

Crookwell 2 Wind Farm Supplementary Heritage Report

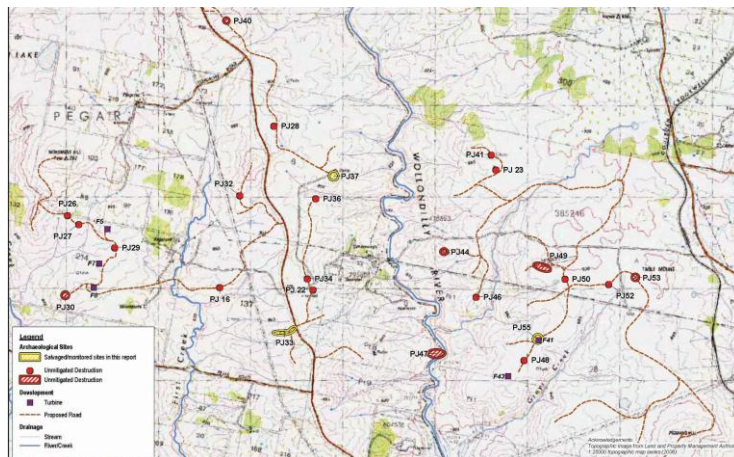
Amendment To Development Consent DA 176-8-2004-i Heritage Impact Assessment

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INTRODUCTION

Bowen Heritage Management Pty Ltd (BHM) was commissioned by Crookwell Development Pty Ltd (the Proponent) to prepare a supplementary report to assess the implications for Aboriginal cultural heritage associated with modifications to the approved Crookwell 2 Wind Farm development. The Crookwell 2 Wind Farm project (the study area) is located on Crookwell Road, approximately 14 km south-east of Crookwell, 30 km north-west of Goulburn in New South Wales and covers an area of approximately 2,088 hectares (5,160 acres).

The Crookwell 2 Wind Farm project received its original Development Consent (DA-176-8-2004-I) on 10 June 2005 for 46 wind turbines and associated infrastructure. The development consent was modified in 2009 (Mod-1) to change the size of the turbines and relocate 20 of 46 turbine locations and associated access tracks. The Proponent is now seeking a modification (Mod-2) to change the turbine technology to a larger size with larger foundations and assembly area, and remove 13 of the 46 turbine locations from the layout, and remove surplus access tracks as a result of the reduction in turbine numbers, and realigning some of the remaining access tracks. The original development and Mod-1 were approved under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), and the Mod-2 application will be assessed in accordance with section 75W of the EP&A Act. Provision 75W allows existing consents granted by the Minister to be modified. This report summarises the heritage assessments previously completed for the Crookwell 2 Wind Farm and addresses the heritage implications of the proposed changes as part of Mod-2.

The aim of this report is to ascertain whether there are any heritage values that could be affected by the development modifications and if so, to provide mitigation measures for the management of those impacts.

The report concludes that:

- No further archaeological assessment is required for the newly proposed 33 wind turbine locations – as long as micrositing is confined to within a 50 metre radius of the original turbine location.
- Any alterations to vehicle access roads will require further archaeological desk top and field survey investigations.
- A meeting take place between the Proponent, Jackie Taylor from the Queanbeyan branch of the OEH and the NSW Department of Planning to formally endorse the proposed work.
- Any further archaeological investigations must be conducted in accordance with the OEH 2010. *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales*, and will require Aboriginal consultation and participation – in line with OEH 2010. *Aboriginal Heritage Consultation Requirements for proponents*.

AUTHORSHIP

Alister Bowen (BHM Archaeologist) completed an Honours degree in archaeology in 1999 at the Australian National University and a PhD in archaeology in 2007 at La Trobe University. He has undertaken a wide range of historical and pre-historical archaeological projects in Queensland, South Australia, Victoria, the Australian Capital Territory and New South Wales. For this Supplementary report Alister has undertaken desktop research and authorship. No fieldwork was undertaken.

PAST HERITAGE ASSESSMENTS

2004 / 2005 Survey/sub-surface testing

In June 2005, a Development Consent (DA-176-8-2004-i) was granted by the Minister for Infrastructure and Planning for the Crookwell 2 Wind Farm project. The wind farm consisted of 46 wind turbines (F1-F12, F16-48, and F50) and associated infrastructure such as underground electrical cables to link each turbine, an on-site sub-station, an on-site control room and equipment storage and a network of vehicle access tracks and access roads. As part of the development consent an Indigenous and non-Indigenous archaeological assessment was required to be undertaken. This assessment was undertaken by the heritage consultant Biosis Research (2004).

The Biosis (2004) archaeological assessment of the study area located one European heritage listed item - Gundowringa homestead, on the eastern side of the Goulburn Road, Crookwell, and two other sites, a bottle dump and windmill ruins of no historical significance. No portion of the three historical sites were in danger of becoming impacted by the wind farm developments and no further historical assessment was required.

During their 2004 survey, Biosis located 25 previously unidentified surface level Aboriginal archaeological sites (PJ 1 to PJ 25). Sites PJ2, PJ3, PJ5, PJ8 to PJ19, and PJ21 to PJ25 were assessed as having a Low to Moderate archaeological significance. Sites PJ1, PJ4, PJ6, PJ7, and PJ20 were considered to be of High archaeological significance.

A 2005 sub-surface testing program (conducted under Preliminary Research Permit and Consent Numbers 2094 and 2095) identified a further 28 sites within the study area (PJ 26 to PJ 53). Of these 53 sites, it was found that 33 sites would be impacted by the proposed wind farm development (Biosis 2005: 6). The report's recommendations were approved by what was then the Department of Environment and Climate Change - now known as The Office of Environment and Heritage (OEH). Where possible, the wind farm's design was amended to avoid impact to the identified sites. For those sites where impact could not be avoided, a mitigation strategy comprising monitoring, collection of Aboriginal objects, and archaeological salvage excavation was developed. An application for a Section 87(1) Excavation and Collection permit under the National Parks and Wildlife Act and Section 90 Consent to Destroy with a Permit to Salvage under the National Parks and Wildlife Act was applied for and granted by the Department of Environment and Climate Change (Consent to Destroy Number 2339 [later transferred to AHIM number 1101268] and Permit to Salvage Number 2340). Under these permits the impact to identified Aboriginal archaeological sites was managed by either recovery excavation (at PJ9 and PJ37), monitoring and collecting of Aboriginal artefacts at (PJ21, PJ33, PJ30, PJ31, PJ35, PJ39, PJ42, PJ43, and PJ45) and unmitigated destruction at (PJ10, PJ16, PJ22, PJ23, PJ26, PJ27, PJ28, PJ29, PJ30, PJ32, PJ34, PJ36, PJ40, PJ41, PJ44, PJ46, PJ47, PJ48, PJ49, PJ50, PJ52, and PJ53) (see site locations at Figures 1 and 2). All of the initial sub-surface test excavations at the turbine locations used a minimum of eight 0.5 metre excavation squares (a total area of 2 m²) to investigate an area of 50 m².

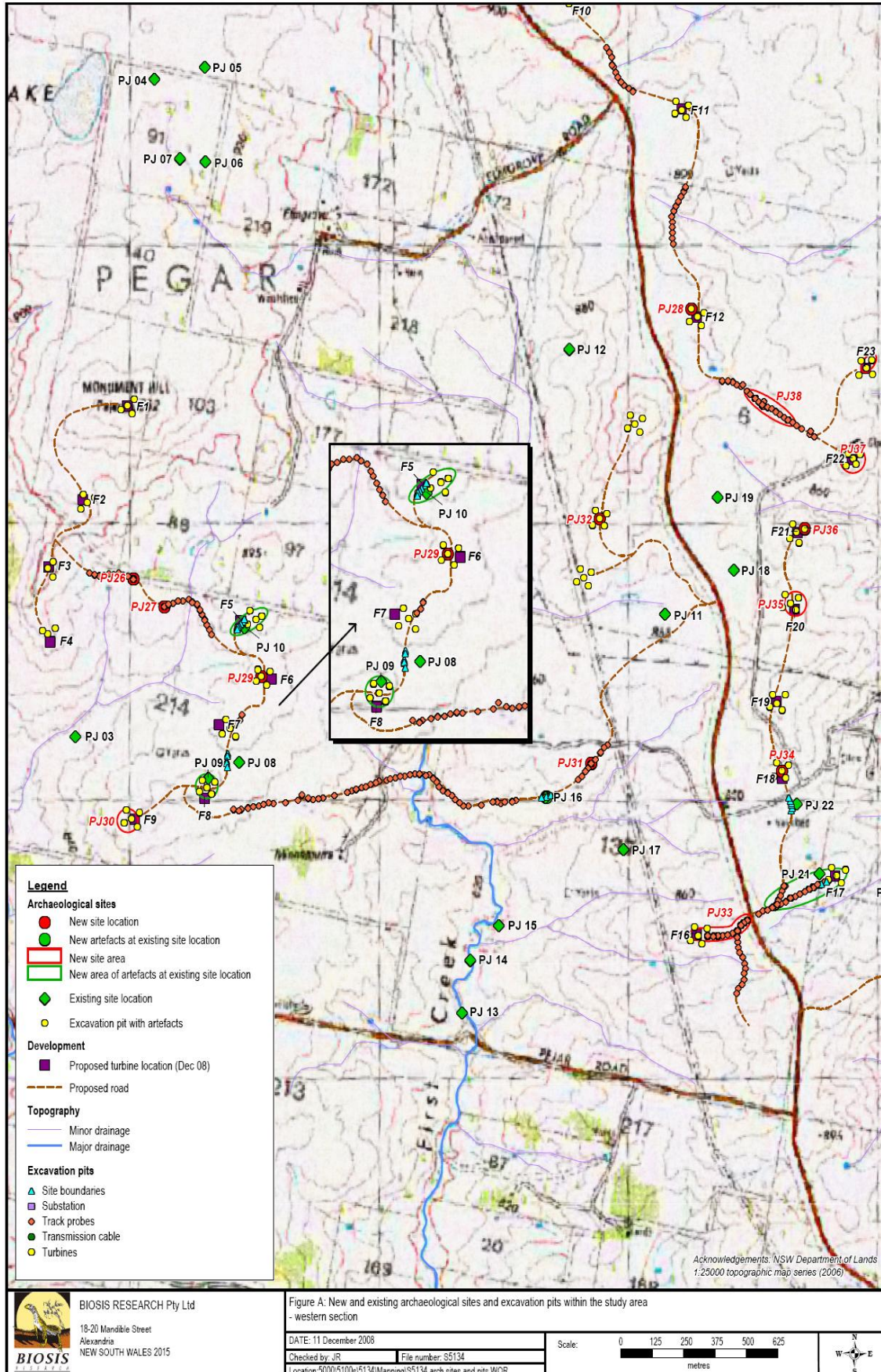


Figure 1: Showing archaeological sites and excavation pits within the western portion of the study area (from Biosis 2008).

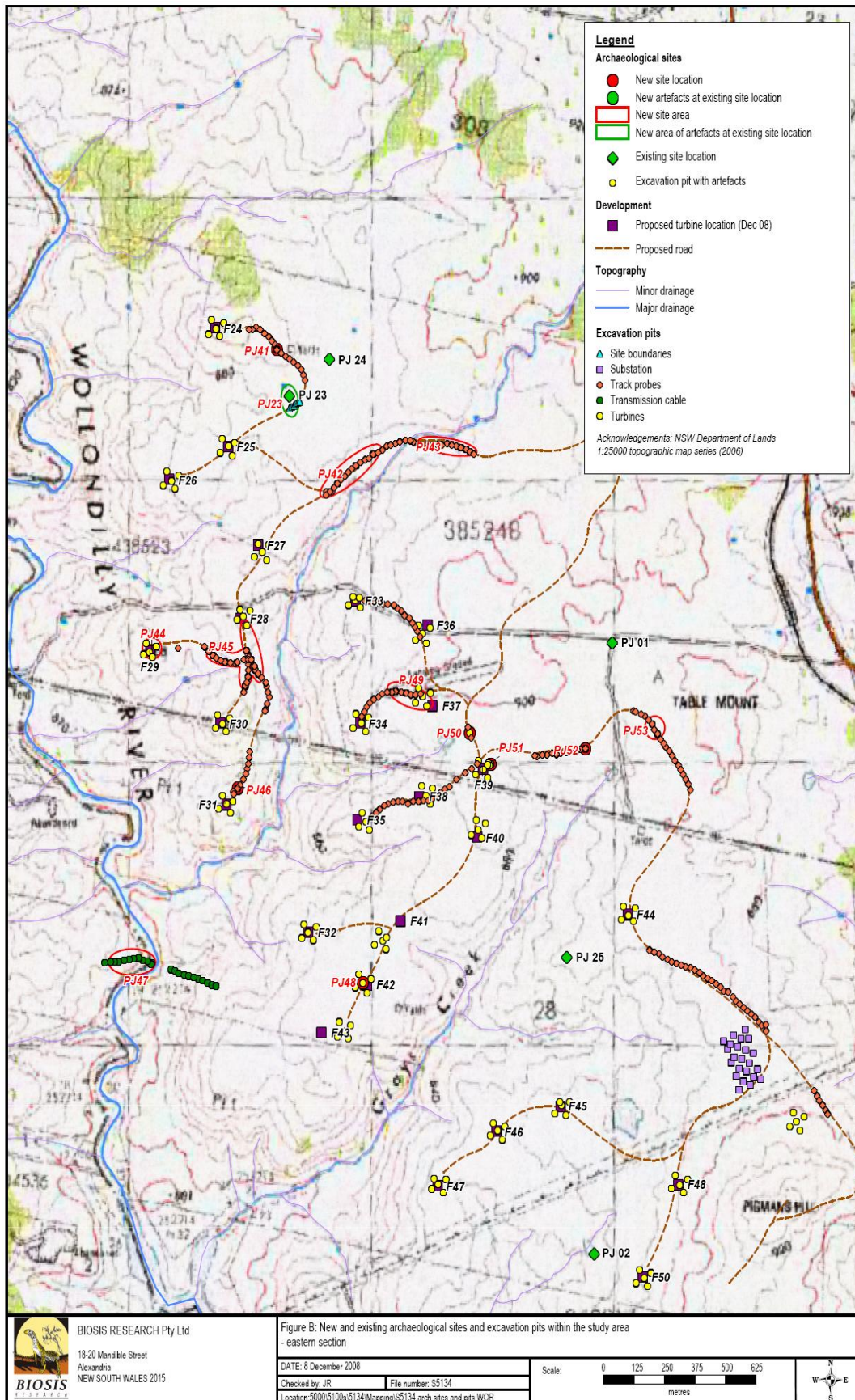


Figure 2: Showing archaeological sites and excavation pits within the eastern portion of the study area (from Biosis 2008).

2008 / 2009 Modification (Mod-1)

In 2008, the Crookwell 2 Wind Farm proposal was modified to incorporate larger sized wind turbines (still under Development Consent DA-176-8-2004-i). Consequently, 20 of the turbines and some of the associated vehicle access tracks required relocation to areas of the study area that had not previously received cultural heritage assessment (see Figure 3 for turbine relocation positions).

Therefore, further field survey investigations and sub-surface testing of the new turbine locations was necessary in order to determine the impact the modified wind farm development may have on Aboriginal cultural heritage. Where the turbine locations and vehicle access roads had not been altered, no further heritage assessment was required and the project remained under the existing Permit issued by Department of Environment and Climate Change.

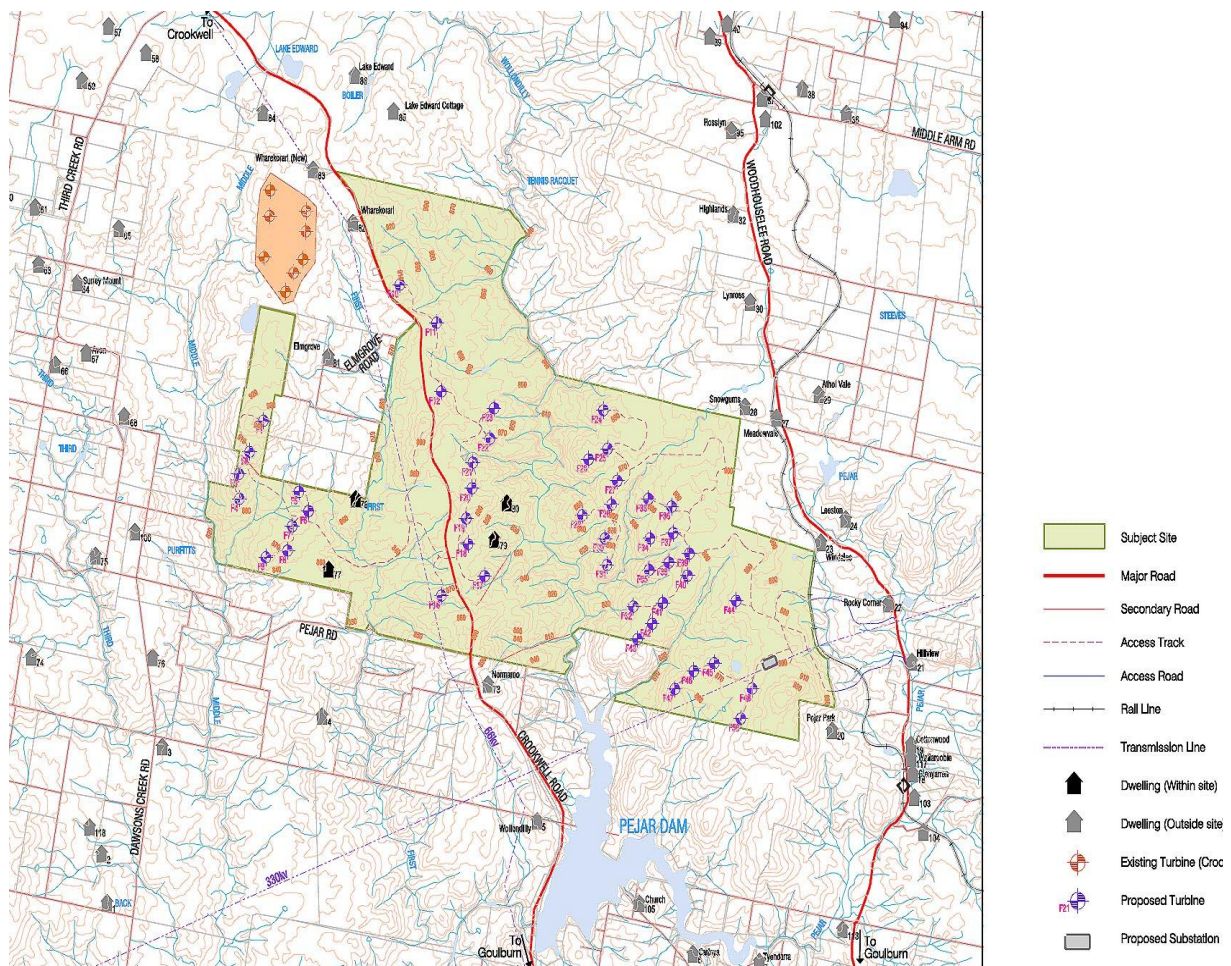


Figure 3: Showing the previous turbine and infrastructure locations (in red) and the 2008 proposed locations (in purple).

In 2008, a desktop heritage assessment was undertaken to investigate the proposed 20 turbine relocations and associated new vehicle access tracks. During the 2005 field survey, a wide area surrounding each turbine location was carefully searched for archaeological material or places of potential archaeological deposit. Where test excavation was deemed

necessary at a turbine location, eight 0.5 metre excavation squares (covering a total of 2 m²) were excavated over an area of 50 m² for each location. Therefore, in 2008, where the turbine relocation was less than 50 metres, no further investigations were required. However, where the relocation was greater than 50 metres, the new location required archaeological investigation. The proposed wind farm modification resulted in five areas where the turbine locations were to be moved further than 50 metres. Therefore, further heritage assessment was undertaken under Consent and Permit numbers 2339 (later transferred to Aboriginal Heritage Information Management System [AHIMS] number 1101268) and 2340, issued by the Department of Environment and Climate Change under Section 87 of the National Parks and Wildlife Act 1974. Salvage excavation of a newly identified Aboriginal site (PJ55) was undertaken at one of the new turbine locations (F41) (under Aboriginal Heritage Impact Permit [AHIP] number 1122895). Monitoring and collection of Aboriginal objects occurred at four of the new turbine locations (resulting in the identification of site PJ 54 at turbine F7) (under AHIP number 1122895). Monitoring and collection of Aboriginal objects was recommended at one of the modified vehicle access roads (under AHIP numbers 1101268 and 1122895).

The archaeological investigations had successfully provided sufficient information to characterise the study areas cultural heritage, allow comparisons with nearby sites previously excavated during the Crookwell 1 development, and answer specific questions regarding stone tool technology and typology in the area. Some ongoing mitigation, involving monitoring work, during the construction phase of the project was recommended (and approved under AHIP number 1101268).

2011 Report

Overall, the Biosis 2011 final sub-surface testing and salvage excavation report for the Crookwell II study area (for the 20 modified turbine locations, monitoring and salvage work) recommended that no further archaeological investigation was required for the wind farm development to proceed - assuming that no further modifications are made to the proposed development layout.

All stages of the archaeological investigations for the Crookwell 2 Wind Farm have been conducted in accordance with Development Consent (DA-176-8-2004-I), under the correct cultural heritage protection legislation - the *National Parks and Wildlife Amendment Regulation 2009* and *2010*. In addition, the appropriate Aboriginal community consultation has been undertaken and all heritage work has followed best practice standards, guidelines and regulations (contemporary for the period of each project stage) and currently include the:

- Office of Environment and Heritage (OEH) 2010. *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*;
- OEH 2010. *Aboriginal Heritage Consultation Requirements for proponents*;
- OEH 2010. *Code of Practice for the investigation of Aboriginal Objects in NSW* (Code of Practice); and
- *Environmental Protection and Biodiversity Conservation Act 1999*, Regulations 2000, and supporting policies and guidelines.

Having reviewed the heritage work so far undertaken for the Crookwell 2 Wind Farm, the study area appears to have been appropriately investigated for items of cultural heritage significance. The impact of the wind farm development to the identified European and Aboriginal archaeological sites has been adequately determined and mitigated against

through a legislatively compliant investigation. The program has involved desktop research, archaeological survey, sub-surface test pitting, salvage excavation, artefact collection and site monitoring. The process has been accepted by the Office of Environment and Heritage and has been an effective and adequate measure to:

- characterise the nature of each identified site
- recover an appropriate level of archaeological information from each identified site
- determine the archaeological significance of each identified site
- protect and preserve as far as practicable each identified site within the study area

2015/2016 MODIFICATION PROPOSAL (MOD-2)

The previous Crookwell 2 Wind Farm proposal allowed for the use of 46 wind turbines. Each turbine was to be constructed on a concrete foundation that measured approximately 17 metres by 17 metres (a 289 m² area) and was associated with a concrete construction-crane parking area (a lay-down) of 50 metres by 50 metres (a 2,500 m² area). Each of these 46 turbine locations have been the subject of an appropriate level of archaeological investigation and where necessary have undergone sub-surface testing and damage mitigation procedures. Where sub-surface test excavations were conducted at a turbine location, an area 50 metres by 50 metres was examined through the use of a minimum of eight 0.5 metre excavation squares, covering a total of 2 m² at each location. Two sites were identified as requiring salvage excavation (PJ 37 and PJ 55), resulting in a 33 m² excavation at site PJ 37 and a 2 m² excavation at site PJ 55.

The currently proposed wind farm modifications are using the original Development Consent (DA-176-8-2004-I) under section 75W of the Environmental Planning and Assessment Act 1979. The modification proposal reduces the number of wind turbines from 46 to 33. The remaining 33 turbines to be used are larger in size than the previous model and therefore require an increased concrete foundation size from approximately 17 metres by 17 metres to approximately 20 metres by 20 metres. The original 50 metre by 50 metre (2,500 m²) overall size of the concrete construction-crane parking area (the lay-down) has also changed. The newly proposed lay-down is rectangle (as opposed to 50 metre square), measuring 22 metre by 57 metre (but still with a 2,500 m² foot print) (Figure 5). The reduced number of turbines also necessitates some minor realignment to the proposed vehicle access roads.

The reduction in proposed turbines – from 46 to 33 – creates 13 landscape positions within the study area, and several vehicle access roads, that will no longer be subject to any ground disturbance – removed turbines are: F6, F8, F16, F18, F20, F25, F33, F34, F38, F39, F42, F44, and F46 (Figure 6). Each of the remaining 33 new style turbines is located in the same position as the existing wind farm proposal – with a 50 metre area allowed for micrositing. Therefore, all of the 33 turbine locations have been adequately archeologically assessed, had their associated cultural heritage material investigated and damage mitigation controls approved by the correct authorities. With micrositing, the proposed wind turbine locations will not be moved more than 50 metres, thereby keeping them still within the locations that have been tested for archaeological sites – and where necessary have received damage mitigation procedures.

The route of any newly altered vehicle access tracks may contain cultural heritage values. To protect to the fullest extent possible, any as yet unidentified archaeological sites or areas of

Aboriginal cultural value that may exist along the altered vehicle access tracks, they should undergo appropriate archaeological assessment, initially in the form of desktop assessment and survey work (if required), including appropriate Aboriginal consultation and participation.

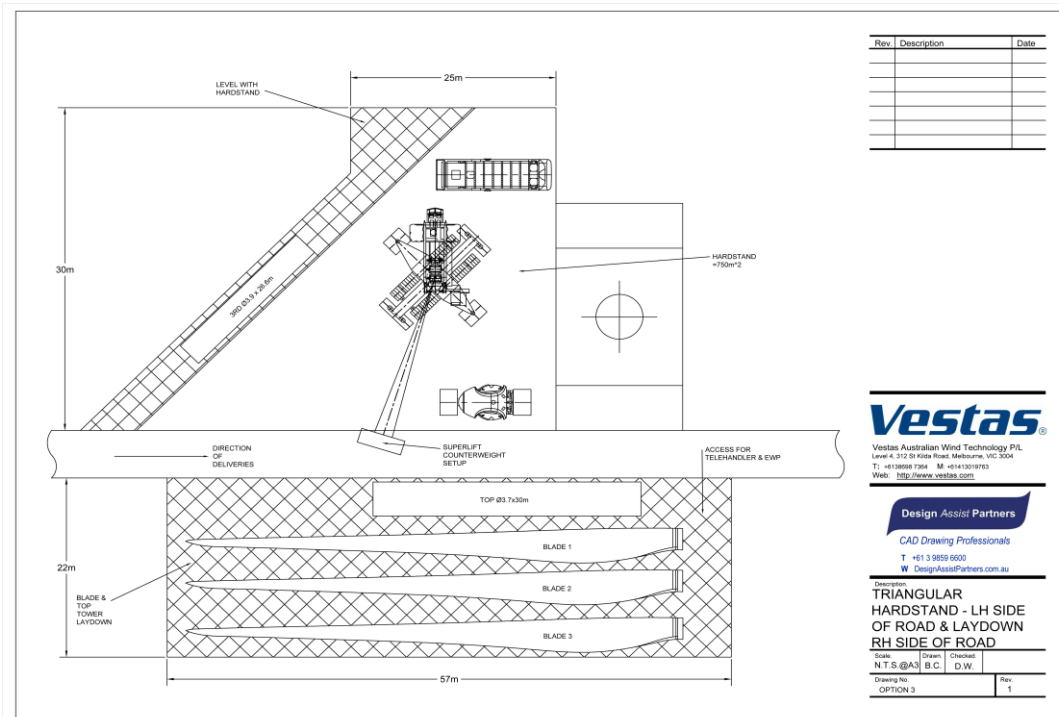


Figure 5: Showing the proposed lay-down design for the 33 new style turbines.

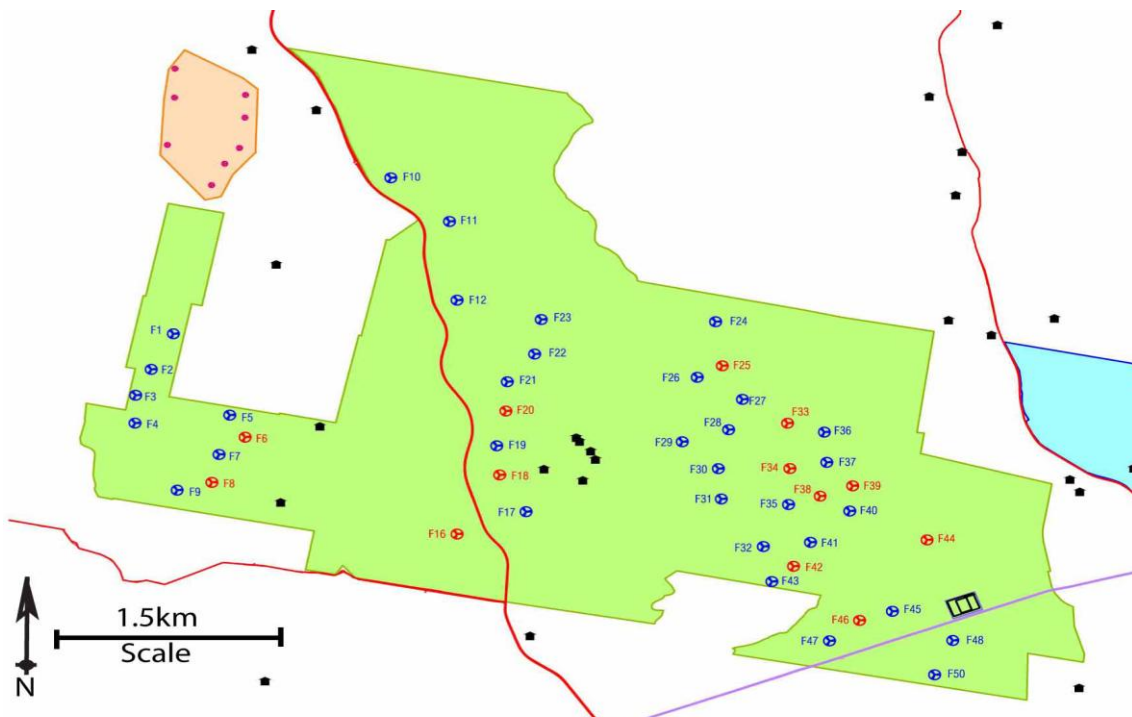


Figure 6: Showing the 33 positions where the wind turbines remain unchanged (blue circle) and 13 locations that will no longer be used/disturbed (red circle).

TURBINE OVERVIEW

The table below summarises the archaeological sites identified at each turbine location and the mitigation measures that have been taken to protect them.

Turbine	Archaeological Site	Mitigation Measures Taken
F1	No known sites in location	None
F2	No known sites in location	None
F3	No known sites in location	None
F4	No known sites in location	None
F5	PJ 10 (AHIMS 51-6-0218)	Consent and Permit given for unmitigated destruction
F6 (REMOVED)	PJ 29 (AHIMS 51-6-0217)	Consent and Permit given for unmitigated destruction
F7	PJ 54 (AHIMS 51-6-0682)	Consent and Permit given for unmitigated destruction (AHIP 1122895)
F8 (REMOVED)	PJ 09 (AHIMS 51-6-0217)	Consent and Permit given for salvage excavation
F9	PJ 30 (AHIMS 51-6-0325)	Consent and Permit given for unmitigated destruction
F10	PJ 40 (AHIMS 51-6-334)	Consent and Permit given for unmitigated destruction
F11	No known sites in location	None
F12	PJ 28 (AHIMS 51-6-0323)	Consent and Permit given for unmitigated destruction
F13	No known sites in location	None
F14	No known sites in location	None
F15	No known sites in location	None
F16 (REMOVED)	PJ 33 (AHIMS 51-6-328)	Consent and Permit for monitoring and collection of Aboriginal objects
F17	PJ 21 (AHIMS 51-6-0229)	Consent and Permit for monitoring and collection of Aboriginal objects
F18 (REMOVED)	PJ 34 (AHIMS 51-6-0329)	Consent and Permit given for unmitigated destruction
F19	No known sites in location	None
F20 (REMOVED)	PJ 35 (AHIMS 51-6-0330)	Consent and Permit for monitoring and collection of Aboriginal objects
F21	PJ 36 (AHIMS 51-6-0331)	Consent and Permit given for unmitigated destruction
F22	PJ 37 (AHIMS 51-6-0348)	Consent and Permit given for salvage excavation
F23	PJ 39 (AHIMS 51-6-0333)	Consent and Permit for monitoring and collection of Aboriginal objects

F24	No known sites in location	None
F25 (REMOVED)	No known sites in location	None
F26	No known sites in location	None
F27	No known sites in location	None
F28	No known sites in location	None
F29	PJ 44 (AHIMS 51-6-0338)	Consent and Permit given for unmitigated destruction
F30	No known sites in location	None
F31	PJ 46 (AHIMS 51-6-0340)	Consent and Permit given for unmitigated destruction
F32	No known sites in location	None
F33 (REMOVED)	No known sites in location	None
F34 (REMOVED)	No known sites in location	None
F35	No known sites in location	None
F36	No known sites in location	None
F37	PJ 49 (AHIMS 51-6-0343)	Consent and Permit given for unmitigated destruction
F38 (REMOVED)	No known sites in location	None
F39 (REMOVED)	PJ 51	Avoid high artefact density site, monitor, no impact allowed
F40	No known sites in location	None
F41	PJ 55 (AHIMS 51-6-0683)	Consent and Permit given for salvage excavation (AHIP 1122895)
F42 (REMOVED)	PJ 48 (AHIMS 51-6-0342)	Consent and Permit given for unmitigated destruction
F43	No known sites in location	None
F44 (REMOVED)	No known sites in location	None
F45	No known sites in location	None
F46 (REMOVED)	No known sites in location	None
F47	No known sites in location	None
F48	No known sites in location	None
F49	No known sites in location	None
F50	No known sites in location	None

FUTURE DIRECTION

Each of the proposed 33 turbine areas that make up the Crookwell 2 Wind Farm has received an adequate level of archaeological investigation and, where necessary, site damage mitigation. The general location of each turbine has been archaeologically surveyed and specific location excavations of 50 metre by 50 metre areas (2,500 m²) undertaken (in the form of a minimum of eight 0.5 metre excavation squares, covering a total of 2 m²) at each location.

Turbine locations F1, F2, F3, F4, F11, F13, F14, F15, F19, F24, F26, F27, F28, F30, F32, F35, F36, F40, F43, F45, F47, F48, F49, and F50 have been adequately archaeologically investigated with no archaeological sites or areas of potential archaeological deposit identified and no further archaeological investigations are required at these locations.

Turbine locations F5, F7, F9, F10, F12, F21, F29, F31, F37, and F42 have had sites of low significance identified and permits issued for unmitigated destruction (under AHIP number 1101268 and AHIP number 1122895). No further archaeological investigations are required at these locations. However, any conditions stated in AHIP's 1101268 and 1122895 must be followed.

Turbine locations F17 and F23 have been archaeologically investigated and identified as areas of potential archaeological deposit. A consent and permit for monitoring and collection of Aboriginal objects has been issued for these two turbine locations (under AHIP number 1101268). During the initial soil disturbing activities for turbine construction these locations must be monitored by the appropriate Aboriginal representatives and surface Aboriginal archaeological material collected during construction works.

Turbine locations F22 and F41 were identified as sites of high archaeological significance and have undergone a program of approved salvage excavation (under AHIP number 1122895) in order to assess and remove the sites. An Aboriginal Site Impact Recording Form (ASIRF) for site PJ55 (51-6-0683) at F41, and a salvage excavation report (Biosis 2011), has been completed and submitted to the AHIMS registrar and no further archaeological investigations are required at this location. However, the ASIRF for PJ54 (51-6- 0682) at F22 has not yet been completed and will be required before any development activities impact the site.

The micrositing process should not extend further than 50 metres past each turbine's currently proposed position. If, after micrositing, a turbine location is at a distance greater than 50 metres from their currently proposed position, then further archaeological testing of that location will be required.

All vehicle access tracks that are not proposed to be repositioned as part of the turbine modifications have received an adequate level of archaeological investigation and as long as their respective mitigation measures are adhered to, no further archaeological testing is required at these locations.

Where vehicle access track locations are to be modified from their originally proposed route or the Mod-1 route, further archaeological investigation in the form of desk top study and field survey investigation will be required. All further heritage assessment must be

undertaken in accordance with the OEH 2010. *Code of Practice for Archaeological Investigations of Aboriginal Objects in New South Wales*.

This brief report is relevant for the proposed turbine relocations and any associated new vehicle access track locations still to be determined. For the Crookwell 2 Wind Farm, AHIP 1122895 could be exercised until 12 January 2016, but is only relevant for site PJ54 that exists at turbine F7's proposed location. Monitoring and collection of Aboriginal objects at several identified sites along the vehicle access tracks and other areas of proposed disturbance have mitigation measures in place, but no current Consent and Permit exists for them. An appropriate way forward may be to relinquish the current AHIP 1122895 and seek a new approval from the NSW Department of Planning and Environment that permits the program of monitoring and collection of Aboriginal objects outlined in the Biosis (2011) report. It is suggested that a meeting take place between the Proponent, Jackie Taylor (or equivalent) from the Queanbeyan branch of the OEH and the NSW Department of Planning and Environment to discuss formally endorsing the process.

In addition, as the project's development consent is being modified through a Section 75W under the Environmental Planning and Assessment Act 1979, Aboriginal consultation and Aboriginal participation - in line with OEH 2010, *Aboriginal Heritage Consultation Requirements for proponents* - will be required before any further Aboriginal cultural heritage assessment takes place.

Note: The consultation guidelines establish a 70 day staged process for Aboriginal community consultation that includes:

1. Notification of project proposal and registration of interest (Communities have 14 days to respond).
2. Presentation of information about the proposed project (Communities have 28 days to respond).
3. Review of draft cultural heritage assessment report (Communities have 28 days to respond).

All collected Aboriginal artefacts will be provided to the Pejar LALC for temporary storage until the completion of the Crookwell 2 Wind Farm. Following all construction work, artefacts should be returned to the land to a location that will not be impacted or disturbed in the future.

REFERENCES

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