

MEMORANDUM

TO: Panel Chair, Southern Regional Planning Panel

FROM: Manager Development Services, Wagga Wagga City Council

DATE: 17 May 2016

SUBJECT: (JRPP no 2016STH013) DA16/0135 Electricity Generating Works (Solar Energy System) and 3 Lot Torrens Title subdivision and 260 Lot Community Lot subdivision

Summary

The above-mentioned development application is being considered by the Southern Joint Regional Planning Panel on 17 May 2016. The purpose of this memo is to advise the Office of Environment and Heritage (OEH) support an approval of the application. The application has been revised to meet the requirements of the OEH contained in their response which is attached hereto.

Background

Councils previous memo of 12 May 2016 advised the panel that the OEH indicated that the heritage assessment submitted with the application does not adequately address the potential impacts on Aboriginal Cultural Heritage, and may not provide a defence for the strict liability offence under the *National Parks and Wildlife Act 1974* (NPW Act) relating to the harm of Aboriginal objects.

Council's s79c assessment report indicates that it is satisfied with the information provided in the application particularly given the fact that the footprint of the proposed solar system is clear of the location of the identified artefact on the subject site. The heritage assessment completed by Kelleher Nightingale in 2008 identified an aboriginal artefact approximately 196m north-east the proposed solar panel system.

Council's recommended conditions require an Aboriginal Heritage Management to be included as part of the Construction Management Plan, a "no harm zone around the identified object and a requirement to undertake works in accordance with the Due Diligence Code of Practice if more objects are discovered on the site.

Contrary to the above, the Office of Environment and Heritage was taking a more conservative approach to the development proposal and have suggested that the applicant demonstrate due diligence in the prevention of harm to Aboriginal objects and at least conduct a 'walk-over' visual inspection utilising relevant skills to identify Aboriginal objects prior to the application being determined.

The applicant had appointed NGN Environmental to undertake a further assessment and in their report, dated 13 May 2016 it is stated that another aboriginal artefact (two quartz flakes) was located in the north-eastern corner of the project area along the proposed fence line alignment.

Subsequently the plans were amended in consultation with OEH and Council officers to ensure that the proposed development footprint is clear of the identified objects. The proposed footprint of the development has been reduced and as such the number of modules has reduced from 260 to 220. This results in a reduction from 26MW to 22MW. The overall number of panels has reduced from 85,800 panels to 72,600.

The OEH supports the revised application and has made the following comments in relation to the proposal:

“We support the current proposal to avoid impact on the sites identified. As stated in our previous letter to Wagga Wagga City Council, the proposed conditions of approval 3 and 27 are adequate to address the requirements for ACH where the impact is to be avoided. Condition 3 requires the development of a CEMP including details relating to ACH management. A key component of the CEMP will be the installation of the fencing prior to construction to minimise the potential damage to the PAD. Condition 27 relates to an unexpected finds protocol during construction, and is appropriate (though as previously stated the Note may not be required). The proposed Condition 20, relating to no-harm zones may not be necessary as this may have been dealt with during the site assessment, and the CEMP should include clear procedures to ensure that harm does not occur. However, OEH has no concerns if this condition is retained.

It should be noted that if Southern Cross Energy does undertake an archaeological assessment of the PAD, the information collected during this assessment should allow, if required, an AHIP application to be made and OEH will then consider this application as required under the National Parks and Wildlife Act 1974 (NPW Act). This may result in the additional 40 solar panels to be available as part of the overall project. “

Recommended changes to conditions

In light of the above the recommendation and in particularly condition 1, 2 and 27 are to be amended as follows:

It is recommended that DA16/0135 for Electricity Generating Works (Solar Energy System) and 3 Lot Torrens Title Subdivision including a 220 Lot Community Title Subdivision be approved, subject to the following conditions:-

CONDITIONS

Approved Plans and Documentation

- 1. The development must be carried out in accordance with the approved plans and specifications as follows.*

<i>Plan/Doc No.</i>	<i>Plan/Doc Title</i>	<i>Prepared by</i>	<i>Issue</i>	<i>Date</i>
	<i>Statement of Environmental Effects</i>	<i>Geolyse</i>	<i>Final</i>	<i>01/02/16</i>
	<i>Response to Council's information request</i>	<i>Geolyse</i>		<i>23/03/16</i>
<i>05G_TP03</i>	<i>Torrens Title Subdivision Plan</i>	<i>Geolyse</i>	<i>G</i>	<i>16/05/16</i>
<i>05G_TP04</i>	<i>Community Title Subdivision Plan</i>	<i>Geolyse</i>	<i>G</i>	<i>16/05/16</i>
<i>05G_TP05</i>	<i>Elevations</i>	<i>Geolyse</i>	<i>G</i>	<i>16/05/16</i>
<i>05G_TP06</i>	<i>Landscape Plan</i>	<i>Geolyse</i>	<i>G</i>	<i>16/05/16</i>
<i>05G_TP07</i>	<i>Fencing Plan and Detail</i>	<i>Geolyse</i>	<i>G</i>	<i>16/05/16</i>

The Development Application has been determined by the granting of consent subject to and as amended by the conditions of development consent specified below.

NOTE: Any modifications to the proposal shall be the subject of an application under Section 96 of the Environmental Planning and Assessment Act, 1979.

REASON: It is in the public interest that work is carried out in accordance with the approved plans. Section 79C(1)(e) of the Environmental Planning and Assessment Act 1979, as amended.

2. *Development consent is granted for the following:*

- *Subdivision of the subject land (Lot 108, Lot 109, Lot 110 DP 751405, Lot 174 DP590756 and Lot 1 DP771340) into 3 Torrens Title land parcels, being Lot 1 of 66ha, Lot 2 of 47.5ha and Lot 3 of 74ha. This includes the creation of all access and service easements as per the approved plans and documentation (refer to condition 1).*
- *220 Lot Community Title Subdivision within proposed Lot 2.*
- *Land use change to accommodate a solar energy system on proposed Lot 2. Approval is granted for the use of the site as a solar energy system, within the Wagga Wagga LEP 2010 definition of 'electricity generating works' and will include the following works/components:*
 - *Generation of no more than 22 Megawatt power*
 - *Construction of 220 solar energy modules, each containing a maximum of 330 Photovoltaic (PV) solar panels, each generating 300W*
 - *Junction boxes and substation*
 - *Above and underground electrical conduits and cabling*
 - *Internal access driveway*
 - *Security Fencing*
 - *Landscaping and removal of one Eucalypt Tree within proposed Lot 2.*
 - *Decommissioning of the solar energy system*

REASON: It is in public interest that proposed development be limited to the works/uses listed as above. Section 79C(1)(b) and (e) of the Environmental Planning and Assessment Act 1979, as amended.

The note under condition 27 can be deleted.

Regards

Colby Farmer
Manager Development Services

Attachment 1 : ENH aboriginal assessment report dated 13/05/16
Attachment 2 : Applicant's revised drawings
Attachment 3 : OEH's comments of 16/05/16



13 May 2016

Peter Speck
Southern Cross Energy Pty Ltd
Level 13, 167 Macquarie Street
SYDNEY NSW 2000

C/O: David Walker
CC David Walker <dwalker@geolyse.com>



canberra
unit 17, 27 yallourn st
(po box 62)
fyshwick act 2609
t 61 2 6280 5053
f 61 2 6280 9387

bathurst
35 morrisset st
po box 434
bathurst nsw 2795
t 0448 820 748

bega
suite 1, 216 carp st
(po box 470)
bega nsw 2550
t 61 2 6492 8333

newcastle
153 tudor st
hamilton nsw 2303
t 61 2 4969 4910

sydney
unit 18, level 3
21 mary st
surry hills nsw 2010
t 61 2 8202 8333

wagga wagga
suite 1, 39 fitzmaurice st
(po box 5464)
wagga wagga nsw 2650
t 61 2 6971 9696
f 61 2 6971 9693

ngh@nghenvironmental.com.au
www.nghenvironmental.com.au

Dear Peter Speck c/o David Walker,

RE – 16-023 Bomen Solar Energy System

NGH Environmental has been contracted by Southern Cross Energy Pty Ltd to undertake a due diligence level assessment to provide advice about the likelihood of Aboriginal objects being present within the proposed Bomen Solar Energy System development at Bomen, north of Wagga Wagga NSW.

The attached information outlines the results of the field survey undertaken on the 12th of May 2016.

Yours sincerely,

Kirsten Bradley
Heritage Consultant
Ph (0)2 6280 5053
NGH Environmental

1 INTRODUCTION

A due diligence level reconnaissance survey was undertaken for Southern Cross Energy Pty Ltd (the proponent) on the 12th of May 2016 for the proposed Bomen Solar Energy System development at Bomen, north of Wagga Wagga NSW (Figure 1). The due diligence was requested at short notice as a result of consultation between the proponent and the Office of Environmental and Heritage (OEH) about Aboriginal heritage within the project area.

The aims of the Aboriginal heritage assessment were as follows:

- Undertake limited background research to understand the background of Aboriginal occupation of the area;
- Undertake reconnaissance level field inspection to identify the likelihood of Aboriginal sites occurring within the project area;
- Attempt to relocate the Aboriginal object at the previously recorded site, Bomen Isolated Find (BIF1) (AHIMS # 56-1-0109);
- Prepare a Due Diligence level assessment letter to provide information to the proponent on the results of the assessment and their legal responsibilities; and
- Provide management options for the development project.

This letter provides an outline of the results to inform and to advise the proponent on potential management issues.

2 REGISTER SEARCH AND LANDSCAPE ASSESSMENT

The Aboriginal Heritage Information Management System (AHIMS) is maintained by OEH and provides a database of previously recorded Aboriginal heritage sites. Searches of the AHIMS database can be made providing information about any sites previously identified within a designated search area. The results of the search are able to be relied upon for 12 months.

An extensive search of the AHIMS database was undertaken on the 13th of May 2016. The search area focussed on a rectangular area approximately 9 km (east-west) x 9 km (north-south) centred on the study area. The coordinates for the search area were Lat. Long. from: -35.0862, 147.3825 – Lat. Long to: -35.0183, 147.4903 with a buffer of 50 meters. The AHIMS Client Service Number was: 225282.

The AHIMS register search revealed that there were 14 Aboriginal heritage sites within the search area (13 including a duplication of Bomen Isolated Find BIF1). There is also one Aboriginal Place within the search area - the Bomen Axe Quarry (AHIMS # 56-1-0043). A breakdown of the site types is shown in Table 1.

Table 1. Site types within AHIMS search

Site Type	Number
Isolated Find	6
Artefact Scatter	3
Stone Quarry	2
Modified Tree	2
TOTAL	13

It is clear from these search results that there are a number of sites recorded in this area to date with the dominant site type stone artefacts. Two sites with stone artefacts are in close proximity to the proposed Bomen Solar Energy System development area: Bomen Isolated Find BIF1 (AHIMS # 56-1-0109 a duplicate of the deleted site AHIMS #56-1-0111) approximately 190m to the north-east and APA36 (AHIMS # 56-1-0122) approximately 180 m to the south-west.

There have been six archaeological/heritage investigations specifically within the Bomen district since 1997. Each is summarised briefly to provide context for the archaeology of the areas and provide an indication of the potential archaeological sites that may occur within the Bomen Solar Energy System development area.

HLA Envirosiences undertook an assessment for a proposed expansion of effluent irrigation system for the Bomen Abattoir (HLA 1997). They examined the alignment of a proposed pipeline, the location of a proposed holding dam and the proposed irrigated paddocks. They located a single isolated artefact (ISF BOM1), a piece of coarse silcrete that had evidence of grinding on one surface in an upper floodplain area of a paddock that was devoid of any source material.

In 1998 Navin and Officer surveyed an area for a proposed power plant site at Bomen identifying three Aboriginal sites, including the Bomen axe and manufacturing site (#56-1-0043) (Green 2011). The axe quarry itself is situated on the crest of the ridge line, and consists of exposures of granite and basalt. The basalt material was utilised for the manufacture of axe blanks, which were most likely carried off-site for final production. There were distinct working areas, with primary flaking areas close to the basalt outcrop and secondary working areas located a little further away (Navin and Officer map in Green 2011). The site has been identified as highly significant to the local Aboriginal community and of high archaeological significance. The area has now been declared an Aboriginal Place under the *National Parks and Wildlife Act* (Green 2011).

Kelleher and Nightingale (2008) conducted an Aboriginal heritage assessment for particular areas within Wagga Wagga as part of the Local Environmental Study (LES). They examined eight areas which included the Bomen area and undertook some field work to identify Aboriginal heritage values and develop a predictive model of site location and distribution based on landscape features. They identified that different areas had slightly different archaeological sensitivity but in general spur and ridge crests had moderate sensitivity. Lower, mid and upper hillslopes had low to moderate sensitivity and areas of undulating/flat colluvial deposits and drainage lines associated with alluvial/colluvial deposits were moderate to high. The main contributing factors to site distribution and complexity were identified as being related to the availability of raw source materials, the availability of plant and animal resources and the landforms that are associated with these materials and sources. Kelleher and Nightingale found a single isolated artefact (Bomen IF1), a mudstone flake, in their limited survey of the Bomen area. The artefact was found on a gentle slope of a small rise between a first and second order drainage line. The artefact is situated about 190m north-east of the current assessment area. Kelleher and Nightingale also developed a model of archaeological sensitivity for the Bomen district (see Table 2) based on topography and the results of previous surveys. They also produced a map showing areas of archaeological sensitivity which has been recreated for the current assessment.

Table 2. Bomen Archaeological sensitivity (from Kelleher Nightingale 2008:16)

Landform Type	Archaeological sensitivity	Description
Ridgeline crest	Moderate	Less exposed to prevailing winds, increased sensitivity with proximity to drainage lines/terraces
Granite outcrop along upper slope/crest	High	Increased sensitivity where potential artefact raw material present such as quartz
Upper/Mid hillslope	Low	Less possibility of intact archaeological deposits increased sensitivity with gentler slopes and proximity to open drainage lines/terraces
Lower hillslope	Low to Moderate	Increased sensitivity in association with alluvial/colluvial deposits associated with drainage lines
Undulating/Flat colluvial deposits	Moderate to High	Increased sensitivity in association with proximity to drainage lines/terraces
Drainage line and associated alluvial/colluvial deposits	Moderate to High	Increased sensitivity where gentle slopes or raised ground above regular floods

AECOM Australia (2010) conducted the Aboriginal and historic heritage study for Stage 1 of a 61 km pipeline project from Bethungra to Wagga Wagga. A total of 36 Aboriginal sites (30 artefact scatters and 6 isolated artefacts) were recorded along the proposed pipeline route, including 24 previously unrecorded sites). The majority of sites identified during the survey were associated with, or in close proximity to an ephemeral water source with over two thirds of sites located within 50 m of a water source. The survey methodology was designed to only target specific portions of landscapes where archaeological evidence was most likely to be found with a total of 18 transects surveyed. Transit 18, crossed over the current project area where site APA 36 was recorded about 180m south-west of the current assessment area. APA 36 was recorded as an artefact scatter consisting of three quartz cores and five quartz flakes on a hill crest amongst a granite boulder outcrop.

OzArk carried out a desktop due diligence assessment for a proposed telecommunications tower as part of the National Broadband Network (NBN) in Bomen. While the exact location for the tower was not known at the time OzArk undertook the assessment, the general locality was Lot 22, on the southern side of East Bomen Road, near the access corridor for the Bomen axe and manufacturing Aboriginal Place. Their assessment did not include a field component but they assessed the location as having low archaeological potential due to the landform and previous disturbance from agricultural and road construction activities (OzArk 2014).

Barber (2015) conducted a due diligence assessment for the proposed Riverina Intermodal Freight and Logistics (RIFL) Hub at Bomen Park identifying three isolated artefacts (AHIMS # 56-1-0432, # 56-1-0433 and # 56-1-0434) within disturbed contexts and two areas of archaeological sensitivity that were recommended for subsurface testing to establish the archaeological potential and extent of sites in the areas. To date this subsurface investigation has not occurred.

The results of the previous archaeological assessments and surveys within the Bomen district has resulted in the recording of a number of stone artefacts including a stone quarry. The modelling for the area to date suggests that Aboriginal sites in the area are generally small, when not associated with stone procurement. The clearing of the area since European occupation means that mature trees bearing evidence of Aboriginal scarring are unlikely to occur.

The topography of the proposed Bomen Solar Energy System development area features a number of landscapes that, according to the mapping undertaken by Kelleher and Nightingale would be classed as having high and moderate archaeological sensitivity respectively.

3 METHODOLOGY

Based on previous archaeological studies and investigations in the Bomen area the survey methodology identified that there were potentially a number of different landforms within the project area that had potential to contain archaeological evidence. The landscape comprised of the following major features:

- Crest and Upper slopes;
- Granite Outcrops along the upper hill slope;
- Mid slope and
- Lower/basal slope adjacent to a drainage depression.

The field visit confirmed that these were identifiable landscapes with generally good surface visibility averaging 50%. The project area (Figure 1) was loaded as a shapefile onto a GPS enabled Nomad running ArcPad in a Windows environment. This allowed for the accurate identification of the project area and ensured the survey of the correct area. A track log of the survey route was made with the GPS enabled.

The project area was examined on foot walking a number of east/west transits with any landscapes of significance, including the granite outcroppings, examined for evidence of Aboriginal objects. The location of the known Aboriginal site, AHIMS # 56-1-009 (replication of AHIMS # 56-1-0111), was also inspected at the request of the client.

Detailed notes were made about the nature of the project area including disturbances, landscape type, nature of exposed deposits, visibility and potential to contain Aboriginal cultural material, photographs were also taken. Where any exposures, outcropping, stone or native trees was observed, this was examined in detail by the archaeologist.

4 RESULTS

A single site, Bomen Solar ISO1, consisting of two quartz flakes was located in the north-eastern corner of the project area along the proposed fence line alignment. The site is located within the area mapped as having high archaeological sensitivity by Kelleher and Nightingale (2008). The recording of Bomen Solar ISO1 in correlation with the close proximity of Bomen Isolated Find (BIF1) in this area of mapped archaeological sensitivity suggest that there is potential for archaeological deposit (PAD) in this area. The only feasible way to accurately determine the presence, nature and extent of Aboriginal sites within the area of mapped archaeological sensitivity would be to conduct subsurface investigations by test pitting.

A single mature tree within the vicinity of the project area, was visually inspected for evidence of cultural modification. It revealed no scarring. For a tree to have been a mature specimen suitable for bark extraction at the time Aboriginal people were last practicing tradition ways, the tree would have to be over 100 years old. All other trees within the project area were deemed too young to be culturally modified. The granite outcroppings within the project area were also visually inspected, no evidence of quarrying or Aboriginal objects were identified.

While spur crests in the Bomen area are generally archaeological sensitivity area, the spur crest in the south-western portion of the project has been largely disturbed by pipeline works which cross the majority of this feature. No objects were identified within this area during the survey or during the survey conducted previously by AECOM Australia (2010). The extent of disturbance from the pipeline work and the absence of surface artefacts in this area which had good ground visibility of approximately 50% suggest that the likelihood for potential archaeological deposit across this feature is limited, no further investigation along the spur crest within the project area is therefore required.





The area of the previously recorded site, Bomen Isolated Find (BIF1) (AHIMS # 56-1-0109); was thoroughly investigated during the current survey, however the stone object was unable to be relocated. The area had been recently ploughed and it is likely that these disturbances have moved the artefact.



Plate 1. View east from the granite outcropping down the slope.



Plate 2. View west from the north-eastern corner of project area.

	
<p>Plate 3. View east towards dam and drainage depression.</p>	<p>Plate 4. Artefacts <i>in situ</i>, Bomen Solar ISO1.</p>
	
<p>Plate 5. View north-east along pipeline disturbance on the spur crest.</p>	<p>Plate 6. View south from the north-western corner of project area.</p>

5 DISCUSSION AND CONCLUSION

The field assessment, combined with the results of archaeologically sensitive mapping from previous studies conducted by Kelleher and Nightingale (2008) in the Bomen area have identified the presence of a single site containing two Aboriginal artefacts, Bomen Solar ISO1, along the alignment of the proposed fence line. In addition, an area of archaeological sensitivity, identified as area of potential archaeological deposit in the eastern portion of the Bomen Solar Energy System development project area has also been identified.

The presence of the site Bomen Solar ISO1 within the area mapped by Kelleher and Nightingale (2008) as having high archaeological sensitivity supports the likelihood that this area contains artefacts. Therefore, any development of the eastern portion of the project area within the area mapped as being archaeologically sensitive is likely to impact on Aboriginal heritage objects. The only feasible way to accurately determine the presence, nature and extent of Aboriginal sites within the area mapped as archaeologically sensitive would be to conduct subsurface investigations by test pitting.

In order to develop the eastern portion of the land in question and impact the two artefacts identified, the Office of Environment and Heritage would need to provide an Aboriginal Heritage Impact Permit (AHIP) to the proponent. In order to obtain an AHIP, the proponent would need to follow a process as outlined in the following OEH guides:

- *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*
<http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf>
- *Code of Practice for Archaeological Investigations*
<http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf>
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*
<http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/09781ACHconsultreq.pdf>

In following these guides and codes of practice, OEH would also insist that the archaeological report confirm the nature, extent and significance of any Aboriginal sites or objects. The results of this Due Diligence assessment have identified the boundaries of a single site and an archaeologically sensitive area but the significance to the wider Aboriginal community has not been established. Further archaeological assessment is required before the development could proceed in the area mapped as archaeologically sensitive.

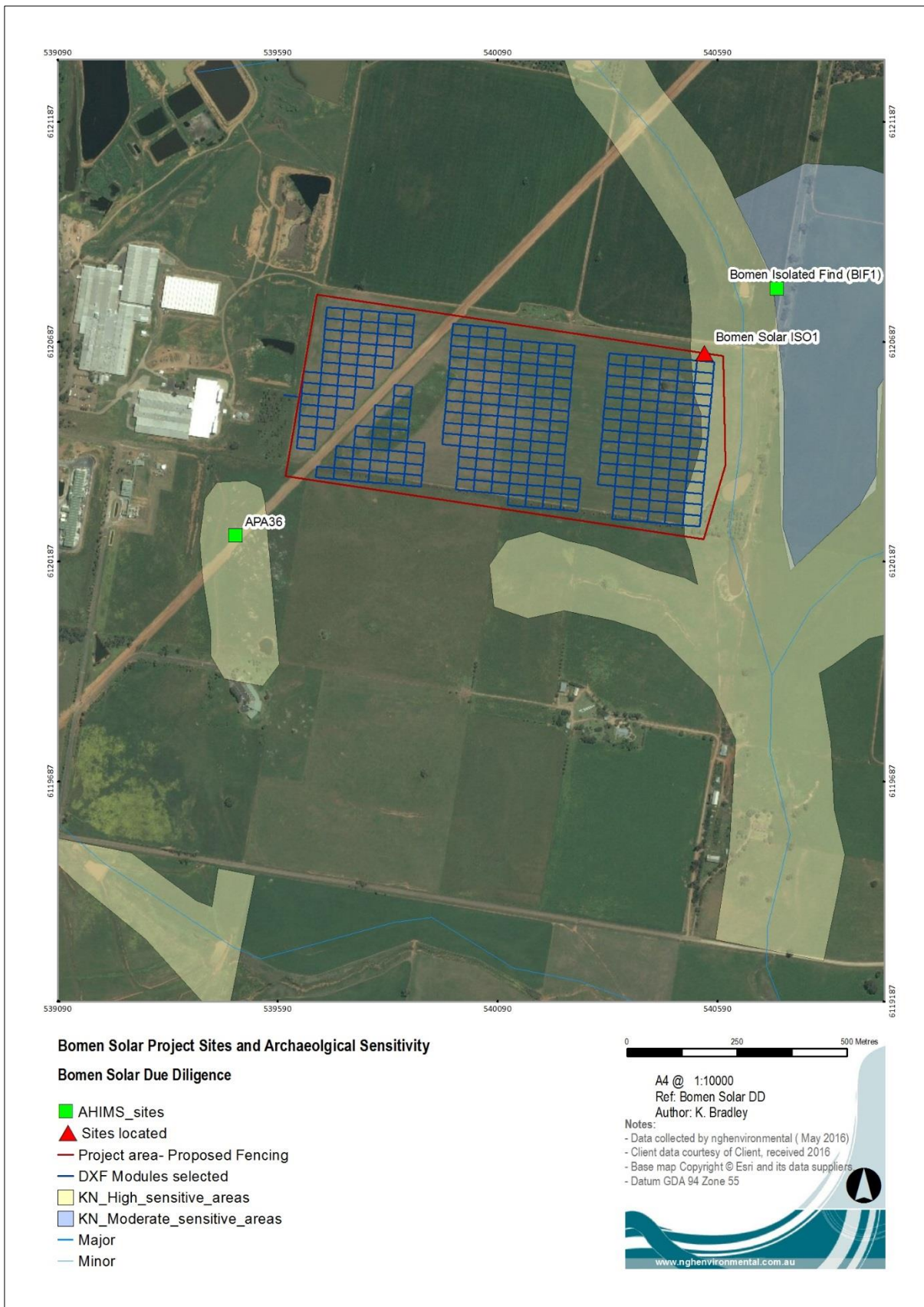


Figure 1. Bomen Solar project sites and archaeological sensitivity map

6 RECOMMENDATIONS

The following recommendations are based on the results of this Due Diligence assessment and an appraisal of the potential for Aboriginal artefacts and sites to occur within the project area.

1. The proposed construction of the Bomen Solar Energy System can only proceed within the eastern portion that intersects the area of archaeological sensitivity and Bomen Solar ISO1 if an AHIP is obtained from OEH.
2. To obtain an AHIP, Southern Cross Energy must undertake an Aboriginal Cultural Heritage Assessment, under the Guides and Codes of practice provided by OEH, including Aboriginal community consultation.
3. As part of the ACHA, Southern Cross Energy should undertake a program of limited subsurface testing to establish the true archaeological potential and extent of archaeological sites within the areas identified as having moderate archaeological sensitivity. The aims of the testing would be to clarify the extent of any Aboriginal sites within the development zone and to include this information in any required AHIP application.
4. The Due Diligence process provides information to a proponent on the likelihood that activities would impact Aboriginal heritage objects. The ultimate responsibility for ensuring Aboriginal heritage objects are not inadvertently harmed without an appropriate AHIP lies in this instance with Southern Cross Energy.
5. If Southern Cross Energy redesign the project to avoid the potential for impact to Aboriginal objects by including a 50 m buffer to the areas of archaeological sensitivity, this would avoid the need for further investigation or approval.
6. Any activity proposed outside of the current assessment should also be subject to an Aboriginal heritage assessment.

7 REFERENCES

AECOM Australia 2010 Heritage Assessment Stage 1 Bethungra to Wagga Wagga. Report to AOA Group Pty Ltd.

Barber, M. 2015 Aboriginal Heritage Due Diligence Assessment Bomen Business Park Enabling Infrastructure. Report to Wagga Wagga City Council.

Go Green Services 2011 Bomen Axe Quarry and Manufacturing Site: Assessment and Statement of Significance for an Aboriginal Place Declaration. Report to NSW Office of Environment and Heritage.

HLA-Envirosciences Pty Ltd 1997 An Archaeological Survey of Proposed Effluent Utilisation Areas Bomen Abattoir Wagga Wagga. Report to Cargill Foods Australia.

Kelleher and Nightingale Consulting Pty Ltd 2008 Wagga Wagga Local Environmental Study: Aboriginal Cultural Heritage Assessment. Report to Willana Associates.

OzArk EHM 2014 Due Diligence Assessment: Proposed NBN Facility, Bomen near Wagga Wagga, NSW. Report to Daly International Pty Ltd.

AHIMS Web Services (AWS)
Extensive search - Site list report

Your Ref/PO Number : Bomen Solar DD

Client Service ID : 225282

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
56-1-0043	EAST BOMEN 1	AGD	55	538530	6118940	Open site	Valid	Stone Quarry : -, Artefact : -	Quarry	102413,10254 9,102603,1029 93,103042
	<u>Contact</u>	<u>Recorders</u>	Kerry Navin,Mr.Kelvin Officer					<u>Permits</u>		
56-1-0044	EAST BOMEN IF2	AGD	55	538670	6118650	Open site	Valid	Artefact : -	Isolated Find	102413
	<u>Contact</u>	<u>Recorders</u>	Kerry Navin,Mr.Kelvin Officer					<u>Permits</u>		
56-1-0045	EAST BOMEN IF1	AGD	55	539300	6118850	Open site	Valid	Artefact : -	Isolated Find	102413,10254 9
	<u>Contact</u>	<u>Recorders</u>	Kerry Navin,Mr.Kelvin Officer					<u>Permits</u>		
56-1-0033	BOM-1;	AGD	55	536400	6117200	Open site	Valid	Artefact : -	Isolated Find	3899
	<u>Contact</u>	<u>Recorders</u>	Ms.Claire Everett					<u>Permits</u>		
56-1-0110	BSSC-1F1	GDA	55	539682	6117895	Open site	Valid	Stone Quarry : 5		
	<u>Contact</u>	<u>Recorders</u>	OzArk Environmental and Heritage Management					<u>Permits</u>		
56-1-0109	Bomen Isolated Find BIF1 duplicate of 56-1-0111	AGD	55	540614	6120623	Open site	Valid	Artefact : 1, Stone Quarry : 1		
	<u>Contact</u>	<u>Recorders</u>	Kelleher Nightingale Consulting Pty Ltd					<u>Permits</u>		
56-1-0111	Bomen Isolated Fin 1 (BIF1) duplicate of 56-1-0109	AGD	55	540614	6120623	Open site	Deleted	Artefact : 1		
	<u>Contact</u>	<u>Recorders</u>	Kelleher Nightingale Consulting Pty Ltd					<u>Permits</u>		
56-1-0115	APA31	GDA	55	544040	6123945	Open site	Valid	Artefact : 1		
	<u>Contact</u>	<u>Recorders</u>	Mr.Rick Bullers					<u>Permits</u>		
56-1-0120	APA36	GDA	55	539494	6120245	Open site	Valid	Artefact : 1		
	<u>Contact</u>	<u>Recorders</u>	Mr.Rick Bullers					<u>Permits</u>		
56-1-0384	Windmill RD 1	GDA	55	540962	6119261	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Mark Saddler					<u>Permits</u>		
56-1-0428	Olive Grove Wagga 1	GDA	55	538232	6124630	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Mark Saddler					<u>Permits</u>		
56-1-0432	Bomen RIFL IF2	GDA	55	538043	6120703	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Matthew Barber,NGH Heritage - Fyshwick					<u>Permits</u>		
56-1-0433	Bomen RIFL IF1	GDA	55	537981	6120715	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Matthew Barber,NGH Heritage - Fyshwick					<u>Permits</u>		
56-1-0434	Bomen RIFL IF3	GDA	55	538262	6120050	Open site	Valid	Artefact : -		
	<u>Contact</u>	<u>Recorders</u>	Mr.Matthew Barber,NGH Heritage - Fyshwick					<u>Permits</u>		

Report generated by AHIMS Web Service on 13/05/2016 for Kirsten Bradley for the following area at Lat, Long From : -35.0862, 147.3825 - Lat, Long To : -35.0183, 147.4903 with a Buffer of 50 meters. Additional Info : due diligence report. Number of Aboriginal sites and Aboriginal objects found is 14

This information is not guaranteed to be free from error omission. Office of Environment and Heritage (NSW) and its employees disclaim liability for any act done or omission made on the information and consequences of such acts or omission.

PROPOSED SOLAR ENERGY SYSTEM

TRAHAIRS ROAD, BOMEN

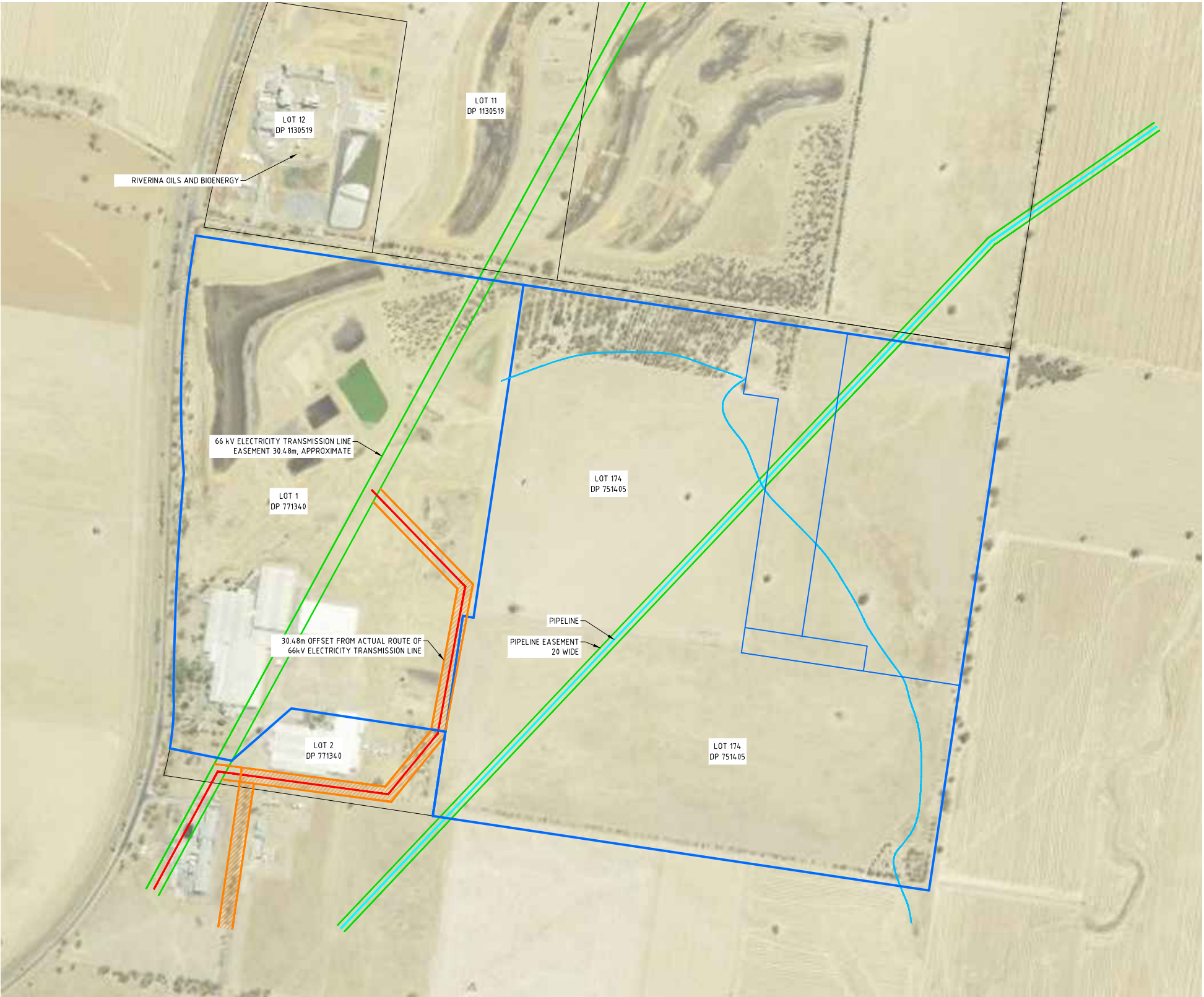
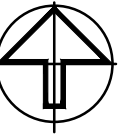
SOUTHERN CROSS ENERGY PTY LTD

IN SUPPORT OF A DEVELOPMENT APPLICATION

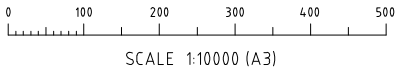
SCHEDULE OF DRAWINGS	
SHEET	TITLE
TP01	TITLE SHEET, DRAWING LIST, AND SITE LOCALITY
TP02	EXISTING SITE LAYOUT
TP03	PROPOSED TORRENS SUBDIVISION
TP04	PROPOSED COMMUNITY TITLE
TP05	SOLAR PANEL ELEVATION
TP06	LANDSCAPING PLAN
TP07	FENCING PLAN



SITE LOCALITY
NOT TO SCALE



MASTER LAYOUT PLAN
SCALE 1:10000 (A3)



LEGEND:

- EXTEND OF WORKS
- LOT BOUNDARY
- 66 KV ELECTRICITY TRANSMISSION LINE
- PIPELINE
- OUTER LINES OF EASEMENT
- FUTURE 132KV EASEMENT



GEOLYSE

ORANGE

orange@geolyse.com
www.geolyse.com

154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
Ph. (02) 6393 5000
Fx. (02) 6393 5050

No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	30/06/14	ZD	DW	ISSUED TO CLIENT
B	30/10/15	MY/BH	DW	ISSUED TO CLIENT
C	27/11/15	BH	DW	AMENDED LOT LAYOUT
D	20/01/16	BH	DW	ADDITIONAL LOTS ADDED
E	18/03/16	BH	DW	PROPOSED LOTS AMENDED
F	22/04/16	BH	DW	MINOR AMENDMENTS
G	16/05/16	BH	DW	SOLAR PANEL LOCATION AMENDED

PROJECT

PROPOSED SOLAR ENERGY SYSTEM

FILE REFERENCE: 214082_05G_TP01-TP07.dwg

APPROVAL AUTHORITY



Wagga Wagga
City Council

CLIENT

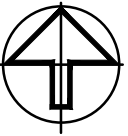
SOUTHERN CROSS
ENERGY PTY LTD

DRAWING

EXISTING SITE PLAN

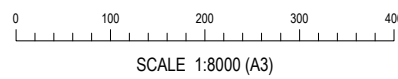
PROJECT NUMBER: 214082 DRAWING NUMBER: 05G_TP02 REV: G

SOURCE: INTERNAL



- LEGEND:
- 220 X 100 KW MODULES
 - PROPOSED LOT BOUNDARY
 - 66 KV ELECTRICITY TRANSMISSION LINE
 - PIPELINE
 - OUTER LINES OF EASEMENT
 - FUTURE 132kV EASEMENT

MASTER LAYOUT PLAN
SCALE 1:10000 (A3)



GEOLYSE
ORANGE
154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
Ph. (02) 6393 5000
Fx. (02) 6393 5050
orange@geolyse.com
www.geolyse.com

No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	30/06/14	ZD	DW	ISSUED TO CLIENT
B	30/10/15	MY/BH	DW	ISSUED TO CLIENT
C	27/11/15	BH	DW	AMENDED LOT LAYOUT
D	20/01/16	BH	DW	ADDITIONAL LOTS ADDED
E	18/03/16	BH	DW	PROPOSED LOTS AMENDED
F	22/04/16	BH	DW	MINOR AMENDMENTS
G	16/05/16	BH	DW	SOLAR PANEL LOCATION AMENDED

PROJECT

PROPOSED SOLAR ENERGY SYSTEM

FILE REFERENCE: 214082_05G_TP01-TP07.dwg

APPROVAL AUTHORITY

 **Wagga Wagga**
City Council

CLIENT

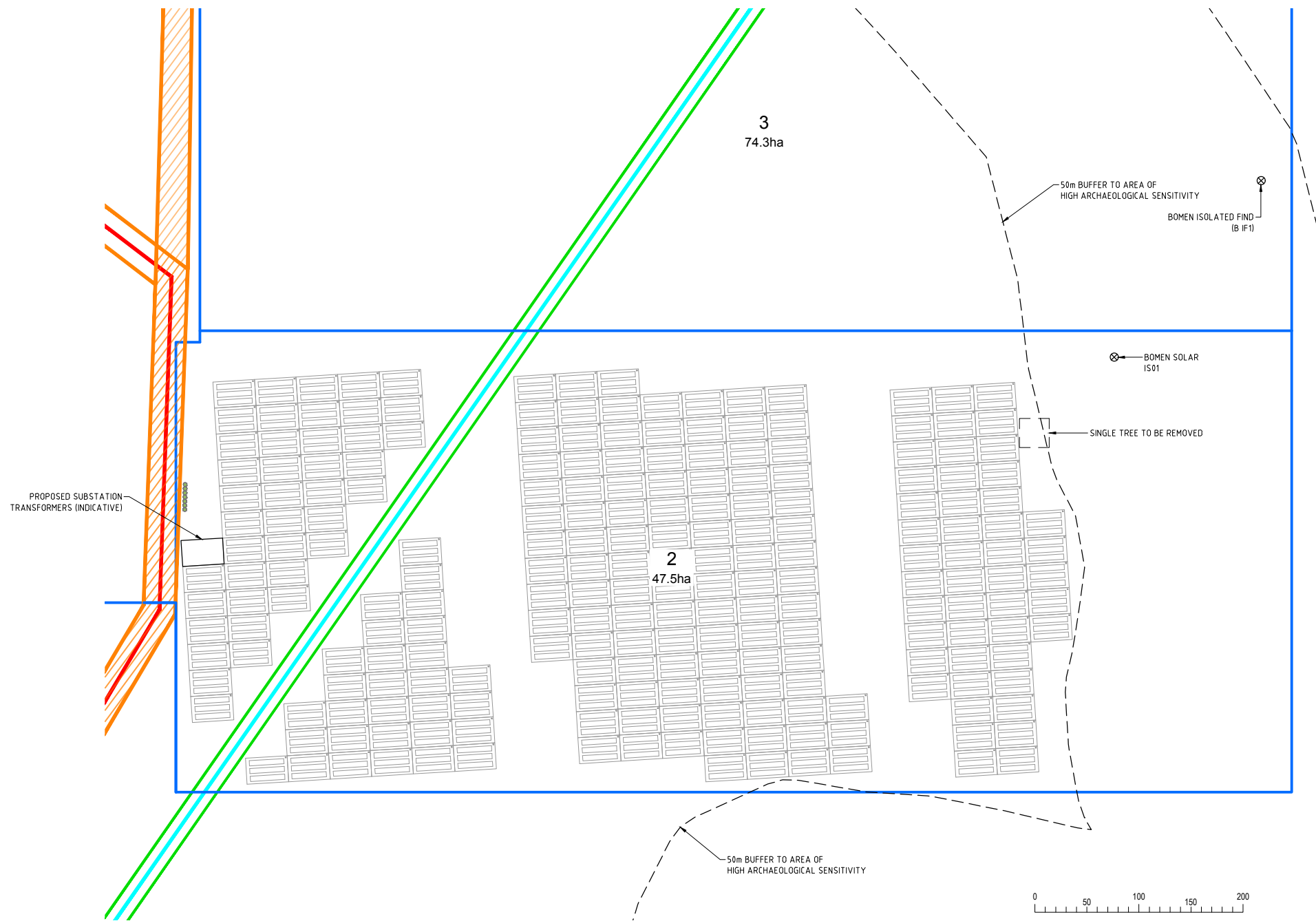
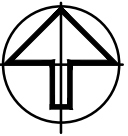
SOUTHERN CROSS
ENERGY PTY LTD

DRAWING

PROPOSED TORRENS SUBDIVISION

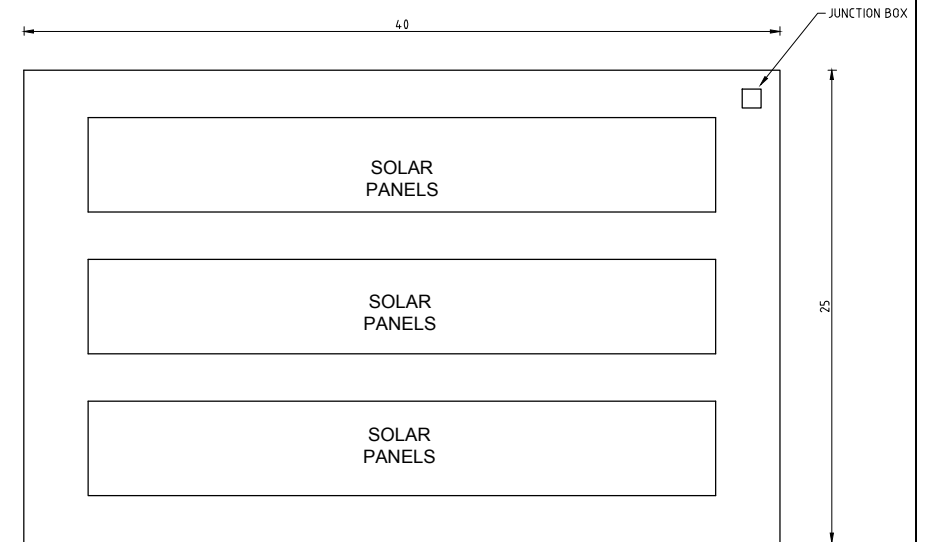
PROJECT NUMBER: 214082	DRAWING NUMBER: 05G_TP03	REV. G
---------------------------	-----------------------------	--------

SOURCE: INTERNAL

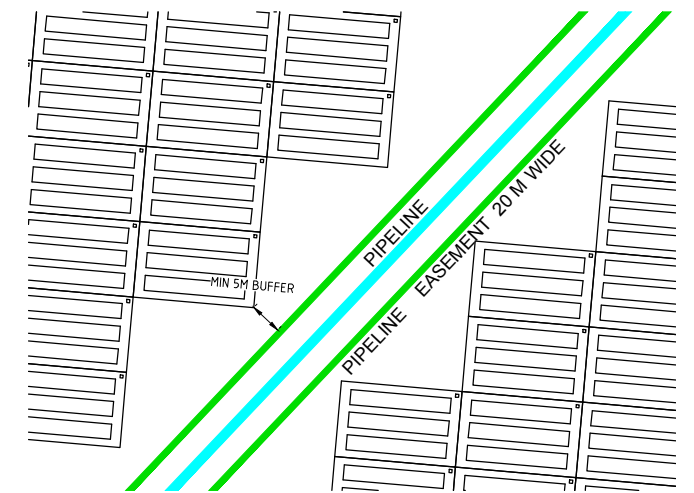
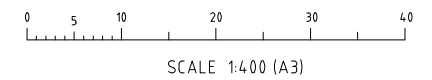


PROPOSED COMMUNITY TITLE
SCALE 1:5000 (A3)

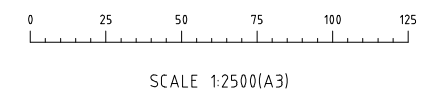
- LEGEND:
- 220 X 100 KW MODULES
 - PROPOSED LOT BOUNDARY
 - 66 KV ELECTRICITY TRANSMISSION LINE
 - PIPELINE
 - OUTER LINES OF EASEMENT
 - FUTURE 132Kv EASEMENT



100kW MODULE
SCALE 1:400 (A3)



PIPELINE EASEMENT BUFFER
SCALE 1:2500 (A3)



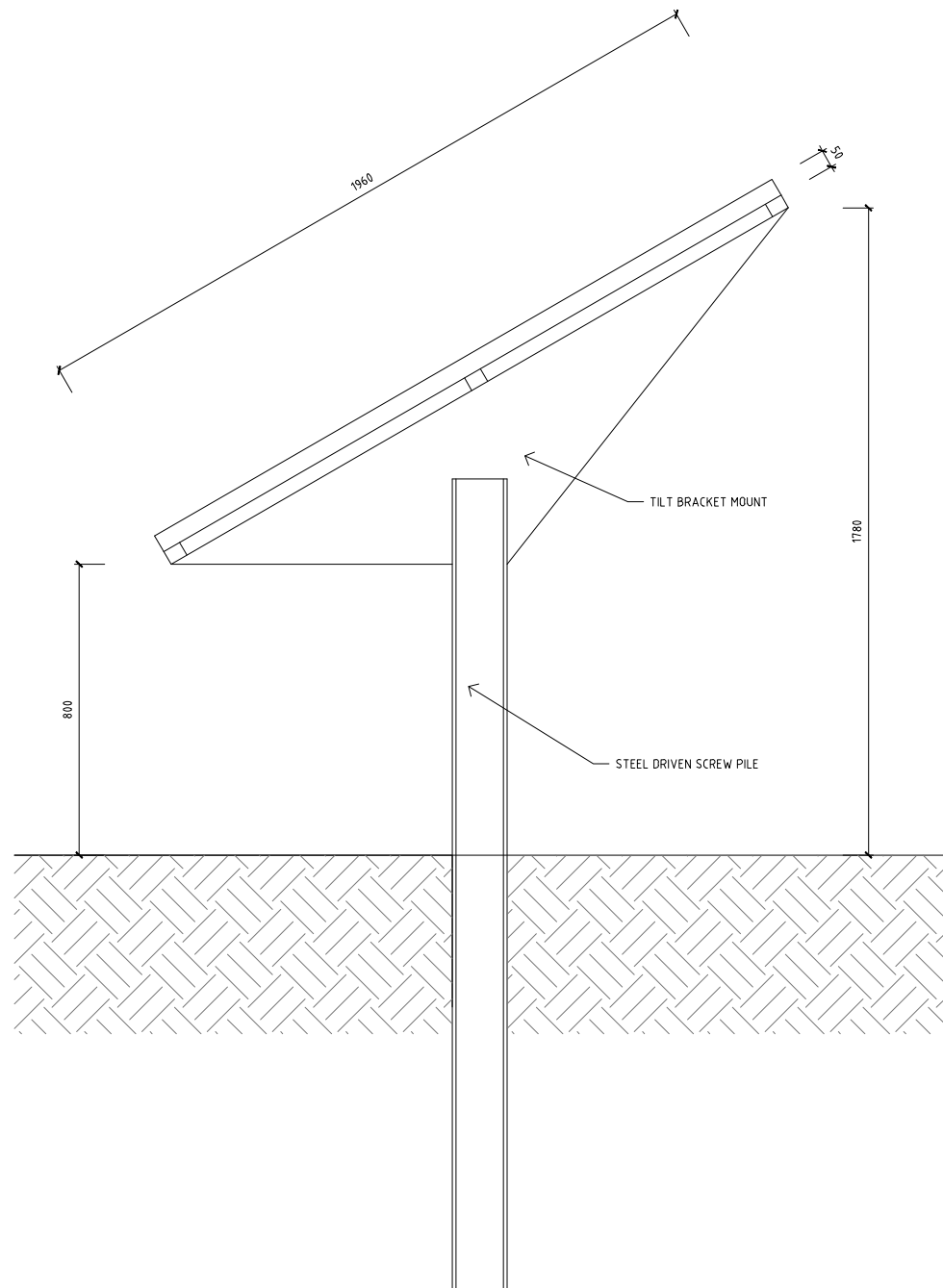
No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	30/06/14	ZD	DW	ISSUED TO CLIENT
B	30/10/15	MY/BH	DW	ISSUED TO CLIENT
C	27/11/15	BH	DW	AMENDED LOT LAYOUT
D	20/01/16	BH	DW	ADDITIONAL LOTS ADDED
E	18/03/16	BH	DW	PROPOSED LOTS AMENDED
F	22/04/16	BH	DW	MINOR AMENDMENTS
G	16/05/16	BH	DW	SOLAR PANEL LOCATION AMENDED

PROJECT
PROPOSED SOLAR ENERGY SYSTEM
FILE REFERENCE: 214082_05G_TP01-TP07.dwg

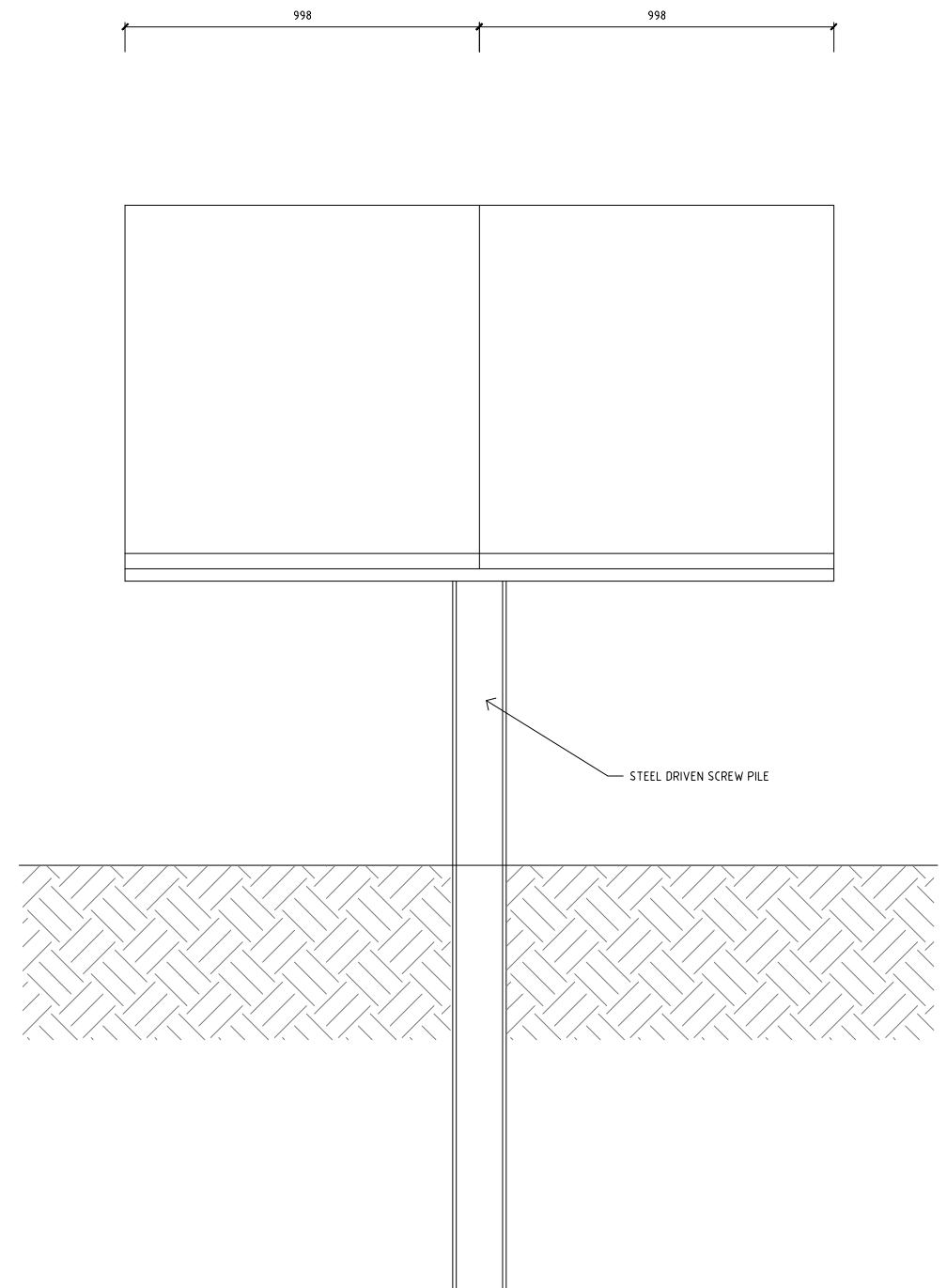
APPROVAL AUTHORITY

CLIENT
SOUTHERN CROSS ENERGY PTY LTD

DRAWING					
PROPOSED COMMUNITY TITLE					
PROJECT NUMBER:	214082	DRAWING NUMBER:	05G_TP04	REV:	G
SOURCE:	INTERNAL				



TYPICAL SIDE ELEVATION
SCALE 1:10 (A1)
SCALE 1:20 (A3)



TYPICAL FRONT ELEVATION
SCALE 1:10 (A1)
SCALE 1:20 (A3)



GEOLYSE

ORANGE

154 PEISLEY STREET
P.O. BOX 1963
ORANGE, NSW 2800
Ph. (02) 6393 5000
Fx. (02) 6393 5050

orange@geolyse.com

www.geolyse.com

No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	30/06/14	ZD	DW	ISSUED TO CLIENT
B	30/10/15	MY/BH	DW	ISSUED TO CLIENT
C	27/11/15	BH	DW	AMENDED LOT LAYOUT
D	20/01/16	BH	DW	ADDITIONAL LOTS ADDED
E	18/03/16	BH	DW	PROPOSED LOTS AMENDED
F	22/04/16	BH	DW	MINOR AMENDMENTS
G	16/05/16	BH	DW	SOLAR PANEL LOCATION AMENDED

PROJECT

PROPOSED SOLAR ENERGY SYSTEM

FILE REFERENCE: 214082_05G_TP01-TP07.dwg

APPROVAL AUTHORITY



Wagga Wagga
City Council

CLIENT

SOUTHERN CROSS ENERGY PTY LTD

DRAWING

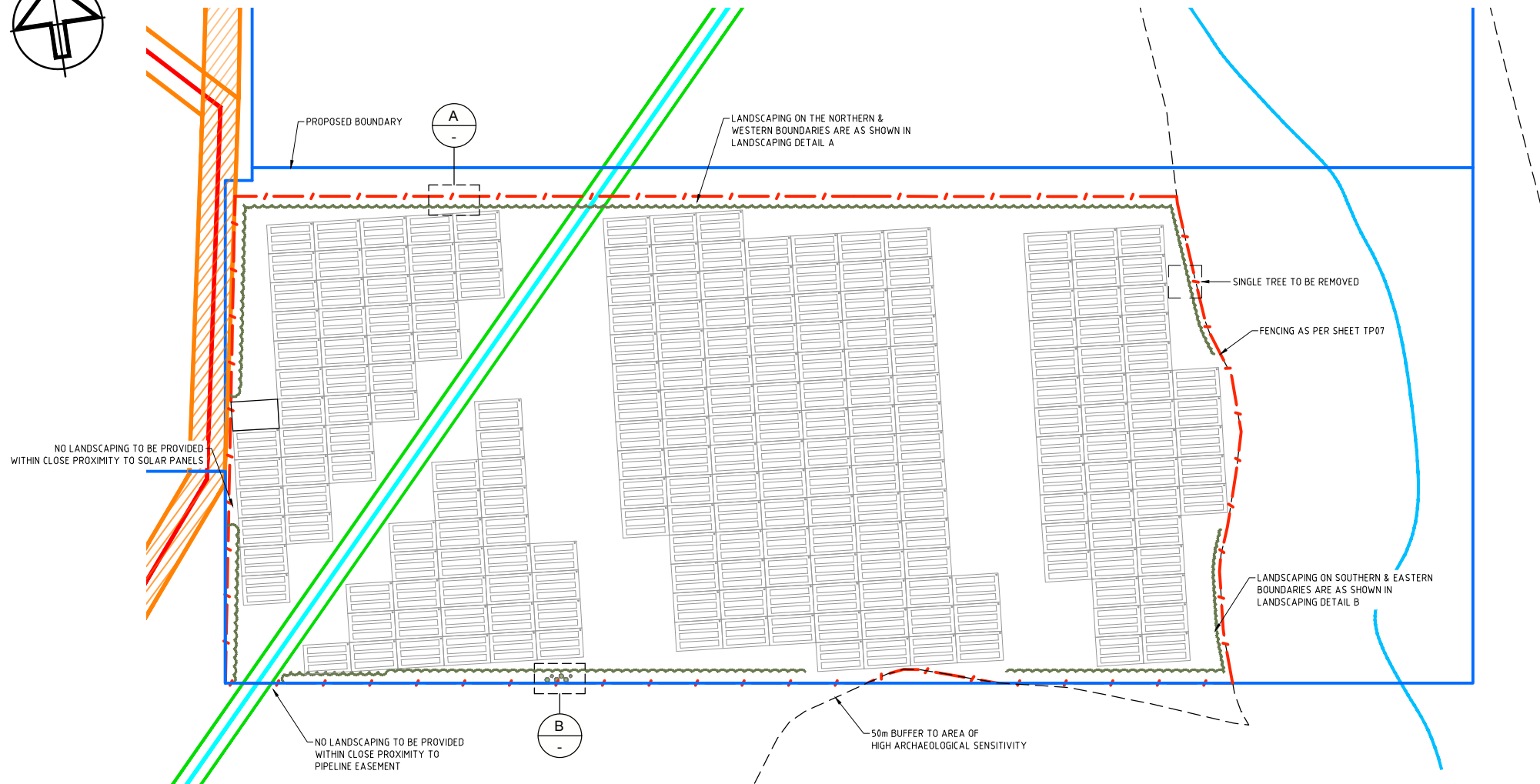
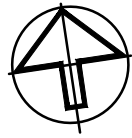
SOLAR PANEL ELEVATION

PROJECT NUMBER: 214082

DRAWING NUMBER: 05G_TP05

REV: G

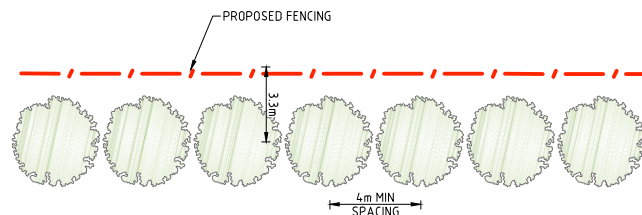
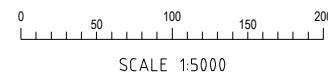
SOURCE: INTERNAL



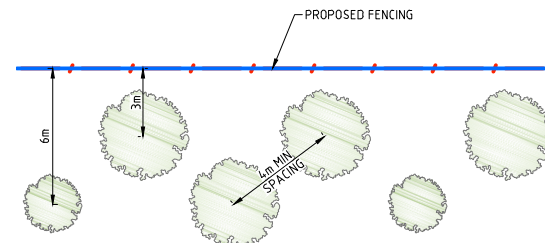
LEGEND:

- PROPOSED LANDSCAPING AREA
- 220 X 100 KW MODULES
- PROPOSED LOT BOUNDARY
- 66 KV ELECTRICITY TRANSMISSION LINE
- PIPELINE
- OUTER LINES OF EASEMENT
- PROPOSED FENCE
- FUTURE 132kv EASEMENT

LANDSCAPING PLAN
SCALE 1:5000 (A3)



LANDSCAPING DETAIL A
NOT TO SCALE
NORTHERN & WESTERN BOUNDARY



LANDSCAPING DETAIL B
NOT TO SCALE
SOUTHERN AND EASTERN BOUNDARY

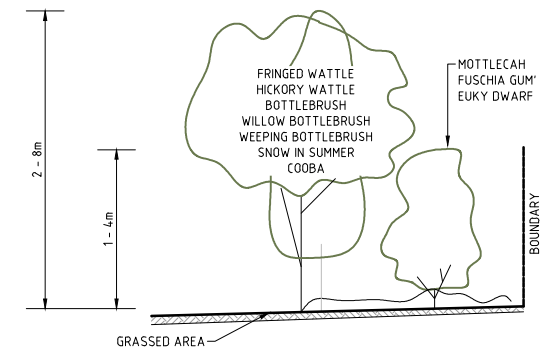
BELOW IS A LIST OF COMMERCIALY AVAILABLE TREES AND SHRUBS SUITABLE FOR REPLANTING AS PART OF THE TREE PLANTING LANDSCAPING FEATURE OF THE SITE BOUNDARIES. MANY OF THESE TREES AND SHRUBS ARE AVAILABLE AS TUBE STOCK FOR PLANTING. THE TABLE PROVIDES AN AVERAGE DESCRIPTION OF THE SIZE OF THESE SPECIES GROWING WELL ON FERTILE SOILS AND IN A NATURAL FORM.

THE TREE PLANTING AREA SHOULD BE COMPRISED OF AT LEAST A TWIN ROW OF TREES. TREE AND SHRUB SPACING WITHIN THIS COMMUNITY TYPE SHOULD BE AT LEAST 4 METRES APART WITH WEED MANAGEMENT AND TREE MAINTENANCE CARRIED OUT DURING THE FIRST TWO TO THREE YEARS OF ESTABLISHMENT.

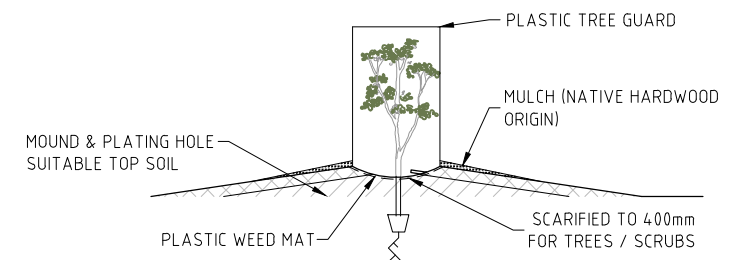
TREES WOULD BE PLANTED INTO A 400mm DEEP RIPPED LINE AND PROTECTED WITH TREE GROW-BAGS, WEED MAT AND MULCH (NATIVE HARDWOOD ORIGIN). STOCK FENCING WOULD BE ERECTED IF NECESSARY. IT IS RECOMMENDED THAT WATERING IS CARRIED OUT DURING DRIER PERIODS DURING ESTABLISHMENT.

PLANING SCHEDULE SCREEN PLANTING

Common Name	Scientific Name	Height	Width	Low water use
Fringed Wattle	<i>Acacia fimbriata</i>	5-7m	4-6m	Yes
Hickory Wattle	<i>Acacia implexa</i>	5-8m	5m	Yes
Cooba	<i>Acacia salicina</i>	3-8m	3-8m	Yes
Bottlebrush	<i>Callistemon 'Kings Park Special'</i>	4-6m	4-6m	Yes
Willow Bottlebrush	<i>Callistemon salignus</i>	4-8m	4-8m	Yes
Weeping Bottlebrush	<i>Callistemon viminalis</i>	5-7m	5-7m	Yes
Fuchsia Gum	<i>Eucalyptus forrestiana</i>	1-6m	2-6m	Yes
-	<i>Eucalyptus leucosylon 'Euky Dwarf'</i>	4-6m	3-5m	Yes
Mottlecah	<i>Eucalyptus macrocarpa</i>	2-4m	2-4m	Yes
Snow In Summer	<i>Melaleuca linariifolia</i>	6-8m	6-10m	Yes

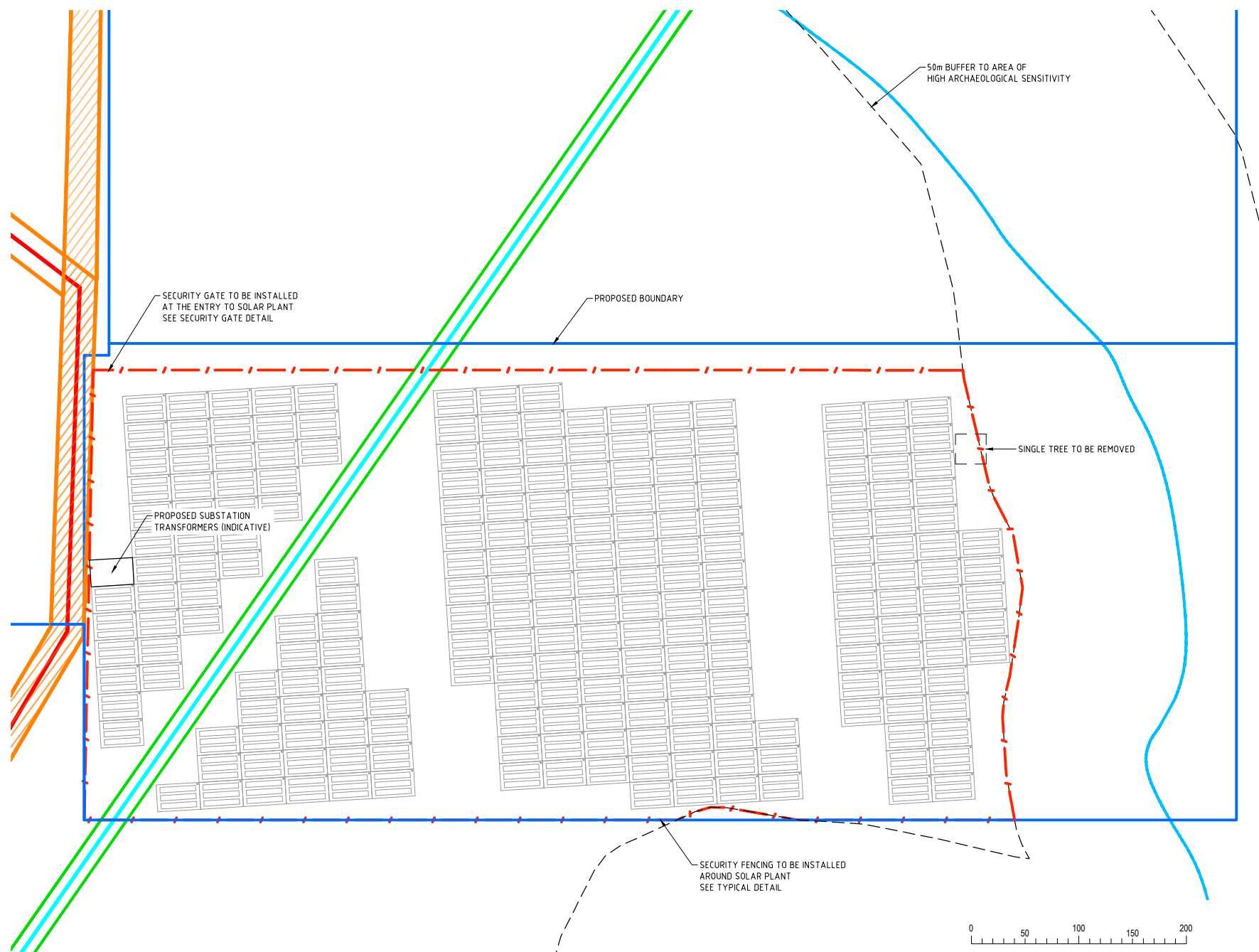
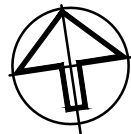


PLANTING DETAIL CROSS SECTION
SCALE NOT TO SCALE



TREE PLANTING DETAIL
SCALE NOT TO SCALE

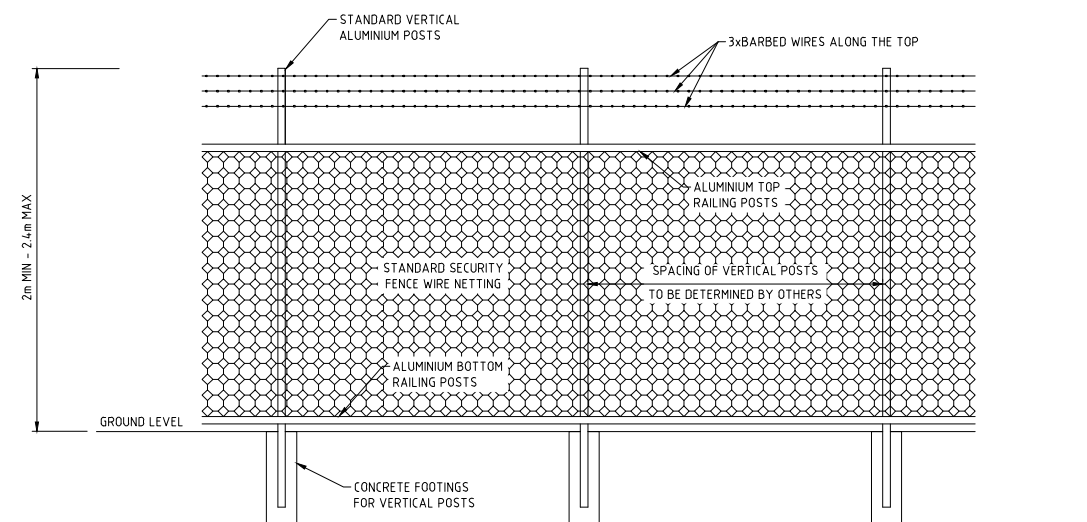
No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	30/06/14	ZD	DW	ISSUED TO CLIENT
B	30/10/15	MY/BH	DW	ISSUED TO CLIENT
C	27/11/15	BH	DW	AMENDED LOT LAYOUT
D	20/01/16	BH	DW	ADDITIONAL LOTS ADDED
E	18/03/16	BH	DW	PROPOSED LOTS AMENDED
F	22/04/16	BH	DW	MINOR AMENDMENTS
G	16/05/16	BH	DW	SOLAR PANEL LOCATION AMENDED



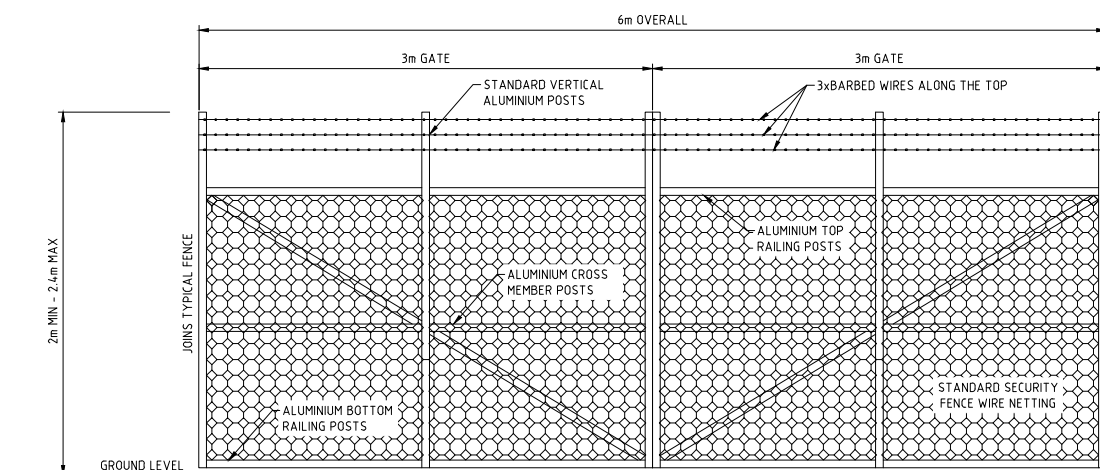
FENCING PLAN
SCALE 1:5000 (A3)

LEGEND:

- 220 X 100 KW MODULES
- PROPOSED LOT BOUNDARY
- 66 KV ELECTRICITY TRANSMISSION LINE
- PIPELINE
- OUTER LINES OF EASEMENT
- PROPOSED FENCE
- FUTURE 132kv EASEMENT



FENCING TYPICAL DETAIL
SCALE 1:50 (A3)



SECURITY GATE DETAIL
SCALE 1:50 (A3)



No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	30/06/14	ZD	DW	ISSUED TO CLIENT
B	30/10/15	MY/BH	DW	ISSUED TO CLIENT
C	27/11/15	BH	DW	AMENDED LOT LAYOUT
D	20/01/16	BH	DW	ADDITIONAL LOTS ADDED
E	18/03/16	BH	DW	PROPOSED LOTS AMENDED
F	22/04/16	BH	DW	MINOR AMENDMENTS
G	16/05/16	BH	DW	SOLAR PANEL LOCATION AMENDED

PROJECT
PROPOSED SOLAR ENERGY SYSTEM
FILE REFERENCE: 214082_05G_TP01-TP07.dwg

APPROVAL AUTHORITY
 Wagga Wagga City Council

CLIENT
SOUTHERN CROSS ENERGY PTY LTD

DRAWING		
FENCING PLAN		
PROJECT NUMBER: 214082	DRAWING NUMBER: 05G_TP07	REV. G
SOURCE: INTERNAL		

Stander, Adriaan

From: Peter Ewin <Peter.Ewin@environment.nsw.gov.au>
Sent: Monday, 16 May 2016 10:30 PM
To: 'David Walker'
Cc: Stander, Adriaan
Subject: Additional OEH Response following archaeological assessment - Bomen Solar Farm

David and Adriaan

Thank you for the additional information relating to the Aboriginal cultural heritage (ACH) assessment for the proposed Bomen Solar Farm. Just to confirm the documents provided they consist of an email sent at 1:45PM on Monday 6 May with an attachment PDF file titled *16-023 Bomen Solar results letter Final_V1* and a follow up email at 4:29PM which includes modified plans in the form of a PDF file titled *214082_05G_TP01-TP07*. The following is my interpretation of the outcomes of these two emails and documents:

- ngh environmental undertook a site inspection and due diligence assessment of the proposed site on 12 May.
- This site visit failed to relocate the previously identified site (AHIMS # 56-1-0109) but did locate a new location in close proximity to the original design (named Bomen Solar ISO1). Based on these sites and the information detailed in Kelleher and Nightingale (2008), they also concluded that the eastern portion of the property is a Potential Archaeological Deposit (PAD).
- They made a series of recommendations based on this assessment, which included further assessment and application for an AHIP if the PAD was to be impacted, or measures, including redesign, to avoid impacts on the site.
- Based on this information, Southern Cross Energy has chosen to redesign the solar panel array to avoid impact on the PAD, leading to a reduction of 40 panels for the project.

We support the current proposal to avoid impact on the sites identified. As stated in our previous letter to Wagga Wagga City Council, the proposed conditions of approval 3 and 27 are adequate to address the requirements for ACH where the impact is to be avoided. Condition 3 requires the development of a CEMP including details relating to ACH management. A key component of the CEMP will be the installation of the fencing prior to construction to minimise the potential damage to the PAD. Condition 27 relates to an unexpected finds protocol during construction, and is appropriate (though as previously stated the Note may not be required). The proposed Condition 20, relating to no-harm zones may not be necessary as this may have been dealt with during the site assessment, and the CEMP should include clear procedures to ensure that harm does not occur. However, OEH has no concerns if this condition is retained.

It should be noted that if Southern Cross Energy does undertake an archaeological assessment of the PAD, the information collected during this assessment should allow, if required, an AHIP application to be made and OEH will then consider this application as required under the *National Parks and Wildlife Act 1974* (NPW Act). This may result in the additional 40 solar panels to be available as part of the overall project. I am available to provide assistance with this process if this is the path chosen.

As a final comment Section 89A of the NPW Act requires that Aboriginal objects must be reported to OEH in the prescribed manner within a reasonable time – ngh environmental should be aware of this, but we would recommend that they submit an AHIMS site card as soon as possible for the sites identified. More information on AHIMS site cards is available at www.environment.nsw.gov.au/licences/DECCAHISSiteRecordingForm.htm.

Please give me a call if you have any questions regarding this response, or require it provided in a formal letter.
Thanks,
Peter

Peter Ewin
Senior Team Leader Planning, South West
Regional Operations Group (South Branch)