months). Post-construction, the operational traffic generated by the development is expected to meet the planning scheme requirement (see Operational phase assessment in Section 5). The local road network is comprised of rural roads with low existing traffic flows operating well below capacity. It is not anticipated that the additional traffic produced by the Weasel Solar Farm development during the construction phase will negatively impact the function or safety of the local network.

Heavy vehicle flows are likely to be spread across the day and the contribution to the AM and PM peak flows is estimated to be small (4 heavy vehicles per hour).

Light vehicle movements are expected to be clustered between 6:00am-7:00am (entering site) and 6.00pm-7.00pm (exiting site) in line with the construction site hours. During the peak hours, there is potential for up to 50 additional light vehicle movements plus 4 heavy vehicles will access or egress the site. The current AM and PM peak hours on Highland Lakes Road are 37 and 35 vehicles per hour. Therefore, the Weasel Solar Farm construction traffic could generate new peak hours on the local network during the construction period. Existing traffic at these times is very low (6 and 8 vehicles per hour respectively[8]). Maximum peak flows during construction could potentially be up to 60 vehicles per hour from 6:00am – 7:00am and 62 vehicles per hour from 6:00pm – 7:00pm. Actual peaks are likely to be lower as it is unlikely that all construction phases would overlap and if staff work hours vary and start and finish times are staggered for different work crews.

[8] Traffic data sourced from State Growth's traffic data website: station ID A2100140, Lake Secondary Road 100m S of Waddamana Rd. 2021.

To increase the safety on Highland Lakes Road during the construction period, it is recommended to install Trucks Crossing or Entering advisory signs () on Highland Lakes Road to improve awareness of increased vehicle movements, including slow-moving heavy vehicles, either entering or exiting from the construction accesses:

Figure 27: W5-22 Trucks Crossing or Entering Advisory Sign

Figure 28: W8-17-1 Next km sign

Install W5-22 Trucks entering or crossing signs with W8-17-1 NEXT 6km (Figure 28) on Highland Lakes Road for the duration of the construction period (as shown on Concept access key plan, Appendix C):

- 150 metres south of Access B, facing northbound traffic; and
- 150 metres north of Access A, facing southbound traffic.

4.5.4 Road safety impacts

The crashes recorded in the vicinity of the site in the previous 10 years showed a cluster of four crashes located on Highland Lakes Road approximately 750m south of the Weasel Plains Road/ Highland Lakes Road intersection.

The site accesses for the proposed development have been situated clear of the historical cluster of crashes, and all site distances have been assessed as having sufficient sight distances in both directions.

The expected traffic generation of the proposed development both during construction, post development and 10-years post development is not expected to increase the risk or severity of crashes in the vicinity of the site.

5. Operational phase assessment

5.1 Site access and parking

Given the significantly lower traffic volumes anticipated during operations compared with during construction, it is assumed that the construction site accesses established for construction access will more than adequately meet the site's ongoing operational requirements. Concept plans of the proposed site accesses are included in Appendix C.

Similarly, the parking demand for daily operations of the solar farm will be significantly less that during the construction phase. It is estimated that 5 -10 car parking spaces would be sufficient, and there is ample space on the site to provide this. It is noted that there is no requirement for car parking for Utilities use class developments under the Planning Scheme.

5.2 Traffic generation

Operation of the solar farm requires very little labour and once construction is complete, the ongoing access requirements will reduce dramatically. Onsite functions relating to solar operations are limited to servicing and maintenance and the agricultural operations of the properties will continue similar how they were prior to construction of the solar farm.

The ongoing operation of the solar farm is estimated to generate $12 million in total economic output and support 20 (FTE) jobs per annum, which includes 8 direct jobs (FTE)[9]. As a conservative estimate it has been assumed that 10-15 vehicle movements per day are generated by the site post-development during more significant maintenance periods.

5.3 Traffic impacts – post-development

The impact of traffic generated by the ongoing operation of the Weasel Solar Farm development is expected to be minimal during both the AM and PM peak hours and throughout the day.

The 10-15 daily vehicle movements to and from the site will likely occur earlier than the current AM peak (11:00am-12:00pm) or later than the PM peak (3:00pm-4:00pm). Heavy vehicles required to access or egress the site, post construction, are expected to be negligible.

The additional traffic generated by the development post-construction represents less than 5% of the existing traffic on Highland Lakes Road and is not expected to impact the function or operation of the surrounding network or affect the existing crash risk.

5.4 Turning treatments

It is not considered necessary to provide left or right turn treatments at the site accesses for the following reasons:

- There are low traffic volumes on Highland Lakes Road
- The proposed development will generate traffic volumes that can be safely accommodated on the existing roads during the 18 months of construction and very low traffic volumes in the operational phase
- There is good sight distance at all proposed access points; and
- Construction is occurring for an 18 month period, after which there would be minimal traffic accessing the site.

[9] Extracted from draft Urban Enterprise SocioEconomic report.

6. Planning Scheme Assessment

6.1 Summary

The Weasel Solar Farm development has been assessed against the Tasmanian Planning Scheme – Central Highlands (the Planning Scheme). A summary of the relevant Planning Scheme clauses is shown in Table 7, below.

Table 7: Planning Scheme clauses summary

Clause	Description	Compliance	Comment Location Reference
C2.5 Parking and Sustainable Transport Code – Use Standards			
C2.5.1	Car parking numbers	Complies with Acceptable Solution A1	Section 5.1
C2.5.2	Bicycle parking numbers	Complies with Acceptable Solution A1	Section 5.1
C2.5.3	Motorcycle parking numbers	Complies with Acceptable Solution A1	Section 5.1
C2.5.4	Loading bays	Complies with Acceptable Solution A1	Section 5.1
C2.5.5	Number of car parking spaces within the General Residential Zone and Inner Residential Zone	Not applicable	-
C2.6 Parking and Sustainable Transport Code – Development Standards			
C2.6.1	Construction of parking areas	Complies with Acceptable Solution A1	Section 4.4
C2.6.2	Design and layout of parking areas	Satisfies Performance Criteria P1	Section 4.4
C2.6.3	Number of accesses for vehicles	Satisfies Performance Criteria P1	Section 5.1
C2.6.4	Lighting of parking areas within the General Business Zone and Central Business Zone	Not applicable	-
C2.6.5	Pedestrian access	Satisfies Performance Criteria P1	Section 4.4
C2.6.6	Loading bays	Satisfies Performance Criteria P1 and Complies with Acceptable Solution A2	Section 4.4
C2.6.7	Bicycle parking and storage facilities within the General Business Zone and Central Business Zone	Not applicable	-
C2.6.8	Siting of parking and turning areas	Not applicable	-
C3.5 Road and Railway Assets Code – Use Standards			
C3.5.1	Traffic generation at a vehicle crossing, level crossing or new junction	Complies with Acceptable Solution A1	Section 4.5 and 4.3

6.2 C2.5 Parking and Sustainable Transport Code – Use Standards

C2.5.1 Car parking numbers	
Objective: That an appropriate level of car parking spaces are provided to meet the needs of the use.	
Acceptable Solution/ Performance Criteria	**Comment**
Acceptable Solution A1 The number of on-site car parking spaces must be no less than the number specified in Table C2.1.	**Complies with Acceptable Solution A1** Utilities Use Class – there is no requirement for car parking spaces (as per Table C2.1). The site is large and there is expected to be sufficient space for all vehicles associated with the Weasel Solar Farm to park onsite. During the construction phase the three construction compounds will provide ample car parking areas for construction vehicles as demonstrated by the indicative car park spaces overlaid on the Construction access drawings (Appendix C). In the operational phase, daily operations of the solar farm are expected to require very little parking. It is estimated that 5 -10 car parking spaces would be sufficient, and there is ample space on the site to provide this.
C2.5.2 Bicycle parking numbers	
Objective: That an appropriate level of bicycle parking spaces are provided to meet the needs of the use.	
Acceptable Solution/ Performance Criteria	**Comment**
Acceptable Solution A1 Bicycle parking spaces must: a) be provided on the site or within 50m of the site; and b) be no less than the number specified in Table C2.1.	**Complies with Acceptable Solution A1** Utilities Use Class – there is no requirement for bicycle parking spaces (as per Table C2.1) Travel to site by bicycle is considered unlikely.
C2.5.3 Motorcycle parking numbers	
Objective: That the appropriate level of motorcycle parking is provided to meet the needs of the use.	
Acceptable Solution/ Performance Criteria	**Comment**
Acceptable Solution A1 The number of on-site motorcycle parking spaces for all uses must: a) be no less than the number specified in Table C2.4; and b) if an existing use or development is extended or intensified, the number of on-site motorcycle parking spaces must be based on the proposed extension or intensification, provided the existing number of motorcycle parking spaces is maintained.	**Complies with Acceptable Solution A1** Utilities Use Class – there is no requirement for motorcycle parking spaces (as per Table C2.4) The site is large and there is expected to be sufficient space for any motorcycles associated with the Weasel Solar Farm to park at the three construction compounds.

C2.5.4 Loading bays	
Objective: That adequate access for goods delivery and collection is provided, and to avoid unreasonable loss of amenity and adverse impacts on traffic flows.	
Acceptable Solution/ Performance Criteria	**Comment**
Acceptable Solution A1 A loading bay must be provided for uses with a floor area of more than 1000m² in a single occupancy.	**Complies with Acceptable Solution A1** The Weasel Solar Farm development does not have a floor area of >1000m², therefore no requirement applies. However, as the site is large there is expected to be sufficient space for required vehicle loading within the construction compounds.

6.3 C2.6 Parking and Sustainable Transport Code – Development Standards

C2.6.1 Construction of parking areas

Objective:

That parking areas are constructed to an appropriate standard.

Acceptable Solution/ Performance Criteria	Comment
Acceptable Solution A1 All parking, access ways, manoeuvring and circulation spaces must: a) be constructed with a durable all weather pavement; b) be drained to the public stormwater system, or contain stormwater on the site; and c) excluding all uses in the Rural Zone, Agriculture Zone, Landscape Conservation Zone, Environmental Management Zone, Recreation Zone and Open Space Zone, be surfaced by a spray seal, asphalt, concrete, pavers or equivalent material to restrict abrasion from traffic and minimise entry of water to the pavement.	**Complies with Acceptable Solution A1** Internal access ways, parking areas and turning areas etc, will be required to be suitably constructed including appropriate drainage, and well maintained to ensure all weather access to site, particularly throughout the wetter months. Weasel Solar Farm is in an Agriculture zone and therefore sealing of the access ways is not required, other than the first 30m back from Highland Lakes Road, as shown in the Concept site access plans (Appendix C). The compacted gravel construction compounds will provide adequate parking for construction vehicles, and accommodate turning circles to facilitate vehicles to circulate.

C2.6.2 Design and layout of parking areas

Objective:

That parking areas are designed and laid out to provide convenient, safe and efficient parking.

Acceptable Solution/ Performance Criteria	Comment
Acceptable Solution A1.1 Parking, access ways, manoeuvring and circulation spaces must either: a) comply with the following: i. have a gradient in accordance with *Australian Standard AS 2890 - Parking facilities, Parts 1-6;* ii. provide for vehicles to enter and exit the site in a forward direction where providing for more than 4 parking spaces; iii. have an access width not less than the requirements in Table C2.2; iv. have car parking space dimensions which satisfy the requirements in Table C2.3; v. have a combined access and manoeuvring width adjacent to parking spaces not less than the requirements in Table C2.3 where there are 3 or more car parking spaces; vi. have a vertical clearance of not less than 2.1m above the parking surface level; and	**Satisfies Performance Criteria P1** Detailed design of the construction compounds and access ways is not yet finalised but the concept site access plans (Appendix C) show the intent to provide suitable accessways, parking and space for vehicles to manoeuvre and circulate.

C2.6.2 Design and layout of parking areas	
Objective: That parking areas are designed and laid out to provide convenient, safe and efficient parking.	
Acceptable Solution/ Performance Criteria	**Comment**
vii. excluding a single dwelling, be delineated by line marking or other clear physical means; or *b)* comply with *Australian Standard AS 2890- Parking facilities, Parts 1-6.* **Acceptable Solution A1.2** Parking spaces provided for use by persons with a disability must satisfy the following: a) be located as close as practicable to the main entry point to the building; b) be incorporated into the overall car park design; and c) be designed and constructed in accordance with *Australian/ New Zealand Standard AS/NZS 2890.6:2009 Parking facilities, Off-street parking for people with disabilities.* **Performance Criteria P1** All parking, access ways, manoeuvring and circulation spaces must be designed and readily identifiable to provide convenient, safe and efficient parking, having regard to: a) the characteristics of the site; b) the proposed slope, dimensions and layout; c) useability in all weather conditions; d) vehicle and pedestrian traffic safety; e) the nature and use of the development; f) the expected number and type of vehicles; g) the likely use of the parking areas by persons with a disability; h) the nature of traffic in the surrounding area; i) the proposed means of parking delineation; and j) the provisions of *Australian Standard AS 2890.1:2004 - Parking facilities, Part 1: Off-street car parking and AS 2890.2 -2002 Parking facilities, Part 2: Off-street commercial vehicle facilities.*	

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 Solution/ Performance Criteria	Comment
Acceptable Solution 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. **Performance Criteria P1** The number of accesses for each frontage must be minimised, having regard to: a) any loss of on-street parking; and b) pedestrian safety and amenity; c) traffic safety; d) residential amenity on adjoining land; and e) the impact on the streetscape.	**Satisfies Performance Criteria P1** The four accesses proposed are existing accesses. The primary access will be Weasel Plains Road (existing access). Access A (opposite Waddamana Road) and Access C (in the north) are existing farm accesses, and Access B in the south will extend from the existing access to the Natural Resources and Environment (NRE Tas) laydown area. Accesses A, B and C are construction/ emergency or evacuation accesses only and are not proposed to be used on a regular basis post-construction.

C2.6.5 Pedestrian access

Objective:

That pedestrian access within parking areas is provided in a safe and convenient manner.

Acceptable Solution/ Performance Criteria	Comment
Acceptable Solution A1.1 Uses that require 10 or more car parking spaces must: a) have a 1m wide footpath that is separated from the access ways or parking aisles, excluding where crossing access ways or parking aisles, by: i. a horizontal distance of 2.5m between the edge of the footpath and the access way or parking aisle; or ii. protective devices such as bollards, guard rails or planters between the footpath and the access way or parking aisle; and b) be signed and line marked at points where pedestrians cross access ways or parking aisles.	**Satisfies Performance Criteria P1** Details of parking layout and pedestrian accesses within the construction compounds have not been provided by the client. However, the sites size is such that satisfying the performance criteria should be achievable.

C2.6.5 Pedestrian access	
Objective: That pedestrian access within parking areas is provided in a safe and convenient manner.	
Acceptable Solution/ Performance Criteria	**Comment**
Acceptable Solution A1.2 In parking areas containing accessible car parking spaces for use by persons with a disability, a footpath having a width not less than 1.5m and a gradient not steeper than 1 in 14 is required from those spaces to the main entry point to the building. **Performance Criteria P1** Safe and convenient pedestrian access must be provided within parking areas, having regard to: a) the characteristics of the site; b) the nature of the use; c) the number of parking spaces; d) the frequency of vehicle movements; e) the needs of persons with a disability; f) the location and number of footpath crossings; g) vehicle and pedestrian traffic safety; h) the location of any access ways or parking aisles; and i) any protective devices proposed for pedestrian safety.	

C2.6.6 Loading bays	
Objective: That the area and dimensions of loading bays are adequate to provide safe and efficient delivery and collection of goods.	
Acceptable Solution/ Performance Criteria	**Comment**
Acceptable Solution A1 The area and dimensions of loading bays and access way areas must be designed in accordance with *Australian Standard AS 2890.2–2002, Parking facilities, Part 2: Off-street commercial vehicle facilities*, for the type of vehicles likely to use the site. **Performance Criteria P1** Loading bays must have an area and dimensions suitable for the use, having regard to: a) the types of vehicles likely to use the site; b) the nature of the use; c) the frequency of loading and unloading; d) the area and dimensions of the site;	**Satisfies Performance Criteria P1** Construction compound areas are shown in the development layout plans. They appear suitably sized and located to accommodate deliveries of plant and equipment by heavy vehicles. The site has flat areas suitable for laydown areas and access by delivery vehicles. The construction compounds are positioned to allow loading and unloading to occur clear of circulating vehicles on the access roads.

C2.6.6 Loading bays	
Objective: That the area and dimensions of loading bays are adequate to provide safe and efficient delivery and collection of goods.	
Acceptable Solution/ Performance Criteria	**Comment**
e) the topography of the site; f) the location of existing buildings on the site; and g) any constraints imposed by existing development.	
Acceptable Solution A2 The type of commercial vehicles likely to use the site must be able to enter, park and exit the site in a forward direction in accordance with *Australian Standard AS 2890.2 – 2002, Parking Facilities, Part 2: Parking facilities - Off-street commercial vehicle facilities.* **Performance Criteria P2** Access for commercial vehicles to and from the site must be safe, having regard to: a) the types of vehicles associated with the use; b) the nature of the use; c) the frequency of loading and unloading; d) the area and dimensions of the site; e) the location of the site and nature of traffic in the area of the site; f) the effectiveness or efficiency of the surrounding road network; and g) site constraints such as existing buildings, slope, drainage, vegetation, parking and landscaping.	**Complies with Acceptable Solution A2** The site's size and topography allow ample space for commercial vehicles to enter, park, turn and exit the site in a forward direction. The construction compounds are shaped for large vehicles to circulate to ensure vehicles can exit in a forward direction.

6.4 C3.5 Road and Railway Assets Code – Use Standards

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

Objective:

To minimise any adverse effects on the safety and efficiency of the road or rail network from vehicular traffic generated from the site at an existing or new vehicle crossing or level crossing or new junction.

Acceptable Solution/ Performance Criteria	Comment
Acceptable Solution A1.1 For a category 1 road or a limited access road, vehicular traffic to and from the site will not require: a) a new junction; b) a new vehicle crossing; or c) a new level crossing. **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. **Acceptable Solution A1.3** For the rail network, written consent for a new private level crossing to serve the use and development has been issued by the rail authority. **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; or b) allowed by a licence issued under Part IVA of the *Roads and Jetties Act 1935* in respect to a limited access road. **Acceptable Solution A1.5** Vehicular traffic must be able to enter and leave a major road in a forward direction.	**Complies with Acceptable Solution A1** The A1 criteria are addressed below. 1.1. Highland Lakes Road is not a Category 1 or limited access road. 1.2. The Weasel Solar Farm project will make use of existing access points to the site and will not create any new junctions or access points. Department of State Growth has been consulted and their correspondence is included in Appendix D. 1.3. No rail in the vicinity - not applicable 1.4. Amount of increase in annual average daily traffic to and from the site is conservatively estimated to be 10-15 vehicle movements per day (post-development) which is a 5% increase to existing volumes on Highland Lakes Road and satisfies criteria of Table C3.1 of 20% for other roads. During construction daily vehicle movements are estimated at 100 light vehicles and 46 heavy vehicles. These increases exceed the criteria of Table C3.1 of 20% for other roads, however given that the surrounding roads are currently operating well below capacity the additional traffic associated with the development is not anticipated to adversely affect the functioning or safety of the local network, for the relatively short period of construction (18 months). 1.5. The proposed network of internal access roads and construction compounds will enable all vehicles to turn around on site.

7. Conclusion

Robert Luxmoore Project Management, on behalf of Weasel Solar Farm Pty Ltd engaged pitt&sherry to undertake a Traffic Impact Assessment for Weasel Solar Farm. The analysis and discussion presented in this report can be summarised as follows:

- The crash history for Highland Lakes Road in the vicinity of the site did not identify any safety issues at the proposed site access points
- The sight distances at the proposed site accesses meet the Austroads guidelines for safe intersection sight distances
- The proposed transport route is expected to have sufficient capacity to accommodate the additional traffic generated during construction of the proposed development; and
- Operations traffic volumes of the Weasel Solar Farm are estimated to be minimal and are not expected to have any noticeable impact on the safety and function of the surrounding road network after construction.

Recommendations:

- Reposition the existing signs at Highland Lakes Road/ Waddamana Road intersection to prevent obstructing sight lines of vehicles exiting proposed construction and emergency Access A
- Upgrade the entrances to Weasel Plains Road, Access A, Access B and Access C to rural sealed accesses and seal back 30m from the edge of the highway to reduce mud and gravel from tracking onto Highland Lakes Road
- Widen the entrance to Weasel Plains Road to accommodate B-double and semi-trailer swept paths. This will require relocation of the existing timber structure and extension of the corresponding culvert to suit.
- Consider lengthening the culvert opposite the Weasel Plains Road/ Highland Lakes Road intersection to remedy the existing narrowing of the unsealed shoulder at the junction
- Provide sufficient parking for staff and delivery vehicles within the construction compounds, including a loading area which allows delivery vehicles to be clear of other circulating vehicles during unloading
- A traffic management plan should be prepared for all site access points to ensure safe and efficient movement is maintained on public roads
- Install construction vehicle warning signage along Highland Lakes Road during the construction period identifying that there will be an increase in movements; and
- Any vehicles greater than a 26m B-double will require an OSOM assessment including details as discussed in this report.

Important information about your report

In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. The Report may only be used and relied on by the Client for the purpose set out in the Report. Any use which a third party makes of this document, or any reliance on or decisions to be made based on it, is the responsibility of the Client or such third parties.

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Preliminary Design Plans

Appendix A

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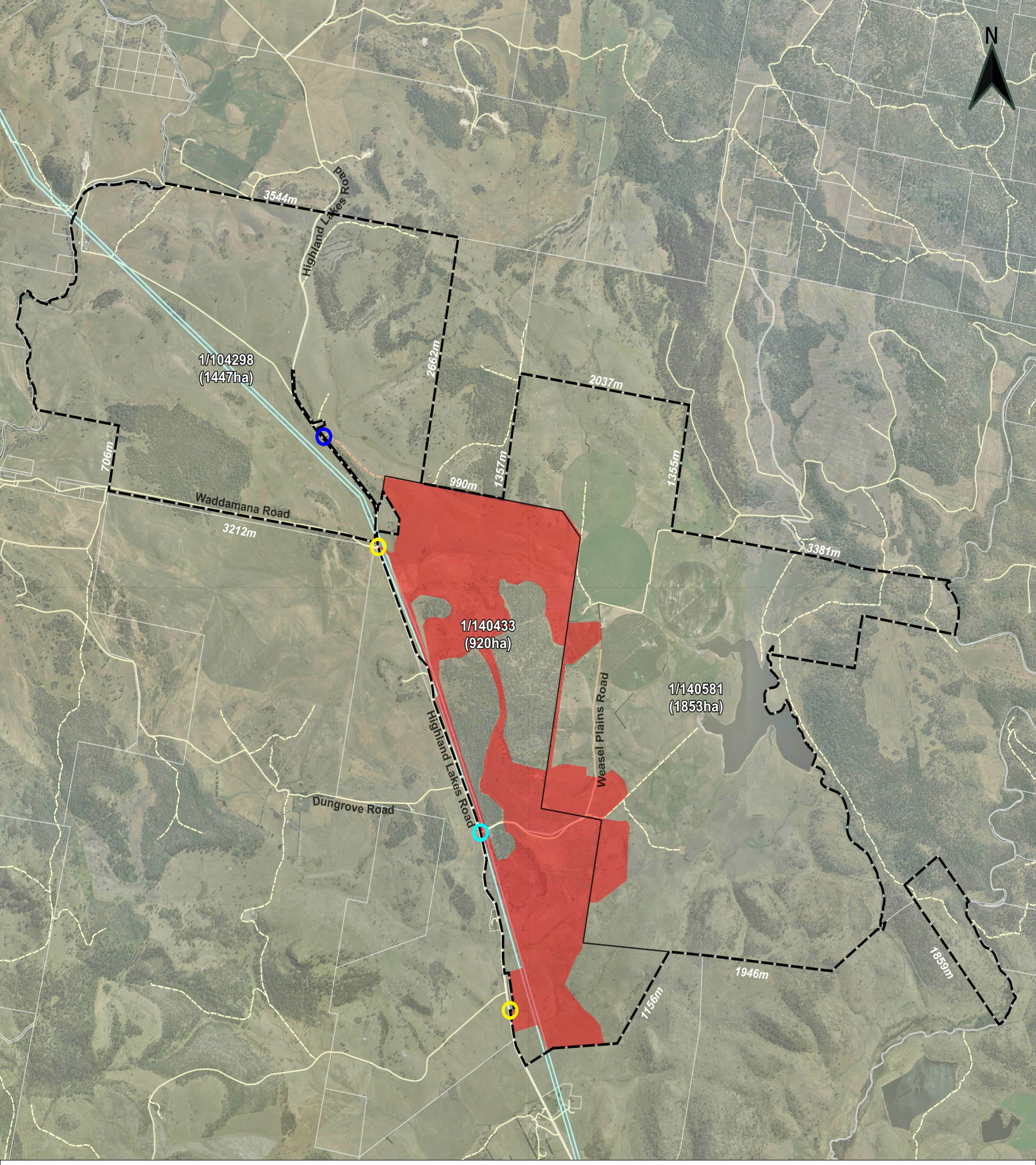

Legend

Proposed Features
- Site Boundary
- Study Area

Access Points
- Primary
- Secondary / emergency
- Tertiary / evacuation

Existing Features
- 220 kV Transmission line
- Title Boundary
- Cadastre
- Roads
- Vehicular Track

0 1 2 km

cogency

Site Overview Plan

2212 - Weasel Solar Farm

Feature	Area (ha)
Site Boundary	4221
Study Area	683
Development	435
Temporary Construction Compound	13

Legend

Proposed Features
- Site Boundary
- Study Area
- Development Area
- Temporary Construction Compound
- BESS and Network Connection Components

Existing Features
- 220 kV Transmission line
- Title Boundary
- Waterways
- Roads
- Cadastre
- Water Body
- Wetland

- Hills

Dwellings
- Involved
- Not Involved

Access Points
- Primary
- Secondary / emergency
- Tertiary / evacuation

0 1 2 km

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Design Layout Plan

2212 - Weasel Solar Farm

Tertiary / Evacuation Access

Secondary / Emergency / Construction Access

33kV Substation

Construction Compound

Electricity Easement

Construction compound A: to be removed after completion of construction works. See TIA.

Alternate 33kV Substation Location

Under the 2P configuration panels will be spaced approximately 10m to provide sufficient light to pasture, and avoid inter-row shading.

Access vehicles will require access between rows for cleaning and maintenance of the panels, therefore ground over is not excessive.

See Dwg No:10500480 ME-0001-02 for elevation diagram of solar PV.

Weasel Plains Creek

Weasel Plains Road

159m
361m
454m
322m
951m
2181m
1000m
500m
250m
550
500

Proposed Features
- Solar Arrays
- Main Electrical Infrastructure
- Temporary Construction Compound
- Access Tracks
- Fence
- 33 kV Internal Transmission Poles
- 33 KV Internal Transmission Line

Dwellings
- Involved

Existing Features
- Hills
- 220 kV Tranmission Line
- Water Body
- Wetland
- Roads
- Tracks
- Electricity Easement
- Cadastre
- Contours (10m)

Distance from security fence perimeter

0 250 500 m

1:12,000

@A2

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Masterplan - Northern Section

2212 - Weasel Solar Farm

Weasel Hills

Electricity Easement

Dungrove Road

Operations & Maintenance

Primary Access

Construction Compound

BESS Area

Solar Farm Substation

Proposed TASNetworks Substation

Secondary / Emergency / Construction Access

Construction Compound

Weasel Plains Road

Highland Lakes Road

Bark Hut Creek

Cluny Hill

Construc
to form p
footprint

Under the 2P c
spaced approx
sufficient light t
row shading.

Access vehicle
between rows f
maintenance o
ground over is

See Dwg No:1(
elevation diagr

Proposed Features
- Solar Arrays
- Main Electrical Infrastructure
- Temporary Construction Compound
- Access Tracks
- Fence
- Proposed TasNetworks Connection
- 33 KV Internal Transmission Line
- 33 kV Internal Transmission Poles

Dwellings
- Involved
- Not Involved

Existing Features
- 220 kV Tranmission Line
- Water Body
- Wetland
- Roads
- Tracks
- Electricity Easement
- Cadastre
- Hills
- Contours (10m)
- Distance to security fence perimeter

0 250 500 m

1:12,000
@A2

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Masterplan - Southern Section
2212 - Weasel Solar Farm

Tertiary Access

Upgrade to rural sealed access.

Seal approx. 30m from edge of Highland Lakes Road to prevent mud/gravel tracking. See TIA.

Secondary Access

Upgrade to rural sealed access.

Seal approx. 30m from edge of Highland Lakes Road to prevent mud/gravel tracking. See TIA.

Construction compound A: to be removed after completion of construction works. See TIA.

General Notes:

Construction compounds to include sufficient parking for staff and delivery vehicles. Loading area to be included.

Gravel construction (or similar) will include detailed drainage design to ensure no channelling or erosion is created by stormwater runoff.

Drainage, rehabilitation works and timeframes to be prepared within a Construction / Environment Management Plan as a condition of permit.

See Bushfire Mitigation Plan (BMP) (Appendix 2 of Bushfire Impact Statement) for additional details on bushfire risk design measures, including fire breaks, internal tracks, static water supply and grass management.

Primary Access

Upgrade to rural sealed access.

Seal approx. 30m from edge of Highland Lakes Road to prevent mud/ gravel tracking

Widen entrance, extend culverts at entrance and on the opposite side of highway, and relocate timber structure. See TIA.

Construction compound B: to form part of solar array footprint post construction.

Secondary Access

Upgrade to rural sealed access.

Seal approx. 30m from edge of Highland Lakes Road to prevent mud/gravel tracking. See TIA.

Construction compound C: to form part of solar array footprint post construction works.

Feature	Area (ha)
Site Boundary	4221
Study Area	683
Development	435
Temporary Construction Compound	13

Waddamana Road
Weasel Plains Creek
Highland Lakes Road
Weasel Hills
Dungrove Road
Weasel Plains Road
Dungrove Hill
Cluny Hill
Bark Hut Creek
N

Legend

Proposed Features

- Site Boundary
- BESS & Network Connection Components
- Construction Compound
- Development Area
- Study Area
- Primary Access
- Secondary Access
- Tertiary Access

Existing Features

- Hills
- 220 kV Transmission Line
- Waterways
- Vehicular Track
- Roads
- Cadastre
- Natural Assets Code

0 1 2 km

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Access & Construction Laydown Overview

2212 - Weasel Solar Farm

N

Waddamana Road

Weasel Plains Creek

Upgrade culvert at access point. See TIA. Subject to detailed design as condition of permit.

General Note:
Internal access roads

4m-wide all-weather tracks for 20-tonne vehicles.

Include passing bays every 200m for two-way traffic.

Subject to detailed design as condition of permit.

General Note:

Internal access roads crossing waterways (Natural Assets Code)

As highlighted in red, the indicative layout for internal tracks includes numerous crossings of waterways.

Design principle commitments include ensuring:

- No concentrated discharge of stormwater into waterways
- Management of construction for sediment control and water quality
- Culvert and swale / drain designs to ensure the existing overland flow paths are maintained (in a 1-in-100 RTA event) and no run-off channelling, erosion or sediment discharge into waterways.
- All internal track waterway crossings will be designed with appropriate culverts and construction techniques/sediment control to ensure that there is no stormwater concentrated into waterways.
- There will be no concentration of flows or channelling, particularly no discharge into waterways.
- Detailed design plans will be prepared (as a condition of permit) for all waterway crossings as a condition of permit, along with the Construction Management Plan (and/or Environment Management Plan) that addresses soil and water management.

Weasel Hills

Highland Lakes Road

Dungrove Road

Weasel Plains Road

Upgrade culvert at access point. See TIA. Subject to detailed design as condition of permit.

Dungrove Hill

Upgrade culvert at access point. See TIA. Subject to detailed design as condition of permit.

Feature	Area (ha)
Site Boundary	4221
Study Area	683
Development	435
Temporary Construction Compound	13

Cluny Hill

Bark Hut Creek

Legend

Proposed Features

- Site Boundary
- BESS & Network Connection Components
- Construction Compound
- Development Area
- Internal Access Tracks
- Primary Access
- Secondary Access
- Tertiary Access

Existing Features

- Hills
- 220 kV Transmission Line
- Waterways
- Vehicular Track
- Roads
- Cadastre
- Natural Assets Code

0 1 2 km

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Internal Tracks & Waterways Overview

2212 - Weasel Solar Farm

Potential Access Points Memo

Appendix B

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Specialist Knowledge.
Practical Solutions.

Pitt & Sherry (Operations) Pty Ltd
ABN 67 140 184 309

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Hobart
Launceston
Newcastle
Devonport

Memo

To Emanuele Raffaele

From Sandra Diaz

Date 21 March 2024

RE **Weasel Solar Farm potential access points**

On Monday 18 March 2024, pitt&sherry traffic engineers visited the Weasel Solar Farm site to inspect the local road network and consider suitable access points for construction traffic to access the solar farm.

It is understood that Weasel Plains Road will be used as the primary access for construction traffic to the site (northern and southern parts). Additional access points are expected to be constructed for use as secondary or emergency accesses during construction. The primary access and potential secondary/ emergency access points identified on site are shown in Figure 1 below, and details of each potential access are described below.

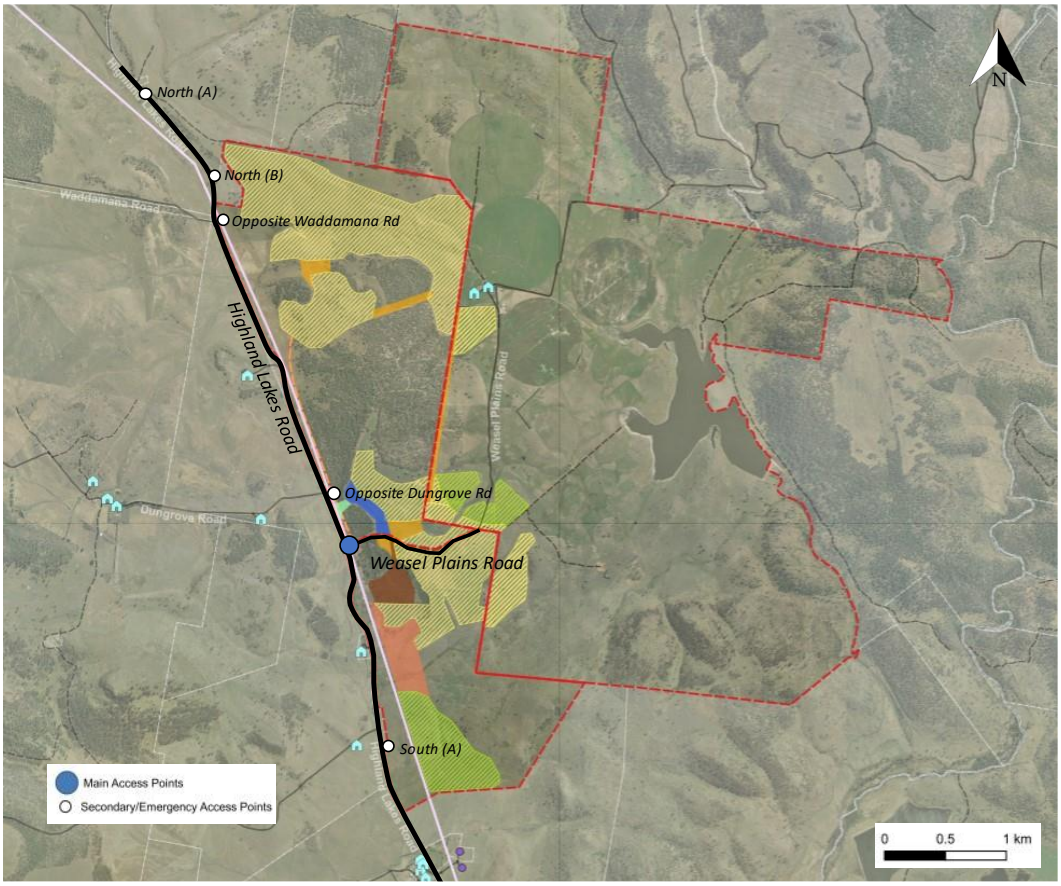

Figure 1: Potential Weasel Solar Farm site access points

1. Weasel Plains Road – primary access

Weasel Plains Road junction off Highland Lakes Road has a wide unsealed entrance. A 4.1m wide cattle grid is installed near the entrance.

Sight distance is limited to the south by a curve in the road and to the north by a crest, but sight distance is sufficient in both directions. Weasel Plains Road will provide primary access to the Weasel Solar Farm site for all vehicles during both the construction phase and operational phase.

Figure 2: Weasel Plains Road entrance

Figure 3: Highland Lakes Road, south approach to Weasel Plains Road

Figure 4: Highland Lakes Road, north approach to Weasel Plains Road

2. North-A access – potential secondary/ emergency accesses

To the north of the Weasel Solar Farm site, a 4.1m farm gate provides access from Highland Lakes Road to an existing farm track.

Sight distance is excellent in both directions.

Figure 5: North-A access entrance

Figure 6: Highland Lakes Road, south approach to North-A access

Figure 7: Highland Lakes Road, north approach to North-A access

3. North-B access – potential secondary/ emergency accesses

To the north of the Waddamana Road intersection, a 4.1m farm gate provides access from Highland Lakes Road to an existing farm track.

The gate is set well back from the road with a wide flat shoulder suitable for constructing an access to the gate. The sight distance would be dependent on the alignment of the access but the entrance is located at the apex of a curve with good visibility along Highland Lakes Road in both directions.

Figure 8: North-B access entrance

Figure 9: Highland Lakes Road, south approach to North-B access

Figure 10: Highland Lakes Road, north approach to North-B access

4. Opposite Waddamana Road – potential secondary/ emergency accesses

A 4.1m wide farm gate is installed opposite the Waddamana Road intersection and provides access to the Weasel Solar Farm site.

Sight distance is excellent in both directions along Highland Lakes Road, and also up Waddamana Road. Note that realignment of existing road signage would be recommended to prevent visual obstruction.

It is noted that an access opposite an intersection does have the potential to increase crash risk.

Figure 11: Entrance opposite Waddamana Road intersection (image source: Google Maps street view)

Figure 12: Highland Lakes Road, south approach to entrance opposite Waddamana Road

Figure 13: Highland Lakes Road, north approach to entrance opposite Waddamana Road

5. Opposite Dungrove Road – potential secondary/ emergency accesses

There is no existing entrance opposite Dungrove Road, but there is a wide gravelled area on each side of the road suitable for heavy vehicles to pull over.

Sight distance excellent in both directions.

Figure 14: Potential entrance location opposite Dungrove Road

Figure 15: Highland Lakes Road, south approach to entrance opposite Dungrove Road

Figure 16: Highland Lakes Road, north approach to entrance opposite Dungrove Road

6. South-A – potential secondary/ emergency accesses

Near the south of the site an existing laydown area is constructed on land owned by Department of Natural Resources and Environment (NRE Tas). At the rear of the laydown is a gated entrance to the Weasel Solar Farm site.

The entrance is located on a long straight on Highland Lakes Road and sight distance is excellent in both directions.

Figure 17: South-A entrance

Figure 18: Highland Lakes Road, south approach to South-A entrance

Figure 19: Highland Lakes Road, north approach to South-A entrance

Sight distance assessment

The Austroads *Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (AGRD Part 4A) specifies that "*Desirably, sight distances at accesses should comply with the sight distance requirements for intersections*".

The Safe Intersection Sight Distance (SISD) at each potential access point has been assessed against the requirements of the AGRD Part 4A. The SISD was measured and recorded on site on 18 March 2024 in accordance with AGRD Part 4A.

The speed limit on Highland Lakes Road is 100km/h resulting in a required sight distance of 248m. It is noted that vehicle speed refers to the 85th percentile speed that vehicles travel. From traffic speeds observed during the site visit, 100km/h is an appropriate assessment speed.

The SISD requirements and the observed sight distances for each access are shown below in Table 1.

Table 1: Safe intersection sight distance (SISD) assessment of Weasel Solar Farm site accesses

Access	**Approach**	**Speed**	**SISD Requirement – Austroads** *(with desirable 2s reaction time)*	**Observed sight distance**	**Meets Requirements?**
Primary Accesses					
Weasel Plains Road	North	100	248m	>300m	✓
	South	100	248m	260m	✓
Potential Secondary/ Emergency Accesses					
North-A	North	100	248m	>300m	✓
	South	100	248m	>300m	✓
North-B	North	100	248m	>300m	✓
	South	100	248m	>300m	✓
Opposite Waddamana Rd	North	100	248m	>300m	✓
	South	100	248m	>300m	✓
Opposite Dungrove Rd	North	100	248m	>300m	✓
	South	100	248m	>300m	✓
South-A	North	100	248m	>300m	✓
	South	100	248m	>300m	✓

In addition to the potential access points described above, a general assessment of Highland Lakes Road in the vicinity of the site was undertaken. The findings are displayed in Figure 20 below, which highlights the areas which are not recommended for access points due to topography, roadside hazards or insufficient sight distances.

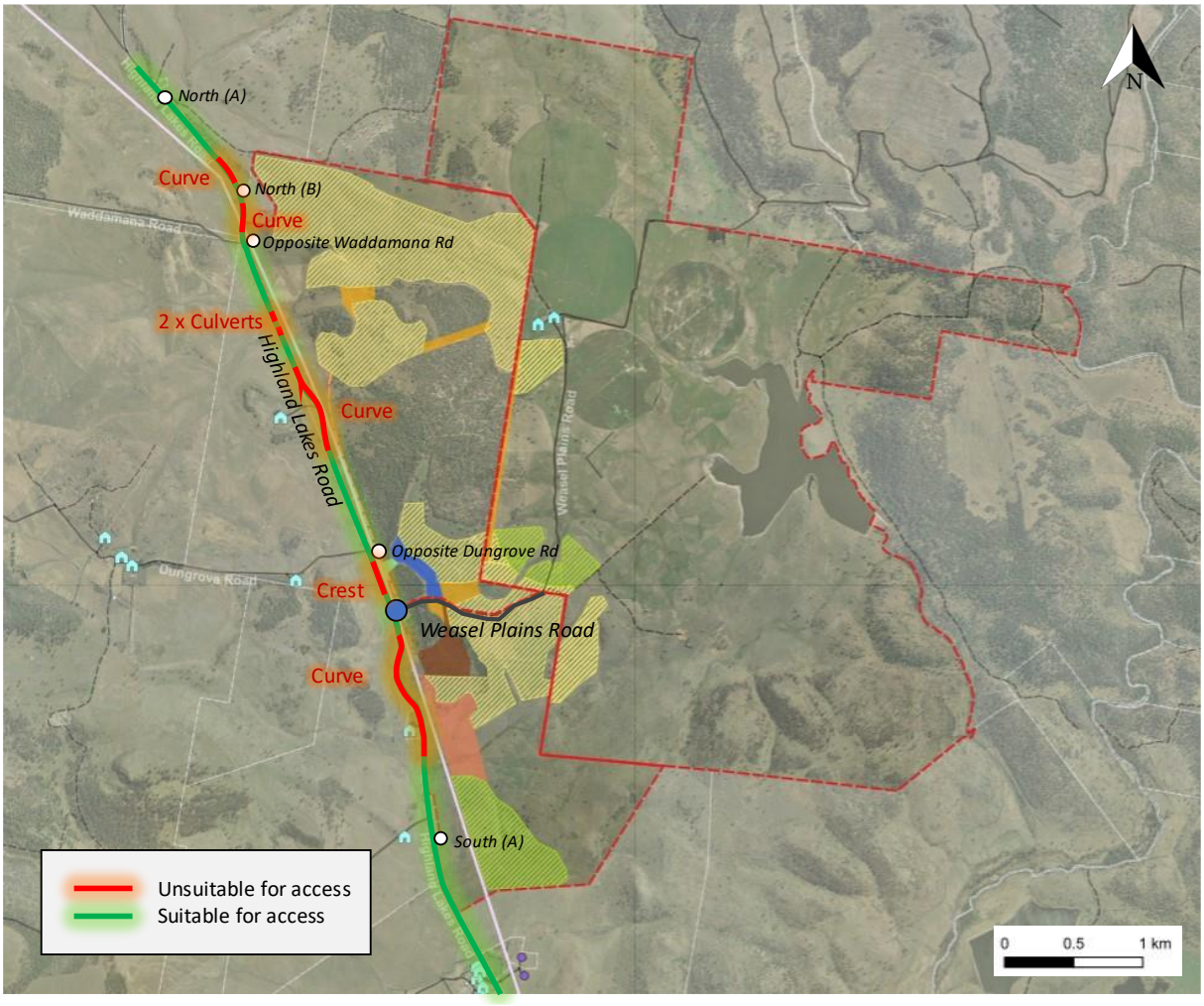

Figure 20: Highland Lakes Road access suitability

Please confirm the locations for site accesses you would like to include in the Traffic Impact Assessment (TIA) for the Weasel Solar Farm development. It is recommended that access points are sited within the 'green zones' shown in Figure 20 to ensure the accesses do not negatively impact road safety on the network.

Note that any new accesses on Department of State Growth roads require their approval. Pitt&sherry is happy to liaise with the Department to obtain their endorsement, once the access points for the development are confirmed.

Yours sincerely

Sandra Diaz
Traffic engineer

Concept Plans of Site Accesses

Appendix C

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WEASEL SOLAR FARM PTY LTD
HIGHLAND LAKES ROAD
WEASEL SOLAR FARM
PROPOSED DEVELOPMENT - ACCESS

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PROJECT HIGHLAND LAKES ROAD
WEASEL SOLAR FARM - ACCESS

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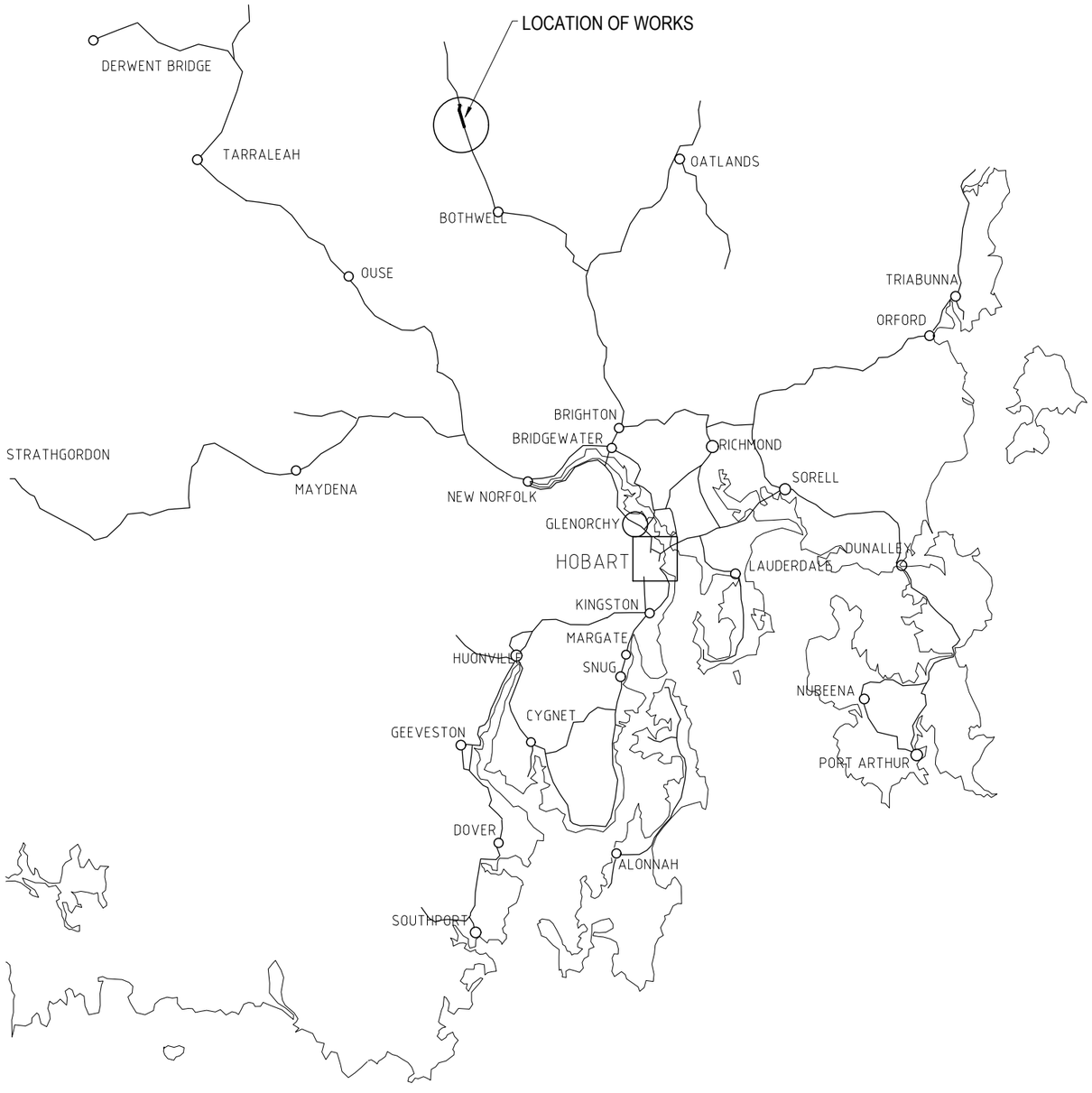

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NUMBER	REV	SUBJECT
S-P.23.1660-00-CIV-DRG-000	B	COVER PAGE
S-P.23.1660-00-CIV-DRG-001	B	PROJECT LOCATION - TABLE OF CONTENTS
S-P.23.1660-00-CIV-DRG-011	B	KEY PLAN
S-P.23.1660-00-CIV-DRG-041	B	GENERAL ARRANGEMENTS - ACCESS B - DRG 1
S-P.23.1660-00-CIV-DRG-042	B	GENERAL ARRANGEMENTS - ACCESS B - DRG 2
S-P.23.1660-00-CIV-DRG-046	B	GENERAL ARRANGEMENTS - PRIMARY ACCESS - DRG 1
S-P.23.1660-00-CIV-DRG-047	B	GENERAL ARRANGEMENTS - PRIMARY ACCESS - DRG 2
S-P.23.1660-00-CIV-DRG-051	B	GENERAL ARRANGEMENTS - ACCESS A - DRG 1
S-P.23.1660-00-CIV-DRG-052	B	GENERAL ARRANGEMENTS - ACCESS A - DRG 2
S-P.23.1660-00-CIV-DRG-056	B	GENERAL ARRANGEMENTS - ACCESS C

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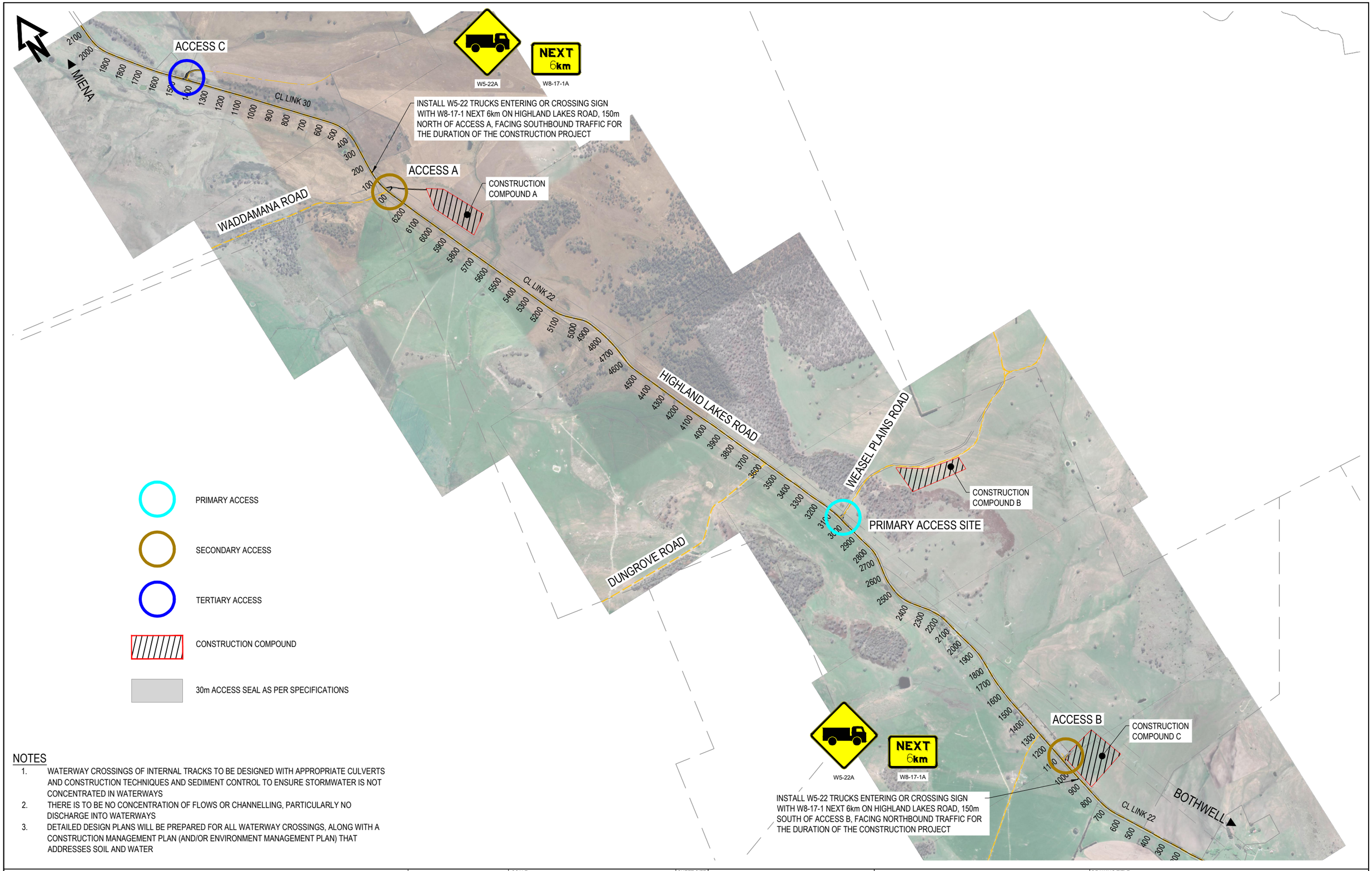

NOTES

1. WATERWAY CROSSINGS OF INTERNAL TRACKS TO BE DESIGNED WITH APPROPRIATE CULVERTS AND CONSTRUCTION TECHNIQUES AND SEDIMENT CONTROL TO ENSURE STORMWATER IS NOT CONCENTRATED IN WATERWAYS
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3. DETAILED DESIGN PLANS WILL BE PREPARED FOR ALL WATERWAY CROSSINGS, ALONG WITH A CONSTRUCTION MANAGEMENT PLAN (AND/OR ENVIRONMENT MANAGEMENT PLAN) THAT ADDRESSES SOIL AND WATER

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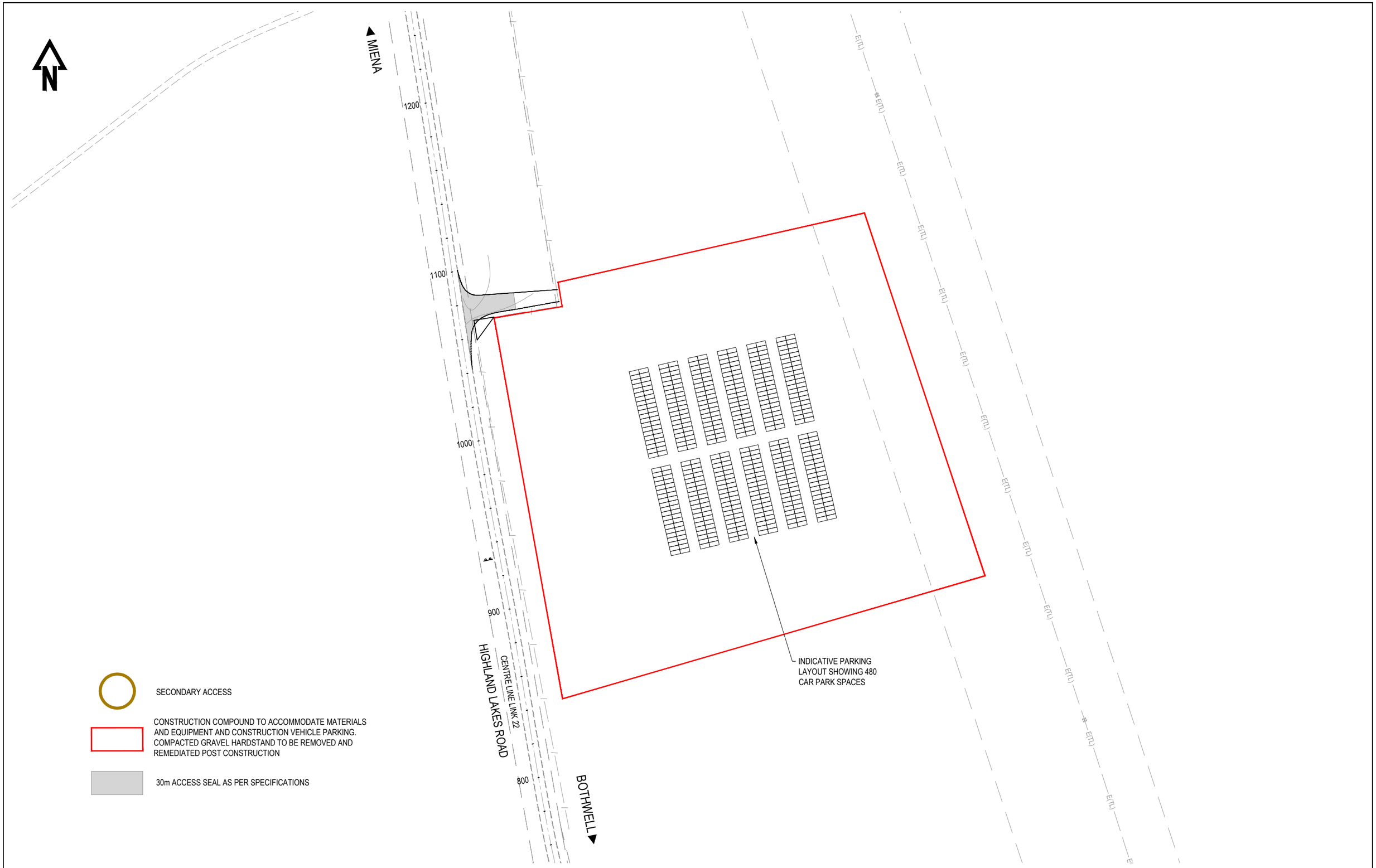

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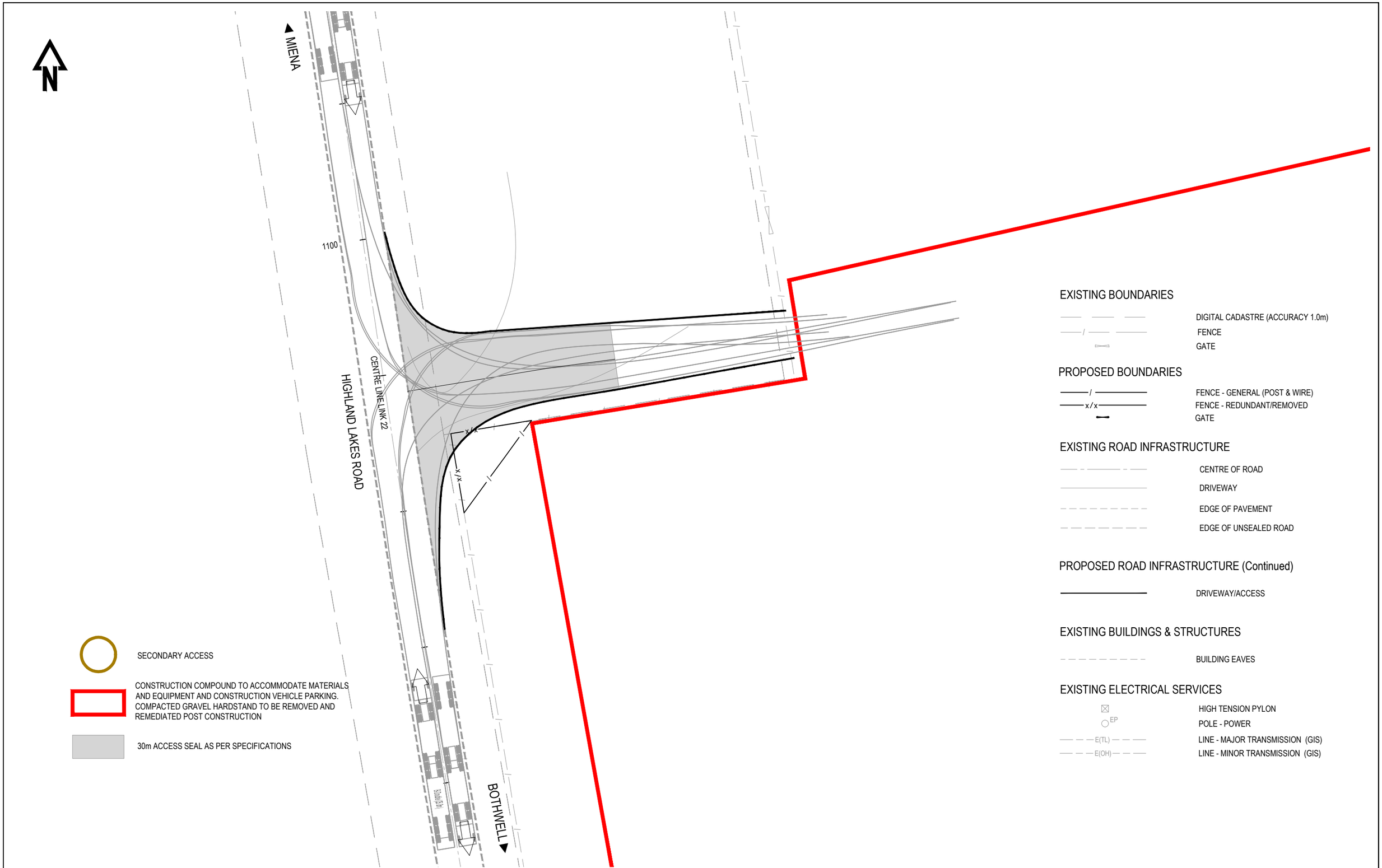

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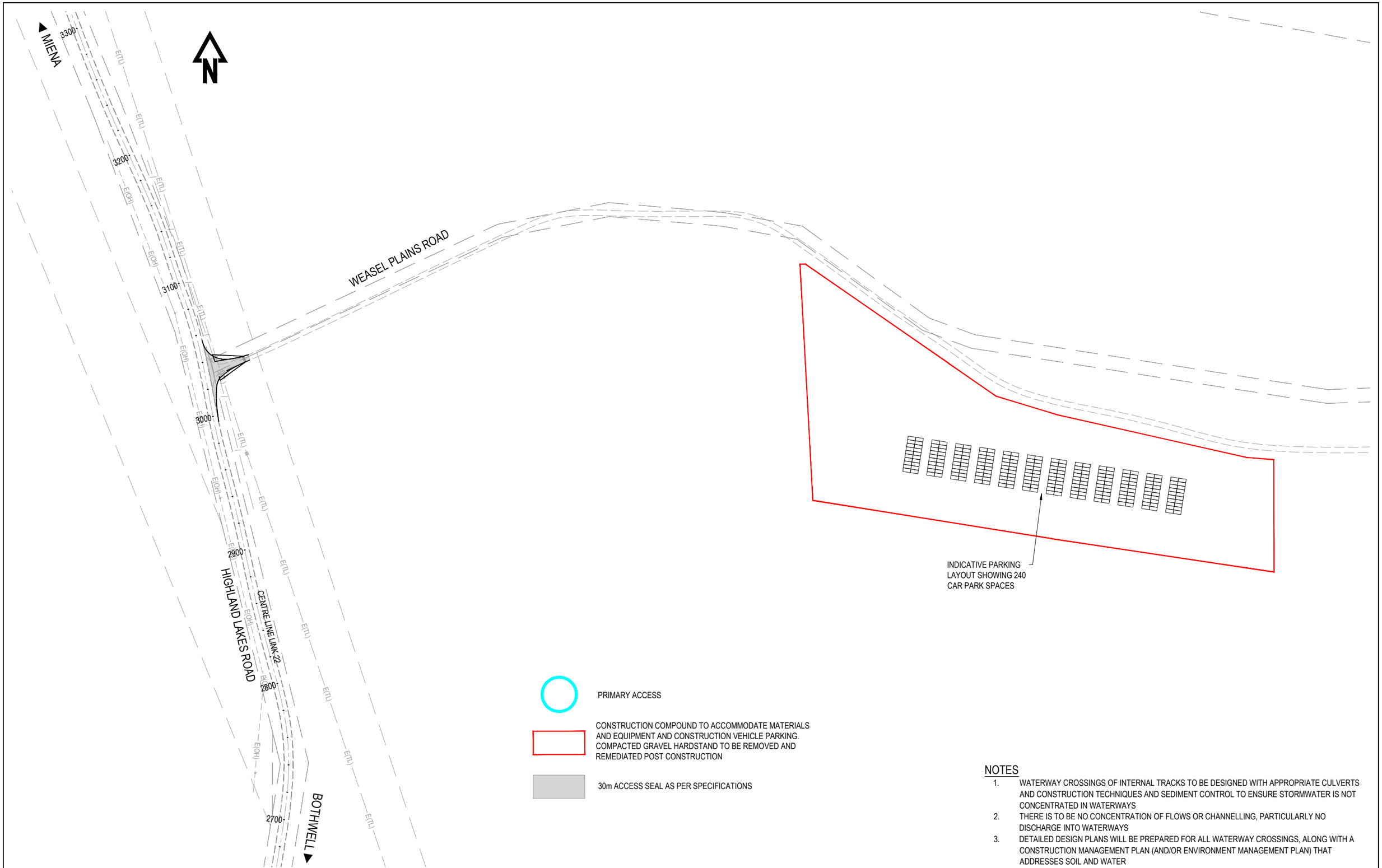

NOTES

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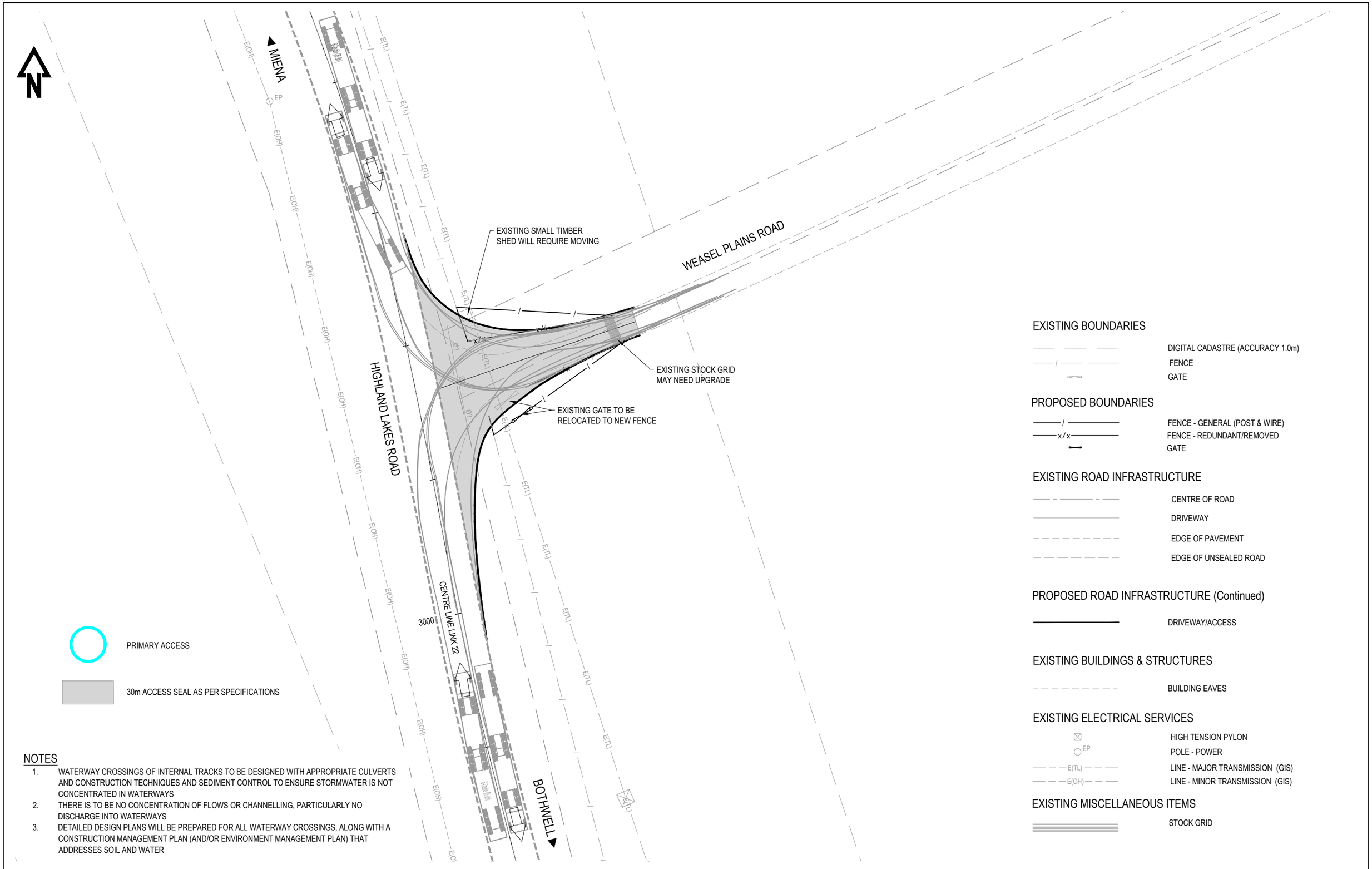

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EXISTING BOUNDARIES

- DIGITAL CADASTRE (ACCURACY 1.0m)
- FENCE
- GATE

PROPOSED BOUNDARIES

- FENCE - GENERAL (POST & WIRE)
- FENCE - REDUNDANT/REMOVED
- GATE

EXISTING ROAD INFRASTRUCTURE

- CENTRE OF ROAD
- DRIVEWAY
- EDGE OF PAVEMENT
- EDGE OF UNSEALED ROAD

PROPOSED ROAD INFRASTRUCTURE (Continued)

- DRIVEWAY/ACCESS

EXISTING BUILDINGS & STRUCTURES

- BUILDING EAVES

EXISTING ELECTRICAL SERVICES

- HIGH TENSION PYLON
- POLE - POWER
- LINE - MAJOR TRANSMISSION (GIS)
- LINE - MINOR TRANSMISSION (GIS)

EXISTING MISCELLANEOUS ITEMS

- STOCK GRID

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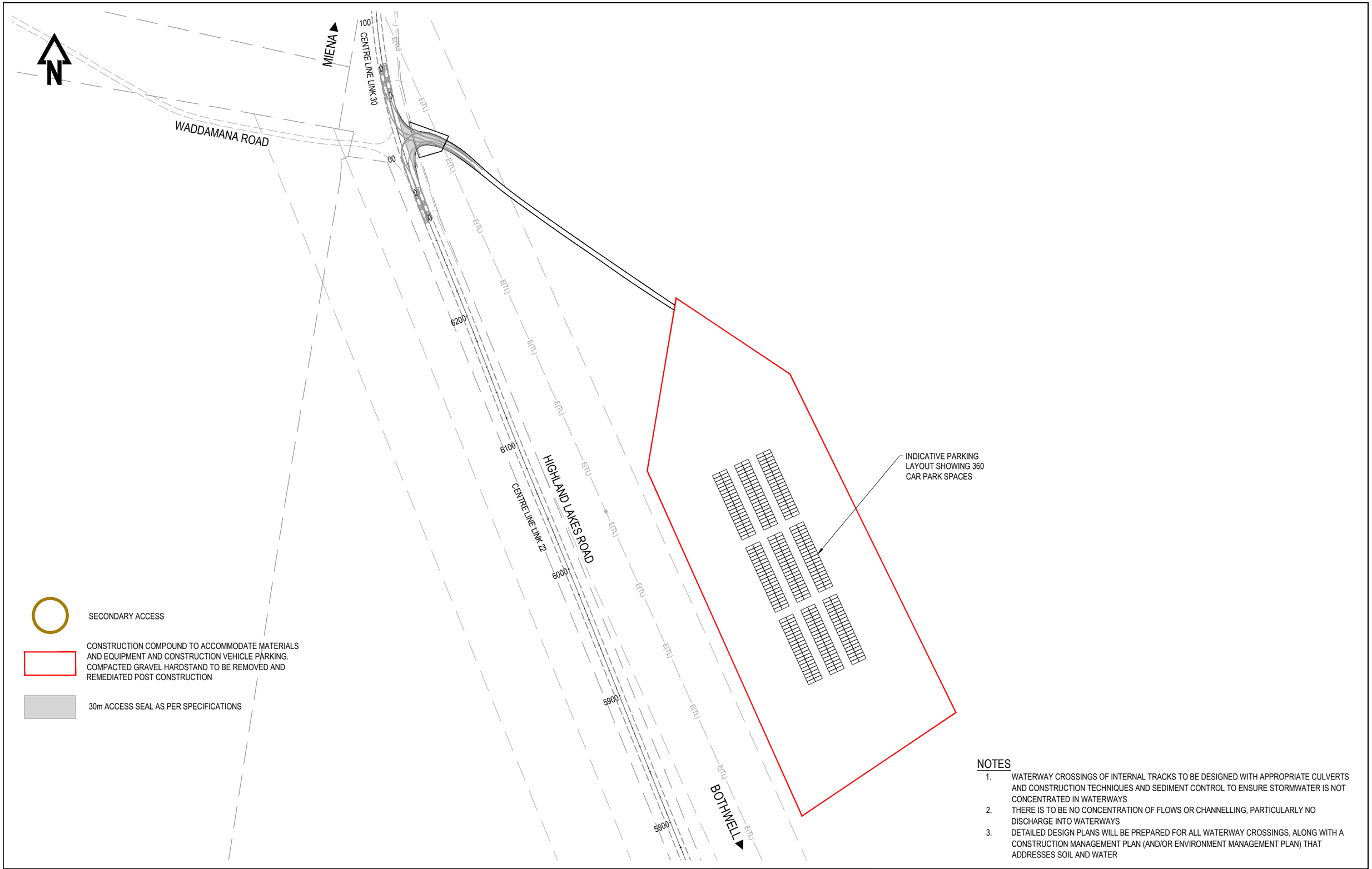

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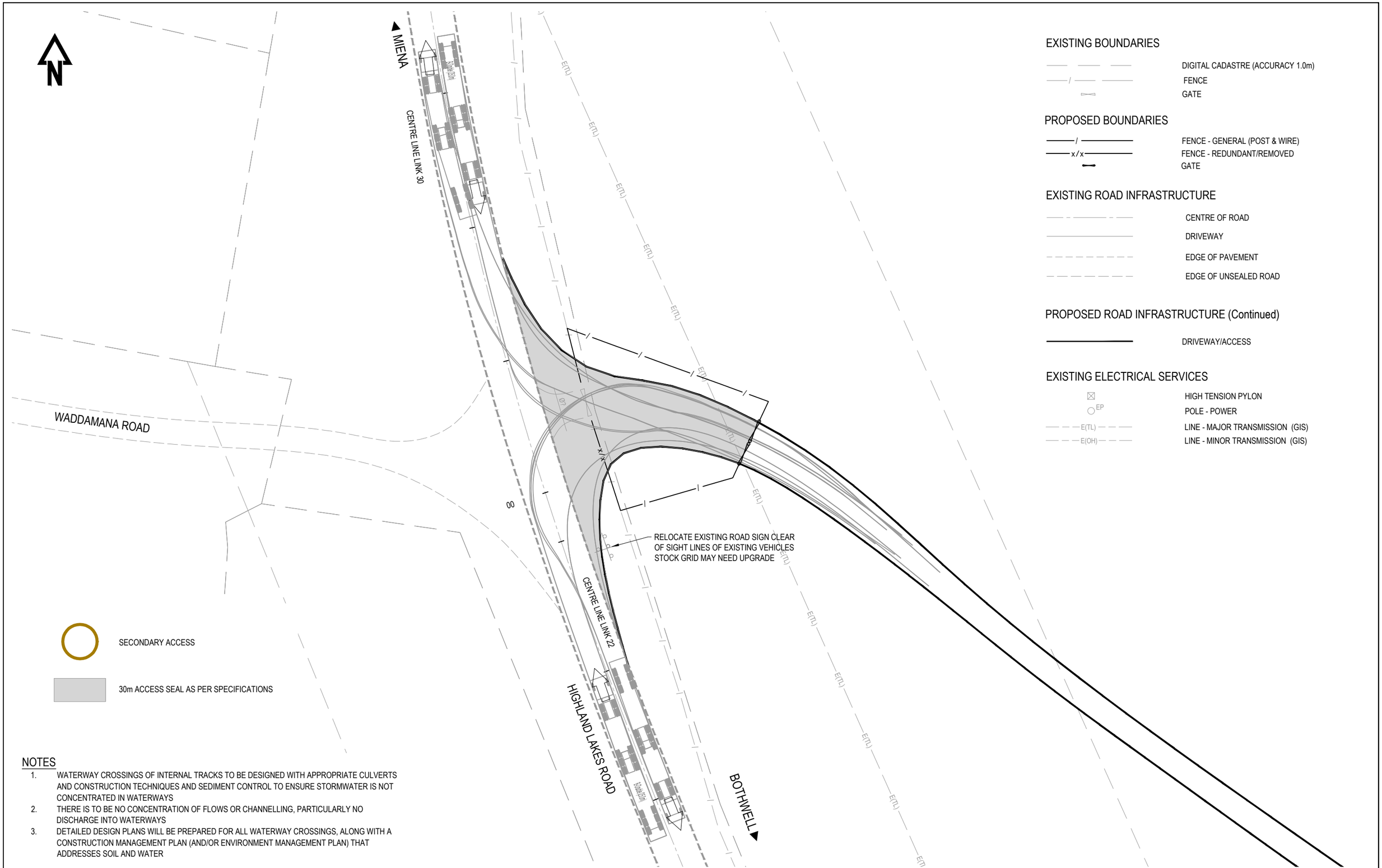

EXISTING BOUNDARIES

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PROPOSED ROAD INFRASTRUCTURE (Continued)

- DRIVEWAY/ACCESS

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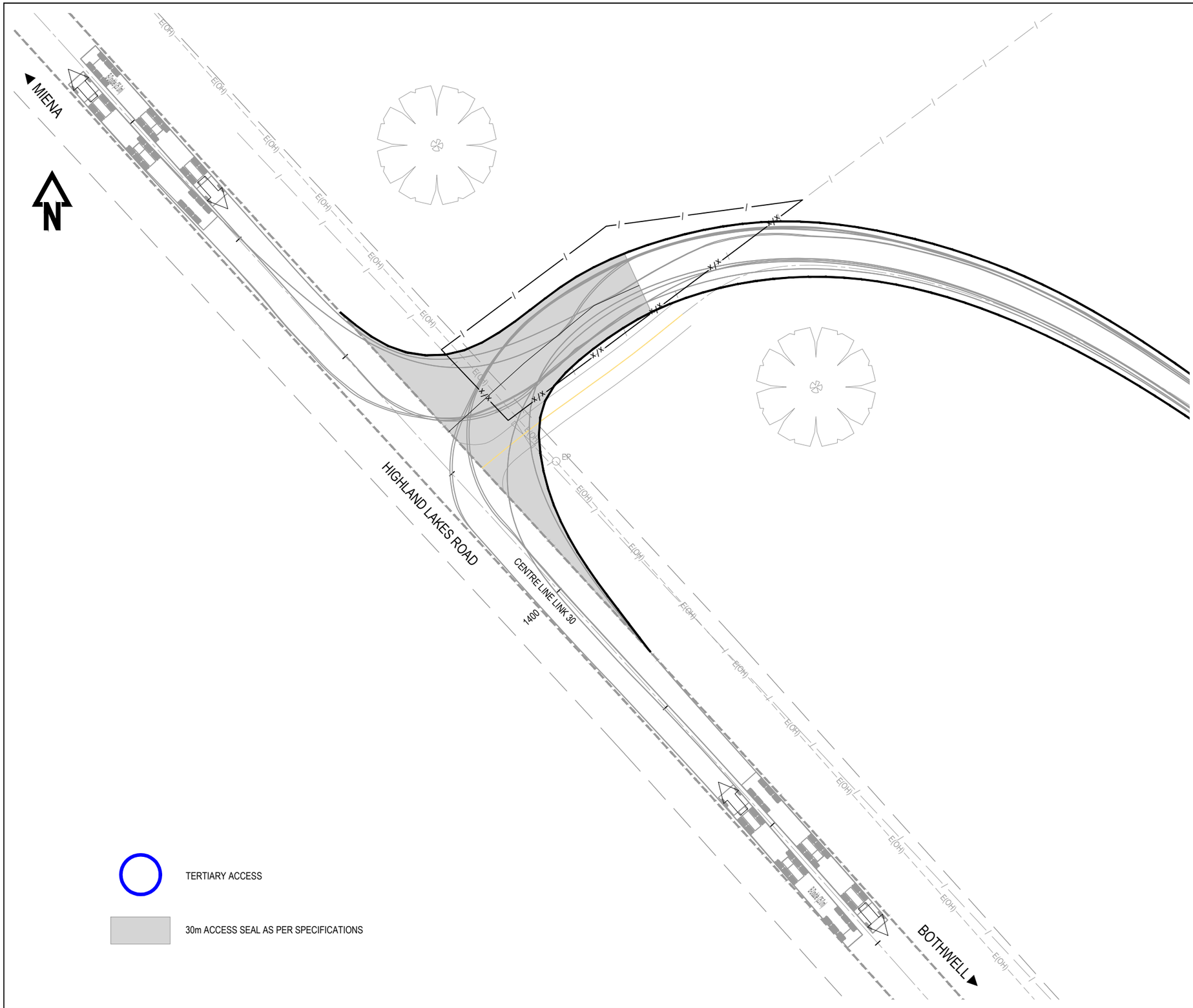

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CLIENT: WEASEL SOLAR FARM PTY LTD
PROJECT: HIGHLAND LAKES ROAD WEASEL SOLAR FARM - ACCESS
STATUS: **PRELIMINARY**

DRAWING TITLE: GENERAL ARRANGEMENTS - ACCESS C
DATUMS: AHD / MGA
CLIENT No.: -
DRAWING No.: S-P.23.1660-00-CIV-DRG-056
REVISION: B
PRINT IN COLOUR
May. 19, 25 - 15:05:04 Name: S-P.23.1660-00-CIV-DRG-056.dwg

Department of State Growth Consultation

Appendix D

pitt&sherry

Sandra Diaz

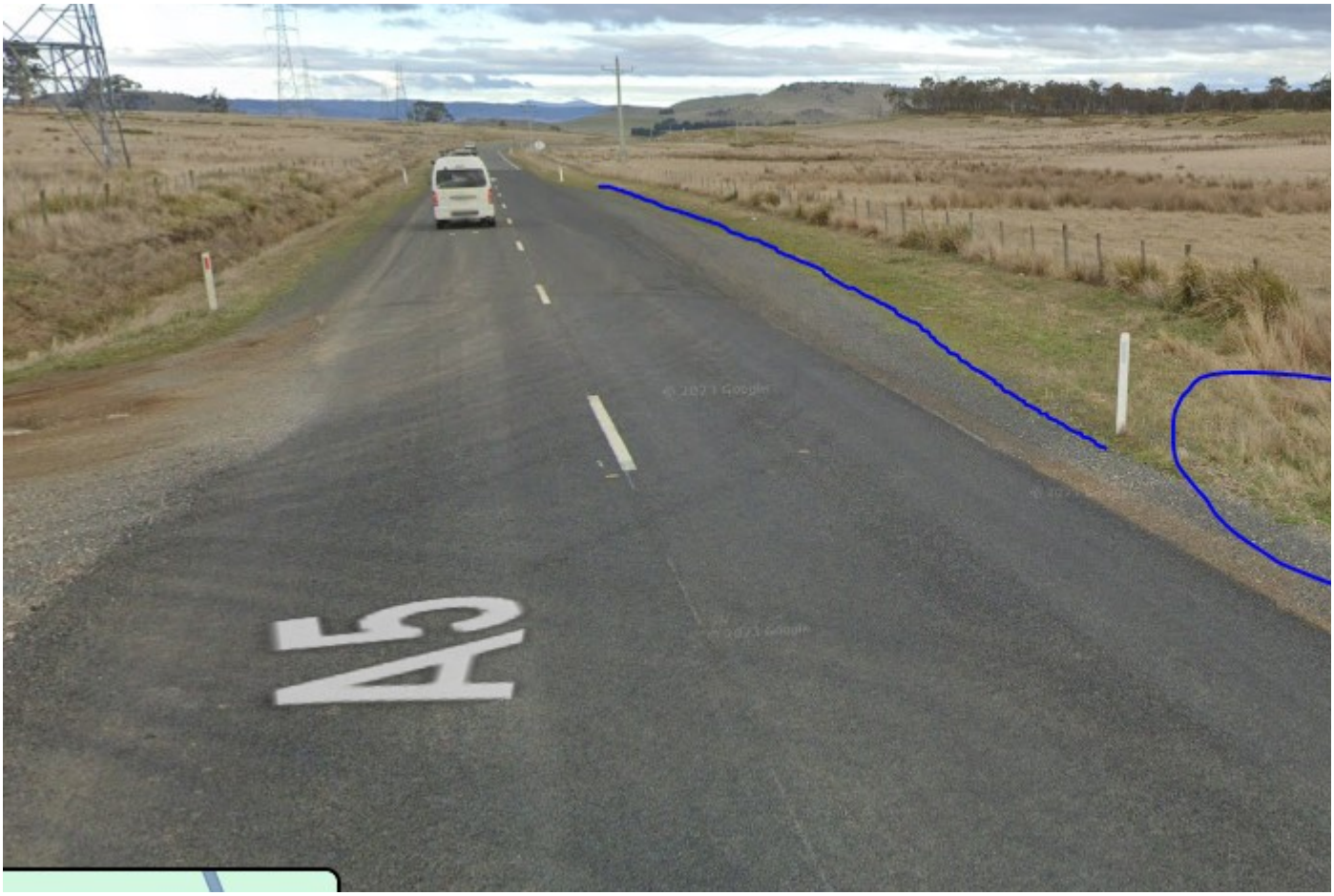
From: Volker, Sam <Sam.Volker@stategrowth.tas.gov.au>
Sent: Thursday, 16 May 2024 12:16 PM
To: Rebekah Ramm
Cc: Sandra Diaz
Subject: RE: Weasel Plains Solar Farm

Hi Bek,
I'm good, about to make a bit of a lateral move in the department to Programming and delivery as a PM soon which should be interesting. Hope you and the family are well?

A Solar Farm is a bit different to the norm for up that way. Typically we hear about wind farms
To answer your questions regarding the legality of the accesses, as the road is not limited access, we wouldn't have any records on whether they are approved or not. just rural farm accesses I guess.
Access A - We would have no objection if it were upgraded to a rural sealed access. You might consider moving it just to the south of the Waddamana road junction that way on the extremely unlikely chance vehicles are turning right at the same time they are not conflicting but this is very nit picky.

Access B no issues with upgrading to a rural sealed access.

Weasel Plains road – agree that there is no need for a BAR facility – just because I need to find one issue - my only concern is that for a northbound driver, there looks to be a bit of unsealed gravel that could be interpreted as widening then at the junction there is a culvert very close to the edge of the road. The proponent could consider lengthening the culvert a couple of metres and backfilling over the top, no need for a sealing though. Weasel plains road should be sealed back from the edge of the highway to reduce mud and debris from tracking onto the road.



Agree Construction phase signage identifying that there could be an increase in movements at particular junctions while in operation would be useful.

Trust this helps
Sam Volker | Traffic Engineering Liaison
Network Management | Department of State Growth
76 Federal Street, North Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
Phone: (03) 6165 5205
www.stategrowth.tas.gov.au

Courage to make a difference through
TEAMWORK | INTEGRITY | RESPECT | EXCELLENCE

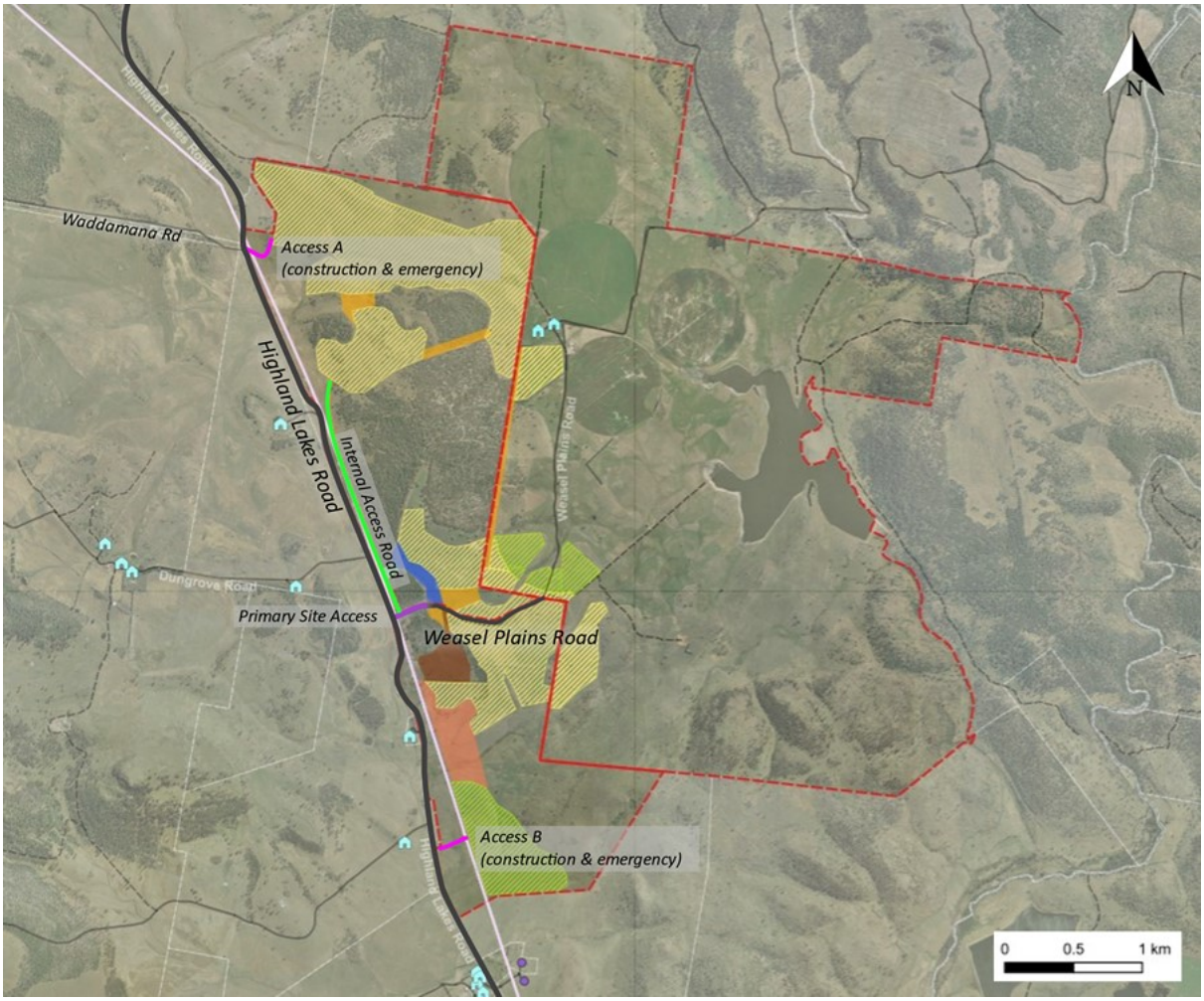
In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

From: Rebekah Ramm <RRamm@pittsh.com.au>
Sent: Thursday, May 16, 2024 10:58 AM
To: Volker, Sam <Sam.Volker@stategrowth.tas.gov.au>
Cc: Sandra Diaz <SDiaz@pittsh.com.au>
Subject: Weasel Plains Solar Farm

Hi Sam

Hope you're going well!

We are completing a Traffic Impact Assessment for a Solar Farm development at 3415 Highland Lakes Road ('The Weasel', Property ID 2538314; Title Reference 140433/1) and 3236 Highland Lakes Road ('Weasel Plains', Property ID 2538322; Title Reference 140581/1). The project does have some impact to Highland Lakes Road.



The site is currently accessed from Weasel Plains Road which intersects with Highland Lakes Road. The intersection has no turn lanes and Weasel Plains Road carries minimal traffic volumes.

In the vicinity (station ID A2100140) there is 2021 data, we have estimated 2024 volumes in the table below utilising a conservative 3% growth rate.

AADT	% Heavy Vehicles	AM peak volume (AM peak hour)	PM peak volume (PM peak hour)
372	18 %	37 (10.00am – 11.00am)	35 (3.00pm – 4.00pm)

It is proposed to retain the access from Weasel Plains Road as the main access point to the site after completion of the Solar Farm, and also utilise it for construction. Once the Solar Farm site is under operation, traffic movements would be generally in the order of a few movements per week, peaking at 10-15 movements per day during more significant maintenance periods.

There are two new accesses that are proposed to be constructed at the northern and southern ends of the site (Access A and Access B in the image). These will be construction accesses and will be retained for emergency vehicles only during operation.

Access A and B have been specifically selected based on available site distance. They both have existing farm gates and Access B is also at a laydown/ pullover area.

The sight distance at the access locations are shown in the table below.

Access	Approach	Speed	SISD Requirement – Austroads *(with desirable 2s reaction time)*	Observed sight distance	Meets Requirements?
Primary Accesses					
Weasel Plains Road	North	100	248m	>300m	✓
	South	100	248m	260m	✓
Construction and Emergency Accesses					
Access A	North	100	248m	>300m	✓
	South	100	248m	>300m	✓
Access B	North	100	248m	>300m	✓
	South	100	248m	>300m	✓

Weasel Plains Road – Primary access

Weasel Plains Road junction off Highland Lakes Road has a wide unsealed entrance. A 4.1m wide cattlegrid is installed near the entrance.

Sight distance is sufficient in both directions. Weasel Plains Road will provide primary access to the Weasel Solar Farm site for all vehicles during both the construction phase and operational phase.

Weasel Plains Road entrance

Highland Lakes Road, south approach to Weasel Plains Road

Highland Lakes Road, north approach to Weasel Plains Road

Construction and Emergency Access A

An existing 4.1m wide farm gate is installed opposite the Waddamana Road intersection and provides access to the Weasel Solar Farm site.

Sight distance is excellent in both directions along Highland Lakes Road, and also up Waddamana Road. Note that realignment of existing road signage would be recommended to prevent visual obstructions.

Entrance of Access A, opposite Waddamana Road intersection (image source: Google Maps street view)

Highland Lakes Road, south approach to Access A, opposite Waddamana Road

Highland Lakes Road, north approach to Access A, opposite Waddamana Road

Construction and Emergency Access B

Near the south of the site, an existing access services a laydown area constructed on land owned by Department of Natural Resources and Environment (NRE Tas). At the rear of the laydown is an existing gated entrance to the Weasel Solar Farm site.

The existing access is located on a long straight on Highland Lakes Road and sight distance is excellent in both directions.

Access B entrance

Highland Lakes Road, south approach to Access B

Highland Lakes Road, north approach to Access B

Light vehicle movements are likely to occur clustered, with vehicles arriving 6:00am-7:00am and departing 6.00pm-7.00pm, coinciding with the hours of operation of the construction site. These are outside existing peak periods. Heavy vehicles will access the site periodically throughout the day.

The construction phases are shown below, construction will take 18 months and construction phases will overlap – i.e. working on different phases in different sections of the site, so movements will be split between the access points.

Construction Activity	Duration	Work force	Light Vehicle	Medium Truck	Large Truck
	(weeks)	(workers per day)	(vehicle movements per day)		
Logistics	27	20	10		20
Civil	34	40	20		20
Mechanical	39	90	30	4	
Electrical	39	75	30	2	
Completion and Commission	25	20	10		

Based on this I have a few questions:

- Are access points A and B currently approved accesses to Highland Lakes Road?
- We consider this to be a site that could be acceptable with no BAL/BAR at any of the accesses for the following reasons. Could you confirm if you agree?
    - low traffic volumes on Highland Lanes Road
    - no significant crash history in the vicinity of the access points
    - good sight distance at all access points
    - 18 month construction period, after which traffic volumes are very low

It is noted that we would suggest some construction vehicle warning signage along Highland Lakes Road during the construction period.

Please let me know if you need any more info or would like to discuss over the phone.

Kind regards
Rebekah

pitt&sherry

Rebekah Ramm

Capability Lead – Traffic Engineering | Associate Roads and Traffic Engineer
MTrans&Traf, BE-MBA(Hons), CPEng, MIEAust

Phone +61 3 6210 1402 | rramm@pittsh.com.au | Connect on LinkedIn
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pitt&sherry supports our people through Flexible Working Practices. My working arrangements in 2024 are:

Monday	Tuesday	Wednesday	Thursday	Friday
9:00am – 2:30pm	9:00am – 4:30pm	9:00am – 4:30pm	9:00am – 4:30pm	9:00am – 4:30pm
Office	*Hybrid*	*Office*	*Alternating Office/ Away*	*Hybrid*

Swept Paths

Appendix E

pitt&sherry

REFERENCE FILES ATTACHED: S-P.23.1660-00-CIV-XRF-1250; S-P.23.1660-00-CIV-XRF-1950

P&S FORM DRG-A3 REV - 10

DRAWING REVISION HISTORY

No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE

APPROVED

ORIGINAL COPY ON FILE
"e" SIGNED BY

SIGNED

DATE

SCALE (PLOTTED FULL SIZE): AS SHOWN

SHEET SIZE: A3

15 0 15 30 45 60

SCALE IN METRES - 1:1500

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pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309

CLIENT: R. LUXMOORE PROJECT MANAGEMENT

PROJECT: WEASEL SOALR FARM
TRAFFIC IMPACT ASSESSMENT

STATUS: **PRELIMINARY**

DRAWING TITLE: VEHICLE SWEPT PATH ANALYSIS
B-DOUBLE TRUCK - ACCESS/EGRESS

DATUMS: AHD / MGA

CLIENT No.: -

DRAWING No.: S-P.23.1660-00-CIV-SKT-101

REVISION: -

PRINT IN COLOUR

Jun. 14, 24 - 10:56:32 Name: S-P.23.1660-00-CIV-SKT-101.dwg

REFERENCE FILES ATTACHED: S-P.23.1660-00-CIV-XRF-1250; S-P.23.1660-00-CIV-XRF-1950

P&S FORM DRG-A3 REV - 10

DRAWING REVISION HISTORY

No.	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	DATE

APPROVED

ORIGINAL COPY ON FILE
"e" SIGNED BY

SIGNED

DATE

SCALE (PLOTTED FULL SIZE): AS SHOWN

SHEET SIZE: A3

15 0 15 30 45 60

SCALE IN METRES - 1:1500

pitt&sherry

pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309

CLIENT: R. LUXMOORE PROJECT MANAGEMENT

PROJECT: WEASEL SOALR FARM
TRAFFIC IMPACT ASSESSMENT

STATUS: **PRELIMINARY**

DRAWING TITLE: VEHICLE SWEPT PATH ANALYSIS
19.0m SEMI TRAILER - ACCESS/EGRESS

DATUMS: AHD / MGA

CLIENT No.: -

DRAWING No.: S-P.23.1660-00-CIV-SKT-102

REVISION: -

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Jun. 14, 24 - 10:55:59 Name: S-P.23.1660-00-CIV-SKT-102.dwg

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Weasel Solar Farm

Traffic Impact Assessment

Pitt & Sherry (Operations) Pty Ltd
ABN 67 140 184 309

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info@pittsh.com.au
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Located nationally —
Melbourne
Sydney
Brisbane
Hobart
Launceston
Newcastle
Devonport

Agricultural Assessment of the Weasel Solar Farm Development

pinion ADVISORY

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

Pinion Advisory
112 Wright Street | East Devonport | Tasmania | 7310
Phone: 03 6427 5300 | Fax: 03 6427 0876 | Email: jlynch@pinionadvisory.com
Web: www.pinionadvisory.com.au

Report authors: Jason Lynch B App. Sci. (hort) CPAg
Senior Consultant

An appropriate citation for this report is: *Pinion Advisory, May 2024, Agricultural assessment of the proposed Weasel Solar Farm development.*

Date	Issue number	Document Status	Authorised by
6/5/24	1	Draft	Jason Lynch
11/7/24	2	Final	Jason Lynch
19/9/24	3	Final – revised#1	Jason Lynch

Contents

Figure index

Table index

1 Executive summary

This agricultural assessment report has been instructed by Robert Luxmore Pty Ltd , project management consultants, on behalf Tasflo Pty Ltd to provide an assessment of the agricultural impacts of the proposed Weasel Solar Farm (WSF) development on two properties, as per The Weasel (property title 140433/1) and Weasel Plains (property title 140581/1).

The WSF is a large-scale solar project covering approximately 435 hectares of land, and once fully operational is anticipated to generate approximately 250 megawatts of renewable electricity.

The Weasel Solar Farm development would include various components including:

- Solar array panels
- A battery energy storage system
- Various electricity infrastructure (inverters and an electrical substation).
- Access tracks

The proposal includes land for construction, maintenance, and operation, new access tracks and upgrades to existing tracks, laydown areas, security infrastructure, and landscaping.

The WSF development covers open pasture land on The Weasel and Weasel Plains properties, with these areas of the properties currently used for agricultural land use activity, that being for pastoral land use activity to graze sheep and cattle.

For the WSF project, multiple technical studies have been undertaken, including ecological, hydrological, traffic, cultural heritage, fire, planning and landscape and visual impacts.

This agricultural assessment report provides information on:

- The current and future agricultural activities which are, can and could be undertaken on the subject properties.
- The potential for impacting agricultural land use activity on the subject properties as well adjacent and nearby agricultural land.

The proposed development has been planned and designed to allow for a continuation of the current and future potential agricultural land use activities and is anticipated to actually result in a range of ongoing positive operational and management benefits for both properties.

Weasel Solar Farm will have a range of impacts on the subject properties, with the potentially negative impacts effectively managed through a combination of the adoption good construction and operational practices.

The Weasel Solar Farm would result in the permanent loss of 8.22 hectares of pastureland however this loss would be outweighed by the significant ongoing operational and management benefits associated with the proposed development including a likely reduction ewe and lamb mortality and overall improved livestock productivity.

2 Background and purpose

This report has been undertaken on behalf of Tasflo Pty Ltd (the proponent) and will accompany an application to the Central Highlands Council seeking approval for the Weasel Solar Farm (WSF) development.

This report provides information and details of the WSF study area on the subject Weasel and Weasel Plain properties, as well as on local and regional land use.

2.1 Pinion Advisory background

Pinion Advisory is an Australian owned agricultural consultancy company servicing various sectors of red meat, dairy, cropping and horticulture industries, as well as providing farm business and commodity risk management, recycled resource management, irrigation development and environmental assessments.

The Pinion Advisory team is spread across Australia, includes 80 consultants who posses a vast array of skills, knowledge and experience.

2.2 Report author background

In providing the information and opinions enclosed here, it is to be noted that Jason Lynch possesses a B.AppSc(hort), is a member of Australian Institute of Agriculture, Certified Practising Agricultural and has over 25 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, developers, independent planners, surveyors and councils to undertake assessments within the Brighton, Burnie, Central Coast, Central Highlands, Circular Head, Clarence, Devonport, Dorset, George Town, Glamorgan Spring Bay, Huonville, Kentish, King Island, Kingston, Latrobe, Launceston, Meander Valley, Northern Midlands, Sorell, Southern Midlands, Tasman, and Waratah-Wynyard municipalities.

Most of these assessments have involved the assessment of land for development purposes, agricultural impact and the potential for conflict with the Tasmanian and/or Interim Council Planning Schemes.

2.3 Planning provisions

The subject properties are located in the Central Highlands municipality and identified within the Agricultural Zone of the Tasmanian Planning Scheme - Central Highlands.

The purpose of the Agricultural Zone is:

- To provide for the use or development of land for agricultural use.
- To protect land for the use or development of agricultural use by minimising:

  a) Conflict with or interference from non-agricultural uses;

  b) Non-agricultural use or development that precludes the return of the land to agricultural use; and

  c) Use of land for non-agricultural use in irrigation districts.

- To provide for use or development that supports the use of the land for agricultural use.

The WSF will need to comply with the relevant Agricultural Zone planning scheme provisions of the Tasmanian Planning Scheme - Central Highlands and obtain a planning permit to cover its development and ongoing operation.

This agricultural assessment report supports the compliance with the relevant Agricultural Zone planning scheme provisions of the Tasmanian Planning Scheme - Central Highlands

3 Development site characteristics

3.1 Property details

This WSF agricultural assessment report has been commissioned by Robert Luxmore Pty Ltd , project management consultants, on behalf Tasflo Pty Ltd to provide an assessment of the agricultural impacts of the proposed WSF on two properties, as per The Weasel and Weasel Plains. Table 1.

Table 1 Property details

Property name	Address	Ownership	Title Reference	Property ID	Hectares (Approx)
The Weasel	3415 Highland Lakes Road, Bothwell, Tas 7030	Dungrove Land Company Pty Ltd	140433/1	2538314	918.8
Weasel Plains	3236 Highland Lakes Road, Bothwell, Tas 7030	Cluny Pty Ltd	140581/1	2538322	1775.9

Both properties are located approximately 10 km north of Bothwell in the Central Highlands municipality.

The Weasel property is farmed as part of a larger land holdings, owned and managed by the Dungrove Land Company Pty Ltd. The Dungrove property, adjacent to the west of The Weasel property, covers 3,700 hectares, has extensive irrigated pasture production infrastructure (680 hectares) and is used to graze cattle and sheep. The Weasel and Dungrove and other highlands Dungrove Land Company Pty Ltd land holdings are operated and managed collectively which provides a significant level of scale and allow for large herds of cattle and sheep to be run on a year round basis.

3.2 Regional and district features

The Central Highlands municipality primary industry features include land used for:

- Low rainfall dryland pasture production to support sheep and beef grazing enterprises.
- Irrigated pasture and cropping production system using irrigation water sourced from the Southern Highlands Irrigation Scheme (SHIS) and the River Clyde and its tributaries which is used to support irrigated pasture production and seasonal cropping.
- Extensive areas of native vegetation, World Heritage Tasmanian Wilderness and plantation forest (hardwood and softwood).
- Significant renewable energy infrastructure including various hydro dams and associated infrastructure (canals, high voltage transmission lines and substations).

Analysis of the Australian Land Use and Activity (ALUM 2016) provides an insight of the type and scale of various agricultural land use activity conducted in the Central Highlands Council (CHC) municipality.

Table 2 ALUM 2016 in the CHC municipality and associated agricultural land use activity.

Agricultural Land Use Activity (ALUM 2016)[1]	Area (hectares)
2. Production from relatively natural environments	33,086
3. Production from dryland agriculture and plantations	132,587
4. Production from irrigated agriculture and plantations	12,275
5. Agricultural Intensive uses	56

Please note that in Table 2, the non-agricultural ALUM "Intensive Uses" have not been included, and this actually covers a considerable amount of the land within the municipality associated with hydro power generation (dams and associated generation infrastructure).

Refer to Appendix A, Table 7, for further details on the ALUM land use activities.

3.3 Adjacent land use

The land use activity adjacent to the properties involved in the WSF includes:

- North:
  - "Rockford" property which covers 1,710 hectares and is used for grazing sheep and cattle on dryland pasture.
- South:
  - "East Cluny" property which covers 350 hectares and is used for grazing sheep and cattle on dryland pasture.
- East
  - Additional land holdings of the "Weasel Plains" property which covers 2,020 hectares and is used for grazing sheep and cattle on dryland pasture. This property is owned by the same owner, Cluny Pty Ltd, as the Weasel Plains property subject to the WSF.
- West:
  - "Cluny" property which covers 885 hectares and is used for grazing sheep and cattle on dryland and irrigated pasture and seasonal irrigated cropping.
  - "Dungrove property which covers 3,700 hectares and is used for grazing sheep and cattle on dryland and irrigated pasture and seasonal irrigated cropping. This property is owned by the same owner, Dungrove Land Company Pty Ltd, as The Weasel property.

A location of the properties adjacent to The Weasel property is attached in Appendix B Figure 1.

[1] Extracted from DAFF https://www.agriculture.gov.au/abares/aclump/land-use/alum-classification

3.4 Climate

The climate associated with the subject properties can be characterised as having cold winters and warm summers.

The Weasel Plains property had a Bureau of Meteorology weather station (station number 96053) which operated from 1965 until 2013, and lieu of the lack of current climate data a SILO[2] meteorological dataset has been used to provide the average monthly rainfall, evapotranspiration (ET) and minimum and maximum temperatures. Table 3.

On average these properties receive 525mm of rainfall and can be subject to extended periods of particularly low rainfall and drought events.

Table 3 Annual climate value for the Weasel and Weasel Plains properties (SILO dataset, latitude -42.3 and longitude 146.95)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Rainfall (mm)	43.4	30.7	35.9	39.6	37.3	39.5	44.0	58.1	48.2	54.0	48.2	46.2	525.2
ET (mm)	162.4	124.9	98.8	55.3	31.1	18.8	23.2	36.6	59.9	92.5	119.3	149.5	972.3
Average Max T (^{o}c)	22.1	21.5	19.3	15.6	12.2	9.6	9.0	10.1	12.3	14.9	17.6	19.7	
Average Min T (^{o}c)	8.2	7.9	6.5	4.4	2.5	0.8	0.4	0.7	2.1	3.5	5.3	6.7	

The more elevated areas of both properties experience up to 20 annual frost events, whilst the lower lying ground is subject to cool air pooling and can experience up to 65 annual frost events.[2]

Both properties typically receive up to 700 growing day degrees (base 10^{o}c) from October to April, and accumulates up to 1,700 chill hours (0-7^{o}c).[2]

A combination of the prevailing low rainfall conditions and cold winter results in a relatively short 6 month dryland pasture growing season (mid-September to mid-December and mid-March to late May).

3.5 Topography

The Weasel property features gently sloping (1-5^o) open plains and rolling topography on the central and northern areas which leads down to flat and lower lying ground associated with the Weasel Plains Creek whilst the southern and far northern areas are covered by gentle/moderate sloping (5-15^o) rolling south facing ground. The highest point on the property is 611m ASL (Stone Jug Hill on the far south east boundary) and lowest 430m ASL (far south west boundary area).

[2] Extracted from SILO https://www.longpaddock.qld.gov.au/silo/point-data/#responseTab2

The Weasel Plains features flat to gently sloping (0-5^{o}) open plain topography on the western, central and northern areas of the property with the southern, eastern and far northern areas covered by moderate/steep sloping (5-35^{o}) hilly ground. The highest point on the property is 670m ASL (central far eastern boundary) and lowest 445m ASL (base of the irrigation dam wall on the central eastern boundary).

The WSF study area can be considered as being covered by land with a gently rolling topography.

3.6 Vegetation

The vegetation present on The Weasel property is dominated by open modified agricultural land[3] consisting of dryland pasture land and areas of native vegetation.

At the time of the visit (late summer) The Weasel property appeared to relatively free of common pasture weeds, with the exception of the presence of typical pasture broadleaf (e.g. various flat weeds and thistles) and grass (Brown Top, Sweet Vernal and Barley Grass) and some patches of bracken were observed to be distributed on the central and southern areas.

The vegetation present on the Weasel Plains property is dominated by modified agricultural land consisting of dryland pasture land, centre pivot irrigated land with areas of native vegetation present as well as approximately 2,200m of *Macrocarpa* pine shelter belts are located throughout the property.

At the time of the visit (late summer) the area of the Weasel Plains property subject to the WSF appeared to relatively free of common pasture weeds, with the exception of the presence of typical pasture broadleaf (e.g. flat weeds and thistles) and grass (Brown Top, Sweet Vernal and Barley Grass).

Overall, the land present on the Weasel and Weasel Plains properties associated with the WSF are relatively weed free.

A detailed flora and fauna survey of the WSF development area has been conducted by Van Diemen Consulting, covering both The Weasel and Weasel Plains properties which provides detailed information on the type of native vegetation present and associated land coverage. Highlights of this report[3] includes:

- No threatened Ecological Communities or Threatened Native Vegetation Communities are present in the survey area.
- Three species listed on Threatened Species Protection Act 1995 were observed in the survey area.
- No species listed in the Environmental Protection and Biodiversity Conservation Act 1999 were observed in the survey area.

[3] Barnes R., & McCoull C. ((2024) WEASEL SOLAR FARM, ECOLOGICAL AND NATURAL ASSETS CODE ASSESSMENT.

- No fauna species listed in the Threatened Species Protection Act 1995 the Environmental Protection and Biodiversity Conservation Act 1999 were observed in the survey area.
- Declared weed species listed on the Biosecurity Act 2019 were observed in the survey area including blackberry (*Rubus anglocandicans*), Californian thistle (*Cirisium arvense*) and Gorse (*Ulex europeaus*).

The WSF is based on covering dryland pasture, and whilst some individual paddock trees will be removed as part of the construction process it is not anticipated that vegetation communities will be cleared and removed. The WSF has been planned to be sensitively designed for a minimal disruption and degradation to the vegetation (e.g. pasture and native vegetation) present within the study area and this extends to minimal land clearing and soil disturbance during the construction phase.

3.7 Geology and soils

The geology present on The Weasel property is dominated by glaciomarine sequences of pebbly mudstone and sandstone and limestone, with smaller areas of dolerite and quartz sandstone on the far south east area[4].

The soils present on The Weasel property are dominated by grey/brown duplex soil consistent with the chromosol[5] soil type, which features a sandy loam topsoil over a sandy clay subsoil, with small areas of brown clay loam soils consistent with the dermosol[5] soil type on the far south eastern area and black cracking heavy clay soil which is consistent with the vertosol[5] soil type on the far northern area associated with the land adjacent to the Weasel Plains Creek.

The geology present on the Weasel Plains property is a complex of glaciomarine sequences of pebbly mudstone and sandstone and limestone on the northern and western boundary area, dolerite on the central and eastern area and smaller areas of quartz and freshwater sandstone on the central and southern areas[4].

The soil present on the Weasel Plains property associated with the WSF is a grey/brown duplex soil consistent with the chromosol[5] soil type.

The soils present on The Weasel and Weasel Plains property are suitable for pasture production albeit with productivity constraints relative to the associated land capability present.

The WSF would be located on the lighter textured sandy/sandy loam soils.

---

[4] Extracted from the LIST https://maps.thelist.tas.gov.au/listmap/app/list/map

[5] Cotching, B. (2009) Soil Health for Farming in Tasmania. Tasmania. Australia.

3.8 Infrastructure

The Weasel property has infrastructure present which includes:

- Internal and boundary fencing
- Reticulated stock water system
- Stockyards

A 220 kV transmission line runs adjacent to the western boundary and cuts across the far south west area of The Weasel property. The WSF will have no negative impacts on the high voltage transmission line and support towers.

None of the infrastructure present on The Weasel property is anticipated to be degraded and/or diminished as result of the WSF.

The Weasel Plains property has infrastructure present which includes:

- Internal and boundary fencing
- Reticulated stock water system
- 1 set of stockyards
- 5 centre pivots
- Large 5,400 ML irrigation dam and irrigation scheme infrastructure
- Shearing shed
- Stockyards
- 2 residential dwellings
- Various sheds
- Central laneway network which provides access throughout the property.

None of the infrastructure present on the Weasel Plains property is anticipated to be degraded and/or diminished as result of the WSF.

3.9 Waterways and irrigation

The Weasel Plains Creek and its tributaries flows through the northern area of The Weasel property and through the northern and central areas of the Weasel Plains property.

Tributaries of Bark Hut Creek flow through the southern area of the Weasel property.

Based on an assessment using the NRE Water Access Tool[6] no new irrigation water allocations are available from the Weasel Plains Creek or Bark Hut Creek.

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[6] Extracted from https://wrt.tas.gov.au/wat/input

No irrigation dams are present, and no irrigation water allocations are on The Weasel property. A number of small stock water dams nominally with a storage capacity of less than 1 ML are present on The Weasel property.

Both The Weasel and Weasel Plains properties are located within the Southern Highlands Irrigation District (SHID) however neither property is serviced by the Southern Highlands Irrigation Scheme (SHIS). The SHIS is fully allocated, and no irrigation is available for new irrigators[7].

It is reasonable to consider that The Weasel property is severely constrained for access to irrigation water and is effectively a dryland property.

The Weasel Plains property has a very large 5,400 ML irrigation dam (dam ID 3671) with a surface area of 96.5 hectares, and this is filled based on a surety 5 5,400 ML irrigation water allocation (allocation ID 2052) from the Weasel Plains Creek.[8]

Water is drawn from the 5,400 ML dam and used to supply 270 hectares of centre pivot irrigated land on the Weasel Plains property.

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[7] Extracted from Tasmanian Irrigation https://www.tasmanianirrigation.com.au/schemes/southern-highlands

[8] Extracted from the LIST https://maps.thelist.tas.gov.au/listmap/app/list/map

4 Land Capability

4.1 Land capability methodology

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 Water and Environment 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.[9]

4.2 Weasel Solar Farm land capability assessment

The official land capability map for the area was produced by the DPIWE in 2002 at a scale of 1:100,000, reported in the Shannon Report[10] and modelling has identified the subject properties to be covered by Class 5 and 6 land.

The report authors' observations on the property visit (February 2024) determined that the area of the properties subject to the WSF are covered by Class 5, 5+6 and 6 land (Figure 6):

Class 5 land is described 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.*[9]

Class 5+6 land is described as:

> *At least 60% Land unsuited to cropping and with slight to moderate limitations to pastoral use, up to 40% Land well suited to grazing but which is limited to occasional cropping or a very restricted range of crops.*[9]

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

[10] Lynch, S. (2002) Modelled Land Capability Classes of Tasmania, Shannon 1:100,000 map. Department of Primary Industries Water and Environment, Tasmania.

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.*[9]

The key land capability limitations associated with the property are:

- Soil (s) associated with limitations relating to the shallow duplex nature of the soil (low soil moisture holding capacity and constrained plant root depth) and heavy clay nature of the vertosol soils (prone to waterlogging and challenging to cultivate).
- Erosion (e) associated with the risk of rill and sheet erosion on the steeper land, scouring resulting from wind erosion on bare and exposed soils, and the potential for degraded soil structural due to pugging from livestock movement on waterlogged soils and/or inappropriate and where applicable excessive ground cultivation activities.
- Wetness (w) associated with the land being subject to extended periods of soil waterlogging and possible short term inundation during high waterway flow events which limits overall productivity and utility of the land.

The proposed WSF would be located on predominantly class 5 land.

A land capability map of the WSF study area is attached in Appendix B Figure 2.

Various images of the landforms and general views across the properties is attached in Appendix C.

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

Table 4 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
5se	Sandy/sandy loam chromosol soil derived from a complex of sandstones (quartz and pebbly types) and pebbly mudstone. Duplex soil, as a brown/grey sandy/sandy loam top soil over a light brown/orangey sandy clay subsoil.	1-5	Flat to gentle sloping and rolling ground. 430-525m ASL.	Moderate Associated with scouring due to wind erosion on bare and exposed soils, the potential for degraded soil structural due to pugging from livestock movement on waterlogged soils (rare and infrequent) and/or inappropriate and excessive ground cultivation activities.	Moderate This land experiences cold winters and warm summer conditions. Receives on average 525mm annual rainfall, experiences up to 65 annual frost events, has 700 GDD (Oct to April) and 1,700 chill hours (May to August).	These soils are typically imperfectly to moderately well drained and have a low soil moisture holding capacity. Topsoil depth ranges from 20-30 cm. Occasional stone and rock fragments are present on the soil surface and in the soil profile.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover.	Unsuitable for cropping and suitable for pastoral use albeit with moderate limitations. This land is unsuitable for perennial horticulture. Due to the erosion prone nature of this land it should be destocked in response to low pasture covers and rested appropriately.

Land Capability Class (ha)	Geology & Soils	Slope %	Topography & Elevation	Erosion Type & Severity	Climatic Limitations	Soil Qualities	Main Land Management Requirements	Agricultural Versatility
5+6se	Sandy/sandy loam chromosol soil derived from a complex of sandstones (quartz and pebbly types) and pebbly mudstone, and dermosol soils derived from dolerite geology. Duplex soil, as a brown/grey sandy/sandy loam top soil over a light brown/orangey sandy clay subsoil. Brown clay loam soils.	5-15	Gentle/moderate sloping and rolling/hilly ground. 460-611m ASL.	Moderate/high Associated with scouring due to wind erosion on bare and exposed soils, the potential for degraded soil structural due to pugging from livestock movement on waterlogged soils (rare and infrequent) and/or inappropriate and excessive ground cultivation activities.	Moderate This land experiences cold winters and warm summer conditions. Receives on average 525mm annual rainfall, experiences up to 20 annual frost events, has 700 GDD (Oct to April) and 1,500 chill hours (May to August).	These soils are typically moderate to well drained and have a low/moderate soil moisture holding capacity. Topsoil depth ranges from 20-30 cm. Stone and rock fragments are present on the soil surface and throughout the soil profile.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover.	Unsuitable for cropping and suitable for pastoral use albeit with moderate/severe limitations. Due to the erosion prone nature of this land it should be destocked in response to low pasture covers and rested appropriately. This land is unsuitable for perennial horticulture.

Land Capability Class (ha)	Geology & Soils	Slope %	Topography & Elevation	Erosion Type & Severity	Climatic Limitations	Soil Qualities	Main Land Management Requirements	Agricultural Versatility
5+6sr	Sandy/sandy loam chromosol soil derived from a complex of sandstones (quartz and pebbly types) and pebbly mudstone. Duplex soil, as a brown/grey sandy/sandy loam top soil over a light brown/orangey sandy clay subsoil.	1-5	Flat to gentle sloping and rolling ground. 470-530m ASL.	Moderate Associated with scouring due to wind erosion on bare and exposed soils, the potential for degraded soil structural due to pugging from livestock movement on waterlogged soils (rare and infrequent) and/or inappropriate and excessive ground cultivation activities.	Moderate This land experiences cold winters and warm summer conditions. Receives on average 525mm annual rainfall, experiences up to 35 annual frost events, has 700 GDD (Oct to April) and 1,600 chill hours (May to August).	These soils are typically imperfectly to moderately well drained and have a low soil moisture holding capacity. Topsoil depth ranges from 20-30 cm. Stone and rock fragments are present on the soil surface and throughout the soil profile. Rocky outcrops and sheet rock are distributed across this land.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover.	Unsuitable for cropping and suitable for pastoral use albeit with moderate limitations. Much of this land is covered by native forest woodland vegetation, is only capable to supporting a low carrying capacity and is used a run country grazing land. This land is unsuitable for perennial horticulture.

Land Capability Class (ha)	Geology & Soils	Slope %	Topography & Elevation	Erosion Type & Severity	Climatic Limitations	Soil Qualities	Main Land Management Requirements	Agricultural Versatility
5+6sw	Clay vertosol soil derived from alluvial sediment. Clay black self-mulching soil.	1-3	Flat to very gentle sloping ground associated with the Weasel Plains Creek riparian and adjacent land. 465-480m ASL.	Low/moderate Associated with structural due to pugging from livestock movement on waterlogged soils and/or inappropriate and excessive ground cultivation activities and possible stream bank erosion during periods of high water flow in the Weasel Plains Creek (rare and infrequent).	Moderate This land experiences cold winters and mild summer conditions. Receives on average 525mm annual rainfall, experiences up to 65 annual frost events, has 700 GDD (Oct to April) and 1,700 chill hours (May to August).	These soils are typically poor/imperfectly to and have a high soil moisture holding capacity. Topsoil depth ranges from 30-40 cm.	Avoid situations that lead to the exposure of bare soil, therefore maintain sufficient ground cover.	Unsuitable for cropping and suitable for pastoral use albeit with moderate limitations. These soils are very challenging to cultivate and renovate, and any ground works must be carefully timed to ensure optimal soil conditions and pasture and pasture establishment.

5 Proposed Development

The WSF is a large-scale solar project covering 435 hectares of land, and incorporates solar array panels, a battery energy storage system and various electricity infrastructure (inverters and an electrical substation).

A plan of the WSF is attached in Appendix D Figure 14, Figure 15 and Figure 16.

The WSF would be connected to the existing 220 kV high voltage transmission line which is located adjacent to the western boundary of the Weasel property.

Once fully operational the WSF is anticipated to generate approximately 250 megawatts of renewable electricity and is part of a larger 'Highlands Renewable Energy Hub.

The current agricultural land use activity would be disrupted during the WSF development phase

Only the land directed involved in and subject to the WSF has been included in this study area assessment:

- Approximately 360 hectares of The Weasel property:
    - Sheep will still be able to graze in and around the solar array.
    - 8.22 hectares of land will be permanently lost due to the WSF as per land covered by the BSES and substation.
- Approximately 75 hectares of the Weasel Plains property:
    - Sheep will still be able to graze in and around the solar array.
    - A negligible amount of land will be permanently lost due to the WSF.

6 Land Use Activity

6.1 Current agricultural land use activity

Currently The Weasel property is used to graze sheep.

Currently the Weasel Plains property is used to graze sheep, cattle and periodic seasonal broadacre cropping.

6.2 Potential land use activity

6.2.1 Cropping land use activity

Theoretically the class 5 land on The Weasel property could be used for cropping, albeit it due to the land capability present and prevailing climate the potential productivity and utility would be severely constrained. In reality due to the complete current and future absence of irrigation water it is reasonable to contend that irrigated land use activity on The Weasel property is not possible.

220 hectares of centre pivot irrigated land is available on the Weasel Plains property, and this occurs on class 5 land which is suitable for cropping on a very limited frequency (e.g. 1-2 times in 10 years) and with a severely restricted range of crops. In reality the centre pivots are predominantly used to grow pasture for grazing by cattle and sheep.

6.2.2 Pastoral land use activity

The Weasel property is and will continue to be used for grazing livestock, and based on the area of available land, type of vegetation present (dryland pasture or native grasslands), rainfall and land capability the total annual carrying capacity of the property is approximately 5,835 DSE[11].

Assuming a total carrying capacity of 5,835 DSE for The Weasel property, this would allow for running approximately 2,080 ewe lamb breeding units (as per a 70 kg liveweight cross bred ewe with a 130% lambing rated at 2.8 DSE/unit).

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[11] DSE is a standard unit used to compare the feed requirements of different classes of livestock to assess the carrying capacity of a farm or paddock. One DSE is defined as the amount of feed required by a two-year-old 50 kg 'dry' Merino sheep (wether or non-lactating, non-pregnant ewe) to maintain its weight.

The Weasel Plains property is and will continue to be used for grazing livestock, and based on the area of available land, if all irrigated land is available for grazing, type of vegetation present (dryland pasture or native grasslands), rainfall and land capability the current total annual carrying capacity of the property is approximately 15,475 DSE .

Assuming a total Weasel Plains property carrying capacity of 15,475 DSE, this would allow for running approximately 5,525 ewe lab breeding units (as per a 70 kg liveweight cross bred ewe with a 130% lambing rated at 2.8 DSE/unit).

The actual number and class of livestock which could be run on The Weasel and Weasel Plain properties will vary depending on the seasonal conditions, age, livestock performance expectations, market conditions and overall enterprise requirements.

6.2.3 Perennial horticulture

Due to the land capability and prevailing climate no land present on The Weasel or Weasel Plains properties is suitable for perennial horticulture including cherries, hazelnuts, grapes (sparkling or table wine) and olives.[12]

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[12] Extracted from the LIST https://maps.thelist.tas.gov.au/listmap/app/list/map

7 Local and regional agricultural significance

The local and regional significance of agricultural land is a function of the land capability (soils, slope, erosion risk, climate), amount of available land, in conjunction with factors such as current and potential irrigation, presence of unique resources or infrastructure, social influences (historical and cultural), and prominence within an industry supply chain.

The Weasel and Weasel Plains properties do hold a level of recognised local and regional agricultural significance in that they are relatively large parcels of agricultural land, however due to the prevailing lower land capability in conjunction with the climate, the actual significance of these land holdings is diminished.

Only the land directed involved in and subject to the WSF has been included in this local and regional significance assessment:

- The Weasel property covers 918.8 hectares, of which the WSF study area would cover approximately 360 hectares:
    - Sheep will still be able to graze under and around the solar array infrastructure and effectively the current level of livestock productivity of this land will be maintained.
    - 8.22 hectares of land will be permanently lost due to the WSF as per land covered by the BSES and substation, and this would equate to an annual loss in carrying capacity of approximately 80 DSE. The BSES area would cover less than 0.9% of The Weasel property and hence represents a negligible area.
- The Weasel Plains property covers 1,775.9 hectares of which the WSF study area would cover approximately 75 hectares:
    - Sheep will still be able to graze under and around the solar array and effectively the current level of livestock productivity of this land will be maintained.
    - No land will be permanently lost due to the WSF infrastructure and effectively the current productivity of this land will be maintained.

Once the service life of the WSF has been realised the solar array could be dissembled and the land remediated back to its current condition.

The local and regional prominence of the subject properties has been considered in context with reference to the CHC municipality and the extent to which the agricultural land associated with the WSF is diminished and/or permanently lost. Refer Table 5.

No prime agricultural land is present on either of the properties.

There is no significant infrastructure present on The Weasel property, irrigation scheme infrastructure (dams, centre pivot, canals or pipelines) which is required and/or supports agricultural land use activity on adjacent and/or nearby properties.

There is no significant infrastructure present on the Weasel Plains property which is required and/or supports agricultural land use activity on adjacent and/or nearby properties, however it should be

noted that the 5,400 ML irrigation dam is a major water resource although the WSF will have no impact on its refill capacity or the application of irrigation water on the property.

Table 5 Relative regional significance of The Weasel and Weasel Plain properties by land area.

Land capability areas	CHC municipality		The Weasel		Weasel Plains	
	Land area (hectares)	% of total municipality area	Land area (hectares)	% of total municipality area	Land area (hectares)	% of total municipality area
Prime class land	0	0	0	0	0	0
Non-prime class land	318,119	39.9	360	0.11	75	0.023
Exempt land	478,901	60.1	0	0	0	0
Land permanently lost			8.22	0.0025	0	0
All land classes	797,100	100	360	0.045	75	0.0094

Approximately 8.22 hectares of pastureland on The Weasel property will be permanently lost due to the WSF which represents 0.0025% of land in the total CHC municipality land capability mapping areas.

A negligible amount of agricultural land will be permanently lost on the Weasel Plains property.

In terms of the potential to impact current and future irrigation development on the subject properties:

- The Weasel:
    - Currently no irrigation occurs on the property.
    - No irrigation dams are present on the property.
    - No irrigation water is available to access and undertake irrigation.
    - It reasonable that based on the lack of irrigation infrastructure and complete absence of irrigation water the potential to undertake irrigation development is severely constrained and effectively negligible.
    - As part of the Dungrove Land Company Pty Ltd land holdings this property is currently and would in the future regardless of the WSF be used for dryland grazing of livestock, and all irrigated agriculture does and would continue to occur on the Dungrove property nearby to the west of The Weasel property.
- Weasel Plains:
    - No currently irrigated land will be impacted by the WSF.
    - The current large irrigation dam will not be impacted by the WSF.
    - A further 947.5 hectares of dryland pasture are present on the balance of the property, 75 hectares (7.9%) of this land would be covered by WSF study area and would allow for ample of amounts of land to be potentially developed for irrigation in the future. Additionally, the WSF would be located on the central western

boundary and far south western area, such that it is sensitively located and would permit future irrigation development without being fettered.

Once built the WSF is anticipated to result in a minimal amount of disruption to the ongoing operation and management for the agricultural use of both properties, and overall the relatively lower local and regional significance of The Weasel and Weasel Plains properties would be preserved.

8 Impact on Agricultural Land Use Activity

A number of aspects of the WSF have been considered which could impact the agricultural land use activity on the subject properties including:

- Impact on adjacent land holdings.
- Permanent loss of land.
- Soil disturbance.
- Weed infestation.
- Fire management.
- Disturbance to livestock.
- Pasture production levels.
- Provision of shelter to ewes during lamb and thereby improve lamb survival rate.
- Improved logistics access to the property.
- Opportunity for enterprise diversification.

8.1 Impact on adjacent land holdings

The Weasel and Weasel Plains properties are surrounded by land holdings with a broadly similar level of agricultural land use activity.

The presence of the WSF is not anticipated to result in negative impacts to the adjacent properties due to:

- The solar array is a passive electricity generation system, and does emit any noise or odours, with the exception of during construction period. The BSES will emit some noise, but all noise emission and acoustic regulations will be met as part of the operation and management of this infrastructure.
- The WSF does not require water to generate steam and run turbines, unlike hydro or coal fired power stations and therefore there will be no impact on the available irrigation allocations in the nearby waterways and SHIS. This is of extremely valuable importance and reassurance to irrigators both in the CHC municipality and downstream for irrigators on the Derwent River.
- No additional electricity transmission lines will be installed over neighbouring properties which could restrict current and future agriculture development.
- The land use activity on properties to the north, east, west and south involves grazing livestock overwhelming on dryland pasture, although irrigated pasture production does occur to the west (200m setback distance to the nearest WSF infrastructure) and further to the south west (400m at the nearest point to the nearest WSF infrastructure).

It is reasonable to consider the WSF will have no discernible negligible impact on the operation, management and productivity of adjacent properties.

8.2 Permanent loss of agricultural land

Once the service life of the WSF has been realised the solar array could be dissembled and the land remediated back to its currently condition.

The WSF will involve the permanent loss of 8.22 hectares of class 5 land which is currently used for grazing purposes on The Weasel property.

The loss of pastoral land is principally associated with the covered by the BSES and substation and would mean an annual loss in carrying capacity of approximately 80 DSE.

A loss of 80 DSE equates to a reduction of 1.37% compared the current overall carrying of the Weasel property, which is a negligible reduction relative to the livestock productivity gains associated with the shelter provided by the solar array infrastructure and certainly offset by the diversified income stream generated by the WSF.

A negligible amount of land will be permanently lost on the Weasel Plains property.

8.3 Disturbance to livestock

During the construction phase of the WSF it is reasonable to consider that a level of disturbance is anticipated to the normal agricultural operations including noise emissions, vehicle movements and general construction activities. The impact during the construction phase would be anticipated to result in the temporary loss of access to areas of pasture.

The construction process will be on a phased basis and through good will, understanding and planning between the landowner, livestock manager and developer the amount of disturbance to the livestock and disruption to normal agricultural operations would be minimised.

Once the WSF is constructed and power generation occurs there is anticipated to be a no negative impacts on the livestock production enterprise from either the operation of the solar arrays and/or the maintenance of the associated infrastructure.

8.4 Soil disturbance and erosion risk.

The WSF would be located on the lighter textured sandy/sandy loam soils , and therefore erosion control is an important feature of the construction phase and ongoing operation of the WSF.

Erosion control measures which would need to be undertaken during the WSF construction phase should include:

- Limit the amount of soil disturbance to the immediate land directly required to install the various elements of WSF infrastructure.
- Cease construction operations during severe weather conditions, such as heavy rainfall, when surface water movement could cause topsoil erosion.
- Undertake land rehabilitation activities and re-establish pasture and/or native vegetation on bare and exposed soils ASAP.

It is accepted that a minimum 70% pasture ground cover target should be maintained in order to minimise the potential for soil erosion.[13] A combination of the WSF construction methods and nature of the infrastructure being installed would ensure that amount of land disturbance and the risk of soil erosion will be minimised.

The solar array could result in a more concentrated point source of rainfall on to the ground beneath, and therefore maintaining the minimum ground cover target is important to prevent the initial and ongoing soil erosion. A combination of the typically light textured soils present through the WSF study area and generally low rainfall environment would indicate the risk of soil erosion due to surface water movement and scouring will be minimal.

Livestock managers will need to continue with the grazing practices, and effectively balance the feed requirements of the livestock, avoid over grazing and prevent the accumulation of excessive pasture.

The risk of soil erosion can be effectively proactively managed by avoid excessive soil disturbance activities during the construction phase, undertaking any required remediation activities, and a continuation of the good grazing management practice.

8.5 Weed infestation.

The Weasel and Weasel Plain properties are relatively weed free.

During WSF construction phase it will be important to establish a high level of biosecurity control ensure all machinery, plant and equipment and vehicles entering the property are cleaned.

During the WSF construction phase some soil disturbance will occur as infrastructure is installed which provides an opportunity for weeds to germinate and potentially infest the land, and therefore the WSF operators will require a weed management program to ensure the properties current weed status is maintained.

8.6 Fire management

The potential accumulation of excessive vegetation under the solar array could result in a possible a bushfire fire risk.

However, the land under the solar array will be grazed by sheep and this will provide effective management and prevent the build up pasture during spring and summer.

The livestock managers on The Weasel and Weasel Plains property are experienced operators and capable of effectively managing pasture covers and balance the feed requirements of the livestock, avoid over grazing and prevent the accumulation of excessive pasture.

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[13] Agfact P2.1.14. (2005) NSW Department of Primary Industries, Tamworth

8.7 Pasture production levels.

The presence of the solar array infrastructure can both positive and negative impacts on pasture production levels. Refer Table 6.

Table 6 Potential impacts of the solar array on pasture production levels.

Negative impacts	Positive impacts
Shadowing of the pasture beneath the panels. - The position of the ground shadow would move through the day and not concentrated permanently on the same spot.	Reduce soil moisture evaporation rates. - Soil moisture would be better retained during the warmer months and therefore more pasture growth would be expected.
Effective rainfall reaching the soil could be slightly reduced due to evaporation off the surface of the solar array panels. - The solar panel tilts during the day and therefore the amount of potential evaporation would be expected to be negligible.	Protection from hot conditions. - During hot weather the presence of the shading offered by the solar array would provide a cooling effect on the pasture and reduce wilting.

The livestock productivity associated with lower lamb and ewe mortality and improve feed efficiency benefits gained by the shelter offered from the solar array infrastructure would be expected to outweigh the reduction in pasture production levels due to the presence of the solar array infrastructure.

8.8 Improved logistics access to the property

Laneway access will be installed as part of the WSF, and this would improve logistics access across the Weasel property.

Currently The Weasel property has no internal formed laneway access network, and there by having improved access would allow for more efficient movement of livestock and machinery.

8.9 Provision of shelter to sheep

The WSF will provide cover for the sheep grazing under the solar array infrastructure, and this will offer livestock productivity outcomes including[14]:

- Improved lamb survival. Lamb survival rates are heavily influenced to the amount of available shelter during lambing, and with the overhead shelter offered by the solar array it is reasonable to expect a positive gain in the reduction of lamb mortality.

[14] https://assets.cleanenergycouncil.org.au/documents/resources/reports/agrisolar-guide/Australian-guide-to-agrisolar-for-large-scale-solar.pdf

- During cooler months would mean a reduction in wind chill exposure which results in a lower dietary maintenance energy requirement for sheep (ewes and lamb) and thereby more efficient livestock productivity outcomes due to increase lamb liveweight gain and ewes maintaining optimal body condition for longer.
- During cooler months would mean a reduction in wind chill exposure which results in a lower dietary maintenance energy requirement for ewes in late pregnancy that leads to a reduction in the incidence and severity of pregnancy toxaemia.

The livestock productivity benefits gained by the shelter offered from the solar array infrastructure would far outweigh the reduction in the carrying capacity lost due to the 8.22 hectares of land used for the WSF BSES and substation infrastructure,

The WSF solar array infrastructure would result on improved lamb survival, reduced ewe mortality and overall improved livestock productivity outcomes on The Weasel and Weasel Plains properties.

8.10 Opportunity for enterprise diversification

The opportunity for agricultural based enterprise diversification on The Weasel and Weasel Plains properties is severely constrained due to factors such the prevailing land capability and climate.

Effectively The Weasel property is limited to dryland grazing, whilst the Weasel Plains property is limited to dryland and irrigated grazing and low frequency cropping with a severely restricted range of crops.

9 Conclusions

1. The Weasel and Weasel Plains properties are currently used for productive agricultural land use activity, that being for a livestock production and low frequency seasonal cropping (Weasel Plain property only), albeit the productivity of these properties is constrained due to the prevailing lower land capability and low rainfall climate.

2. Neither The Weasel or Weasel Plains properties have a level of particular uniqueness and/or inherently high level of productivity to be recognised as having high level of local and regional prominence beyond the recognition that these properties are large land holdings.

3. The WSF is a large-scale solar project covering 435 hectares of land, and includes various infrastructure including solar panels covering, a battery energy storage system and various electricity infrastructure (inverters and an electrical substation).

4. The WSF has been designed and planned to allow for a continuation of the current and future potential agricultural land use activities which can and could be undertaken on the subject properties.

5. The WSF would be located gently sloping topography on The Weasel or Weasel Plains properties.

6. The Weasel property is best considered as a dryland property due the lack of irrigation infrastructure and complete absence of irrigation water the potential to undertake irrigation development is severely constrained and effectively negligible.

7. There is no significant infrastructure present on the Weasel Plains property which is required and/or support agricultural land use activity on adjacent and/or nearby properties, however it should be noted that 5,400 ML irrigation dam is a major water resource although the WSF will have no impact on its refill capacity.

8. The pastureland under the WSF solar array will continue to be grazed by sheep, and therefore on the land subject to the WSF there will be a continuation of the existing agricultural land use activity.

9. The WSF would result in the permanent loss of 8.22 hectares of pastureland however this loss would be outweighed by the significant ongoing operational and management benefits associated with the proposed development including a reduction ewe and lamb mortality and overall improved livestock productivity.

10. The loss of 8.22 hectares of land due to the WSF would cover less than 0.9% of the total area of The Weasel property, and approximately 0.0025% of the total amount of land in the total CHC municipality land capability mapping area, and therefore represents a negligible loss of agricultural land on both a property and regional area.

11. The WSF will have a range of impacts on the subject properties, with the potentially negative impacts effectively managed through a combination of the adoption good construction and operational practices.

12. The proposed development will not constrain, prejudice and/or limit the agricultural land use activities currently undertaken and/or potential future expansion of the activities.

Appendix A

Table 7 Australian Land Use and Management (ALUM) classification Version 8 (October 2016) relevant to the CHC municipality.

2 Production from relatively natural environments	3 Production from dryland agriculture and plantations	4 Production from irrigated agriculture and plantations	5 Intensive uses (agricultural related)
2.1.0 Grazing native vegetation	3.1.0 Plantation forests	4.2.0 Grazing irrigated modified pastures	5.2.0 Intensive animal production
2.2.2 Production native forests	3.2.0 Grazing modified pastures	4.3.0 Irrigated cropping	5.4.0 Residential and farm infrastructure
	3.3.0 Cropping	4.4.0 Irrigated perennial horticulture	
	3.6.0 Land in transition	4.5.0 Irrigated seasonal horticulture	
		4.6.0 Irrigated land in transition	

Appendix B

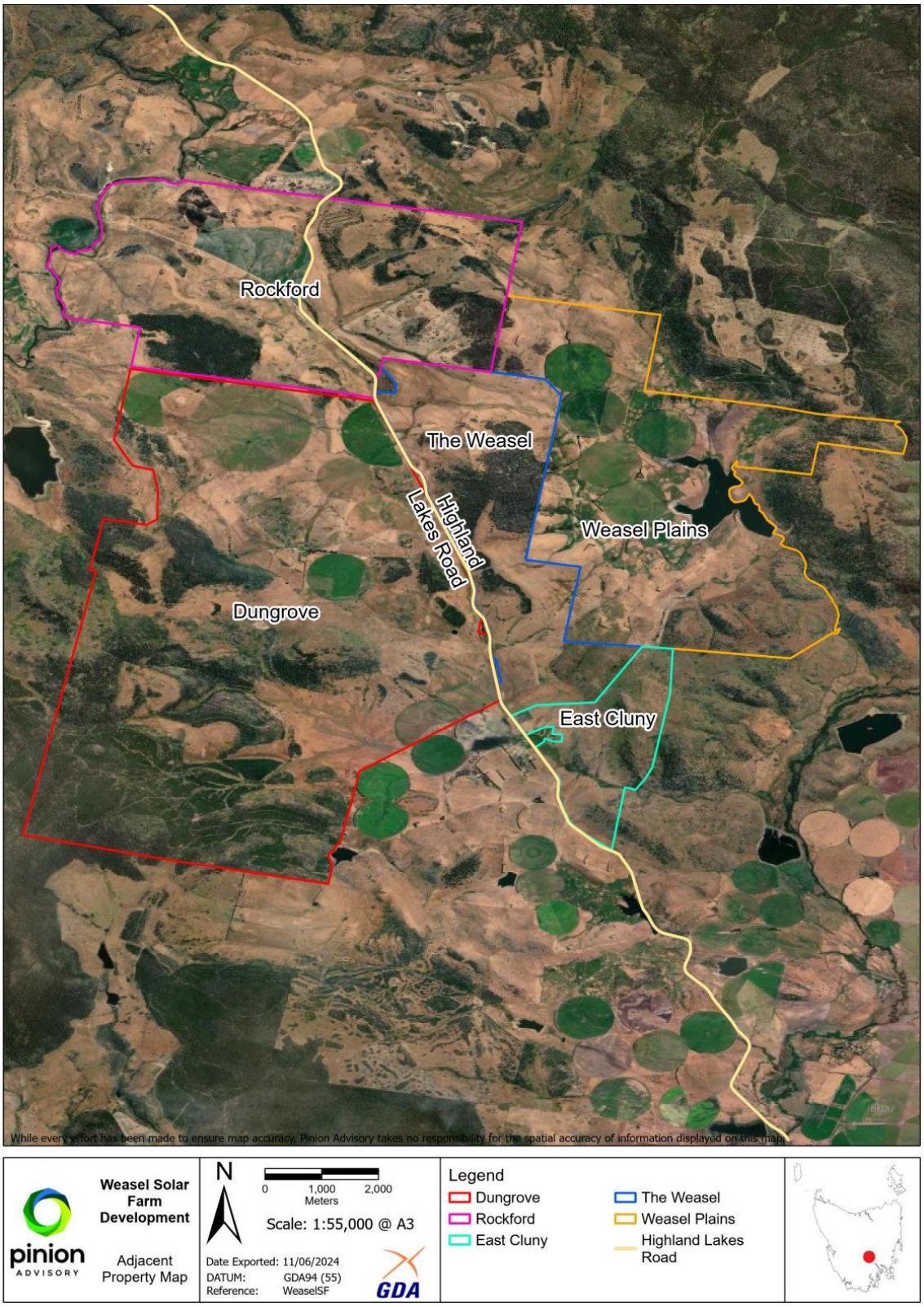

Figure 1 Adjacent land holdings surrounding The Weasel property.

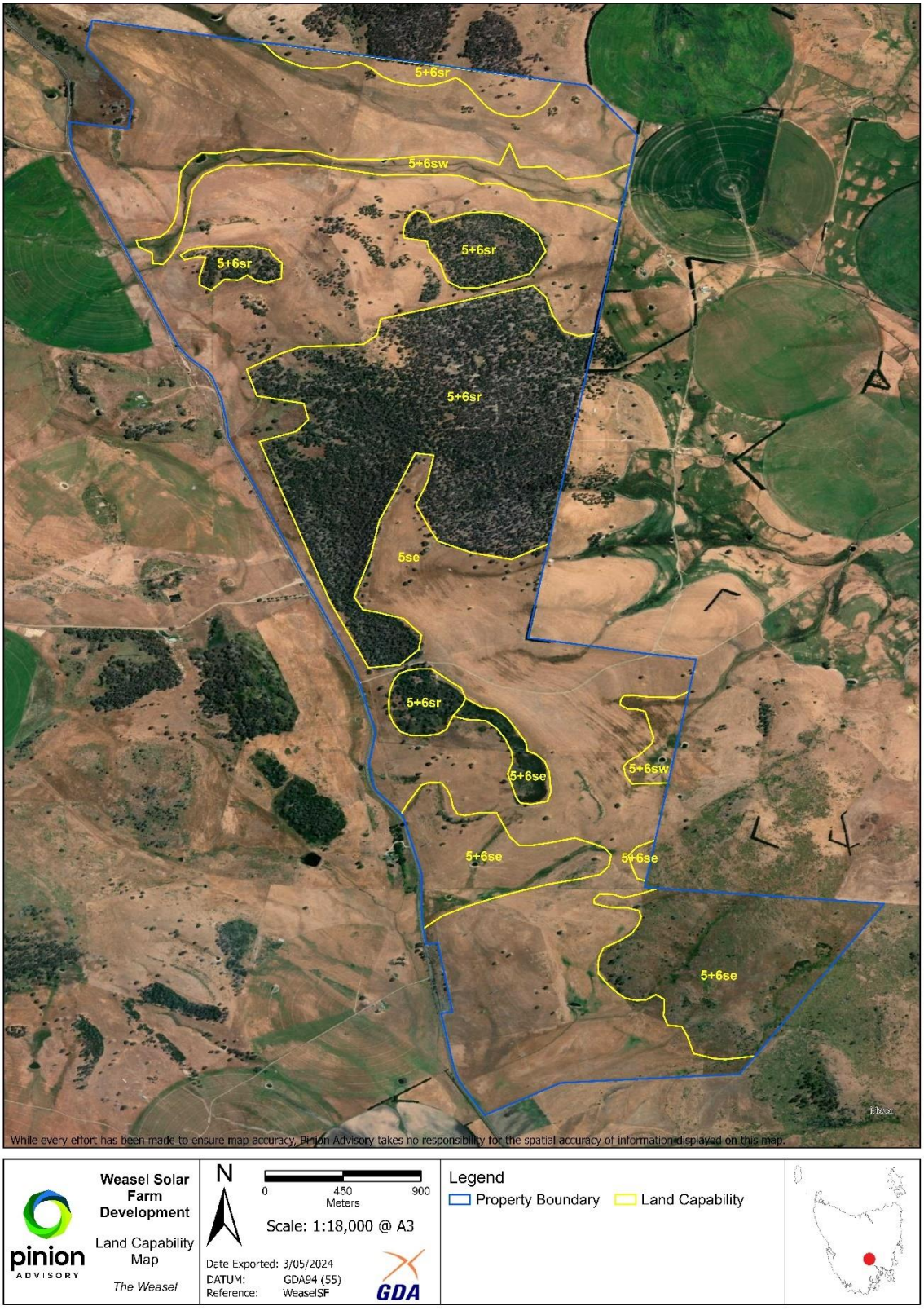

Figure 2 Land capability map of the WSF study area

Appendix C

Weasel property images

Figure 3 Easterly view over the northern area of The Weasel property.

Figure 4 Southerly view over the gently sloping ground subject to the WSF on the central southern area of The Weasel property.

Figure 5 Southerly view over the optional WSF on the far southern area of The Weasel property.

Figure 6 Northerly view over the far north area of The Weasel property.

Figure 7 Westerly view to the Dungrove property from the central eastern boundary of The Weasel property.

Figure 8 Eastern view across the southern area of the WSF on the central southern area of The Weasel property.

Figure 9 High voltage transmission line and towers which is located along the western side of The Weasel property.

Figure 10 Typical soil profile of the chromosol soil present throughout The Weasel property.

Figure 11 Heavy clay vertosol soil type present on the land adjacent to the Weasel Plains waterway on the northern area of The Weasel property.

Weasel Plains property images

Figure 12 Northerly view over the land subject to the WSF on the Weasel Plains property.

Figure 13 Typical soil profile of the chromosol soil type present on the Weasel Plains property subject to the WSF development.

Appendix D

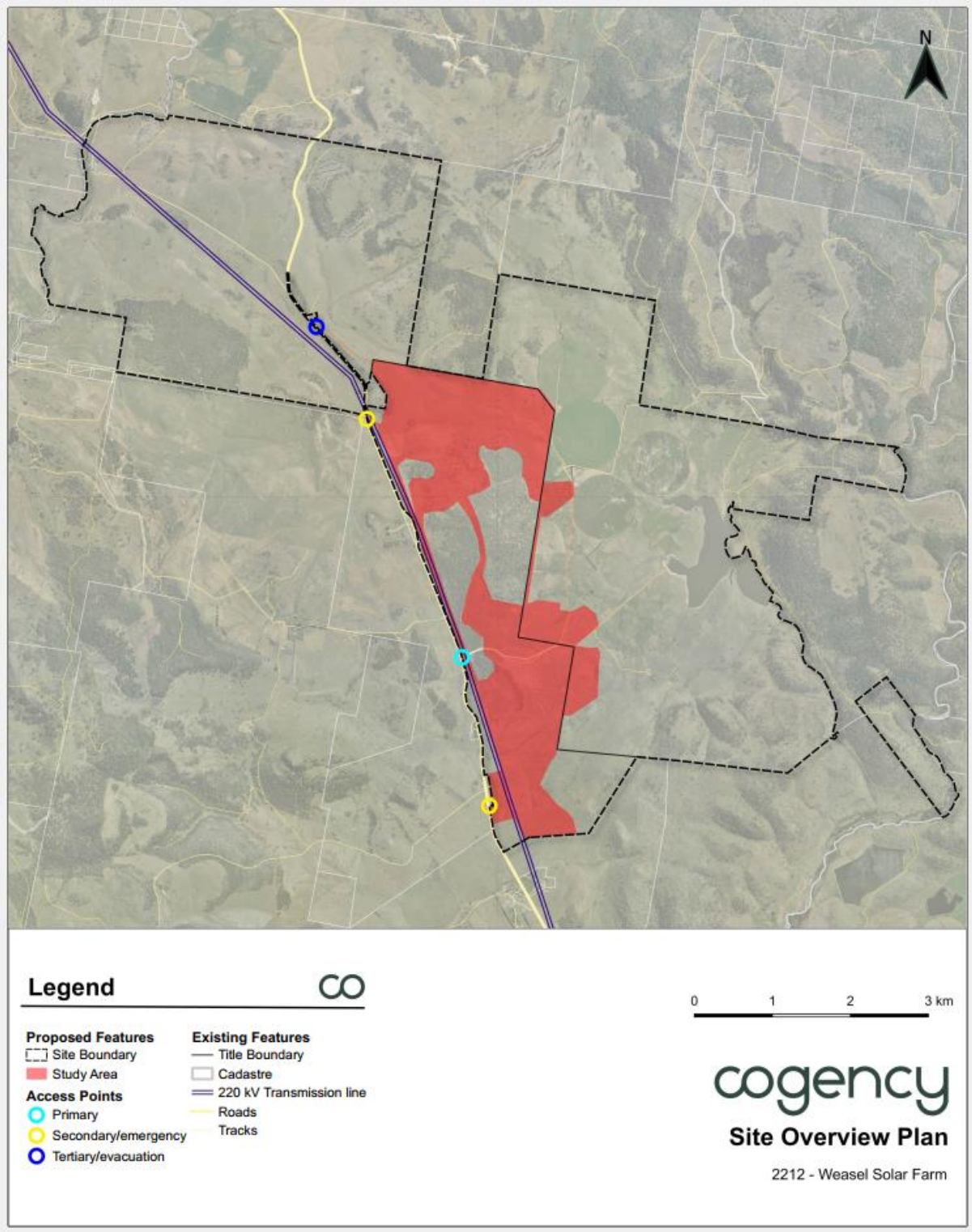

Figure 14 WSF Site Overview Plan (source: Cogency)

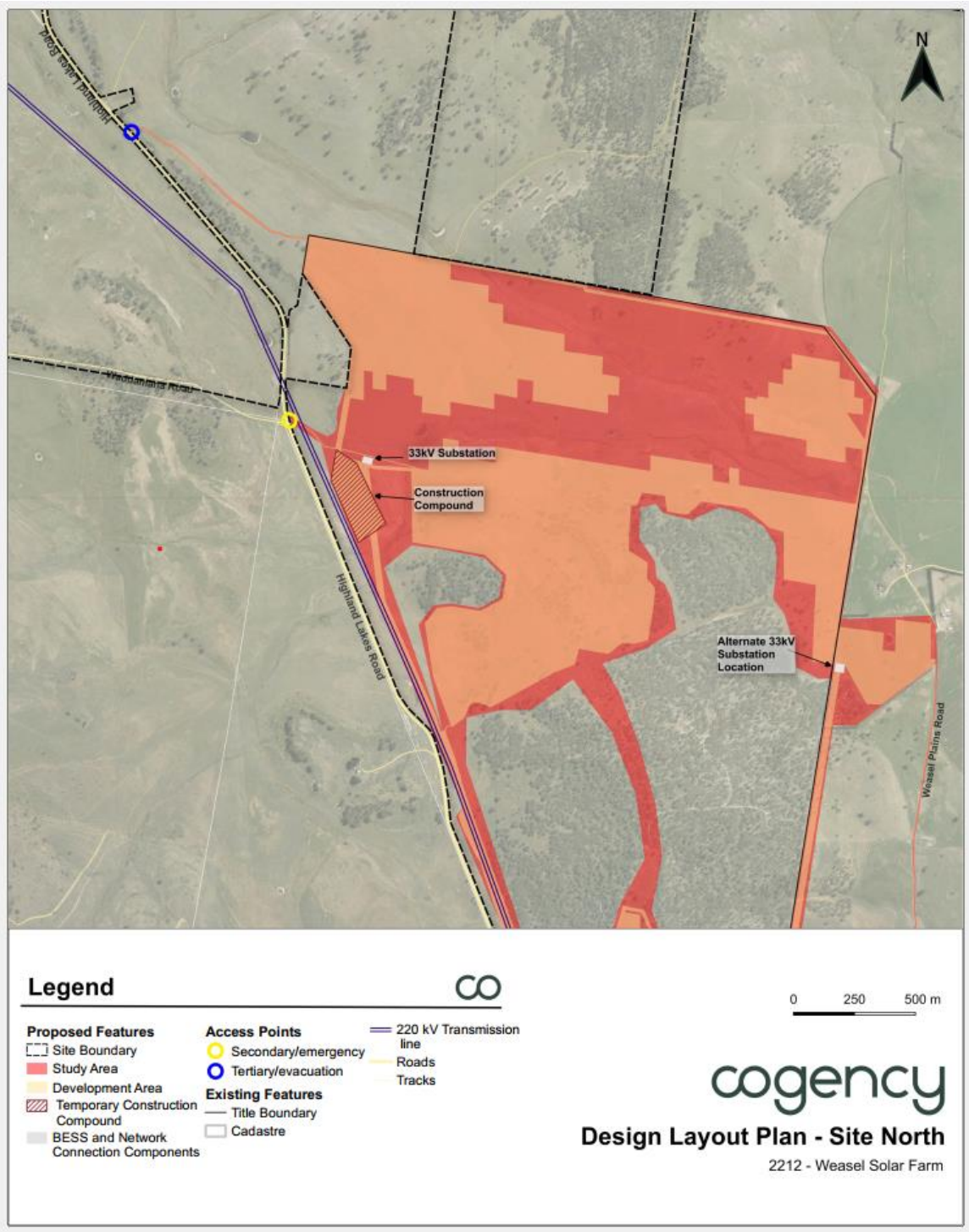

Figure 15 WSF Design Layout Plan - Site North (source: Cogency)

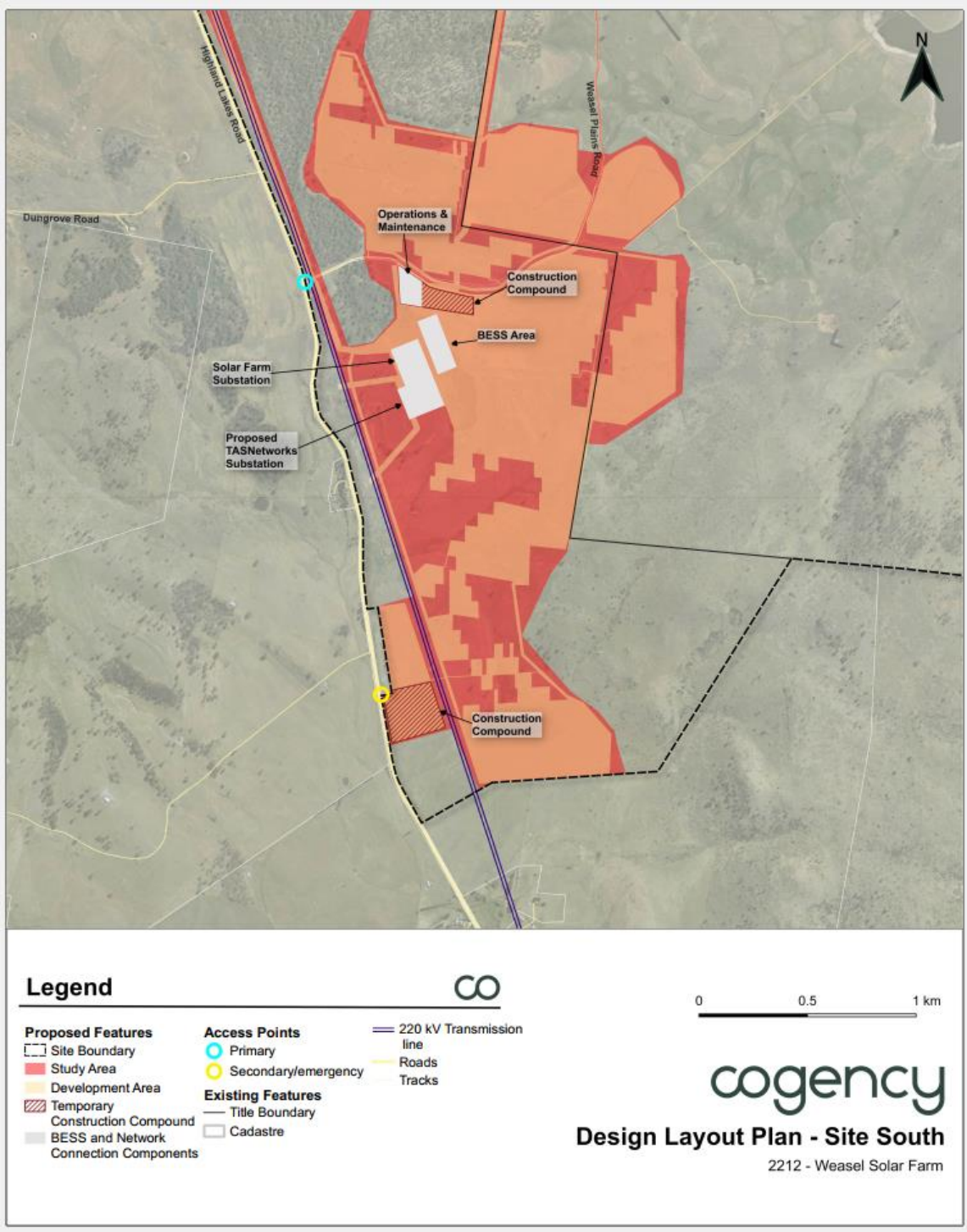

Figure 16 Design Layout Plan - Site South (source: Cogency)