Preliminary Site Investigation

Atlas Renewables 4.99 MW (AC) Solar Farm

39 Burkes Road, Finley NSW (Lot 1 DP702960)

PREPARED FOR: ATLAS RENEWABLES

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Glossary of terms

AHD	Australian Height Datum
Applicant	Atlas Renewables
CLM Act	*Contaminated Land Management Act 1997*
DA	Development Application
DP	Deposited Plan
DPE	Department of Planning and Environment (NSW)
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPA	Environment Protection Authority (NSW)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPIs	Environmental Planning Instruments
LEP	Local Environmental Plan
LGA	Local Government Area
NML	Noise Management Level
NSW	New South Wales
POEO (Waste) Regulation	*Protection of the Environment Operations (Waste) Regulation 2014*
POEO Act	*Protection of the Environment Operations Act 1997*
PSI	*Preliminary Site Investigation*
SEPP	State Environmental Planning Policy
SEPP (RH)	State Environmental Planning Policy (Resilience and Hazards) 2021
SEPP 55 Guidelines	Former SEPP 55 Managing Land Contamination Guidelines

Contents

1 Introduction

This Preliminary Site Investigation (PSI) has been prepared for Atlas Renewables the future lessee of the subject site at 39 Burkes Road in Finley to support a development application to build and operate a 4.99 MW (AC) 6.42 MW (DC) Solar Farm on a 14-ha portion of the site. Atlas Renewables is an Australian company specialising in renewable energy including the development and operation of solar farms which feed electricity directly into the existing electrical network. The proposal would utilise a portion of the farms paddocks for a solar farm including four batteries and an inverter. At the end of life of the solar farm (around 30 years), the site would be rehabilitated to its former state which would include the removal of the solar panels and associated infrastructure

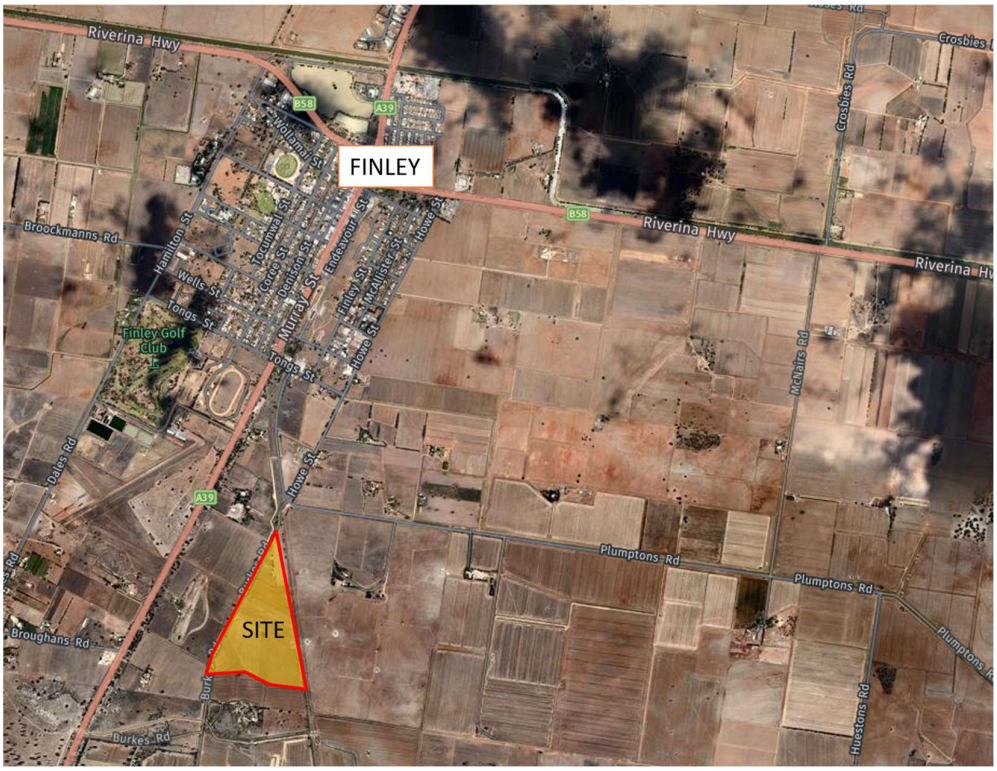


Figure 1: Site Location

1.1 The Applicant

Atlas Renewables is an Australian company specialising in renewable energy including the development and operation of solar farms which feed electricity directly into the existing electrical network. Atlas Renewables have entered into a lease arrangement with the current owner of the land to use the development site (14 ha portion of the site) for the purposes of a solar farm. The landowner would continue to farm the remainder of the land holding including the cultivation of rotational crops or the grazing of sheep.

1.2 Objectives of the Preliminary Site Investigation

State Environmental Planning Policy (Resilience and Hazards) 2021 under Clause 4.6 requires a consent authority to consider the following prior to consenting to the carrying out of development on land:

> *(a) it has considered whether the land is contaminated, and*
>
> *(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
>
> *(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subsection (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

(3) The applicant for development consent must carry out the investigation required by subsection (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

(4) The land concerned is—

> *(a) land that is within an investigation area,*
>
> *(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,*
>
> *(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land—*
>
> > *(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and*
> >
> > *(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).*

Based on the requirements of the SEPP and the corresponding guidelines, the PSI objectives are as follows:

- Understand past and present potentially contaminating activities.

- Identify the potential types of contamination.
- Determine if the potential land contamination poses a potential risk to the future use of the site for the purposes of a solar farm in accordance with the former SEPP 55 Guidelines.
- Provide recommendations for any further investigations required based on the contamination and the proposed use and a review of the pertinent legislation.

1.3 Scope of PSI to Achieve the Objectives

Based on the former use of the site for agricultural including the growing of rotational crops including primarily lucerne and the proposed non-sensitive use of the land for the purposes of a solar farm, the scope of the PSI are as follows:

- Carry out a desktop assessment of the site and former uses including understanding:
    - The site and its surrounds including all potentially contaminating uses.
    - Site particulars including:
        - Zoning.
        - Current and historical uses.
        - Proposed use.
        - The attributes of the site including the setting, topography, infrastructure (including former and present), soil types and hydrology.
- Preliminary assessment of contamination, including:
    - A search of the EPA contaminated land register.
    - Assessment of dangerous goods brought onto the site.
    - Siting of historical titles for the land.
    - Review of development approvals and aerials for the site to understand the location of existing and previous structures on the site including potential contaminating uses such as sheep dips and chemical storage areas.
    - Interviews of the existing landowner who has cultivated and used the land for over 20 years.
    - Comprehensive review of historical aerials.
- Site Inspection and walk over to identify potential hot spots and location of contaminating activities.
- Formulation of the PSI in recognition of the findings of the above investigations.

2 Desktop Assessment

2.1 Site Description

The site comprises 40.5 hectares (ha) of RU1 – Primary Production zoned land located at 39 Burkes Road in Finley which is located around 350 km by road from Melbourne and 500 km from Sydney. The site is legally described as Lot 1 in DP702960 and is presently used for the cultivation of rotational crops (mainly lucerne) and the grazing of sheep and contains a number of farm buildings including a dwelling. The portion of the site to be utilised for the proposal has an area of around 14 ha, is void of any vegetation and has been laser levelled and formed into paddocks to be used for irrigated agriculture. The owner of the site has primarily planted and harvested lucerne on the site since he purchased the site 20 years ago

The key features of the site are summarised in the table below:

Descriptor	Site Details
Land Configuration	The development site is contained within the 40.5 ha land holding and covers an area of 14 ha of a vacant paddock used for the cultivation of crops by the existing landowners who are leasing the development site to the Applicant. The remainder of the land holding would continue to be used by the owners for the cultivation of crops or grazing of sheep.
Local Context	The site is located in an area of almost exclusively medium to large scale farming operations with lot areas of between 40 ha and 200 ha.
Site Access	The site gains access from Burkes Road (an unsealed Council road) which connects to Plumptons Road to the north which is a sealed Council road. Plumptons Road gains access to the Newell Highway (a TfNSW Classified State Road) via Tongs Street.
Infrastructure	The site is connected to Murray Irrigation raw water through a channelised system. The site is connected to Essential Energy's infrastructure. No reticulated council services are connected to the site. A decommissioned railway corridor is located to the east of the site. The site does not contain any buildings or structures.
Easements and Covenants	A title Search identifies the following easements and covenants affecting the site:

	1 LAND EXCLUDES MINERALS AND IS SUBJECT TO RESERVATIONS AND CONDITIONS IN FAVOUR OF THE CROWN - SEE CROWN GRANT(S) 2 DP702960 EASEMENT TO DRAIN WATER APPURTENANT TO THE LAND ABOVE DESCRIBED 3 AA624112 MORTGAGE TO NATIONAL AUSTRALIA BANK LIMITED 4 AE921749 EASEMENT FOR OVERHEAD POWER LINE(S) 5 & 9 METRE(S) WIDE AND VARIABLE AFFECTING THE PART DESIGNATED (E3) IN DP1132567 The above restrictions and easements have been reviewed based on the Deposited Plan and the 88B instrument. None of the easements of restrictions impact the development site or suggest potential historic contamination.
Stormwater and flooding	The site is not mapped as being prone to flooding. Stormwater is collected at a sump at the north-east corner of the development site. The sump directs water under the railway corridor to a drainage channel.
Bushfire Prone Land	The site is not mapped as being bushfire prone.
Flora and Fauna	Due to the historical and ongoing cultivation of crops on the land including past and present laser levelling, discing and formation of irrigated paddocks, the site is void of any native vegetation and is considered Class 1 land – Exempt land - highly degraded under the *Local Land Services Act 2013*.
Aboriginal Heritage	An Aboriginal Cultural Heritage Due Diligence Assessment has been prepared. The likelihood of uncovering any objects or sites during construction or operation of the development is considered low.

2.2 Surrounding Land Uses

The site is located beyond the southern boundary of the Finley village area on rural land. The site is immediately surrounded by other farming operations utilised for rotational crops including wheat, canola and barley. The adjoining lots to the east, west and north are 40-120

ha allotments. A decommissioned railway reserve is located on the eastern boundary of the site running in a north-south alignment

Essential Energy's overhead electrical infrastructure is connected to the site via 22 kV overhead lines connecting to other overhead lines running in the decommissioned railway corridor to the east of the site.

2.3 Zoning and Permissibility

The site is zoned RU1 Primary Production under the Berrigan Local Environmental Plan 2013 and electricity generating works are prohibited in the zone.

electricity generating works means a building or place used for the purpose of—

(a) making or generating electricity, or

(b) electricity storage.

State Environmental Planning Policy (Transport and Infrastructure) 2021 permits electrical generating works on RU1 Primary Production lands even though the development is prohibited in the Council LEP.

2.4 Topography, Hydrology Geology and Soils

Topography

The land is relatively flat and drains to a drainage channel to the east of the site under the rail corridor. There are no natural watercourses lines within close proximity to the site. There are a series of irrigation channels that traverse the locality. The area is within the Murray Irrigation Area which ensures a secure water source as part of the regulated allocation from the Murrumbidgee River.

Geology

The site geography is the Shepperton formation, being poorly consolidated clay, silt, sand and gravel. This formation is found throughout the Riverina between the Lachlan and Murray Rivers.

The site is predominantly Class 4 land with moderate to severe limitations. Classes as per the Land and Soil Capability Mapping for NSW and provide a statewide classification of soil capabilities (see **Figure 2**).

A Geotechnical Investigation is being prepared for the site to inform the design of the footings for the panel arrays and the pads for the inverters and batteries. However, initial investigations suggest the site and soils are considered suitable for the required pile driven footings for the panel arrays and the pad mounts for the battery and inverter infrastructure.

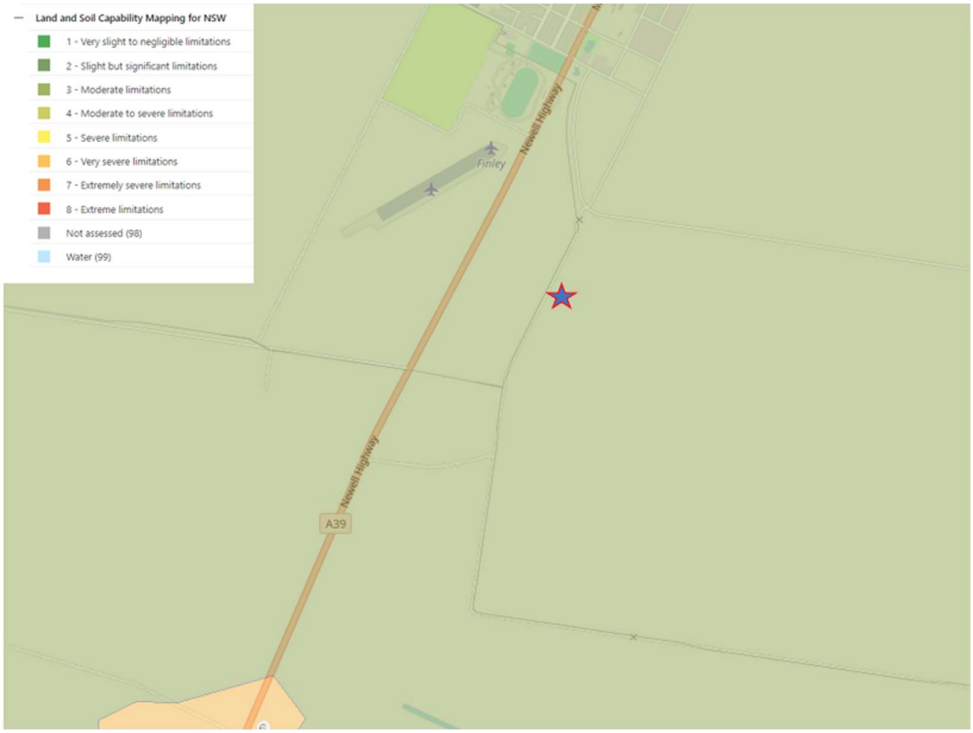


Figure 2: Soil and Land Classification Map

Class 4 land shown in green can be cultivated occasionally for sowing of pastures and crops. However, it has cropping limitations because of erosion hazard, weak structure, salinity, acidification, shallowness of soils, climate, wetness, stoniness or a combination of these factors. It is only suitable for intermittent cultivation with specialised practices. Required erosion control practices include advanced conservation tillage, pasture cropping, well-planned rotations and maintenance of ground cover.

Naturally Occurring Asbestos and Acid Sulphate Soils

A review of the NSW Government online SEED database confirms that there is no known Naturally Occurring Asbestos (NOA) at or near the development site.

Review of the CSIRO Australian Soil Resource Information System (ASRIS) identifies the development site as having an 'extremely low probability' of occurrence of acid sulphate soils.

2.5 Groundwater

There are no mapped drainage lines or waterways located within the development site. The land and surrounding agricultural area forms part of the Murray Irrigation Area which contains a series of supply and drainage channels which direct the flow of water. A drainage channel is located to the east of the development site on the opposite side of the decommissioned railway reserve.

The development site is not located within land mapped as a Groundwater Sensitive Area and a review of the NSW Government online SEED database identifies that neither the Water

Sharing Plan for the Murray Unregulated and Alluvial Water Sources 2011 or Water Sharing Plan for the Lower Murray Shallow Groundwater Source 2012 (both of which apply to the development site) identify any high priority groundwater dependent ecosystems in the locality.

To understand the depth and prevalence of groundwater in the locality, a review of NSW Office of Water (NOW) online All Groundwater Map was carried out for bores within 2 km of the development site. Groundwater and the water table in the area is relatively shallow between 5 and 20 m below natural ground level which is typical of an irrigation area

3 Preliminary Assessment

3.1 Contaminated Lands Search

In accordance with SEPP (H&R) and the former SEPP 55 Guidelines a review of the NSW EPA Contaminated Land Records under section 58 of the Contaminated Land Management Act 1997 (CLM Act) has been carried out including the list of NSW contaminated sites which have been notified to the EPA in accordance with section 60 of the CLM Act. The review did not reveal any registered contaminated sites on or surrounding the site.

3.2 EPL Search

The NSW EPA's list of current and former Environmental Protection Licence register was carried out to understand if any licenced activities have been carried out on or in the locality of the site. There are no licenced premises on or in the locality of the site. Within the Finley suburb there is only a single licenced premises which is located at 587 Rolfe Road, and the owner is Beefcorp farms who utilise the site for a cattle yard. The Beefcorp Site is located over 30 km from the site.

3.3 Land Titles Search

The land holding was subdivided from the land to the south in 1980 to create a 40 ha parcel (refer to Deposited Plan at **Figure 3**. A title search has been carried out and from the information available the primary land use has historically been agriculture and grazing with no other notifications registered on title pertaining to other uses on the site within the landholding.

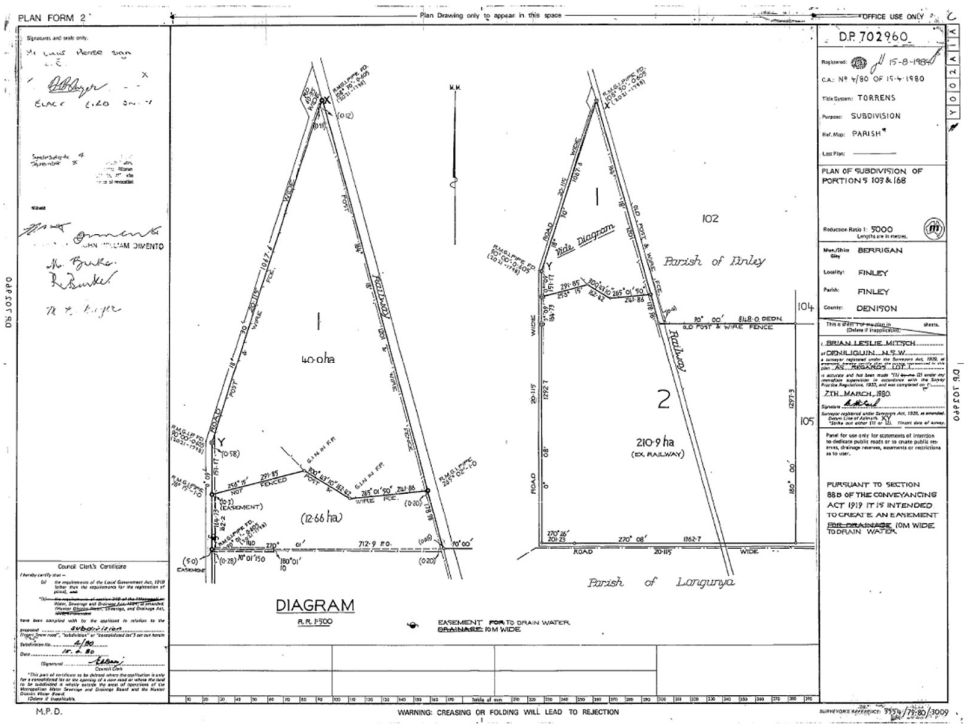


Figure 3: Deposited Plan

3.4 Historical Building and Development Records

The site is a 14 ha portion of the landholding which forms a paddock historically used for rotational crops and grazing of sheep. The building infrastructure related to the farming operation are located to the north of the site on a portion of the landholding which has not been laser levelled or utilised for cropping. It would be unlikely that the site being a whole paddock within the landholding would have been used for farm buildings given the nature of the paddock and the location of adequate farm building and infrastructure on other areas of the land holding. A search of Council and State databases found not previously recorded heritage items within the site. The Aerial imagery review provided later in this report are considered sufficient for understanding historical buildings and infrastructure on the site.

3.5 Landowner Interview

The current land owners are Graeme and Catherine Ann Close, who purchased the site 20 years ago. The owners have been cultivated mainly lucerne on the site and grazing sheep in dry years. The land owners were interviewed to better understand the existing farming operations including any potentially contaminating activities, location and type of chemical use and storage on the site and their knowledge of past land uses.

Question	
How long have you owned the site?	20 years
During this time, what has the portion of the farm holding been utilised for?	We generally plant lucerne to bale and sell to livestock growers. We also graze sheep on the paddock.
What chemicals are used to grow the crops?	The only chemical used on the paddock is Glyphosate, a herbicide used to control weeds and other invasive species of plants. No pesticides or chemical fertilisers are used on the paddock
Are any chemicals stored on the paddock?	No chemicals are stored on the paddock. Glyphosate is sprayed using a sprayer attached to a tractor. Glyphosate is stored in IBC's in the farm shed.

What did the previous landowner use the paddock for?	To the best of the current owner's knowledge the previous owner of the site grew lucerne and wheat and also grazed sheep.
Has the site been used for sheep dips or intensive livestock handling facilities?	No, the site does not contain a sheep dip. Sheep graze the paddock and are not held in pens.
Any other information regarding potential contamination or historical infrastructure on the site that the owner can provide?	To the best of the owner's knowledge, no other building or infrastructure has been constructed on the site. No chemical storage areas have been located on the site. No extra information is known, with no issues of contamination evident at the Site

3.6 Irrigation Area History

The site is located within the Murray Irrigation Area which was previously known as the Berriquin Irrigation District. Irrigation water to the locality was originally provided by the Mulwala Canal and Yarrawonga Weir constructed between 1928 and 1939. The first water through the irrigation area was delivered in 1939. Between 1939 and 1964 development of the irrigation area continued until the last channels were constructed in 1964.

3.7 Aerial Imagery Review

Aerial images have been sourced from the following online resources (see **Figure 4** and **Figure 5**)

- NSW Historical, Aerial and Satellite Imagery - https://www.spatial.nsw.gov.au/
- Geoscience Australia, Historical Aerial Photography - https://www.ga.gov.au/
- Google Maps - https://maps.google.com/
- Near Maps - https://apps.nearmap.com/
- NSW Six Maps - https://maps.six.nsw.gov.au/

1945 Aerial

The site appears to be used for grazing and non-irrigated broadacre cropping with the presence of farm dams. The main irrigation channel to the north delivered in 1939 is visible in the aerial. No structures or infrastructure evident on the site.

1964 Aerial

With the expansion of the irrigation channels to the site, the then owner created defined irrigated paddocks for cropping. No structures or infrastructure evident on the site.

1976 Aerial

The continued use of the site for lucerne and other rotational crops is evident. It appears the channel through the site has been constructed. Flood irrigation is evident from the aerial. No structures or infrastructure evident on the site.

1978 Aerial

No change in cropping, buildings or infrastructure on the site since previous aerial.

1991 Aerial

The site appears to be planted to lucerne or other rotational crops. Flood irrigation is evident on the site. No structures or infrastructure evident on the site.

1996 Aerial

The laser levelling of the site is apparent. The site appears to be planted to wheat or lucerne. No structures or infrastructure evident on the site.

2010 Aerial

The site appears to be used for the grazing of sheep with two feed locations evident and a transportable feed silo in the north-eastern corner of the site. No other structures or infrastructure evident on the site. The darkened area on the aerial within the paddock is where feed was placed for the sheep. The darkened area is just soil worked up by the sheep. This has been confirmed by the owner of the site.

2020 Aerial

The site appears to be planted to lucerne with feed areas for the grazing of sheep evident. No structures or infrastructure evident on the site.

A review of the historical aerials of the site indicates the only potentially contaminating use of the site has been the cultivation or crops, primarily lucerne and the use of select herbicides.

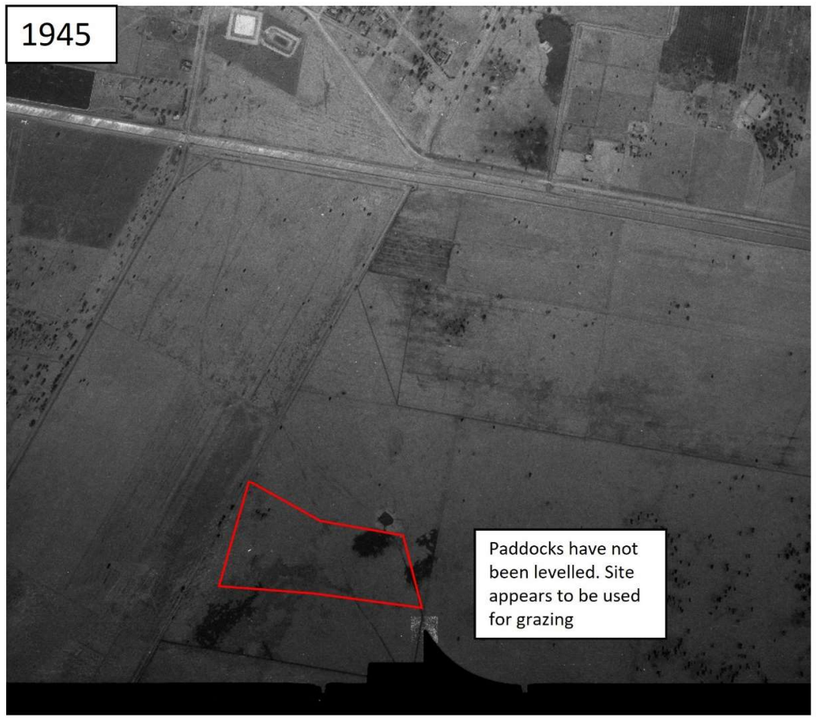
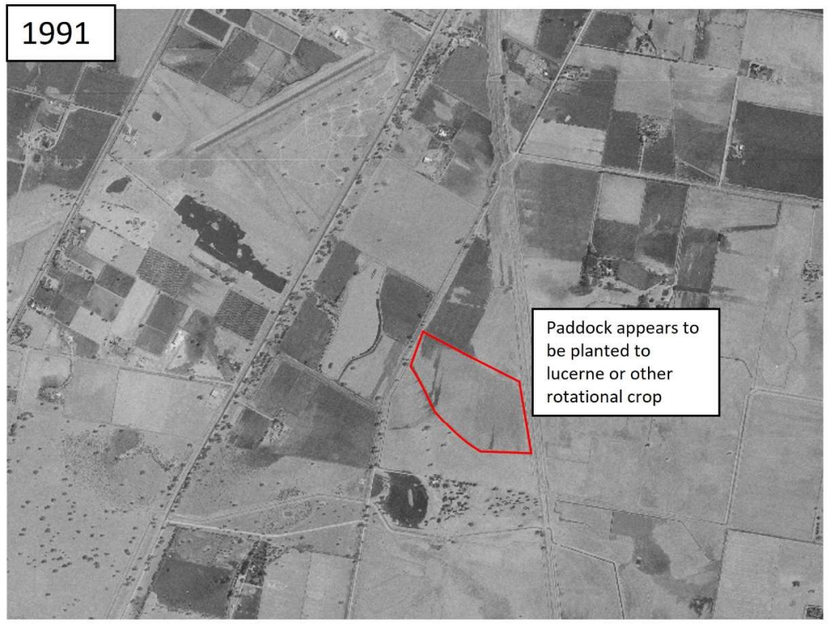
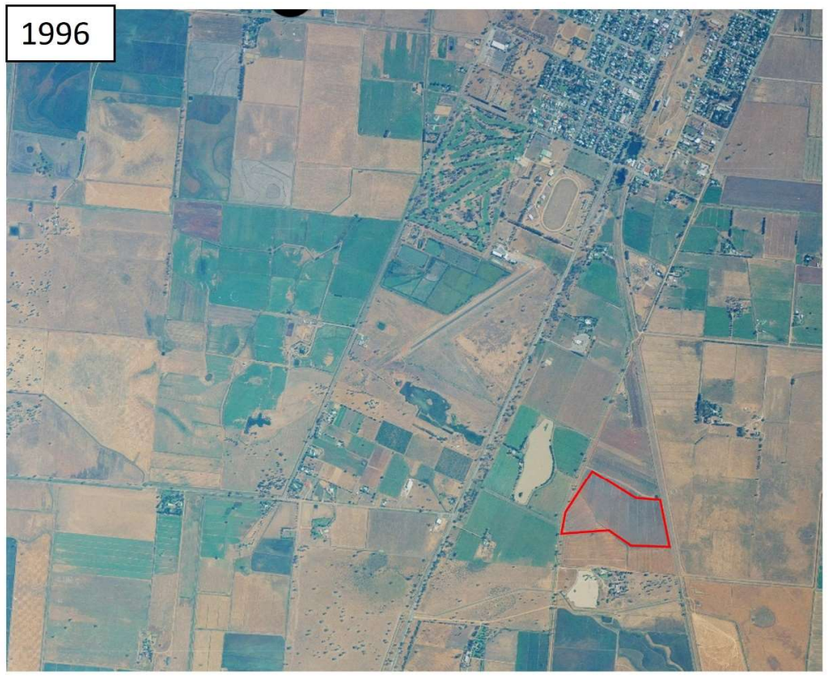


Figure 4: Historical Aerials - 1945 to 1978





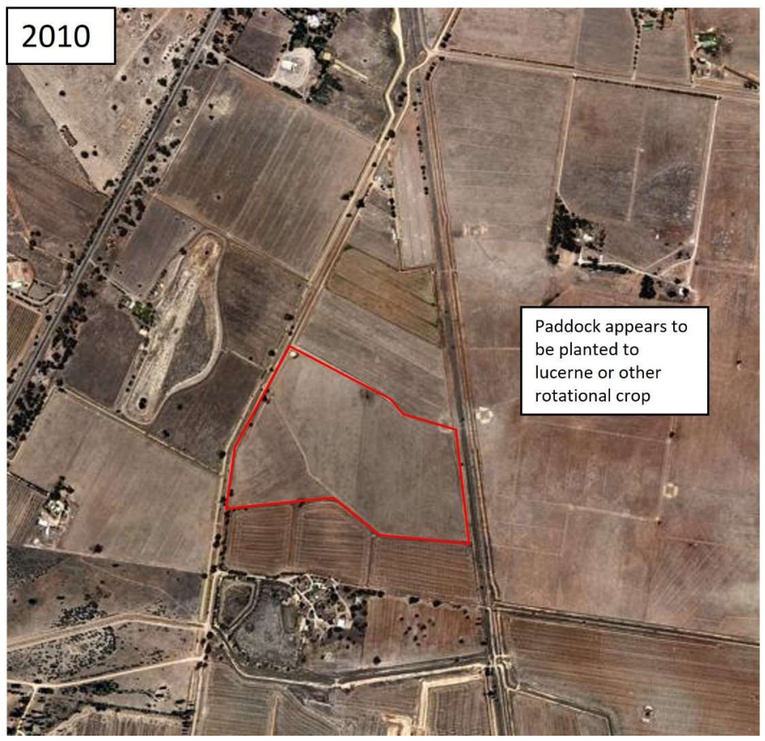


Figure 5: Historical Aerials - 1991 - 2020

3.8 Site Inspection

A site inspection was carried out by SKM Planning during which evidence of current and prior land use and contamination risks were visually reviewed. A grid walk through of the site was carried out and no evidence of existing or previous potentially contaminating uses or infrastructure were observed, including no signs of sheep dips, bare or discoloured soils (other than the sheep feeding area), waterbodies that appeared contaminated, signs of chemical storage, evidence of waste disposal or burning activities or evidence of site filling or waste piles. It would appear that the only potentially contaminating uses attributed to the site is the cultivation of crops.

3.9 Legislation Review

SEPP (Resilience and Hazards) 2021

Section 4.6 of the SEPP requires the following:

4.6 Contamination and remediation to be considered in determining development application

(1) A consent authority must not consent to the carrying out of any development on land unless—

> *(a) it has considered whether the land is contaminated, and*
>
> *(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
>
> *(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subsection (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

(3) The applicant for development consent must carry out the investigation required by subsection (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

(4) The land concerned is—

(a) land that is within an investigation area,

(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,

(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land—

(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

Commentary:

This Preliminary Site Investigation has been prepared to meet the requirements of Clause 4.6 (2) of the SEPP. As per Clause 4.6 (3) of the SEPP, this investigation has been provided to the Council for consideration. The submission of a detailed investigation is not considered warranted for the following reasons:

- The potentially contaminating activity which has occurred historically on the site is the application of Glyphosate, a herbicide with a half life of 60 days. Residual amounts of Glyphosate in the soils would not have a potential impact on the proposed use of the site including the required earthworks and pile driving of supports for the panels. The proposed use is not sensitive in nature.
- The former SEPP 55 Guidelines at Section 3.4.1 suggests a detailed investigation *"is only necessary when a preliminary investigation indicates that the land is contaminated or that it is, or was, formally used for an activity listed in Table 1 and a land use change is proposed that has the potential to increase the risk of exposure to contamination."*
    - The proposed land use change would not increase the risk of exposure to contamination as compared to the cultivation oF crops. Only minor earthworks and no excavation are required for the installation of the solar panels. During the use of the site for electrical generating works, maintenance would only be required every two weeks which would be a similar amount of human activity on the site as compared to the cultivation of crops by farmers.
- Contaminated sites are being utilised overseas for the purposes of solar farms as the potential exposure risk of the contaminants based on the land use is low. The RE-

Powering program in the United Sites has been driven by the EPA and encourages the use of contaminated land for solar farms[1].

- Clause 4.6(1b) provides Council with the ability to approve a non-sensitive land use such as a solar farm on potentially contaminated land: - *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out.*
    - It is requested that Council / the Planning Panel approve the development without the need to prepare a detailed site investigation.

US EPA (2023) RE-powering America's Land - https://www.epa.gov/re-powering/what-re-powering

4 Conclusions

Based on the assessment carried out in this Preliminary Site Investigation it is considered that the historic use of the site for the cultivation of rotational crops (mainly lucerne) has the potential to contaminate soils through the application of glyphosate. The site has historically been cleared for the cultivation of crops and grazing of sheep, no other infrastructure or buildings have been erected on the portion of the land holding encompassing the site. No evidence of any historical industrial or commercial uses of the site with the potential to cause elevated levels of industrial contamination were uncovered in the PSI.

The proposed land use change from agriculture to electrical generating works does not have the potential to increase the risk of exposure to contamination and therefore a detailed investigation is not considered warranted.