APPENDIX 21

Services Infrastructure Report : Lucid Consulting

MEMORANDUM

To:	Baukultur	Date:	22 August 2025
Attention:	Chris Watkins	Pages:	1 of 15
From:	Kyle Rosenzweig	Reference:	LCE102734-006a
Project:	Barossa Winery & Tourism Accommodation		
Subject:	Authority Services Infrastructure Report		

Lucid Consulting have prepared the following Infrastructure report in respect to the proposed Barossa Winery & Tourism Accommodation project located at Hoffnungsthal Road, Williamstown.

SCOPE OF WORK

- Identification and approximate location of existing and proposed infrastructure relative to site requirements.

Information contained within this report has been sourced from the following locations:

- Dial Before You Dig (DBYD) information (current as at 30th June 2025).
- Location SA Viewer database information (February 2025).
- Project drawings June 2025.
- Onsite inspection (Visual and non-invasive) carried out on the February 2025

Summary of relevant Authorities as follows:

Building Elements	Project Details
Council	The Barossa Council
Water Authority	SA Water Corporation Barossa Infrastructure Ltd
Power Authority	SA Power Networks
Telecommunications	Telstra / NBN
Natural Gas	N/A
Fire Brigade	Country Fire Services
Easements	Nil

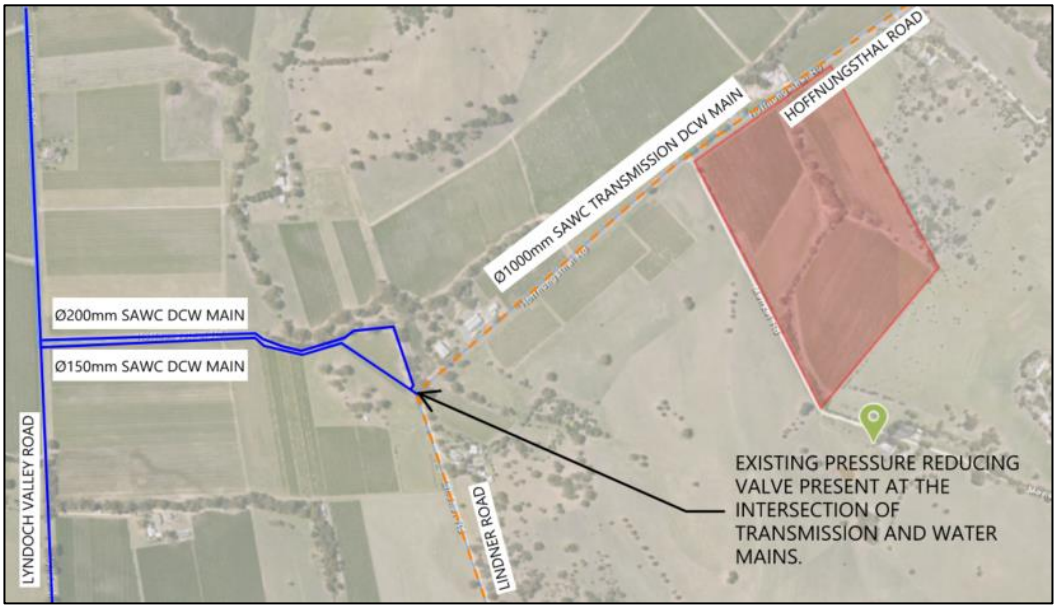
HYDRAULIC SERVICES

Existing Water Supply

Existing Services

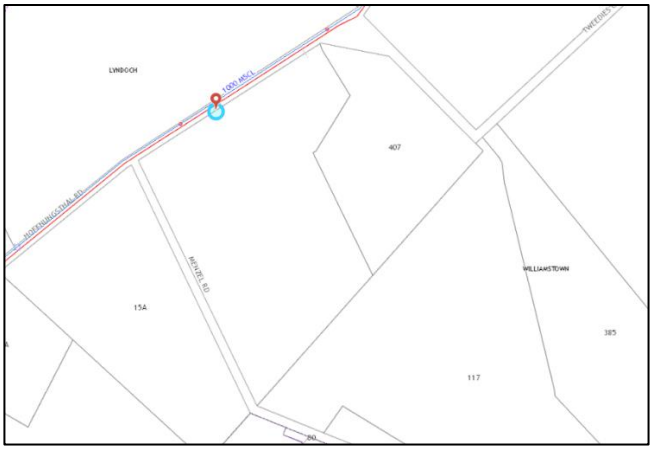
The existing site has a 1000mm drinking cold water (DCW) transmission main located along Hoffnungsthal Road that is operated by the SA Water Corporation. This main however, is not available to be used to service the development.

As per WSAA.03 Table 3.1 states that a minimum 150mm water main is required to service the commercial development. The nearest 150mm water main is approximately 800m away from the proposed site and is located on the intersection between Hoffnungsthal Road and Lindner Road as shown below. There is also a 200mm DCW water main located parallel to the existing 150mm water main that is also available for use.



SA Water Corporation existing water mains

SA Water Aquamaps indicate that there are two existing water meter connections located on Hoffnungsthal road. A Ø20mm water meter (ID: E91100506) is located west of the intersection between Menzel Road and Hoffnungsthal Road and another Ø20mm water meter (ID: M51201375) located further west as illustrated below.



Existing Ø20mm water meter connection located on Hoffnungsthal Road (ID: E91100506)

Existing Ø20mm water meter connection located on Hoffnungsthal Road (ID: M51201375)

Although indicated on aquamaps as being inside the title boundary of the development, a site inspection found that the Ø20mm water meter connection (ID: M51201375) is located within the title boundary of the adjacent development. Thus, this water meter connection is unavailable for use.

The other Ø20mm water meter connection (ID: E91100506) is available for use however, cannot meet the water demand of a hotel and thus, will likely be abandoned.

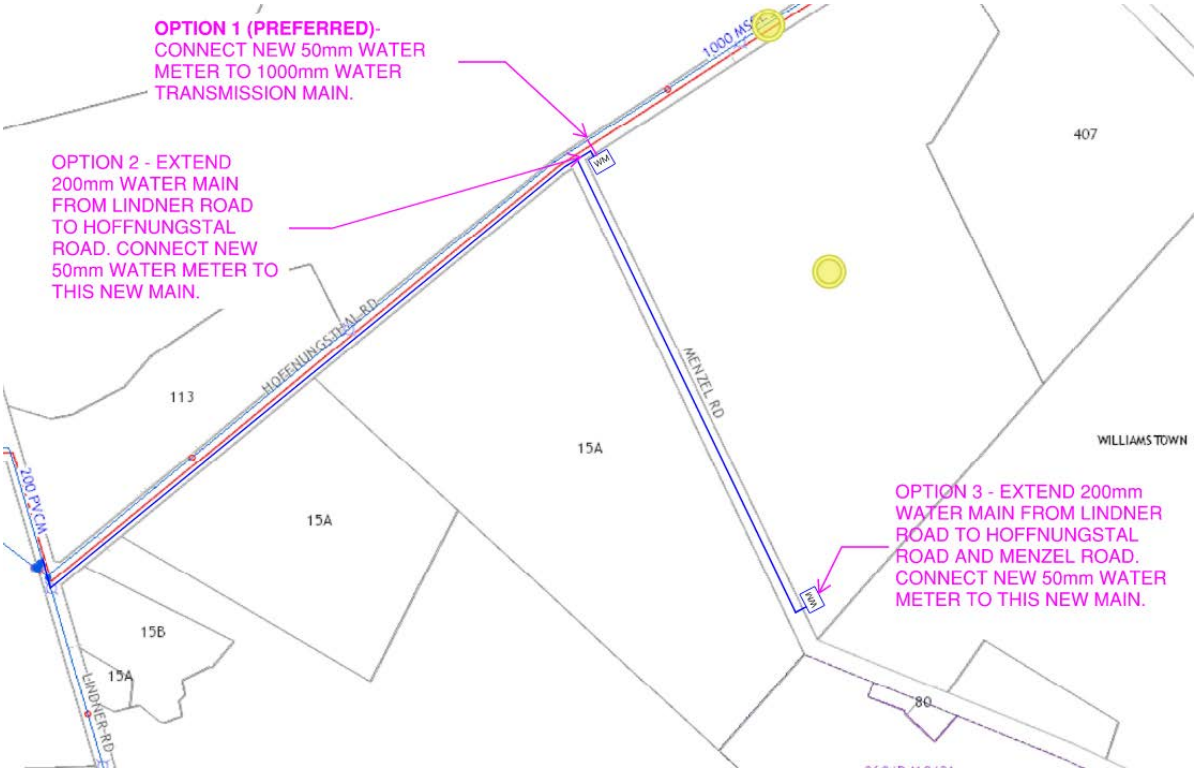
Proposed Water Supply

There are currently 3 options for a drinking water supply to site being considered, first of which includes a direct connection off the existing 1000mm water transmission main, SA Water Corporation confirmed the flow for a direct connection would be limited to 5L/m which is not sufficient to service the proposed development, we are therefore proposing a small distribution mains extension off the transmission main which the new water connection will be connected.

The second option is to extend a 200mm water main from the corner of Lindner and Hoffnungsthal Road approximately 770m to the west.

A third option being considered is to extend the water main further down Menzel road to avoid having to reticulate within the site.

SA Water have confirmed Option 2 is feasible however awaiting final approval from SAWC on the alternative solutions.



Proposed SAWC water main

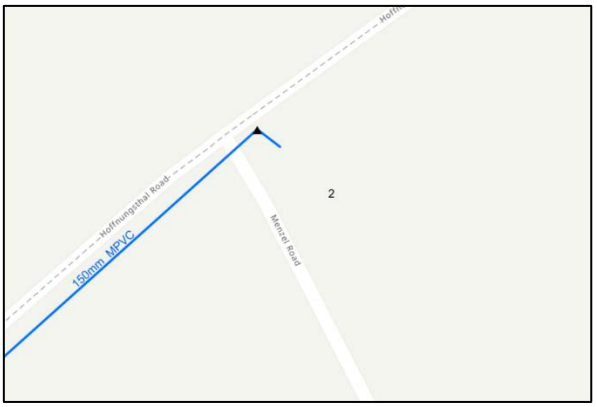
Pressure Reducing Valve Station

There is also an existing Pressure Reducing Valve (PRV) present at the intersection of the two DCW water mains and the transmission main as shown above. It is understood that this valve is reducing the 1700 kPa pressure in the transmission main to 500 kPa for the DCW water mains.

Existing PRV station located on intersection between SAWC water mains and transmission main

Recycled Water Services

There is no existing SAWC recycled water infrastructure available however, there is one Ø150mm MPVC recycled water main located on Hoffnungsthal Road that is owned and operated by Barossa Infrastructure Ltd that is available for use. There is also a Ø60mm recycled water meter connection available as shown below.

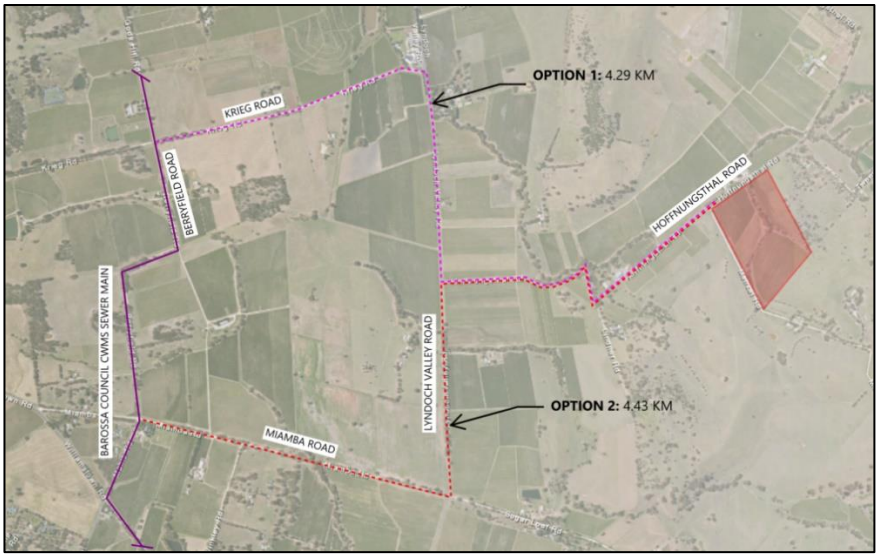


Existing Ø150mm recycled water main and Ø60mm recycled water connection owned by Barossa Infrastructure Ltd

This recycled water main does not provide potable drinking water and thus, water sourced from this main will primarily be used to service irrigation demands for the proposed site.

Sewer Services

There is currently no SAWC sewer infrastructure available for use for the proposed site. The nearest sewer main is located on Williamstown Road and is owned and operated by the Barossa Council CWMS. Two proposed options to connect into this sewer main were considered: option 1 which involved building a 4.29 km connection into the main and option 2 which involved a 4.43 km connection as illustrated below.



Options to connect into the Barossa Council CWMS sewer main located on Berryfield/Williamstown Road

Connections into this sewer main were deemed unfeasible due to the location being too far away from the proposed site.

Refer to the Fluid Enviro report for proposed on-site sewer treatment system.

Groundwater Services

There is currently an existing bore (ID: 662812578) on site that provides groundwater for irrigational purposes. The bore contains a depth of 76.8 metres and is owned and operated by the Barossa Council. It is understood that groundwater is pumped using an above ground pumping station into two holding tanks.


Existing privately owned groundwater infrastructure and pumpset

From inspection, it appears that both holding tanks on site (one with estimated capacity of 240 kL, capacity unknown for the second) are used to store pumped groundwater. It is assumed that this water is then used for nearby irrigational purposes.


Existing onsite groundwater holding tanks

Onsite inspections also found that the current condition of the groundwater pumpset appears to be depleted in need of replacement. Thus, it will likely not be used to service the proposed development.

Fire Services Infrastructure

Existing Services – as per water supply section.

The proposed upgrade of the existing 200mm SAWC water main to the site enables a fire connection to be drawn from the main, providing water to the site dedicated to firefighting.

Pending the results of SA Water flow test and Network analysis testing that is currently occuring, there are multiple options to service the firefighting demands of the proposed hotel and winery developments. Note that all proposed options are accompanied by two onsite fire pumps, both of which are to be diesel driven as agreed during preliminary engineering meetings. These options are described below:

Option 1 – 100% Onsite fire water storage– No dedicated fire connection

Should the flow tests indicate that low flow rates are available to the site, or reduced pressure limits the ability to provide infill to an onsite fire tank, the entire water supply can be stored onsite, including any additional capacity required for bushfire provisions.

This would result in two water storage tanks totalling 370kl effective capacity (2 x 185kl), which would result in an approximate dimension of 9mØ x 3.6m high for each of the two tanks. At this capacity, circular steel panel tanks are significantly cheaper

Option 2 – SA Water infill rates meet system flow requirements - Dedicated fire connection

Should the flow tests indicate that flow rates are available to the site that match the proposed site demand (Approx 40L/s), the onsite water supply can be minimised with reliance on the SA Water mains to infill the tank in a fire event.

This would result in a tank capacity of 77kl effective capacity, which would allow for a rectangular panel tank of approx. 3.6m (H) x 6m (W) x 5m (L), reducing the footprint significantly. This does not factor in any additional bushfire capacity that may be required in addition to building requirements.

Option 2– SA Water infill rates do not meet full flow requirement - Dedicated fire connection

Should the flow tests indicate that flow rates are available to the site that do not meet the proposed site demand, but are able to reduce the stored capacity, the onsite water supply can be reduced accordingly, with reliance on the SA Water mains to infill the tank in a fire event.

The size of this tank would be subject to the infill rate available in the selected tank location, and could vary between the above figures (77kl-370kl range).

Location of infrastructure

The location of this infrastructure for all of these is flexible and can be considered either local to the building to reduce the extent of firefighting reticulation or more remote with increased reticulation. Locations remote to the building would be considered as a performance solution and are subject to fire brigade consultation and approvals.

Remote installation may also impact pipework and pump sizing, as increased pressure losses will occur across the site, particularly if the infrastructure is on the lower side of the site.

The most efficient solution for the hotel will be to provide the infrastructure locally, noting that this may reduce the available infill rates and increase the size of the tank.

GAS SERVICES

There is no existing natural gas authority infrastructure in the vicinity of the development and no gas appliances are proposed for the development.

ELECTRICAL SERVICES

Existing Electrical Infrastructure

There are overhead SA Power Networks High Voltage (HV) (7,600 Volts) lines located along both Hoffnungsthal Road and Menzel Road.

There is an existing SA Power Networks HV (7.6kV) overhead lines reticulating from Hoffnungsthal Road to the centre of the property terminating at a pole mount transformer rated at 75kVA(100Ampere 3 phase).

An additional existing SA Power Networks HV (7.6KV) overhead lines reticulate at the from Menzel Road at the rear of the property across to the neighbouring property. The HV (7.6KV) overhead lines serve a pole mounted transformer on the neighbouring property.

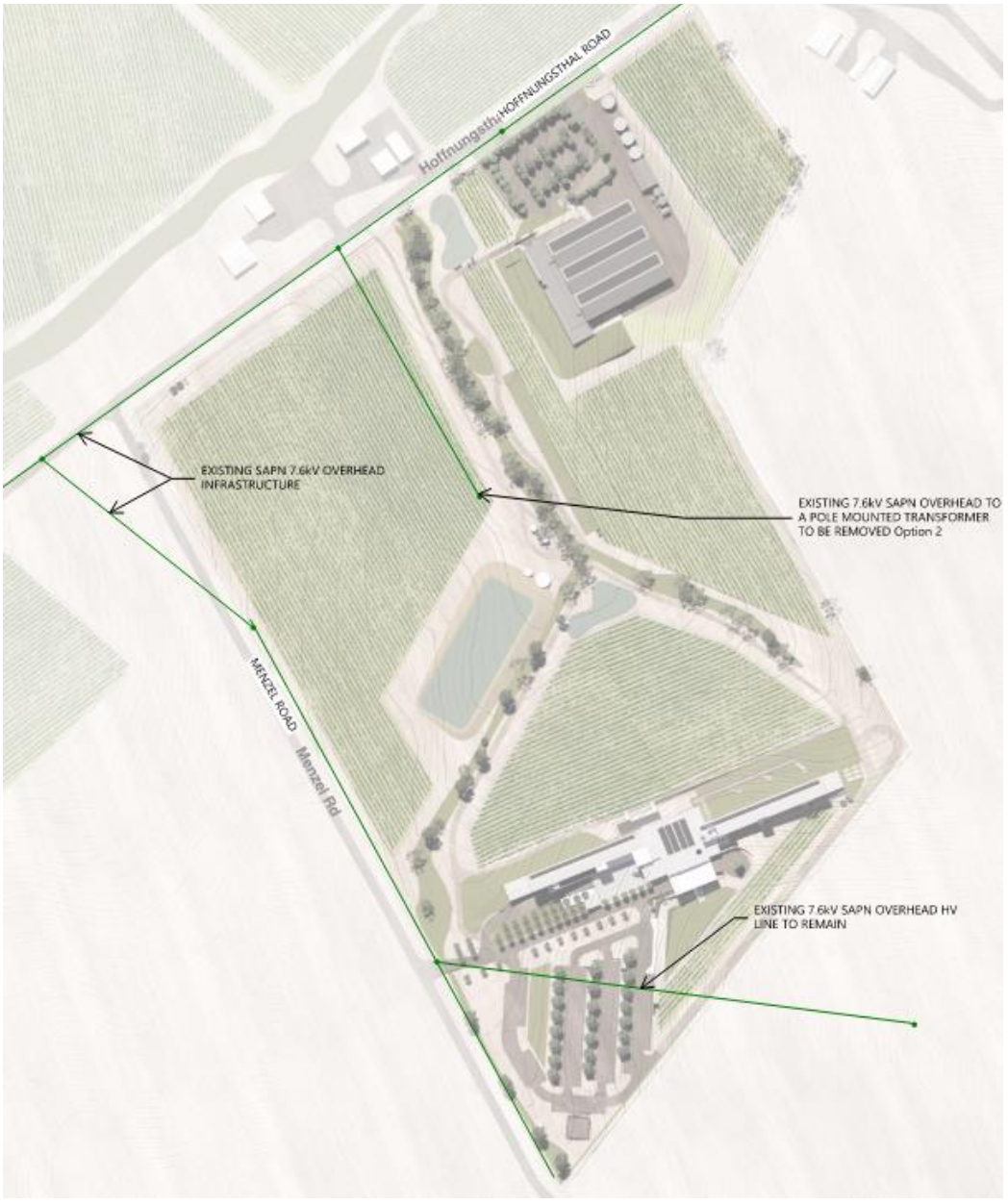


Figure 1: Existing SA Power Networks Overhead HV arrangement

Existing Telecommunication Carrier Infrastructure

There is existing buried direct small scale Telstra copper telecommunication cable reticulating along Hoffnungsthal Road and Menzel Road.

The existing Telstra copper telecommunication cables were used for voice communications mainly and are not suitable for highspeed broadband services.

NBN Co solution for customers for this area is fixed Wireless (Point to point connectivity) however the expected Broadband capacity required for the proposed Hotel will not be sufficient.

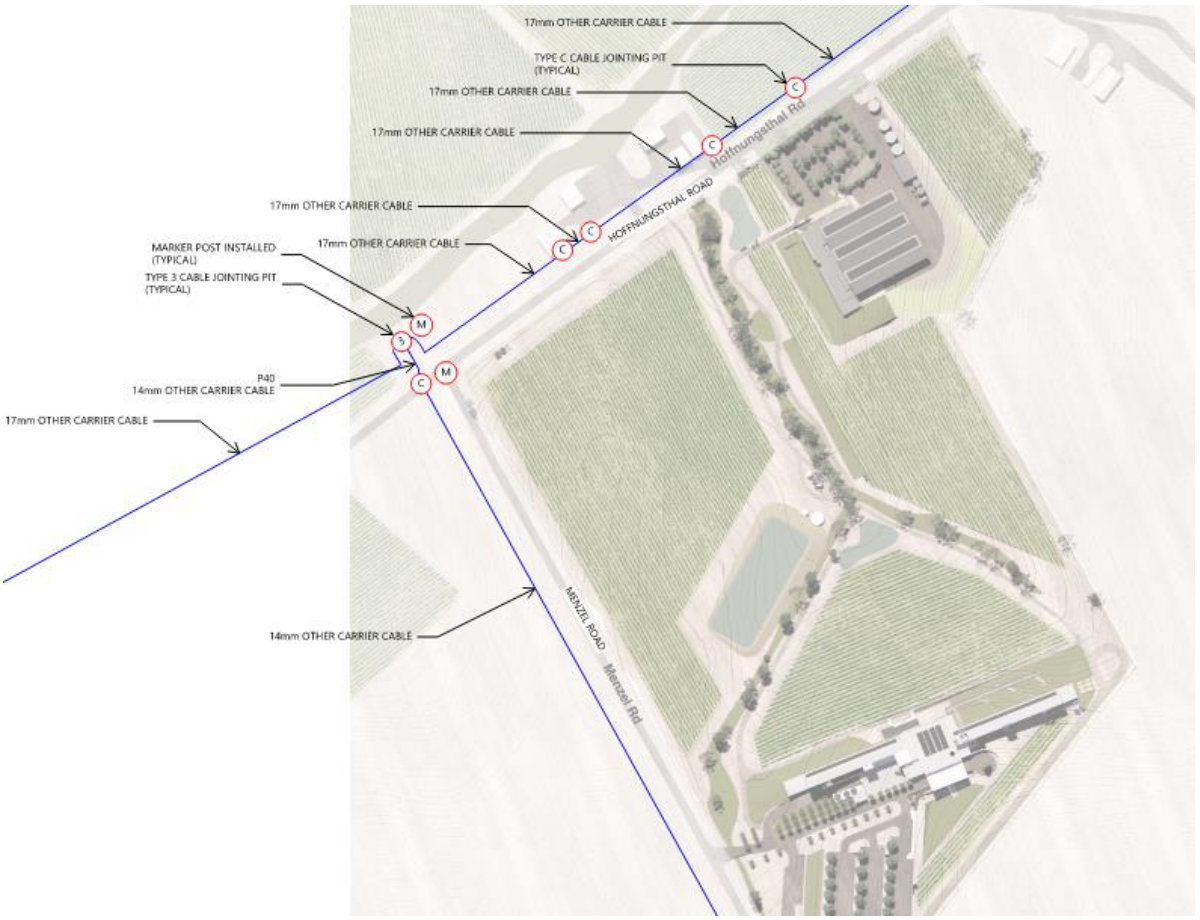


Figure 2: Existing Telecommunication carrier inground services

Proposed Electrical Infrastructure

Hotel

Based upon the current site plan, the estimated electrical demand for the new Hotel development is approximately 750KVA(1000Ampere). As the SA Power Network High Voltage infrastructure is rated at 7.6kV to provide the 750kVA electrical demand we will require the installation of a 1000kVA pad mounted transformer which will be derated to maximum capacity of 850KVA(1133Ampere).

Final arrangement will be dependent on negotiations with SAPN. The spatial requirements for the transformer are given below:

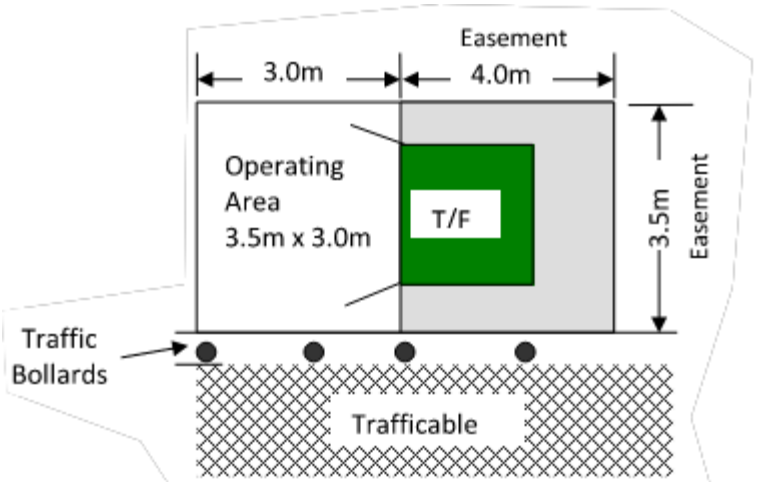


Figure 3:
Typical Layout of Site Plan
Easement Dimensions
(Greater than 750kVA Transformer)

There are several options in terms of positioning the pad mounted transformer. Ideally the transformer should be located near the largest electrical demand. This generally Air conditioning systems, refrigeration and cooking.

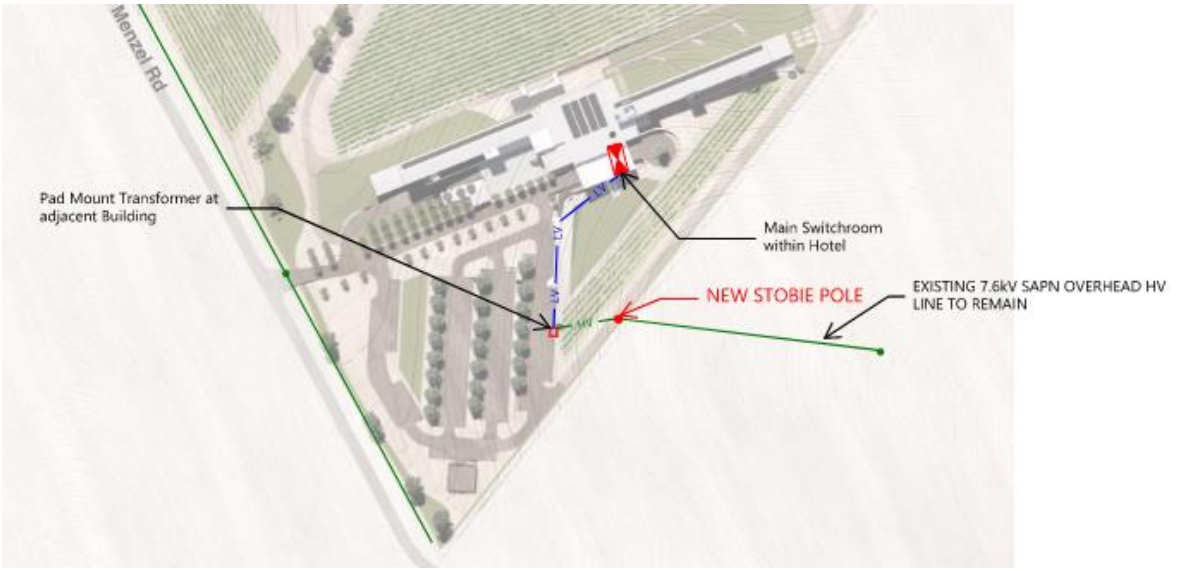
It is proposed to locate the SAPN pad mounted transformer at the rear of the main building and served from the existing overhead HV lines at the rear of the site.

Advantages

- Lowest cost for the LV consumer mains 4 x 240mmsq per phase Cu cables (16 cables in total).
- Lowest electrical losses in the system, internal cabling cable optimized for the intended electrical demands rather than voltage drops.
- Lowest cost HV connection and HV trenching.
- SAPN 4000mm wide HV easement is minimised and at the rear of the site.
- Transformer visual impact is low as out the way from normal viewing.

Disadvantages

- Access to the transformer needs to comply with SAPN Technical Standard TS108 for vehicle access including a carriage way slope of 1:12 4500mm wide and access in front of the transformer of 4000mm x 4000mm at a slope of 1:20.



Winery

Based upon the current site plan, the estimated electrical demand for the new winery is approximately 500KVA(630Ampere). As the SA Power Network High Voltage infrastructure is rated at 7.6kV to provide the 500kVA electrical demand we will require the installation of a 750kVA pad mounted transformer which will be derated to maximum capacity of 640KVA(850Ampere).

Final arrangement will be dependent on negotiations with SAPN. The spatial requirements for the transformer are given below:

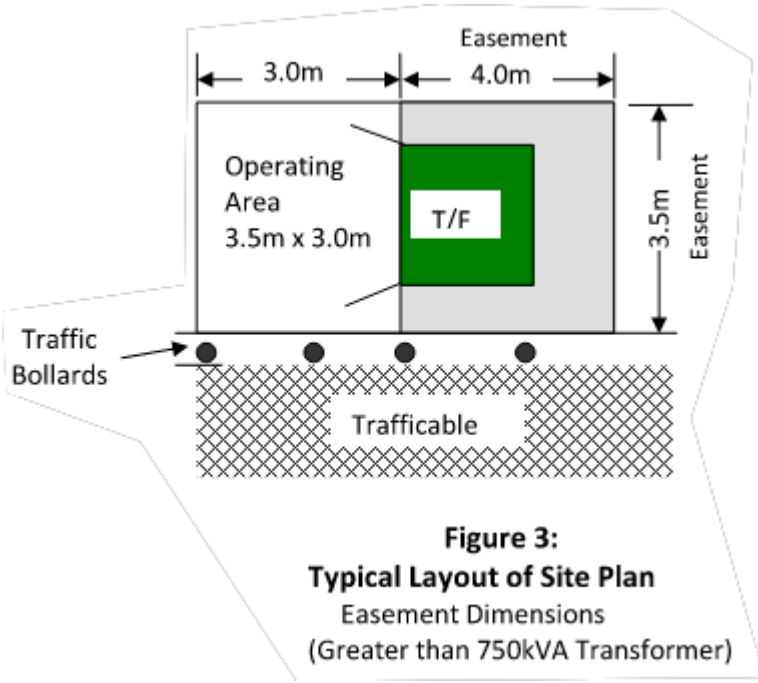
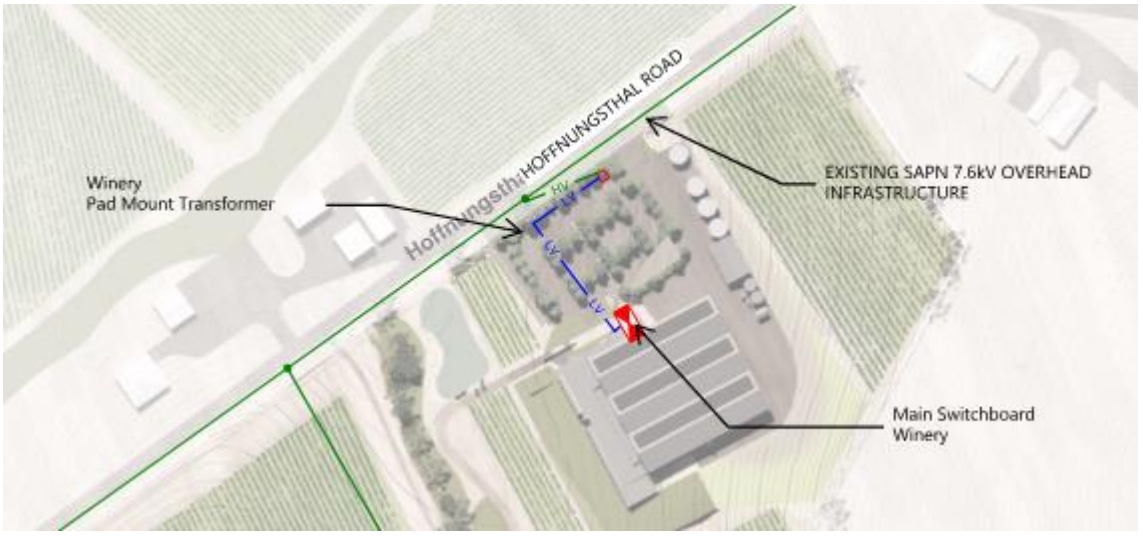


Figure 3:
Typical Layout of Site Plan
Easement Dimensions
(Greater than 750kVA Transformer)

It is proposed to locate the transformer at the boundary of the site along Hoffnungsthal Road with minimal impact of easements and electrical infrastructure costs



Existing Pole mount Transformer

The existing pole transformer is serving a pump station in the middle of the field. It has insufficient capacity to service the winery. The pole transformer can be upgrade to a maximum of 315kVA which will be derated to 268kVA based on the 7.6kV network connection. This is unlikely to sufficient capacity to be able to support the winery and the pump station. The installation of a large transformer will also impact on the visual aspect from the field as this is a much larger transformer than the existing pol mounted transformer.

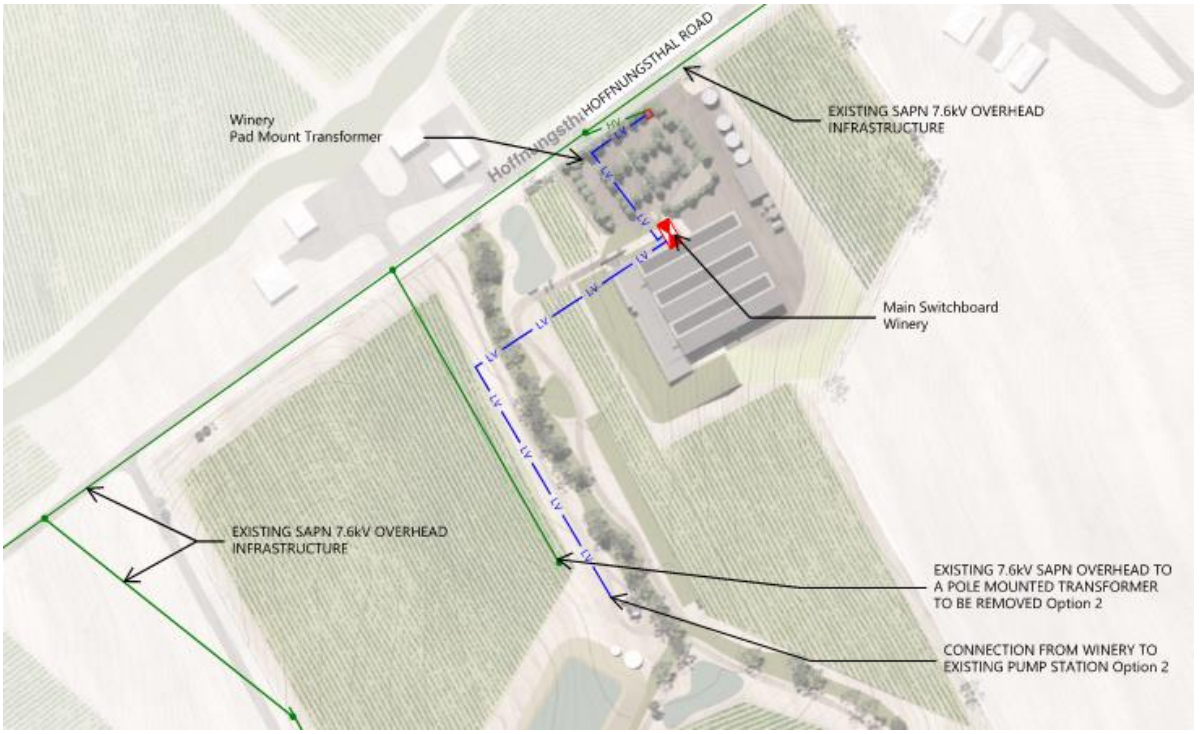
There 2 options for this Pole mounted transformer.

Proposed Solution:

Remove the overhead HV lines back to Hoffnungsthal Road, provide a low voltage connection from the low voltage infrastructure at the Winery

Advantages

- With the HV lines and pole mounted transformer removed, no SAPN access.
- Visual aspect removed
- No additional retailer metering costs



Proposed Communications Arrangement

There are no suitable high broadband capacity communication services within the area. The nearest NBN Co fibre infrastructure is along Lyndoch Valley highway approximately 2km from the site.

Proposed Permanent underground optic fibre connection.

This will require a new trench within the verge from Lyndoch Valley Highway following Hoffnungsthal Road and on to Menzel Road to the Hotel site.

Advantages

- NBN Co have confirmed that 1000MB/s symmetrical up/down can be provided from this connection and dependent on Hotel's internet service provider 2000MB/s symmetrical up/down is also available in this area.
- Optical fibre it is future proof. Noting the optical fibre has a possible expansion capacity of 100,000Mb/s.
- This connection can be extended to provide high speed Broadband to the winery.
- Visually no impact

Disadvantages

- High cost of trenching approximately $600,000 to $700,000 + GST excluding rock removal.
- NBN Co Fibre for the backhaul $60,000 + GST

We trust the above is satisfactory. Please do not hesitate to contact the undersigned should you require further information.

Yours faithfully,

LUCID CONSULTING AUSTRALIA

KYLE ROSENZWEIG
Associate