- The modification of natural drainage lines/tributaries feeding into Flyers Creek through construction of earth bund or rubble dams and silt filtration dams; and
- Natural transformation processes such as flooding, surface water wash and erosion.

A significant factor is how these sites may have changed over time and what may be observable to the archaeologist today. Very little organic material survives, and only stone artefacts, shell, bones and potentially hearths tend to remain preserved in the current landscape. Scarred trees may survive for up to several hundred years but rarely beyond. Further impacting preservation are factors of disturbance: erosion, tree clearing, movement of grey cracking clay soils, stock trampling/grazing, ploughing and the installation of infrastructure. Using the knowledge gained from a review of the regional context in Section 4.0, the following general predictions can be made regarding the potential nature of sites and their location over the current study area:

There is a moderate probability of artefact scatters occurring within the study area, most likely on elevated locations within 90 m of water sources; these are especially unlikely to be seen along river terraces;

- isolated finds of single stone artefacts may occur anywhere within the landscape;
- where old growth trees exist there is also a possibility of culturally modified trees being present;
- hearth sites are unlikely to occur due to the impact of disturbance but if they are present, will most likely be situated near artefact scatters;
- stone arrangements, axe grinding groves and burials have a relatively low likelihood of being present within the study area;
- potential archaeological deposits may occur within the study area though their identification requires a high degree of certainty based on a comprehensive analysis of landforms and material culture context.

6.3 SECTION SUMMARY

There is a history of Aboriginal occupation stretching over the millennia within this area and continuing to the present day and this has left a rich source of material culture amenable to archaeological analysis. The impact of European colonisation through the direct alteration of the environment and by indirectly ceasing certain cultural practices, such as tree carving, means that the archaeological visibility of Aboriginal material culture varies widely within the study area. Certain more durable sites can be expected to survive with greater frequency and the previous archaeological predictive models give a good indication of the location that these sites tend to occupy.

Within this area landforms such as ridges, hill slopes and old growth areas will constitute the places with the greatest likelihood of archaeological sites being extant. Conversely areas such as river flats and places impacted upon by European land use practices are least likely to yield any visible sites. In particular level areas of comparatively high and sheltered land

are most likely places for artefact scatters to be found while isolated artefacts can be found throughout the landscape. Scarred trees can be understood to be possible within areas where old growth vegetation still remains. Other sites will be less likely to occur within the study area, such as grinding grooves though the location and form of the possible occurrence has been anticipated by the predictive model to allow for a precise and accurate methodology to be developed.

7.0 FIELD ASSESSMENT METHODOLOGY

7.1 SURVEY METHODOLOGY

The study area comprises over 35 km of existing and to be developed access tracks, 46 wind turbine locations, underground cabling, a 33kV Transmission line and a 132kV transmission line corridor 10 km in length. The sparsity and landform specific nature of predicted archaeological sites as well as the segmented structure of the proposed wind farm development meant that an approach that combined a focus on the relevant landforms with the extent of the proposed impact was necessary. All participants underwent the Austral Archaeology site induction prior to fieldwork.

The Transmission Line was located along the western and south western borders of the Cadia Gold Mine site owned by Newcrest Mining Limited. To access this area all survey participants underwent a Newcrest site induction at the mine site entrance.

The aims of the field assessment were to:

- Identify Aboriginal archaeological and cultural sites and issues.
- Identify areas of potential archaeological deposit and/or archaeologically sensitive landscapes, within the study area.

The results of the field assessment will be used to be to identify the level of archaeological and cultural potential and significance of the study area and offer mitigation and management recommendations in relation to any identified archaeological resource.

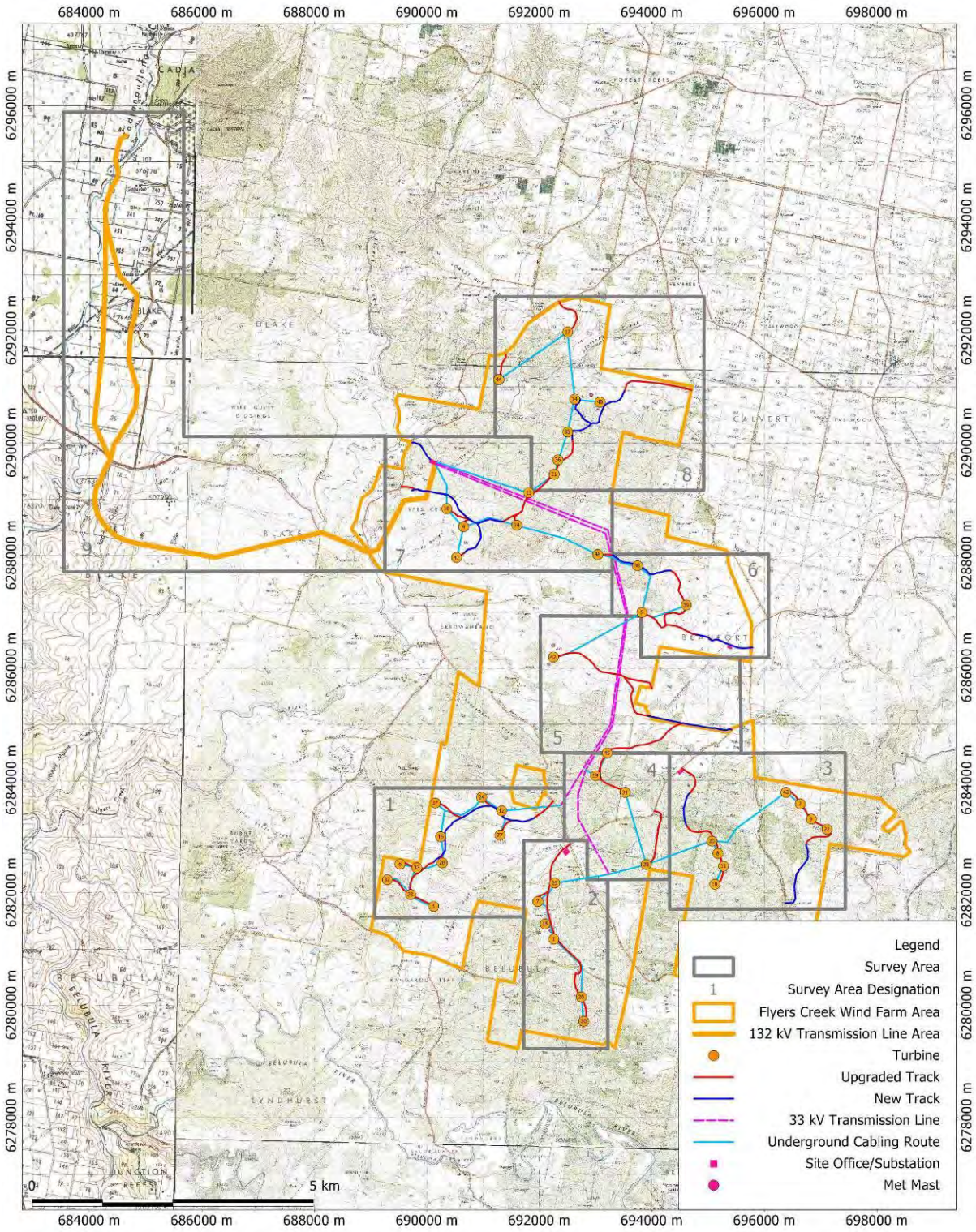
7.1.1 Survey Units

The development envelope for the proposed wind farm is roughly 13 km in length and 8 km wide. The transmission line connecting the wind farm to the grid is 10km long. The study area was divided into 9 survey units based on the wind turbine, underground cabling location, access road clusters and the transmission line itself. The study area was surveyed in transects of a linear manner along each access track, possible underground cable location and transmission lines, survey participants spread out at even intervals of 10 to 15 m apart. Because of the close spacing and directed approach this means that coverage of each survey area would be as close to total as possible allowing for the variation in exposure and visibility.

Table 7.1 Descriptions of Survey Units

Survey Unit	Description	Landform Unit	Potential
1	Covering the locations of turbines 21-31, access tracks and underground cabling location.	• Fluvial flat/bank • Hill slopes • Hill crest	• Low • Moderate • Moderate

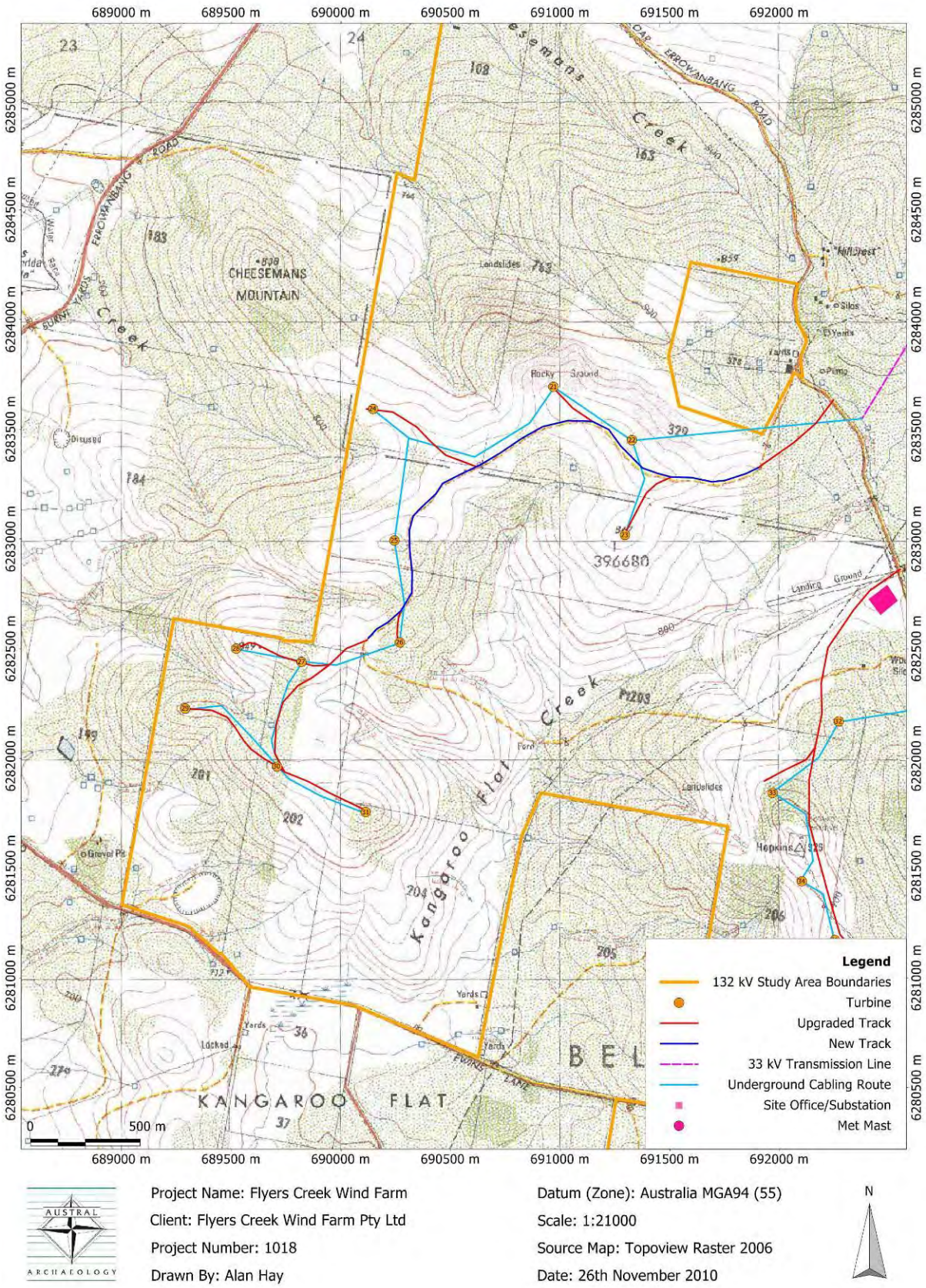
2	Covering the locations of turbines 32-37, access tracks and underground cabling location.	• Hill slopes • Hill crest	• Moderate • Moderate
3	Covering the locations of turbines 39-46, access tracks and underground cabling location.	• Fluvial flat/bank • Flat • Hill slopes • Hill crest	• Low • Low to moderate • Moderate • Moderate
4	Covering the locations of turbines 19-20, 38, access tracks and underground cabling location.	• Fluvial flat/bank • Hill slopes • Hill crest	• Low • Moderate • Moderate
5	Covering the locations of turbines 17-18, access tracks and underground cabling location.	• Fluvial flat/bank • Flat • Hill slopes • Hill crest	• Low • Low to moderate • Moderate • Moderate
6	Covering the locations of turbines 14-16, access tracks and underground cabling location.	• Fluvial flat/bank • Flat • Hill slopes • Hill crest	• Low • Low to moderate • Moderate • Moderate
7	Covering the locations of turbines 9-13, access tracks and underground cabling location.	• Fluvial flat/bank • Hill slopes • Hill crest	• Low • Moderate • Moderate
8	Covering the locations of turbines 1-8, access tracks and underground cabling location.	• Fluvial flat/bank • Hill slopes • Hill crest	• Low • Moderate • Moderate
9	132kV Transmission line area	• Fluvial flat/bank • Flat • Hill slopes • Hill crest	• Low • Low to moderate • Moderate • Moderate



Project Name: Flyers Creek WInd Farm
Client: Flyers Creek Wind Farm Pty Ltd
Project Number: 1018
Drawn By: Alan Hay

Datum (Zone): Australia MGA94 (55)
Scale: 1:86000
Source Map:Topoviewer Raster 2006
Date: 26th November 2010

Figure 7.1 *Survey Areas of the Flyers Creek Wind Farm study area.*

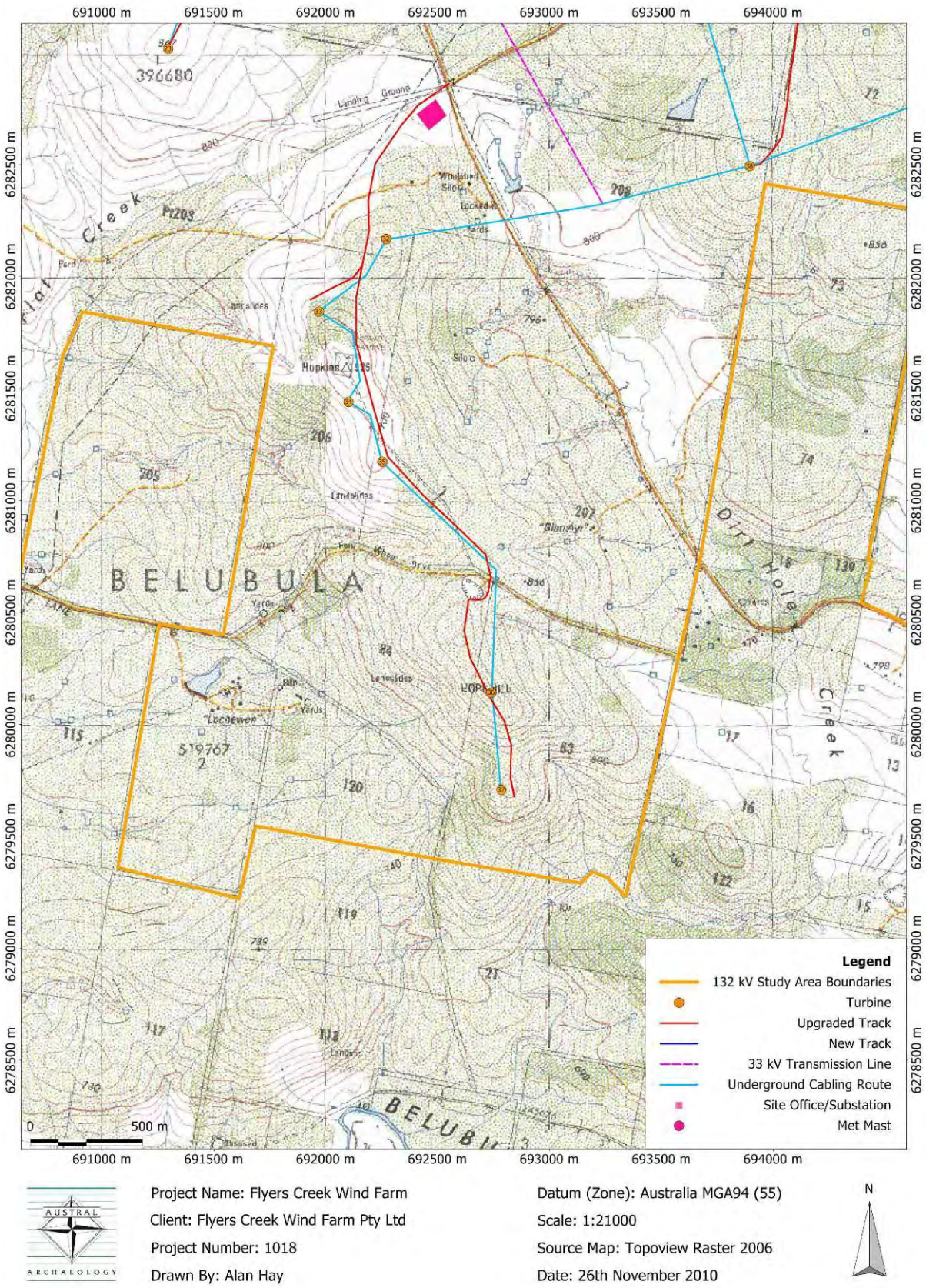


Project Name: Flyers Creek Wind Farm
Client: Flyers Creek Wind Farm Pty Ltd
Project Number: 1018
Drawn By: Alan Hay

Datum (Zone): Australia MGA94 (55)
Scale: 1:21000
Source Map: Topoview Raster 2006
Date: 26th November 2010

N

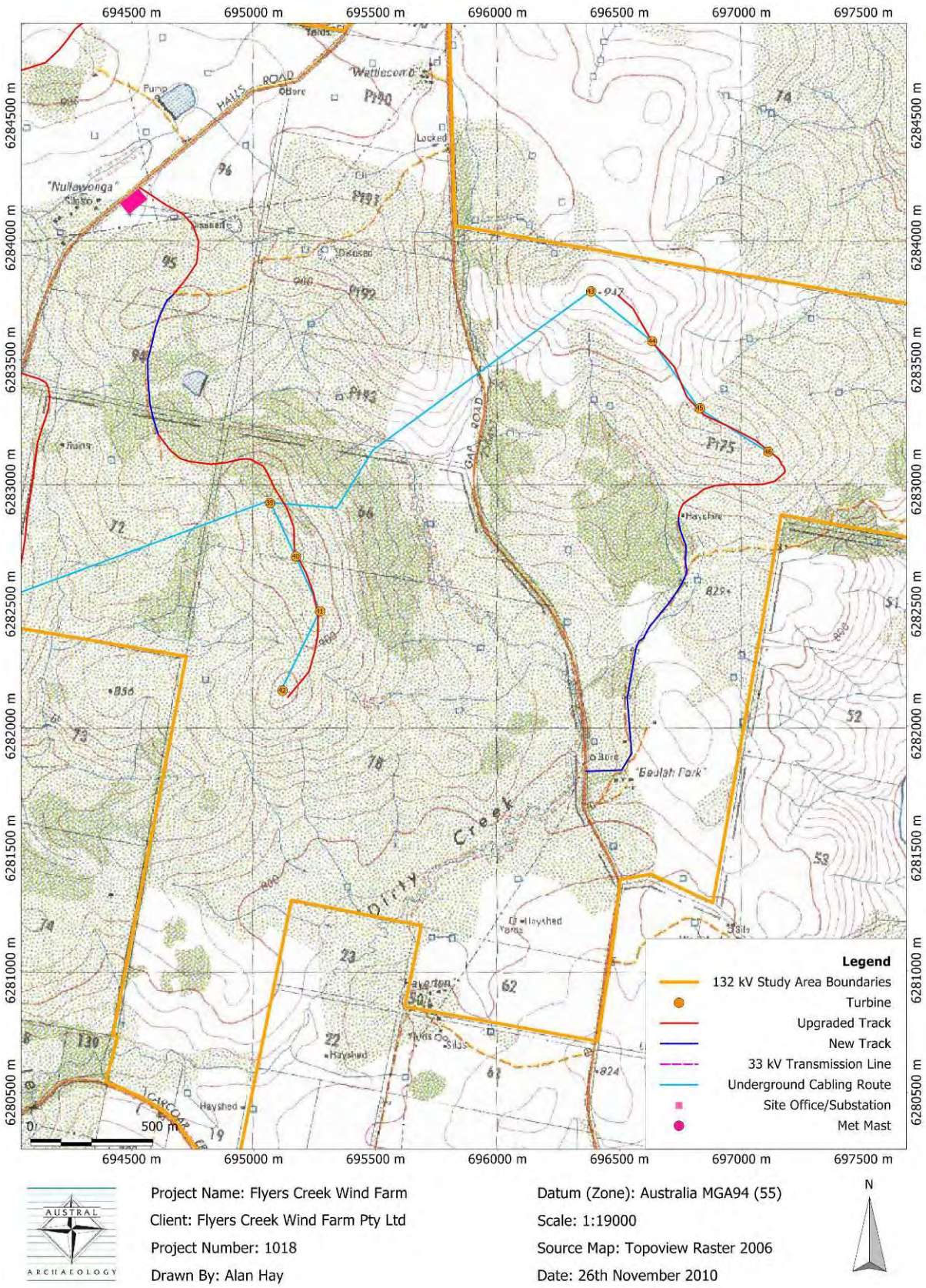
Figure 7.2 *Survey Area 1*



Project Name: Flyers Creek Wind Farm
Client: Flyers Creek Wind Farm Pty Ltd
Project Number: 1018
Drawn By: Alan Hay

Datum (Zone): Australia MGA94 (55)
Scale: 1:21000
Source Map: Topoview Raster 2006
Date: 26th November 2010

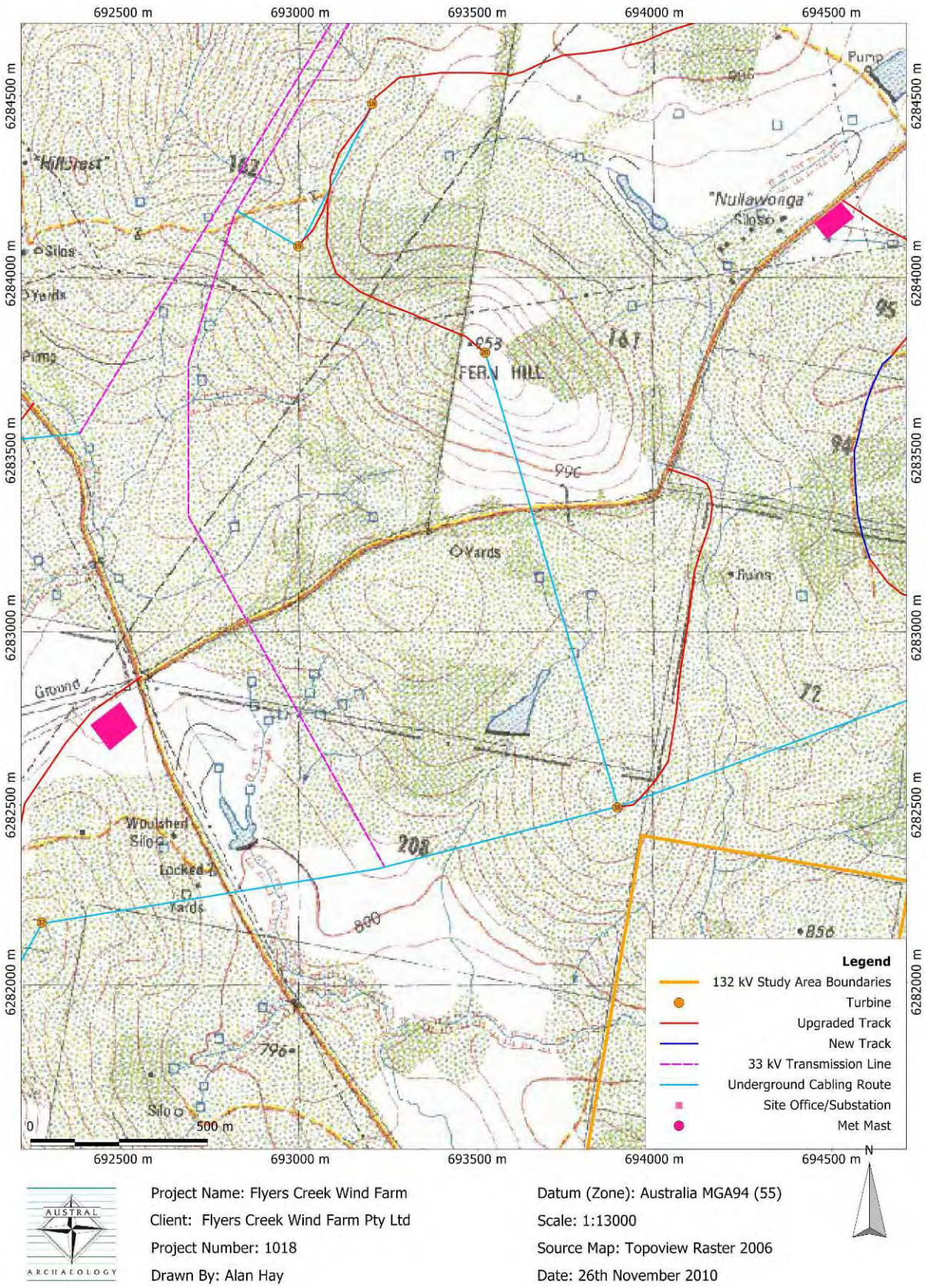
Figure 7.3 *Survey Area 2.*



Project Name: Flyers Creek Wind Farm
Client: Flyers Creek Wind Farm Pty Ltd
Project Number: 1018
Drawn By: Alan Hay

Datum (Zone): Australia MGA94 (55)
Scale: 1:19000
Source Map: Topoview Raster 2006
Date: 26th November 2010

Figure 7.4 *Survey Area 3.*



Project Name: Flyers Creek Wind Farm
Client: Flyers Creek Wind Farm Pty Ltd
Project Number: 1018
Drawn By: Alan Hay

Datum (Zone): Australia MGA94 (55)
Scale: 1:13000
Source Map: Topoview Raster 2006
Date: 26th November 2010

Figure 7.5 *Survey Area 4*

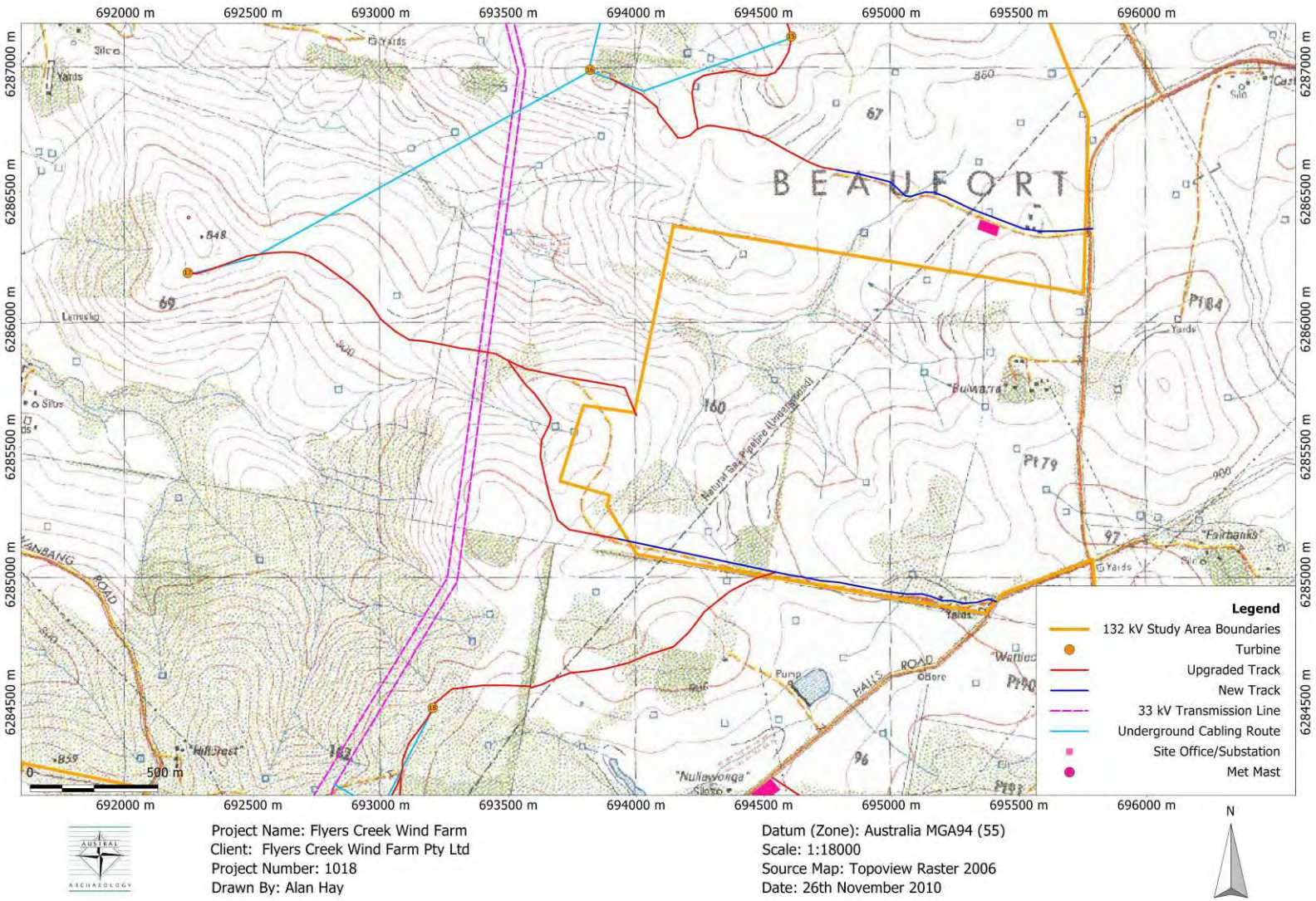


Figure 7.6 *Survey Area 5.*

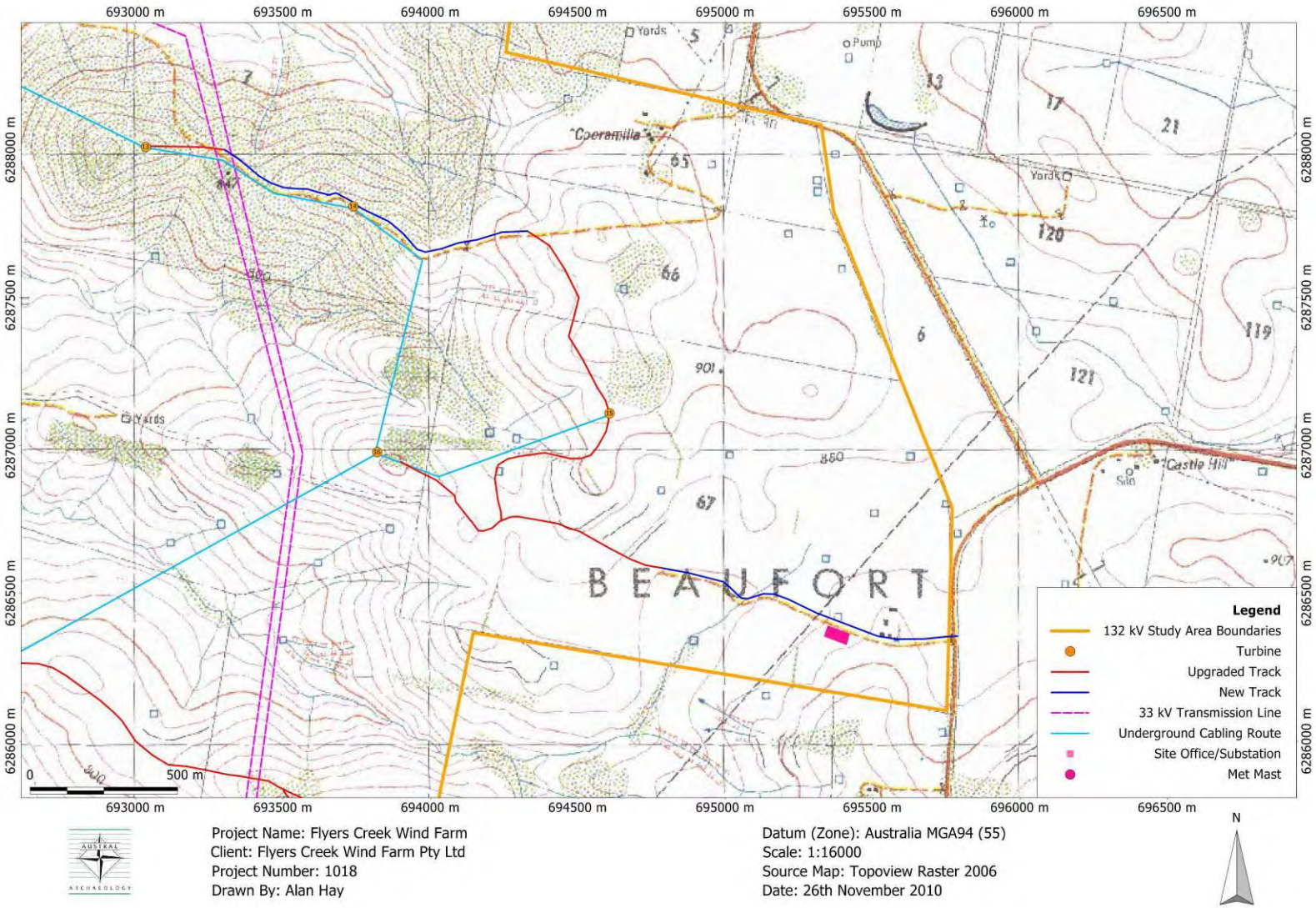
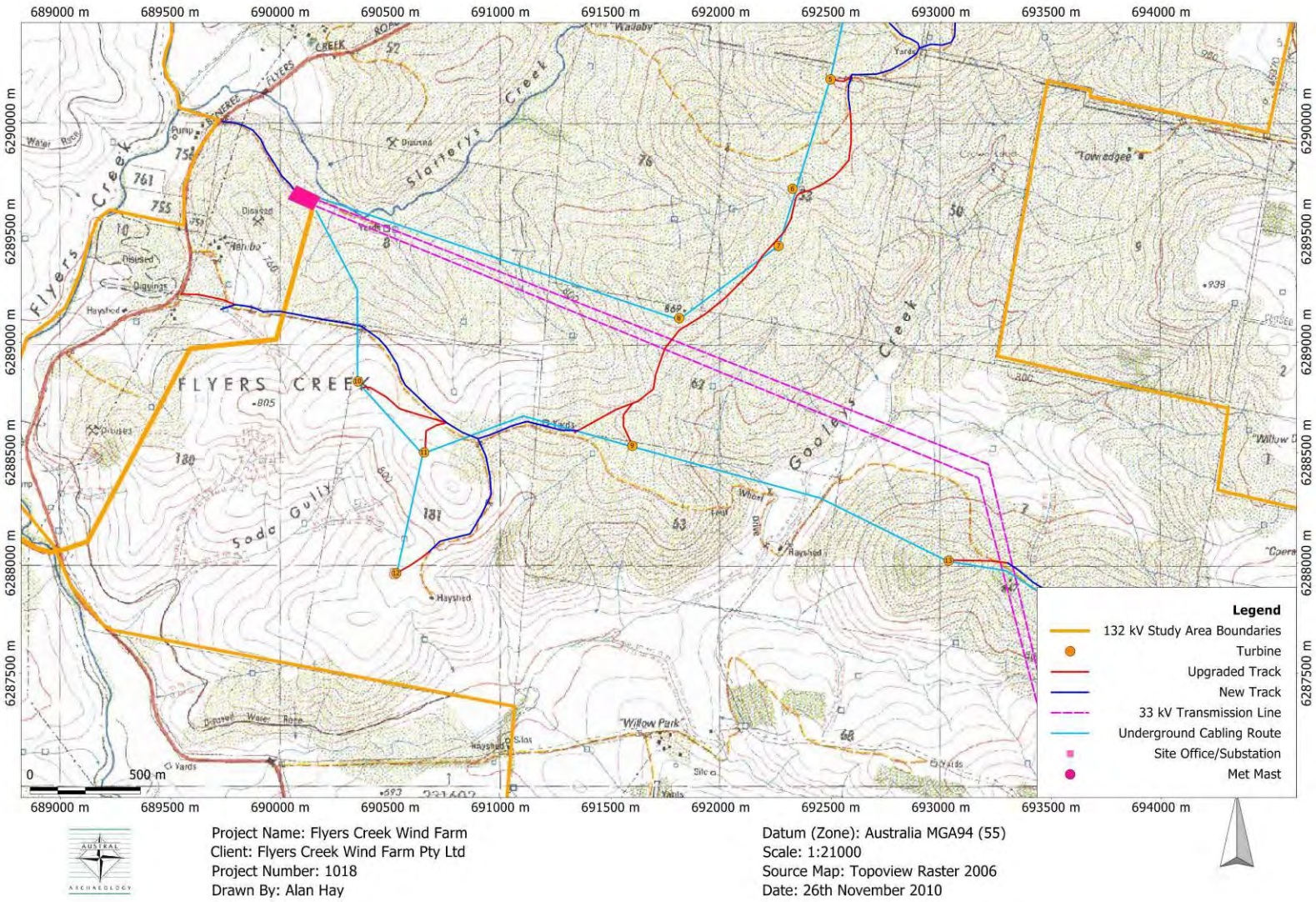


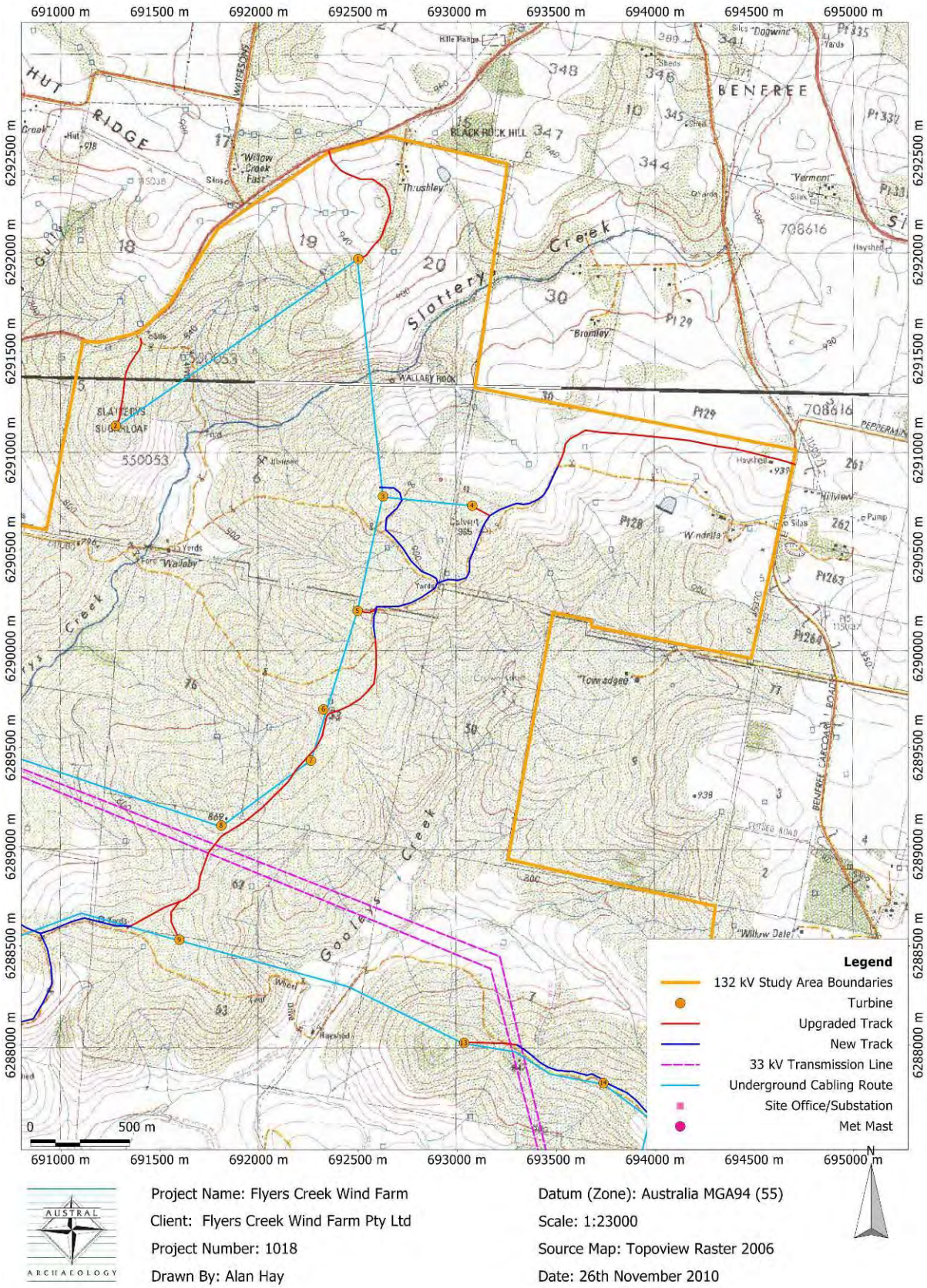
Figure 7.7 *Survey Area 6.*



Project Name: Flyers Creek Wind Farm
Client: Flyers Creek Wind Farm Pty Ltd
Project Number: 1018
Drawn By: Alan Hay

Datum (Zone): Australia MGA94 (55)
Scale: 1:21000
Source Map: Topoview Raster 2006
Date: 26th November 2010

Figure 7.8 *Survey Area 7.*



Project Name: Flyers Creek Wind Farm
Client: Flyers Creek Wind Farm Pty Ltd
Project Number: 1018
Drawn By: Alan Hay

Datum (Zone): Australia MGA94 (55)
Scale: 1:23000
Source Map: Topoview Raster 2006
Date: 26th November 2010

Figure 7.9 *Survey Area 8.*

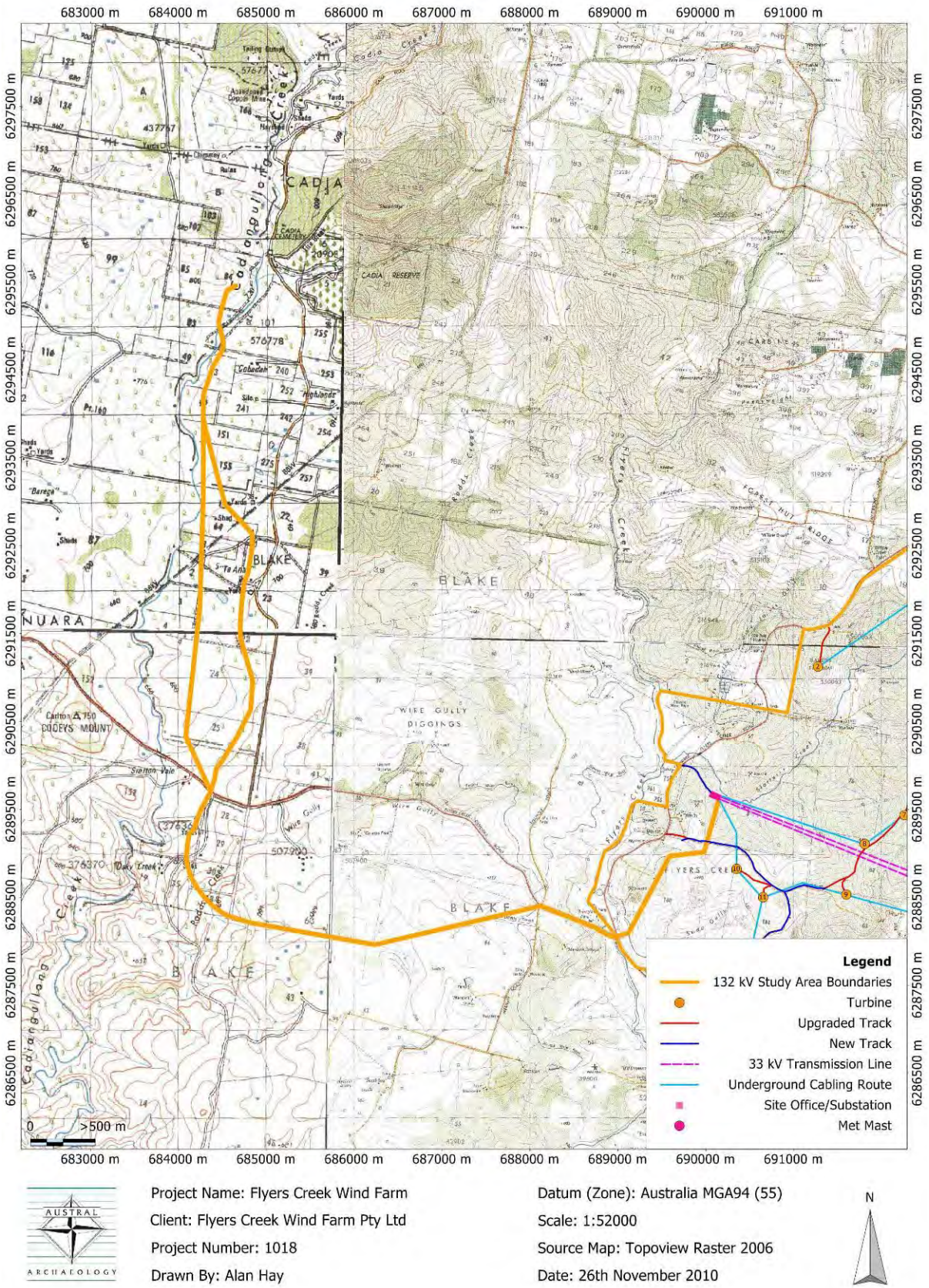


Figure 7.10 *Survey Area 9.*

7.1.2 Recording

Each of the survey units was to have its own pro forma field recording sheet, to enable all finds and survey unit specifics to be recorded. This would ensure that all terrain, land disturbance, resource location and Aboriginal site distribution information for each survey unit was comparable with data recorded for the others. Exposure and ground surface visibility was to be recorded following the system outlined in Table 7.2, below, and levels of disturbance were to be assessed according to a similar scale (refer to Table 6.1).

Likewise, a pro forma sheet for each artefact find recorded during assessment was to be kept. Recordable artefact attributes for field assessment included: type, length, breadth, width, material, cortex, and evidence of any diagnostic traits, as well as evidence of use wear and/or retouch. Artefacts were photographed in the field with visible scale reference. GPS co-ordinates (in GDA94) were kept for each artefact find.

Artefacts were to be recorded singularly unless a major artefact scatter was observed. Estimates of scatter size based on the number of artefacts per square meter over the estimated size of the area were to be employed. Site maps and sketches were also to be made where appropriate.

Table 7.2 Categories of Ground Surface Visibility

Ground Surface Visibility	Percentage Rating
Very Poor – heavy vegetation, scrub, foliage or debris cover, dense tree or scrub cover. Soil surface of the ground difficult to see.	0-9% ground surface visible.
Poor – moderate level of vegetation, scrub, and/or tree cover. Some small patches of soil surface visible in the form of animal tracks, erosion, scalds, blowouts etc, in isolated patches. Soil surface visible in random patches.	10-29% ground surface visible.
Fair – moderate levels of vegetation, scrub and/or tree cover. Moderate sized patches of soil surface visible, possibly associated with animal /stock tracks, unsealed walking tracks, erosion, blowouts etc. Soil surface visible as moderate to small patches, across a larger section of the study area.	30-49% ground surface visible.
Good – moderate to low level of vegetation, tree or scrub cover. Greater amount of areas of soil surface visible in the form of erosion, scalds, blowouts, recent ploughing, grading or clearing.	50-69% ground surface visible.
Very Good – low levels of vegetation/scrub cover. Higher incidence of soil surface visible due to past or recent land-use practices such as ploughing, grading, mining etc.	70-89% ground surface visible.
Excellent – very low to non-existent levels of vegetation/scrub cover. High incidence of soil surface visible due to past or recent land use practices, such as ploughing, grading, mining etc.	90-100% ground surface visible.

7.1.3 Aboriginal Cultural Heritage Consultation

The Aboriginal cultural heritage component of the Flyers Creek Wind Farm archaeological and cultural heritage assessment was undertaken simultaneously with the archaeological field assessment component.

During the field assessment the representatives of the Aboriginal stakeholder organisations were asked to identify issues, items or areas of cultural significance and offer comment on cultural rather than archaeological grounds.

Austral Archaeology recognises that it may not be culturally appropriate for certain information on areas of Aboriginal cultural and/or spiritual significance to be provided to archaeologists. However, it was determined that best efforts would be made to elicit general information including, if possible, locational data on the cultural values of the study area without overstepping cultural boundaries.

7.2 SECTION SUMMARY

Austral's proposed field assessment methodology was designed to specifically target the areas of development for the Flyers Creek Wind Farm. The survey methodology attempted to provide flexibility in response to onsite conditions and stakeholder and Client requirements, as well as to provide uniformity in recording to allow derivation of sound recommendations based on discussion of the results. The field assessment results are outlined in the following section.

8.0 FIELD ASSESSMENT RESULTS

The study area was surveyed in accordance with a predictive model and coverage was total. The survey's focus was directed at: 35 km of existing and to be developed access tracks, 46 wind turbine locations, underground cabling, a 33kV Transmission line 8km in length and a 132kV transmission line corridor 10km in length.

The study area was classed into nine survey areas of interconnected cabling, track and turbine locations with each of these elements becoming the focus of specific survey units. This approach means that a full description of each part of the development impact was undertaken while the comprehensive survey areas allow ready comparison of landform units and an easy understanding of the level of impact on the Aboriginal heritage of each area.

Consent was sought from the stakeholders prior to making any modifications to the proposed survey methodology. During the survey the Aboriginal site officers were also asked to consider whether there were any Aboriginal cultural values or issues that they wished to raise, identify or have recorded in this report.

Please note that this section aims to provide a précis of survey results only. Detailed Survey Unit recordings are provided in Appendix D and detailed Site Recordings are provided in Appendix E.

8.1 SCOPE OF THE SURVEY

The proposed survey methodology was adhered to throughout the survey and complete coverage of the impacted area was attained. A focused, model based survey methodology produced an approach that addressed the areas of greatest potential with the greatest detail. Given the large size of the study area, this approach enabled coverage of different landscape elements with variable archaeological sensitivity. This in turn allowed extrapolation of the results to predict areas of archaeological potential across the study area where heritage impacts would be greatest.

Owing to the very low levels or absence of ground surface visibility, the inhospitable nature of some terrain, its freedom from old growth trees and the absence of exposures, some survey units were sighted, photographed and recorded out in the field and in some of these cases it was decided, in consultation with the Aboriginal representatives, that a pedestrian survey was not required. Turbine location, substation and site office areas were uniformly subjected to pedestrian field survey, with surveyors spaced 10- 15 m apart, and also fanning out beyond the proposed footprint to investigate areas of exposure if encountered. Combinations of vehicle survey to locate exposures and pedestrian survey were used in areas where exposures were of very low frequency. Ground surface visibility was generally poor due to thick grass but discussion regarding past land use, landform unit and archaeological potential was also undertaken with the Aboriginal stakeholder representatives while in the field.

8.2 SURVEY RESULTS

8.2.1 Survey Findings

As a result of the field survey undertaken for the Flyers Creek Wind Farm project, a total of 9 sites were recorded, with a total of 32 artefacts. Site location mapping is provided in Figures 8.1, 8.2 &

8.3. The number of each particular site type is presented below in Table 8.1.

Table 8.1 Frequency of Site Types within the study area

Site Type	Number of Sites	Percentage
Isolated Finds	3	33%
Open Artefact Scatter	4	44%
Potential Archaeological Deposit (PAD)	2	23%
Total	**9**	**100%**

Of the 9 sites, 3 were isolated finds (33%), 4 were open artefact scatters (44%) and two Potential Archaeological Deposits (PAD) were recorded (23%). PAD 1 is located on a terraced rise above an unnamed watercourse and has a single site associated within its boundaries, CWF-S-01. PAD 2 is in close proximity to --. (This information has been omitted from the current document due to its potentially culturally sensitive nature. Such data is presented in the restricted version only.)

Table 8.2 Number of Artefact Types within the Study Area

Artefact Type	Number of Artefact Types	Percentage of Types
Flakes	29	90%
Cores	2	6.5%
Tools	1	3.5%
Total		**100%**

The density of stone artefact scatters within the study area was low. Sites were located throughout the study area, but were concentrated in moderately or highly disturbed contexts throughout the landscape.

Several forms of cultural transformation processes have had an effect on the study area:

- Clearance of native vegetation for pastoral activities – this is particularly evident in study area 2 and the northern section of study area 1.
- Establishment and operation of agricultural enterprises such as Lucerne crops and Grass feed crops for livestock.
- Agriculture, including construction of land-use earthworks such as dams, contour banks; farmhouses, outbuildings and sheds.
- Construction of roads and tracks for various access uses.

The material culture of the area is also likely to have been further affected by natural transformation processes often exacerbated by European land management practices. Evidence of soil erosion and deposition is observable all throughout the area and is a contributing factor to the disturbance of the tangible Aboriginal heritage.

The following naming scheme has been adopted for finds recorded during the field assessment:

Table 8.4 Site Naming Conventions employed during the Field Assessment

Abbreviation	Explanation
FCWF	Flyers Creek Wind Farm
IF	Isolated Find
S	Scatter (Open Artefact Scatter)
PAD	Potential Archaeological Deposit

Table 8.5 Survey Results

Site Name	Size	# of artefacts	Landform Unit	Exposure type (dam, track etc)	Archaeological Potential
FCWF-S-01	20 m²	7	Rolling hills, terrace	Furrow	Low to moderate
FCWF-S-02	20 m²	3	Rolling hills, lower slope	Damn wall	Low
FCWF-IF-01	<1 m²	1	Rolling hills, lower slope	Track	Low
FCWF-S-03	150 m x 2 m	7	Rolling hills, mid slope	Track	Low
FCWF-IF-02	<1 m²	1	Steep hills, lower slope	Washout	Low
FCWF-S-04	20 m²	12	Steep hills, saddle	Track	Low to moderate
FCWF-IF-03	<1 m²	1	Rolling hills, ridge	Track	Low
FCWF-PAD-01	100 m²	-	Rolling hills, terrace	Furrow	Moderate to high
FCWF-PAD-02	75 m²	-	Rolling hills, terrace	-	Moderate

The sites were located close together in two groups, to the southeast and to the northwest; there was also a single isolated find (FCWF-IF-02) in the middle of the study area; refer to Figures 8.1, 8.2 and 8.3.

This figure has been omitted from the current document due to its potentially culturally sensitive nature. Such data is presented in the restricted version only.

Figure 8.1 Northern group of sites.

This figure has been omitted from the current document due to its potentially culturally sensitive nature. Such data is presented in the restricted version only.

Figure 8.2 *Southern group of sites.*

This figure has been omitted from the current document due to its potentially culturally sensitive nature. Such data is presented in the restricted version only.

Figure 8.3 *Isolated find in the centre of study area.*

It is important to note that both areas of PAD occur on a terrace within rolling hills as the general landform unit. The PAD's can be characterised by the connection between archaeological deposits being present and landscape features that was discussed in the predictive model adapted to serve as part of this investigation. Elements such as shelter, ready access to water and adequate drainage were all present. FCWF-PAD-01 was also associated with FCWF-S-01 increasing the possible presence of sub-surface deposits containing Aboriginal cultural material.

8.3 Cultural Assessment Results

No archaeological sites were identified in association with cultural areas or features. The Aboriginal stakeholders may provide information on such sites in their response to the draft version of this report. However it is understood that all archaeological material is likely to be of cultural importance to the Aboriginal community as it is material produced by past Aboriginal people.

8.4 Artefact Types and Raw Materials

As can be seen from Table 8.6, the majority of artefacts within the study are were present in the form of broken flakes closely followed by whole flakes. Flaked pieces were not as prevalent throughout the study area but still numerous, while two cores and a single backed artefact were indicative of having considerable working.

Table 8.6 Number of Artefact Types within the Study Area, Listed by Type

Artefact Type	Number of Artefact Types	Percentage of Types
Broken Flakes	11	34.37%
Backed Blade	1	3.13%
Flaked Pieces	8	25%
Core	2	6.25%
Whole Flakes	10	31.25%
Total (Overall)	**32**	**100%**

Silcrete predominated in this assemblage, making up the material for a third of all artefacts recovered, while the second most common material was quartz constituting the material for a fifth of all recovered artefacts. As can be observed in Table 8.7, other materials ranging from tuff to quartzite were noted indicating both the presence of these materials in the area and their role in tool construction, but these cannot provide any detailed quantitative inferences.

Table 8.7 Raw Materials used to create Artefacts within the Study Area

Artefact Type	Artefacts by Material	Percentage Artefacts by Material
Silcrete	11	34.37%
Basalt	2	6.25%
Quartz	7	21.87%
Chert	3	9.37%
Tuff	1	3.13%
Quartzite	1	3.13%
Fine Grained Silacious	3	9.37%
Mudstone	4	12.5%

Total (Overall)	**32**	**100%**

8.5 SECTION SUMMARY

As a result of the Field Assessment, nine new Aboriginal archaeological sites were identified and recorded in the study area. The four artefact scatters, three isolated finds and two potential archaeological deposits were distributed throughout the landscape. The majority of the sites were located on ridges, slopes and saddles of rolling hills primarily in access tracks but also in places of washout and exposure consequent on the construction of dams.

The disturbance associated with track use can be seen as being involved in the high proportion of broken flakes noted during the study while the overall small size of artefacts relative to the large study area reflects both ground surface visibility as well as the ongoing impact of European land use strategies.

The PADs were designated as such after consultation with the Aboriginal site officers present and each met the criteria for a PAD developed in the predictive model. The archaeological and cultural significance of these sites shall be evaluated in the Discussion and Significance Assessment in the following section.

9.0 DISCUSSION AND SIGNIFICANCE ASSESSMENT

9.1 DISCUSSION OF FIELD ASSESSMENT FINDINGS

The field assessment component of the Aboriginal Heritage Assessment of the Flyers Creek Wind Farm study area has identified 9 previously unrecorded Aboriginal archaeological sites.

Analysis of the site type and distribution will allow characterisation of the Aboriginal archaeological record of the Flyers Creek Wind Farm study area and, in conjunction with the cultural assessment, may also give some information on the lifestyles of past Aboriginal people within that area.

Ground-truthing of the predictive statement through comparison of the model with the results of the field assessment tests the accuracy of the predictive statement to the Flyers Creek Wind Farm study area in general. Comparison with previous archaeological work in the vicinity as discussed in Section 5.0, also tests the applicability of the predictive statement to the Orange Plateau physiographic region in general.

9.2 INTRODUCTION TO THE HERITAGE ASSESSMENT PROCESS

An assessment of significance seeks to determine and establish the importance or value that an object or site may have to the community at large. The concept of cultural significance is intrinsically connected to the object or place, its location, setting and relationship with other items in its surrounds. The assessment of cultural significance is ideally a holistic approach that draws upon the response these factors evoke from the Aboriginal community.

Archaeological sites require a different approach to significance assessment because the extent of the heritage resource, and the degree to which it can contribute to our understanding of history, is not fully known at the outset. Also of significance is the type of information that can be revealed by potential archaeological deposits, especially where the information is not available through any other source, and the contribution it can make to our understanding of a place, which may also be of cultural heritage significance.

9.3 BASIS FOR THE ASSESSMENT OF ABORIGINAL SITES

The NSW National Parks and Wildlife Service assessment criteria for archaeological significance have been developed to deal specifically with archaeological resources and cover:

A) Research Potential. This criterion is designed to qualify the significance of potential research which may be carried out at a site. Significance is apportioned according to the amount of new information which might be contained in the deposit, rather than the potential to yield a large number of artefacts. A site may have high significance under this criterion if it has an intact stratigraphic sequence and good integrity, the potential to provide a chronology extending into the past, or if it is connected to other sites within the region. Within this criterion are the subsets of representativeness and rarity. Representativeness is the ability of the site to demonstrate a type of site or deposit. This is important to maintain a contingency sample of all site types. Rarity is often described within the framework of representativeness as it relates to the distinctive features of a site which set it apart from similar sites.

B) Educational Potential. This criterion allows the educational value of a site to be considered as a component of significance. Under this criterion, an archaeologist may assess the potential of a site to educate the general public. OEH has acknowledged that this criterion is open to misinterpretation by archaeologists who have the ability to convey the value of a site to other archaeologists. OEH recommends that, in cases where significance is determined on educational potential, the onus is on the archaeologist to go to the public for an assessment of this value.

C) Aesthetic Significance. Aesthetic significance is not inherent in a place, but arises from the response that people have to it. It is pertinent to remember that this response can vary dramatically between cultures and social groups, therefore an assessment of significance based on aesthetic value should incorporate the views of different cultures.

For a full description of assessment procedures refer to the Aboriginal Cultural Heritage: Standards and Guidelines Kit (NPWS 1997). These criteria have been designed to deal specifically with the archaeological resource; however they do not provide a framework for the assessment of social significance to the Aboriginal community. For this reason, the criteria for assessment provided in the Australia ICOMOS charter for the conservation of places of cultural significance (the Burra Charter) are sometimes also used to assess significance as they provide a framework for a more holistic assessment of significance.

9.4 ASSESSMENT OF AREAS IDENTIFIED IN THIS STUDY

The comments made in this section are a reflection of significance from a scientific perspective only, based on established OEH approved significance assessment criteria. They are not intended as a reflection of cultural significance. Please refer to stakeholder comments for relevant views and statements of cultural significance (Appendix B).

Each of the criteria of assessment outlined in the previous section will now be considered in the sub-sections below.

9.4.1 Research Potential

The research and educational potential of the sites and areas of potential archaeological deposit identified in the field assessment is presented in Table 9.1 and discussed below.

As previously discussed in Section 9.3, the research potential of Aboriginal archaeological sites is based on the amount of new information which might be obtained from more detailed investigation of the site; the representativeness or ability of the site to demonstrate a type of site or deposit; and, the rarity or distinctiveness of the site in relation to other sites.

Apart from direct impacts as a result of rural practices, land clearance itself can still leave considerable intact and in-situ Aboriginal artefactual material. As the study area is quite large when assessed as one singular area, it is more appropriate to discuss the land disturbances noted within those areas where Aboriginal artefactual material and deposit were noted or is more likely to occur.

Table 9.1 Assessments of Research Potential

Site Name	Potential for new information	Represent-ativeness	Rarity	Research Potential
FCWF-S-01	Low	Low	Low to moderate	Low
FCWF-S-02	Low	Low	Low	Low
FCWF-IF-01	Low	Low	Low	Low
FCWF-S-03	Low	Low	Low	Low
FCWF-IF-02	Low	Low	Low	Low
FCWF-S-04	Low	Low	Low to moderate	Low
FCWF-IF-03	Low	Low	Low	Low
FCWF-PAD-01	High	Low	High	High
FCWF-PAD-02	High	Low	High	High

The natural transformation processes of erosion and deposition mentioned by Ross (1981) may have contributed to the scarcity of artefacts recorded upon the upper slopes and crest of the steeper hills and in the banks of gullies, terraces and washouts below. Cultural transformations, such as agriculture and mining, within the landscape spurred on natural transformation processes acting as a catalyst to the erosion and redeposition processes that were moving artefacts into the lower parts of the landscape as well as concealing them there. Ross' (1981) argument that the rocky outcrops atop hills are not indicative of quarries or campsites also applies to this study area. The understanding of erosion and deposition can be applied to the two potential archaeological deposits to elucidate their research potential.

The two areas where the research potential is of greater value are those associated with the two recorded PADs (FCWF-PAD-01 and FCWF-PAD-02). FCWF-PAD 1 is considered to be of high potential. An artefact scatter FCWF-S-01 was located in direct association within the bounds of this PAD. FCWF-PAD 1 also fitted the criteria specified in the predictive model i.e. suitable shelter, good drainage, located near watercourses and on raised but level ground. Such evidence increases the potential to yield intact deposits in areas of minimal disturbance, and makes this site research potential high. It has the potential to produce new information regarding a range of Aboriginal life ways and to bring to greater clarity models for Aboriginal occupation within the Orange region.

The second area of PAD (FCWF-PAD-02) also represents an area of high potential. Owing to its sheltered location in rolling hills this PAD would have been protected from some of the process of erosion, clearance and cultivation. However, the raised, well-drained and sheltered location, its level surface and its proximity to Slattery's creek all combine to indicate a potential archaeological deposit of some significance. Although no artefacts were found in direct association, FCWF-S-04 and FCWF-IF-03 were nearby so as to indicate a history of Aboriginal land use within the immediate vicinity.

Due to the paucity of research immediately within the Flyers Creek area any archaeological deposits that have the possibility of having remained in-situ, in this case below the plough zone, are to be considered especially significant in the light of research potential. Based on the work of Kelton (1996) and Ross (1981) and shaped by the earlier work of Pearson, the predictive model for this study strongly suggests that the potential for archaeological deposits of Aboriginal material culture is high. Due to the infrequency of archaeological deposits having been recorded within the Flyers Creek locality, each PAD displays the potential to produce rare and distinctive information concerning human movement in the past landscape. Therefore both PADs can be considered to have the potential for high archaeological significance.

The artefact scatters recorded during the Field Assessment for the FCWF Project represented different levels of research potential. The majority were considered to be of low potential due to the small size, the lower potential of the area in which they were located based on past land use and condition as observed during the Field Assessment, and the number and variety of associated artefact types and raw material.

9.4.2 Educational Potential

The educational potential of a study area is best considered in light of its value to the general public, the Aboriginal stakeholders, and other researchers: those people whom the archaeologist has a duty to inform. Therefore the educational potential of the current study area is directly linked to its research potential: what can be learnt from further archaeological investigation, and whom will that knowledge benefit?

The educational value of a site to the general public is the most important criterion. The educational potential must be linked to something that can add to the public's knowledge of the Aboriginal past of a particular area.

As stated above, in the consideration of the criteria determining research potential, further archaeological investigation of the study area (apart from FCWF-PAD-1 & FCWF-PAD-2) is unlikely to yield site types of either rarity or representativeness. It is likely that Flyers Creek Wind Farm Pty Ltd will be able to avoid impact to both PADs 1 and 2. Should this not be possible and further investigation of these sites is required, then the educational value of these sites, although likely to still be of low to moderate interest to a public audience, will be of markedly greater value than the other sites already recorded in, or adjacent to, the study area.

Archaeologists draw the threads of data made available as a result of archaeological investigation and produce a story of past peoples. It is the consultant's opinion that the data that could be retrieved from further investigation of the current study area, apart from FCWF-PAD-1 and FCWF-PAD-2, is unlikely to add any archaeological data that is likely to alter the story of Aboriginal people in the area. As such the educational potential in terms of the public is considered to be low.

For the Aboriginal stakeholders the story that archaeologists compile from data is also important for it is their story. Their perspective is therefore different from the general public. As a non-Aboriginal person the consultant is unable to offer such a valuation as has been provided in consideration of the general public or other researchers.

What can be offered in terms of considering educational value and Aboriginal stakeholders is that which has been offered before in this consideration of overall potential. That is, that the information from the current study area, apart from further investigation of FCWF-PAD-1 and FCWF-PAD-2, is unlikely to shed new light on Aboriginal people's use of landscape in times past. However it is appreciated that perspectives do differ and unlike the general public or other researchers, Aboriginal stakeholders may see the compilation of further archaeological data of the same type as a confirmation of their story, which may be of high educational value to them.

Lastly, although the consultant acknowledges that in consideration of a study area's educational potential that its value in educating other archaeologists and researchers is not paramount, it is still of importance. For other researchers the educational value of the current study is considered to be low. Previous archaeological evidence, gathered from similar landforms, is unlikely to yield further information of the 'big picture' of the archaeological context of the area surrounding FCWF. An investigation of the PADs that meet the criteria outlined in the predictive model, however, may elicit new information that would be of interest to researchers.

In conclusion the consultant finds the overall educational value of the current study area to be low. Should investigation of either FCWF-PAD-1 and/or FCWF-PAD-2 be required, however, this may change. Investigation of these aspects of the project would be of moderate educational value.

9.4.3 Aesthetic Significance

Professional archaeologists view aesthetic significance as an attribute that can only be culturally determined by Aboriginal stakeholders. As noted in Section 9.3, the concept of aesthetic significance deals with the response that people have to a particular place. This criterion differs from the other two in that it is not so readily quantifiable but takes into account a subjective or emotive response to a place as opposed to providing comment upon a tangible item (such as an Aboriginal artefact) or an issue of research relevance (such as an area of PAD).

The criteria that deal with research and educational significance are almost wholly concerned with the archaeological or 'scientific' significance. These are values that are determined by archaeologists, as has been included in subsections 9.4.1 & 9.4.2. However this report must also take into account the Aboriginal cultural heritage value of a site or study area. It is this criterion that is utilised to such an end. Only members of the local Aboriginal community can advise of the cultural significance of an area or place.

To gain a determination of cultural significance, the consultant has approached and consulted with the identified Aboriginal stakeholders. This is in keeping the OEH Aboriginal community consultation guidelines and ethical consultative practice. Each stakeholder organisation was asked to consider the study area from the perspective of the Aboriginal cultural heritage and offer any insights and/or knowledge they may have specific to the current study area.

The Aboriginal landscape and cultural values of the study area remain unchanged by the results of the field assessment. Comments on the project received from these groups are presented in Appendix B.

9.5 SECTION SUMMARY

Aside from the contribution of the Aboriginal stakeholders regarding aesthetic and cultural significance the main identified form of significance here relates to the research potential of the two PADs located. Owing much to the lack of research within the immediate surrounds of the Flyers Creek area as well as to the engagement of predictive models concerning the wider Orange Plateau, the research potential of both the potential archaeological deposits is high while their educational significance is considered to be moderate.

10.0 CONCLUSION AND MANAGEMENT RECOMMENDATIONS

10.1 CONCLUSIONS

The study area was surveyed in October and November 2010 in accordance with a predictive model and coverage was total. The survey's focus was directed at: 35 km of existing and to be developed access tracks, 46 wind turbine locations, underground cabling, a 33kV Transmission line and a 132kV transmission line corridor 10km in length. Representatives from OLALC, WTOCWC and local individuals were registered as Aboriginal stakeholders for this project and were consulted as per the DECCW (NSW) Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005 (the Part 3A Guidelines). Chad Morgan from OLALC, Shawn Williams, Wayne Williams, Enid Clarke and Jirrah Freeman participated in the Field Assessment and were given the opportunity to review a final draft of this report and its recommendations as were all other stakeholders who initially registered for this project.

As a result of the survey a total of 9 new sites were recorded in the study area. Of the 9 sites recorded, 3 (33%) were isolated finds, 4 (44%) were open artefact scatters and 2 (23%) were Potential Archaeological Deposits. The dominant raw material was silcrete, followed by quartz, mudstone and chert. Broken and whole flakes were the most common artefact types, followed by flaked pieces.

7 of these sites have been assessed as having low or low to moderate archaeological potential and therefore do not warrant further archaeological investigation. The PAD's are considered to be of high significance due to their rarity and possible research potential to provide new information.

Annette Steele, the Chairperson of OLALC, submitted a response to the draft report indicating that OLALC approved of the report and agreed with the recommendations (See Appendix B). No submissions from any of the other stakeholders were received in response to the draft report. At the conclusion of the fieldwork programme and prior to receiving the draft version of this report to review, Enid Clarke, Jirrah Freeman, Wayne Williams and Shawn Williams submitted an Aboriginal Cultural and Heritage report to Jonathon Upson of Flyers Creek Wind Farm Pty Ltd on the 10th November 2010 (see Appendix F). They recommended that owing to a low level of ground surface visibility during the survey, the locations of wind turbines and transmission lines should be monitored by Aboriginal stakeholders during the construction process. In addition they recommended that where artefacts has been recorded during the field survey, that there should be a programme of test excavation and subsurface investigation.

10.2 RECOMMENDATIONS

Summary of Recommendations

The following management recommendations are derived from the results of the Aboriginal archaeological and cultural heritage assessment. The recommendations have been developed after considering the archaeological context, environmental information, consultation with the local Aboriginal community during the fieldwork, the findings of the survey results, the predicted impact of the proposed development on archaeological resources and responses from the stakeholders to

the draft report. Annette Steele of the OLALC was the only one to formally respond to the draft report and she concurred with its conclusions and recommendations. The wide spread monitoring and subsurface investigation requested by Enid Clarke, Jirrah Freeman, Wayne Williams and Shawn Williams is not considered to be necessary. Recommendations 2 and 3 below already address the situation where testing and salvage may be required if impacts are to occur.

- **Recommendation 1** – *Avoidance of sites*

If possible the proponent should try and redesign the layout of elements of the proposed wind farm infrastructure which will impact on the identified archaeological sites and PADs. If this can be achieved then no further archaeological works will be required. Some temporary fencing of PADs and sites may however be required during the construction process.

- **Recommendation 2** - *Aboriginal archaeological test excavation / salvage excavation*

The development and implementation of a programme of test excavation and reporting is required to clarify the archaeological potential of the PADs located within the study area (FCWF-PAD-01 and FCWF-PAD-02) if they are to be impacted by development for the wind farm project. Furthermore, development and implementation of a programme of salvage excavation and reporting is recommended if warranted by the results of the test excavations.

Under the NP&W Act 1974, the Office of Environment and Heritage must be notified in advance of any such proposed excavations. Approvals for such work are not required.

- **Recommendation 3** – *Aboriginal archaeological salvage excavation*

Salvage through collection and relocation of surface artefacts is recommended for FCWF-S-01 to 04 and FCWF-IF-01 to 03 if they are to be impacted by development for the wind farm project.

- **Recommendation 4** – *Implementation of a care and control of artefacts strategy*

The development and implementation of a care and control of artefacts strategy, devised through consultation with Aboriginal stakeholders, is recommended for all collected and excavated archaeological material retrieved during the abovementioned surface collection, testing and/or salvage excavation works. Such a strategy should be agreed and finalised with the Aboriginal stakeholders prior to any archaeological site works commencing.

- **Recommendation 5** – *Legal protection of Aboriginal archaeological sites*

If additional unrecorded Aboriginal archaeological material is encountered during development, works must cease immediately to allow an archaeologist to make an assessment of the finds, as all Aboriginal artefacts (known and unknown) are protected under the NP&W Act 1974. the office of environment and heritage must be notified immediately of any such finds as per these Acts.

- **Recommendation 6** – *Historical Archaeological Sites*

As required by the NSW Heritage Act 1977 (amended), in the event that historic relics are encountered, works must cease immediately to allow an archaeologist to make an assessment of the finds. The archaeologist may need to consult with the Heritage Branch, Office of Environment and Heritage (OEH) concerning the significance of any historic cultural material encountered.

- **Recommendation 7** – *Restriction of access to Aboriginal archaeological information*

Restriction of access to Aboriginal archaeological information is recommended in the event that this report is to go on public exhibition. Consultation with Austral Archaeology Pty Ltd, and the registered Aboriginal stakeholders will be necessary to determine the appropriate level of public release.

- **Recommendation 8** – *Distribution of copies of final report*

Copies of the finalised report must be provided by the client to the following Aboriginal stakeholder groups: OLALC and WTOCWC as well as the twelve individual stakeholders. In alphabetical order the individual stakeholders include Enid Clarke, Stuart Cutmore, Keith Freeman, Norma Freeman, Jirrah Freeman, Coedie Freeman, Krystal Ingram, Dallas Ingram, Neville Williams, Sharon Williams, Wayne Williams and Shawn Williams. Austral Archaeology Pty Ltd will provide a copy of the finalised report to NSW the office of Environment and Heritage. Completed site cards are to be provided to the Office of Environment and Heritage AHIMS Registrar as per the NP&W Act 1974.

11.0 REFERENCES

11.1 PRIMARY SOURCES

11.2 SECONDARY SOURCES

Attenbrow, V. 2002. Sydney's Aboriginal Past: Investigating the archaeological and historical records. University of New South Wales Press Ltd: Sydney.

Annual Review of Ecology and Systematics Vol. 1: 327-356 (Volume publication date November 1970) J L Harper, P H Lovell, and K G Moore

Heritage Office (HO) and Department of Urban Affairs and Planning (DUAP) 1996. Regional Histories: Regional Histories of New South Wales. Sydney Haglund, L. 1980. Report on Archaeological survey in the Blacktown area. Unpublished report.

Hiscock, P. 1998. Revitalising artefact analysis. In T. Murray (ed) Archaeology of Aboriginal Australia. Pp.257-265. Sydney, Unwin and Allen

Kabaila, P. 1995. Wirajuri Places: The Murrumbidgee River Basin, with a section on Ngunawal country. Volume 1. Published by Black Mountain Projects.

Kelton, J. 1996. An Archaeological Survey for the Proposed Waste Water Pipeline: Orange Sewerage Treatment Works to the Cadia Gold Mine near Orange, NSW. Unpublished report prepared for Orange City Council, NSW.

Koettig, M. 1986. Assessment of two options for placement of water treatment works at Gundagai. Report to Council.

Kovac, M., Murphy, B.W & J. A. Lawrie 1990. Soil Landscapes of the Bathurst 1:250,000 Sheet. Soil Conservation Service of NSW, Sydney.

Navin, K. 1996. Archaeological Survey Orange to Cadia 132KV Transmission Line. Unpublished report prepared for AGC Woodward Clyde Pty Ltd.

Pardoe, C. 2009. Appendix K: Cadia East Project Aboriginal Cultural Heritage Assessment. Unpublished report prepared for Newcrest Mining Ltd.

Turbet, P. 2001, The Aborigines of the Sydney district before 1788 / Peter Turbet. Kangaroo Press, East Roseville, N.S.W

Ross, A. 1981. A Report on the need for an Archaeological Survey of the Cadia Area, Central Western New South Wales. Unpublished report prepared for Pacific Copper.

11.2.1 Electronic resources

Wilson, A.L., Dehaan, R.L., Watts, R.J., Page, K.J., Bowmer, K.H., & Curtis, A. (2007). Proceedings of the 5th Australian Stream Management Conference. Australian rivers: making a difference. Charles Sturt University, Thurgoona, New South Wales.

11.3 IMAGES

All photographs used in this report are © Austral Archaeology Pty Ltd 2010 unless otherwise noted.

APPENDIX A: NATIONAL NATIVE TITLE SEARCH RESULTS

This information has been omitted from the current document due to its potentially culturally sensitive nature. Such data is presented in the restricted version only.

APPENDIX B: ABORIGINAL COMMUNITY REPSONSE TO DRAFT REPORT

Orange Local Aboriginal Lands Council Response to Draft Report

Alan Hay

From: Orange local Aboriginal Lands Council [olalc@bigpond.com]
Sent: Wednesday, 27 April 2011 4:25 PM
To: 'Alan Hay'
Subject: RE: Flyers Creek Wind Farm Aboriginal Archaeological CUltural Heritage Assessment

Hi Alan
AS per our conversation this morning.
I have read the document and from my understanding I feel the proposed management of the sites is fine.
Kind Regards

Annette Steele
CEO
Orange Local Aboriginal Land Council
42 Dalton St
ORANGE NSW 2800
PH: 0263614742
FAx: 0263619119
email: olalc@bigpond.com

From: Alan Hay [mailto:alan@australarchaeology.com.au]
Sent: Wednesday, 27 April 2011 10:59 AM
To: 'Orange local Aboriginal Lands Council'
Subject: Flyers Creek Wind Farm Aboriginal Archaeological CUltural Heritage Assessment

Dear Annette,

I am enquiring whether you are able to supply a response to the Flyers Creek Wind Farm Aboriginal Cultural Heritage Assessment Draft Report? I re-sent the *yousendit* version of the report as per your email of Monday the 10th of January 2011 and consequent on a follow up call I made on the 18th of January, where I discovered you would be out of the office until the 27th of January and therefore might not be able to download the *yousendit* copy I also forwarded an electronic copy of the report on CD to you by mail on the 25th of January.

Needless to say, it is of the utmost importance that any Aboriginal cultural or social significance within the study area is identified and recorded and any response you have to make would be gratefully received.

If you have any questions or comments please do not hesitate to contact me.

Sincerely,

Alan Hay

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APPENDIX C: AHIMS SEARCH RESULTS

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