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AGL Dalton Power Project Environmental Assessment

MP10-0035

Appendix I

Heritage

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Appendix I - 1

Cultural Heritage Assessment

Dalton Peaking Power Plant

Dalton Peaking Power Plant

Cultural Heritage Assessment

June 2009

A Report to URS for AGL

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EXECUTIVE SUMMARY

AGL have secured a site approximately four kilometres north of Dalton in southern, NSW, and are considering the option of establishing a peaking power station (facility) at the site.

The proposed development will include a 750 MW Facility (the footprint of the facility is approximately 15 ha), up to four 13E2/9E Open Cycle Gas Turbine (OCGT) units, or up to three 9FA style units, a three kilometre long gas pipeline lateral, with a corridor width of 25 -50 m from the Moomba Sydney Gas Pipeline to the Facility, and an internal road.

No previously recorded Aboriginal or historical sites are located within the study area.

No European sites were located as occurring within the study area.

Six Aboriginal sites comprising isolated finds (Dalton 1, Dalton 3, Dalton 4 and DGP3), three artefact scatters (Dalton 2, Dalton 6 and Dalton 7), one artefact scatter with potential archaeological deposit (Dalton 5), and two areas of potential archaeological deposit (DPAD1 and DPAD2) were located in or near the Dalton power plant study area during the field survey.

Six sites (Dalton 2, Dalton 3, Dalton 4, Dalton 5, Dalton 7 and DGP3), and the areas of potential archaeological deposit (DPAD1 and DPAD2) will be directly impacted by the project.

Sites Dalton 1 and Dalton 6 will not be impacted by the project.

This project is to be assessed under Part 3A of the EP&A Act. The following recommendations should be included in the *Statement of Commitments* for the project.

- No further action is required for site Dalton 1 and Dalton 6, which are situated outside of the potential impact area.

- Where possible, disturbance to Aboriginal archaeological sites Dalton 2, 3, 4, 5, 7 and DGP3 should be avoided.

- If impact to Aboriginal sites Dalton 2, Dalton 3, Dalton 4, Dalton 7 and DGP3 cannot be avoided then the artefacts should be collected or relocated away from the area of impact.

- If impact to Aboriginal site Dalton 5 and potential archaeological deposits DPAD1 and DPAD2 cannot be avoided, then a program of archaeological subsurface testing should be conducted to ascertain the presence, extent and integrity of cultural material that may be present in these areas.

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1. INTRODUCTION

1.1 Project Description

AGL have secured a site approximately four kilometres north of Dalton in southern, NSW, and are considering the option of establishing a peaking power station (facility) at the site (Figures 1.1 and 1.2).

The property details are:

- *The Elms* – Lot 115, 249, 252, 253, 305, 307 in DP754111
- *Holmes*- Lot 1 and 2 DP126122; Lot 14, 183,184, 187, 200,283, 306 in DP754111
- *Riverview* - Lot 116, 321, 322, 162, 317, 318 in DP754111

The proposed development will include:

- the 1500 MW Facility (the footprint of the facility is approximately 15 ha);
- a three kilometre long gas pipeline lateral, with a corridor width of 25 -50 m from the Moomba Sydney Gas Pipeline to the Facility; and
- a new access road from Walshs Road where it turns 90^{o} west to the facility located in the same easement as the gas pipeline along this portion.

This report documents the results of a cultural heritage assessment of the Dalton peaking power station facility footprint. The report was commissioned by URS Australia Pty Ltd on behalf of AGL.

An additional separate assessment was conducted for the portion of the gas pipeline and new access road beyond the boundary of the Site.

1.2 Legislative Approvals

The proposed Dalton peaking power station will be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.3 Report Outline

This report:

- Documents (attempted) consultation with the Onerwal Local Aboriginal Land Council (OLALC);
- Describes the environmental setting of the study area;
- Provides a background of local and regional archaeology and history for the study area;
- Describes the results of a field survey of the facility area; and
- Provides management recommendations based on the results of the investigation and the anticipated impacts of the proposed development on the known and potential archaeological resource.

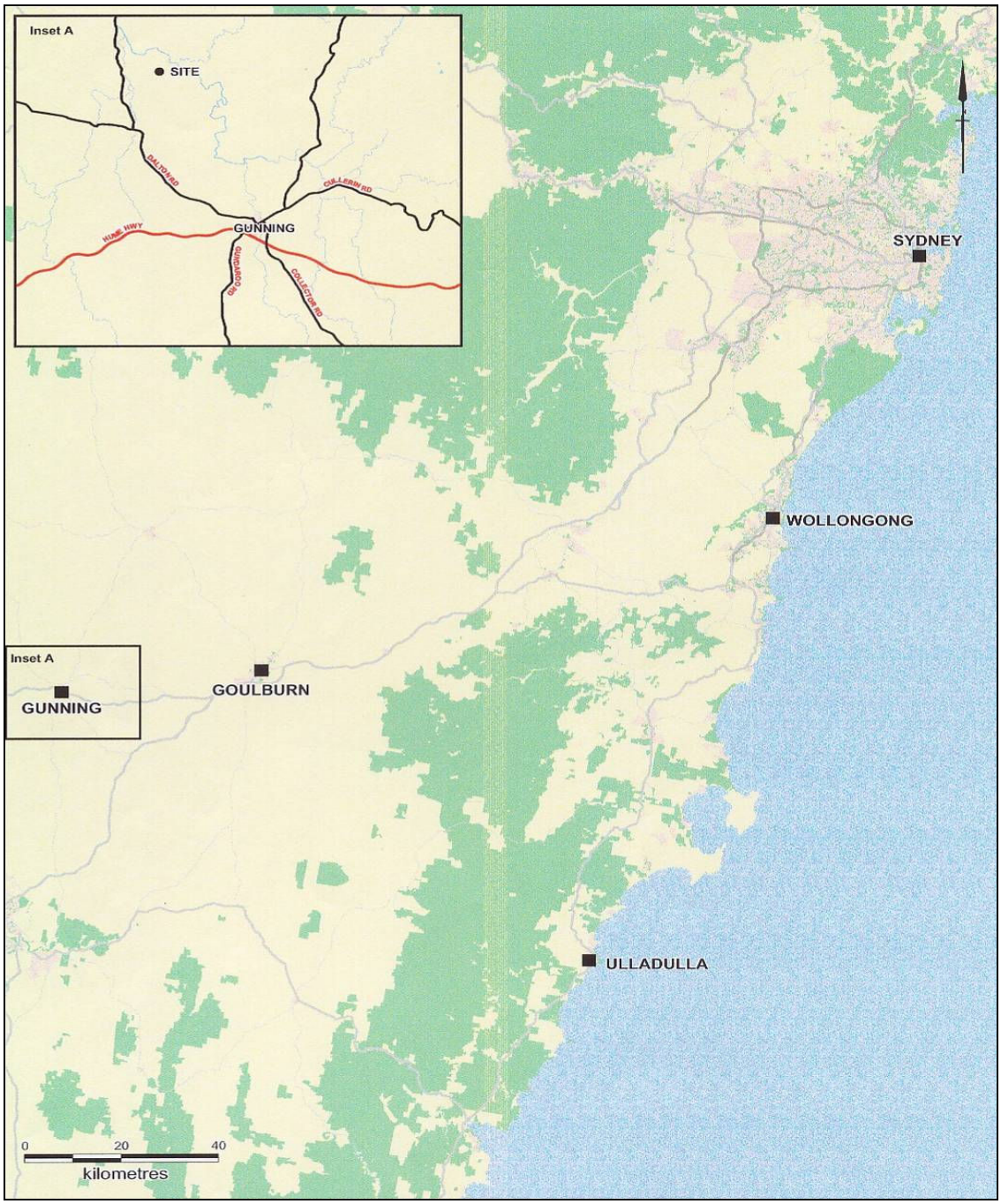

Figure 1.1 Regional location of the Dalton Peaking Power Plant Study Area (map provided by URS)

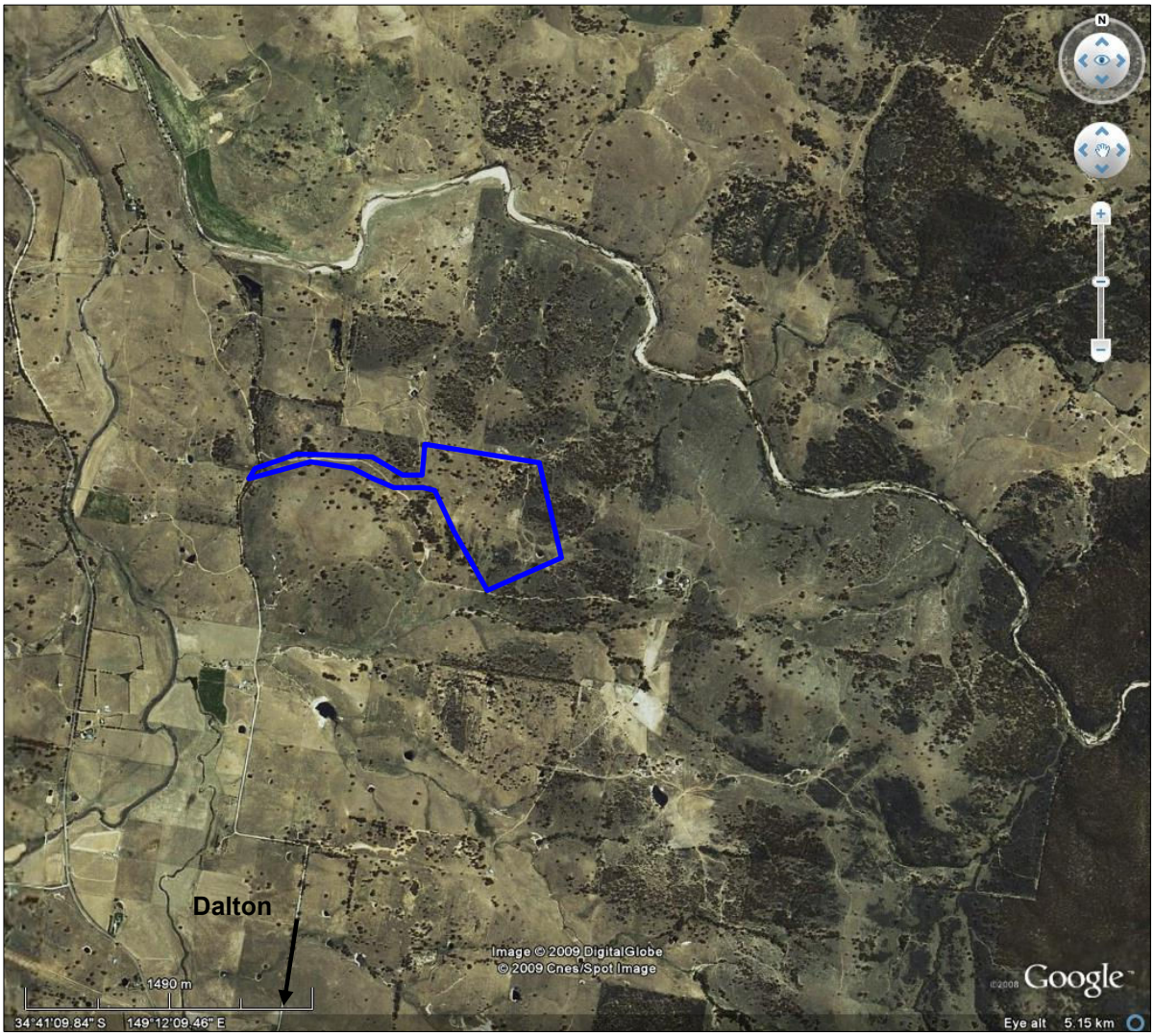

Figure 1.2 The Dalton Peaking Power Plant Study Area (blue)
(base map from Google Earth)

2. ABORIGINAL CONSULTATION

The Dalton Peaking Power Plant study area falls within the boundaries of the Onerwal Local Aboriginal Land Council, based at Yass.

The Land Council was contacted by phone and email and a representative was invited to participate in the field survey of the power plant site. Arrangements were made to meet a representative in Dalton, however, the representative did not attend the survey.

A draft copy of this report was forwarded to the OLALC for review and comment. No response was received from the OLALC.

3. STUDY METHODOLOGY

3.1 Literature and Database Review

A range of archaeological and historical data was reviewed for the Dalton study area and its surrounds. This literature and data review was used to determine if known Aboriginal and historical sites were located within the area under investigation, to facilitate site prediction on the basis of known regional and local site patterns, and to place the area within an archaeological and heritage management context. The review of documentary sources included heritage registers and schedules, local histories, and archaeological reports.

Aboriginal literature sources included the Aboriginal Heritage Information Management System (AHIMS) maintained by the NSW Department of Environment and Climate Change and Water (DECCW) and associated files and catalogue of archaeological reports and theses held in the library of the School of Archaeology and Anthropology, the Australian National University. Sources of historical information included regional and local histories, heritage studies and theses.

Searches were undertaken of the following statutory and non-statutory heritage registers and schedules:

- Aboriginal Heritage Information Management System (AHIMS) (NSW DECC);
- World Heritage List;
- The National Heritage List (Australian Heritage Council);
- The Commonwealth Heritage List (Australian Heritage Council);
- The Register of the National Estate (Australian Heritage Council);
- The State Heritage Register (NSW Heritage Office);
- Heritage Schedule(s) from the Gunning Local Environmental Plan 1997.
- The State Heritage Inventory (NSW Heritage Office);
- Register of the National Trust of Australia (NSW).

3.2 Fieldwork

Fieldwork was conducted by two people over one day in April 2009 and one day in June 2011. Fieldwork involved archaeological survey of the facility footprint and internal access road. Survey was conducted on foot and involved walking across the study area examining areas of visibility and micro-topographic features. An assessment of landscape disturbance and archaeological sensitivity/potential was made for the subject area.

3.3 Project Personnel

Fieldwork was conducted by archaeologists Nicola Hayes and Kerry Navin.

This report was prepared by Nicola Hayes and Kerry Navin.

3.4 Recording Parameters

3.4.1 Aboriginal Sites and PADs

The archaeological survey aimed at identifying material evidence of Aboriginal occupation as revealed by surface artefacts and areas of archaeological potential unassociated with surface artefacts. Potential recordings fall into two broad categories: sites and potential archaeological deposits.

Sites

A site is defined as any material evidence of past Aboriginal activity that remains within a context or place which can be reliably related to that activity.

Most Aboriginal sites are identified by the presence of three main categories of artefacts: stone or shell artefacts situated on or in a sedimentary matrix, marks located on or in rock surfaces, and scars on trees.

Frequently encountered site types within southeastern Australia include stone artefact occurrences - including isolated finds and open artefact scatters, coastal and freshwater middens, rock shelter sites - including occupation deposit and/or rock art, grinding groove sites and scarred trees.

Stone Artefact Occurrences

Stone artefact occurrences are the most commonly recorded site type in Australia. They may consist of single artefacts - described as isolated finds; or as a distribution of more than one artefact – often described as an artefact scatter or 'open camp site' when recording surface artefacts, or as a subsurface artefact distribution when dealing with an archaeological deposit.

Where artefact incidence is very low, either in terms of areal distribution (artefacts per square metre) or density (artefacts per cubic metre), then the differentiation of the recording from background artefacts counts or *background scatter* may be an issue.

Isolated finds

An isolated find is a single stone artefact, not located within a rock shelter, and which occurs without any associated evidence of Aboriginal occupation within a radius of 60 metres. Isolated finds may be indicative of random loss or deliberate discard of a single artefact; the remnant of a now dispersed and disturbed artefact scatter; and/or an otherwise obscured or subsurface artefact scatter.

Except in the case of the latter, isolated finds may be considered to be constituent components of the *background scatter* present within any particular landform.

The distance used to define an isolated artefact varies according to the survey objectives, the incidence of ground surface exposure, the extent of ground surface disturbance, and estimates of *background scatter* or *background discard* densities. In the absence of baseline information relating

to background scatter densities, the defining distance for an isolated find must be based on methodological and visibility considerations. Given the varied incidence of ground surface exposure and deposit disturbance within the study area, and the lack of background baseline data, the specification of 60 metres is considered to be an effective parameter for surface survey methodologies. This distance provides a balance between detecting fine scale patterns of Aboriginal occupation and avoiding environmental biases caused by ground disturbance or high ground surface exposure rates. The 60 metre parameter has provided an effective separation of low density artefact occurrences in similar southeast Australian topographies outside of semi-arid landscapes.

Background scatter

Background scatter is a term used generally by archaeologists to refer to artefacts which cannot be usefully related to a place or focus of past activity (except for the net accumulation of single artefact losses).

Artefact scatters

Artefacts situated within an open context are classed as an open artefact scatter (or 'open camp site') when two or more occur no more than 60 metres away from any other constituent artefact. The 60 metre specification relates back to the definition of an isolated find (*Refer above*). The use of the term *scatter* is intended only to be descriptive of the current archaeological evidence and does not infer the original human behaviour which formed the site. The term *open camp site* has been used extensively in the past to describe open artefact scatters. This was based on ethnographic modelling suggesting that most artefact occurrences resulted from activities at camp sites. However, in order to separate the description from the interpretation of field evidence, the terms *artefact scatter*, *artefact distribution* or *artefact occurrence* are now more extensively used. The latter two options can also be used to categorise artefacts occurring in sub-surface contexts.

Potential Archaeological Deposits

A potential archaeological deposit, or PAD, is defined as any location where the potential for subsurface archaeological material is considered to be moderate or high, relative to the surrounding study area landscape. The potential for subsurface material to be present is assessed using criteria developed from the results of previous surveys and excavations relevant to the region. Where necessary, PADs can be given an indicative rating of their 'archaeological potential' based on a combined assessment of their potential to contain artefacts, and the potential archaeological value of the deposit.

Table 3.1 illustrates the matrix on which this assessment is based. Locations with low potential for artefacts fall below the threshold of classification. In such cases the potential incidence of artefactual material is considered to be the same as, or close to that for background scatter. Where there is moderate potential for artefacts, the predicted archaeological potential parallels the potential significance of the deposit. For deposits with high potential for artefacts, the assessed archaeological potential is weighted positively.

The boundaries of PADs are generally defined by the extent of particular micro-landforms known to have high correlations with archaeological material. A PAD may or may not be associated with surface artefacts. In the absence of artefacts, a location with potential will be recorded as a PAD. Where one or more surface artefacts occur on a sedimentary deposit, a PAD may also be identified where there is insufficient evidence to assess the nature and content of the underlying deposit. This situation is due mostly to poor ground surface visibility.

Table 3.1 Matrix showing the basis for assessing the archaeological potential (shown in bolded black text) of a potential archaeological deposit.

		Potential to contain Aboriginal objects		
		Low	*Moderate*	*High*
Potential archaeological significance	*Low*	---	low	moderate
	Moderate	---	moderate	high
	High	---	high	high

3.4.2 Historical Sites and Features

Historical archaeology refers to the 'post-contact' period and includes: domestic, commercial and industrial sites as well as most maritime sites. It is the study of the past using physical evidence in conjunction with historical sources. The two primary types of places or items that may form part of the terrestrial historical archaeology context include:

1. Below ground evidence, including building foundations, occupation deposits, features and artefacts; and above ground evidence, including buildings, works, industrial structures and relics that are intact or ruined; and

2. Areas of land that display evidence of human activity or occupation.

Within these broad parameters, an historical archaeological site may include:

- Topographical features and evidence of past environments;
- Evidence of site formation, evolution, redundancy and abandonment (that is, features and materials associated with land reclamation, sequences of structural development, demolition/deconstruction, and renewal);
- Evidence of function and activities according to historical theme/s represented (for example, an industrial site may contain diagnostic evidence of process, products and by-products);
- Evidence associated with domestic occupation including household items and consumables, ornaments, personal effects and toys;
- Evidence of diet including animal and fish bones, and plant residues;
- Evidence of pastimes and occupations including tools of trade and the often fragmentary signatures of these activities and processes;
- Methods of waste disposal and sanitation, including the waste itself which may contain discarded elements from all classes of artefact as well as indicators of diet and pathology; and
- Any surviving physical evidence of the interplay between site environment and people.

The information found in historical archaeological sites is often part of a bigger picture which offers opportunities to compare and contrast results between sites. The most common comparisons are made at the local level, however, due to advances in research and the increasing sophistication and standardisation of methods of data collection, the capacity for wider reference (nationally and, occasionally, internationally) exists and places added emphasis on identification and conservation of historical archaeological resources.

4. ENVIRONMENTAL CONTEXT

The Dalton study area is located approximately 4 km north of the village of Dalton in the South Eastern Highlands Bioregion of NSW.

The study area is located within an Ordovician silty sandstone formation consisting of micaceous siltstone, phyllite, shaly, slate, quartzite, limestone lenses and numerous porphyry dykes.

The underlying rock strata of the region from Dalton to Lake George some 40 km east is geologically active, with the lake formed along a fault system running north-south. Water is known to drain from the lake and reappear in the Yass River, leading to speculation that the groundwater lubricates the geological activity along the faults.

The overall landscape of the study area consists of gently rolling hills and gullies (Figure 4.1). The area is drained by a number of minor unnamed ephemeral watercourses that drain north to the Lachlan River and south to Dowlings Creek. The nearest major water source, the Lachlan River, is approximately ½ km to the north and east of the study area. A spring fed dam is located in the north of the area.

Vegetation comprises partially cleared eucalyptus woodland with grassland habitats in the gullies and pasture grasses elsewhere.

A 330kV transmission line runs through the site and several dams and vehicle tracks have been constructed within the study area.

Figure 4.1 General view of the study area

5. ABORIGINAL CONTEXT

5.1 Ethnohistory

Tribal boundaries within Australia are based largely on linguistic evidence and it is probable that boundaries, clan estates and band ranges were fluid and varied over time. Consequently 'tribal boundaries' as delineated today must be regarded as approximations only, and relative to the period of, or immediately before, European contact. Social interaction across these language boundaries appears to have been a common occurrence.

According to Tindale (1974) the study area is located within the tribal boundaries of the Ngunawal.

The Ngunawal people of the South Eastern Highlands Bioregion relied on the continuous supply of vegetables available in the tablelands. Spring, summer and autumn yielded the tubers of the yam daisy, wattle-seeds were plentiful in July and August, and orchid tubers were consumed in August and September (HO and DUAP 1996). Fish and crayfish were taken from the rivers from September to May, while possums and larger grazing animals were hunted throughout the year (NSW NPWS 2003)

The Aboriginal groups around the centre of the bioregion made an annual pilgrimage in December and January to the Bogong Mountains and Snowy Mountains where the men of various groups participated in feasts of roasted bogong moths (*Agrotis infusa*) high on the rocky granite outcrops of the mountains (NSW NPWS 2003)

The nomadic lifestyle of the Aboriginal people was disrupted by the arrival and early settlement of Europeans in the 1820s. From this time on, there were reports of diminishing water, fish and native animals so important to the Aboriginal diet.

By the 1850s the traditional Aboriginal economy had largely been replaced by an economy based on European commodities and supply points. Reduced population, isolation from the most productive grasslands, and the destruction of traditional social networks meant that the final decades of the region's indigenous culture and economy was centred on white settlements and properties (Officer 1989).

Some Aborigines adapted to the change by taking on work for the new settlers such as washing sheep, cutting bark and picking potatoes, while others chose to remain on the land and continue hunting (NSW NPWS 2003).

Early accounts of Aboriginal lifestyles in and comparable with the study locality describe aspects of a successful hunting and gathering economy and eventful social life and inter-group contacts. The material culture, which is partly reflected in the surviving archaeological record, included stone and wooden artefacts, skin clothing and bark and bough temporary dwellings (Flood 1980).

5.2 Regional Overview

Archaeological investigations within the Southern Tablelands and Highlands have been carried out since the late 1970s. Broad scale regional studies and research include Witter's (1980) work on site prediction in Australia and Flood's (1980) early synthesis of the archaeology of the highlands of south-eastern New South Wales.

Witter (1980) surveyed a 20 m wide easement for a gas pipeline running between Dalton and Canberra. His survey crossed the Yass River and traversed hilly country in the centre of the Upper Yass River catchment. Eleven artefact scatters containing small silcrete flakes and some blades were recorded during the survey. The following year Witter (1981) fully excavated one site (DC2) and collected the surface artefacts from six sites (DC1, DC5, DC6, DC9, DC11 & DC12).

Witter (1980) surveyed a 58 km stretch of the main Moomba Gas Pipeline from Dalton to Canberra, locating fifteen prehistoric sites, thirty two isolated finds and one historic site. He subsequently carried out surface collections and excavations at a number of these sites (Witter 1981).

Hughes and Koettig (1983) completed an assessment of an archaeological site in a proposed sand mining area at Mount Pleasant near Dalton. The site, Mount Pleasant 1, was originally recorded by National Parks and Wildlife Service staff. The assessment involved both test excavations within the proposed (sand mining) impact area and comparison with archaeological remains on the surface beyond the limits of impact and on other nearby sites. Eight test excavations, each 50 x 50 cm in area, were dug across the alluvial area to be affected by sandmining. The test excavations produced sixty six stone artefacts. Two further sites Mount Pleasant 2 and Mount Pleasant 3 were also located during the investigations.

5.3 The Study Area

A search of the AHIMS database revealed no previously recorded sites within the Dalton study area. Three sites, Mount Pleasant 1, 2 and 3 are the closest recorded sites to the study area. These sites are located to the north of the study area on the Lachlan River.

5.4 Aboriginal Site Types and Locations

An assessment of the size, context and location of Aboriginal sites in the Goulburn area by Koettig and Lance (1986) resulted in a model of site patterning for the region which has been refined by subsequent researchers. This model can be applied to the Dalton study area, which has similar landscape land use and topography.

On present evidence it appears that large sites are found on alluvial flats along major watercourses. These sites probably represent focal points of Aboriginal activity and are large, dense, and in close proximity to permanent water sources.

Smaller sites, which comprise the major portion of sites in the region, are found on undulating hills. There appears to be a decrease in the size and frequency of sites the further the distance from water. Sites also become fewer in number where ground is steeply sloping, such as on hillsides and ridgesides.

- *Open Artefact Scatters* may occur almost anywhere that Aborigines have travelled and may be associated with hunting and gathering activities, domestic camps, or the manufacture and maintenance of stone tools. These sites are sometimes referred to as ‘open campsites'.

- Open artefact scatters are the most common site type found in the region and have been recorded in a number of topographic contexts. These include ridges and hills, and the lower slopes of knolls and spurs. The sites are often associated with watercourses.

- *Isolated Finds* occur anywhere in the landscape and may represent the remnants of dispersed artefact scatters, or random loss or discard of artefacts.

- *Scarred Trees* result when bark has been removed from a tree for some particular purpose such as for the manufacture of a shield, canoe or coolamon. Scars may also be the result of making footholds in a tree to collect foodstuffs or to facilitate the removal of bark. These sites may occur almost anywhere, and may potentially survive wherever old growth trees remain within the landscape. The identification of scars as Aboriginal in origin can often remain problematic.

- *Carved Trees* are a much rarer site type than scarred trees, and are sometimes found in association with ceremonial or burial grounds. They characteristically include carved figurative and non-figurative motifs on the exposed wood created within a scar produced by bark removal.

- *Quarry (extraction or procurement)* sites are typically exposures of a geological raw material where evidence for human extraction and or preliminary processing has survived. Typically these involve the extraction of siliceous rock types for the manufacture of artefacts or the removal of ochre. To date only one Aboriginal quarry site, a chert quarry, has been located in the Goulburn district (Paton 1990).

- *Stone Arrangements* are defined as any arrangement of placed rocks that can be reasonably assigned to Aboriginal activity. Typically these include rock cairns and alignments of single or grouped stones.

- *'Bora' Grounds (Earth Circles)* functioned as a prepared stage for initiation and other ceremonial activities which held a key role in the teaching and maintenance of the complex social and religious framework within Aboriginal society. Cited frequently in early records, the Gamilaraay word 'Bora' has been used as a generic term for ceremonial sites across much of New South Wales. In the region these sites were more likely known as 'Burbung' or 'Boonan' grounds in line with the Wiradjuri or Yuin/Ngunnawal languages (Knight 2001). They consist mostly of one or more circular rings defined by mounded earth, sand and/or rocks. There may also be an associated depression within the ring. A pathway generally connected two rings and was often many hundreds of metres long. Typically, one circle was associated with more public ceremonies and the second with restricted and sacred information.

  'Bora' grounds can only be recognised or located either through detailed oral accounts or identifying surviving ground surface features. Unfortunately, most physical evidence of these sites is fragile and easily destroyed by minimal agricultural activities.

- *Burials* are generally found in soft sediments such as sand or alluvial silts, but may also occur in middens, rockshelters or hollow trees. Burials are generally only visible where there has been some disturbance of subsurface sediments or where some erosional process has exposed them.

6. HISTORICAL CONTEXT

6.1 Historical Overview

The region was first explored by Europeans in 1820 and was then settled in throughout the 1820s. John Macarthur settled Taralga in 1822, various Scots arrived in the Braidwood area in the 1830s, and almost 10,000 cattle and sheep were farmed in the open country around Goulburn in 1821. The 1830s saw the whole southern area of the bioregion occupied by squatting runs (NSW NPWS 2003).

The town of Dalton was settled in 1847. The study area is located in land owned in 1905 by John Mitchell and John Hallam (Figure 6.1). The parish map shows that the current road from Dalton is along the original alignment.

Dalton was part of Gunning Shire which was later amalgamated with Crookwell Shire and parts of Mulwaree, and Yass Shires to form the Upper Lachlan Shire.

6.2 Previous Cultural Heritage Studies

No previous cultural heritage studies have been undertaken within or near the study area.

6.3 Heritage Listed Items

There are no heritage listed items within the study area.

6.4 Historic Site Types and Locations

Unrecorded historic sites and features of heritage significance that may occur within the study area include:

- Old fence lines (such as post and rail fencing); these may occur along road easement boundaries and farmlands. Other indications of field systems, such as drainage channels and ridge and furrow ploughlands, are likely to survive in low lying agricultural ground, especially in areas that are now used for grazing, rather than cropping.

- Traces of agricultural and industrial processing or extractive sites such as quarries; these may be found throughout agricultural lands on valley floors and adjacent low ranges;

- Archaeological sites such as the occupation remains of former dwellings including homesteads, houses and huts; these will be distributed in close association with land settlement patterns, and correlated with favourable agricultural lands, trading nodes and transport corridors;

- Nineteenth-century structures such as farm dwellings, outbuildings, selector's and timber-getters huts; these may survive as standing buildings, ruins or archaeological deposits and are most likely to survive on less developed rural properties, on early portion numbers, and in or near established farm building complexes;

- Sites associated with early roads; these will be closely associated with early cadastral road reserves, watershed ridgelines, and related to early river and creek crossing points; and

- Transport and access routes such as bridle paths, stock routes, and roads of varying forms and ages; these may survive as abandoned remnants adjacent to modern transport routes, or as alignments now followed by more modern or upgraded road and track infrastructure.

Structures of historical interest and heritage significance may be standing, ruined, buried, abandoned or still in use.

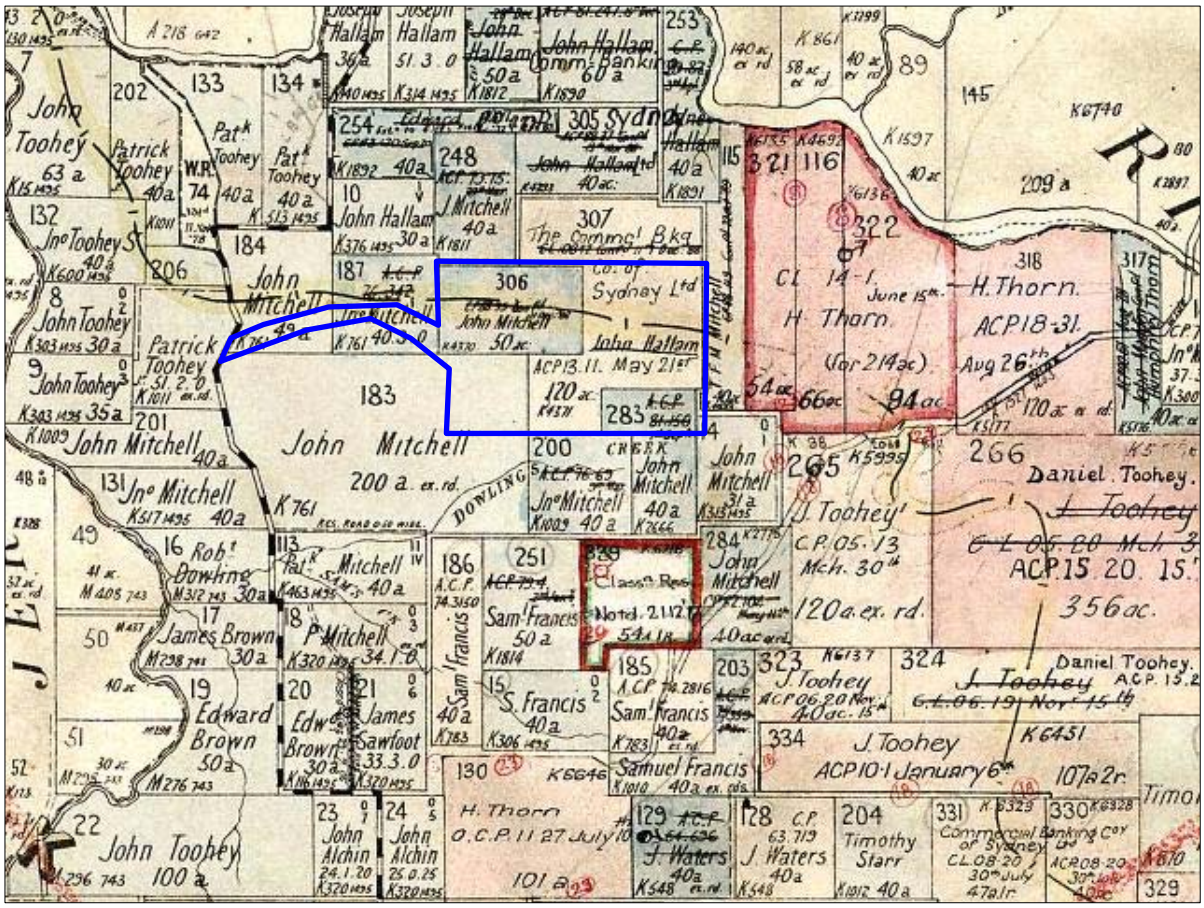

Figure 6.1 Extract of the 1905 Dalton Parish map with study area (blue)
(NSW Department of Lands Image ID 10305001)

7. RESULTS

7.1 Historical Sites

No historical relics or features have been previously identified in the Dalton power plant study area.

No historical relics or features were identified in the Dalton power plant study area.

7.2 Aboriginal Sites

No Aboriginal sites or objects have been previously identified in the Dalton power plant study area.

Five Aboriginal sites comprising three isolated finds (Dalton 1, Dalton 3 and Dalton 4), one artefact scatter (D2), and one artefact scatter with potential archaeological deposit (Dalton 5), and two areas of potential archaeological deposit (Dalton PAD1 and Dalton PAD2) were located in or near the Dalton power plant study area during the field survey.

Site locations are shown on Figure 7.6.

Dalton 1 (D1) - isolated find

GDA 701998.6159591 WGS84

This site is an isolated find located midslopes on a gravelly ridge. The artefact was visible in a devegetated area under a tree and adjacent to a powerline (Figure 7.1). The site is located outside of the power plant study area.

The incidence of ground exposures in the area of the site was 80% with 40% visibility in the exposures. Visibility was limited by gravel which covered much of the ground surface.

There is low potential for additional artefacts to be located in the area and low potential for subsurface archaeological deposits to be associated with the site.

Artefact:

1. white quartz flake, 22 x 22 x 7 mm

Figure 7.1 Location of Aboriginal site Dalton 1 - looking north

Dalton 2 (D2) - artefact scatter

GDA 701499.6159464 WGS84

This site is scatter of two artefacts located on basal slopes above a valley floor/drainage line and dam (Figure 7.2). The artefacts were visible within 50 cm of each other on animal tracks (1.5 m wide and linear) leading to a dam. Small pieces of shell were also located near the artefacts.

Visibility on the tracks was 90%. The incidence of ground exposures in the area of the site was 30% with 60% visibility in the exposures.

There is moderate potential for additional artefacts to be located in the area and low to moderate potential for subsurface archaeological deposits to be associated with the site.

Artefacts:

1. white quartz flake, 14 x 12 x 2 mm
2. green/brown silcrete blade, 21 x 10 x 3 mm

Figure 7.2 Location of Aboriginal site Dalton 2 - looking southeast

Dalton 3 (D3) - isolated find

GDA 701172.6159717 WGS84

This site is an isolated find located at a break of slope at the beginning of a low spur. The artefact was visible in a small 1 x 1 m erosion scar (Figure 7.3).

The incidence of ground exposures in the area of the site was 40% with 70% visibility in the exposures. Visibility was limited by gravel which covered much of the ground surface.

There is moderate potential for additional artefacts to be located in the area and low to moderate potential for subsurface archaeological deposits to be associated with the site.

Artefact:

1. grey silcrete broken flake, 14 x 14 x 2 mm

Figure 7.3 Location of Aboriginal site Dalton 3 - looking north

Dalton 4 (D4) - isolated find

GDA 701142.6159776 WGS84

This site is an isolated find located on basal slopes above an unnamed ephemeral drainage line. The artefact was visible in a relatively devegetated area (Figure 7.4).

The incidence of ground exposures in the area of the site was 70% with 70% visibility in the exposures. Ground surface visibility was limited by gravel and grass cover.

There is moderate potential for additional artefacts to be located in the area and low to moderate potential for subsurface archaeological deposits to be associated with the site.

Artefact:

1. grey and brown silcrete broken flake, 24 x 16 x 6 mm

Figure 7.4 Location of Aboriginal site Dalton 4 - looking west

Dalton 5 (D5) - artefact scatter and PAD

GDA 701350.6159851 to 701432.6159838 to 701362.6159782 WGS84

This site is scatter of three artefacts and an area of potential archaeological deposit located on the basal slopes of a low spurline above an unnamed ephemeral drainage line and (possibly) spring fed dam (Figure 7.5). The artefacts were visible in an area approximately 180 x 130 m and were located approximately 80 m apart.

The incidence of ground exposures in the area of the site was 50% with 70% visibility in the exposures. Ground surface visibility was limited by gravel and grass cover.

Taking account of the location of the site on locally elevated ground adjacent to a water source the area is identified as a PAD. There is moderate potential for additional artefacts to be located in the area and moderate to high potential for subsurface archaeological deposits to be associated with the site.

Artefact:

1. grey silcrete flake, 21 x 13 x 3 m
2. brown silcrete flaked piece, 47 x 40 x 34 mm
3. cream silcrete flake, 23 x 26 x 12 mm

Figure 7.5 Location of Aboriginal site Dalton 5 looking northeast from artefact #3

Dalton 6 (D6) - artefact scatter

GDA 702043.6159149 WGS84

This site is scatter of two artefacts located on a track adjacent to a gate. The site is located on basal slopes and flats (Figure 7.6). The artefacts were located 5 m apart.

The incidence of ground exposures in the area of the site was 90% with 80% visibility in the exposures.

There is moderate potential for additional artefacts to be located in the area and low potential for subsurface archaeological deposits to be associated with the site.

Artefact:

1. grey silcrete flake, 23 x 20 x 3 mm
2. white quart7 flake, 22 x 20 x 6 mm

Figure 7.6 Location of Aboriginal site Dalton 6 looking south

Dalton 7 (D7) - artefact scatter

GDA 701501.6159351 to 701495.6159328 to 701467.6159362 to 701523.6159359 WGS84

This site is scatter of at least 10 and up to 50 artefacts located on vehicle tracks leadint to a get. The site is located on basal slopes (Figure 7.7). The artefacts were visible in an area approximately 60 x 30 m.

The incidence of ground exposures in the area of the site was 20% with 40% visibility in the exposures. Ground surface visibility was limited by gravel and grass cover.

There is high potential for additional artefacts to be located in the area and low potential for subsurface archaeological deposits to be associated with the site.

Artefact:

1. dark grey fine grained volcanic flake, 15 x 15 x 4 mm
2. grey fine grained volcanic flake, 41 x 21 x 8 mm
3. grey fine grained volcanic core, 36 x 27 x 20 mm
4. dark grey fine grained volcanic flake, 12 x 10 x 3 mm
5. grey silcrete flaked piece, 22 x 17 x 14 mm
6. grey silcrete flaked piece, 34 x 25 x 15 mm
7. white quartz flake 25 x 20 x 7 mm
8. black chert flake 19 x 20 x 8 mm
9. brown silcrete flake, 27 x 20 x 8 mm
10. pink and grey silcrete flake 38 x 17 x 9 mm

Figure 7.7 Location of Aboriginal site Dalton 7 looking west

Dalton Gas Pipeline 3 (DGP3)

GDA 701453.6159284 WGS84

A single stone artefact (grey silcrete flake with partial retouch along one margin, 24 x 24 x 7 mm) was recorded on gentle to moderate gradient upper slopes with a southeast aspect. This site is approximately 180 m south of the previously recorded artefact scatter Dalton 2 and 190 m southwest of Dalton PAD 1.

Soil in this location is characterised by a skeletal gravelly loam. Bedrock outcrops and large areas of shale and quartz gravels are exposed across the upper slopes and adjoining spur crest.

The artefact observed at DGP3 was found adjacent an ant nest in a broader area of sheet erosion and stock tracks measuring 5 x 2 m. Exposure incidence in this location was 80% and visibility averaged 70%. Exposure incidence across the surrounding area was around 10% with 50% visibility within exposures.

This site is situated about 250 m north of Dowlings Creek, which is a 2nd order drainage line at this point, and over one kilometre southwest of the Lachlan River. The slopes of a spur in this topographic context are unlikely to contain high density distributions of artefacts. Furthermore, the skeletal nature of the local soil deposit suggests that the potential for subsurface archaeological material is low.

Figure 7.7 Location of Aboriginal site DGP3 looking northeast

Dalton PAD1 (DP1) – potential archaeological deposit

GDA 701594.6159420 WGS84

This potential archaeological deposit is located on either side of a drainage line (Figure 7.8). The area measures approximately 15 x 25 m.

The incidence of ground exposures in the area of the site was 60% with 60% visibility in the exposures. Ground surface visibility was limited by gravel and grass cover.

Figure 7.8 Location of Dalton PAD1 - looking north

Dalton PAD2 (DP2) – potential archaeological deposit

GDA 701601.6159325 to 701524.6159339 to 701486.6159243 to 701514.6159264 to 701566.6159254 WGS84

This potential archaeological deposit located on a low spur leading to a dam/drainage line (Figure 7.9). The area is bounded on either side by small drainage lines and measures approximately 90 x 80 m.

The incidence of ground exposures in the area of the site was <10% with 0% visibility. Ground surface visibility was limited by high grass cover.

Figure 7.9 Location of Dalton PAD2 - looking north

7.2 Locations of Recordings relative to Development

Recording Code	Recording Type	GDA Reference	Location Relative to Development
Dalton 1 (D1)	isolated find	701998.6159591	Outside facility footprint area
Dalton 2 (D2)	artefact scatter	701499.6159464	Directly impacted by facility footprint and potentially by gas pipeline and access road easement
Dalton 3 (D3)	isolated find	701172.6159717	Directly impacted by facility footprint
Dalton 4 (D4)	isolated find	701142.6159776	Directly impacted by facility footprint
Dalton 5 (D5)	artefact scatter and PAD	701350.6159851 to 701432.6159838 to 701362.6159782	Directly impacted by facility footprint
Dalton 6 (D6)	artefact scatter	702043.6159149	Outside facility footprint area
Dalton 7 (D7)	artefact scatter	701501.6159351 to 701495.6159328 to 701467.6159362 to 701523.6159359	Directly impacted by facility footprint
Dalton Gas Pipeline 3 (DGP3)	isolated find	701453. 6159284	Directly impacted by facility footprint
Dalton PAD1 (DPAD1)	potential archaeological deposit	701594.6159420	Directly impacted by facility footprint
Dalton PAD2 (DPAD2)	potential archaeological deposit	701601.6159325 to 701524.6159339 to 701486.6159243 to 701514.6159264 to 701566.6159254	Directly impacted by facility footprint

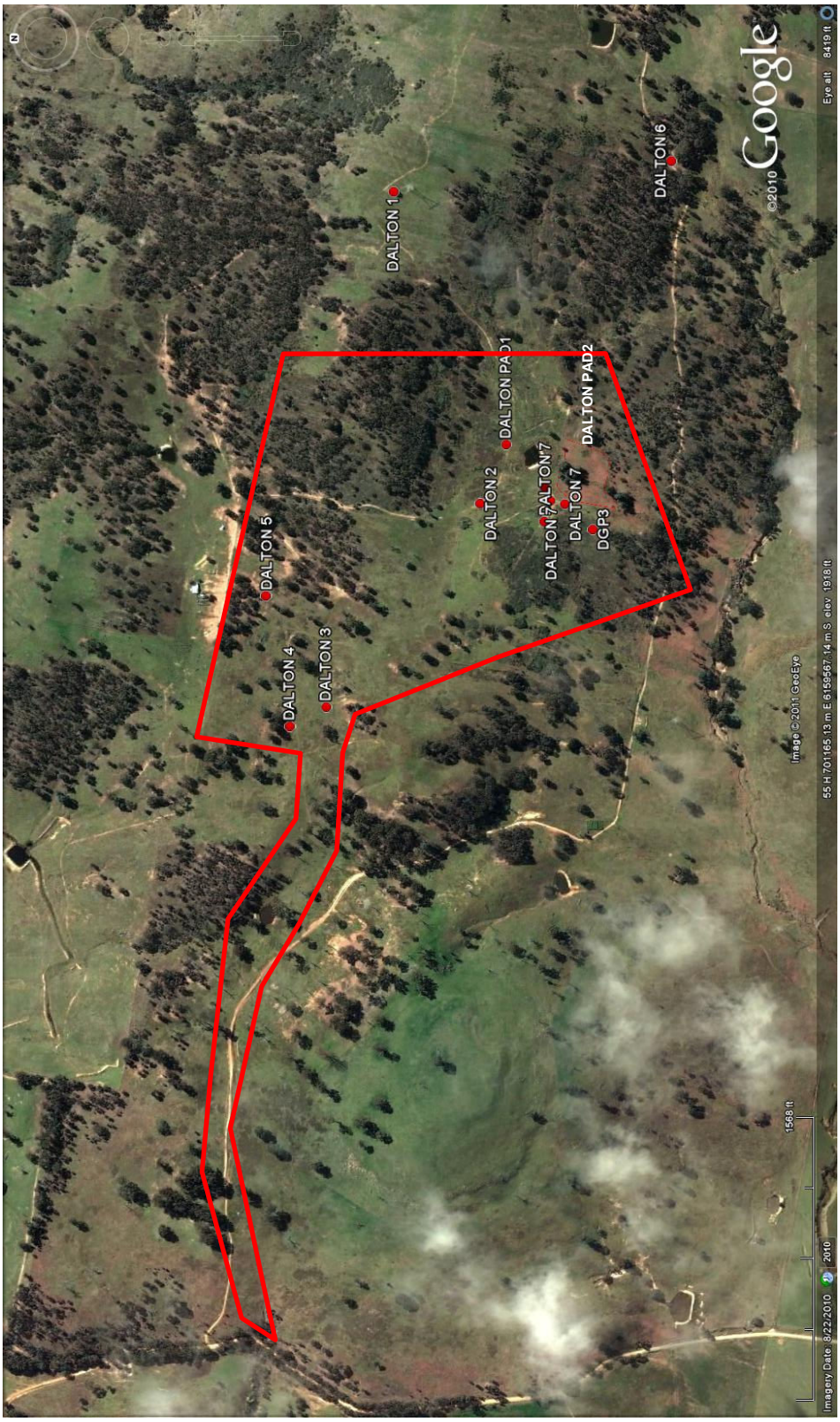

Figure 7.7 Location of Aboriginal sites within Dalton power plant study area (base map extract of Dalton 1:50 000 topographic map (Lpi NSW))

7.3 Survey Coverage and Visibility Variables

The effectiveness of archaeological field survey is to a large degree related to the obtrusiveness of the sites being looked for and the incidence and quality of ground surface visibility. Visibility variables were estimated for all areas of comprehensive survey within the study area. These estimates provide a measure with which to gauge the effectiveness of the survey and level of sampling conducted. They can also be used to gauge the number and type of sites that may not have been detected by the survey.

Ground surface visibility is a measure of the bare ground visible to the archaeologist during the survey. There are two main variables used to assess ground surface visibility, the frequency of exposure encountered by the surveyor and the quality of visibility within those exposures. The predominant factors affecting the quality of ground surface visibility within an exposure are the extent of vegetation and ground litter, the depth and origin of exposure, the extent of recent sedimentary deposition, and the level of visual interference from surface gravels. Two variables of ground surface visibility were estimated during the survey:

- A percentage estimate of the total area of ground inspected which contained useable exposures of bare ground; and

- A percentage estimate of the average levels of ground surface visibility within those exposures. This is a net estimate and accounts for all impacting visual and physical variables including the archaeological potential of the sediment or rock exposed.

The obtrusiveness of different site types is also an important factor in assessing the impact of visibility levels. For example, artefacts made from locally occurring rock such as quartz may be more difficult to detect under usual field survey conditions than rock types that are foreign to the area. The impact of natural gravels on artefact detection was taken into account in the visibility variables estimates outlined above.

The natural incidence of sandstone platforms suitable for grinding grooves or engraving, together with the incidence of old growth trees, are important considerations in identifying both survey effectiveness and site location patterns outside of environmentally determined factors.

The incidence of ground surface exposure averaged 60%, and the visibility within those exposures averaged 70% across the study area. This moderate level of visibility for an open context was due to grazing which has kept the grass cover low. Other areas of ground exposure included vehicle and animal tracks and areas of surface erosion.

8. SIGNIFICANCE ASSESSMENT

8.1 Assessment Criteria

The Burra Charter of Australia defines cultural significance as 'aesthetic, historical, scientific or social value for past, present and future generations' (Aust. ICOMOS 1987). The assessment of the cultural significance of a place is based on this definition but often varies in the precise criteria used according to the analytical discipline and the nature of the site, object or place.

In general, Aboriginal archaeological sites are assessed using five potential categories of significance:

- significance to contemporary aboriginal people;
- scientific or archaeological significance;
- aesthetic value;
- representativeness; and
- value as an educational and/or recreational resource.

Many sites will be significant according to several categories and the exact criteria used will vary according to the nature and purpose of the evaluation. Cultural significance is a relative value based on variable references within social and scientific practice. The cultural significance of a place is therefore not a fixed assessment and may vary with changes in knowledge and social perceptions.

Cultural significance can be defined as the cultural values of a place held by and manifest within the local and wider contemporary Aboriginal community. Places of significance may be landscape features as well as archaeologically definable traces of past human activity. The significance of a place can be the result of several factors including: continuity of tradition, occupation or action; historical association; custodianship or concern for the protection and maintenance of places; and the value of sites as tangible and meaningful links with the lifestyle and values of community ancestors. Aboriginal cultural significance may or may not parallel the archaeological significance of a site.

Scientific significance can be defined as the present and future research potential of the artefactual material occurring within a place or site. This is also known as archaeological significance.

There are two major criteria used in assessing scientific significance:

1. The potential of a place to provide information which is of value in scientific analysis and the resolution of potential research questions. Sites may fall into this category because they: contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a constituent of a larger significant structure such as a site complex.

2. The representativeness of a place. Representativeness is a measure of the degree to which a place is characteristic of other places of its type, content, context or location. Under this criteria a place may be significant because it is very rare or because it provides a characteristic example or reference.

The value of an Aboriginal place as an educational resource is dependent on: the potential for interpretation to a general visitor audience, compatible Aboriginal values, a resistant site fabric, and feasible site access and management resources.

The principal aim of cultural resource management is the conservation of a representative sample of site types and variation from differing social and environmental contexts. Sites with inherently unique features, or which are poorly represented elsewhere in similar environment types, are considered to have relatively high cultural significance.

The cultural significance of a place can be usefully classified according to a comparative scale which combines a relative value with a geographic context. In this way a site can be of low, moderate or high significance within a local, regional or national context. This system provides a means of comparison, between and across places. However it does not necessarily imply that a place with a limited sphere of significance is of lesser value than one of greater reference.

8.2 The Dalton Peaking Power Plant Study Area

Dalton 1, 3, 4 and DGP3

These sites are isolated finds. The visible artefacts are common artefact types and common raw materials. The sites have low potential to be associated with undisturbed archaeological deposit. The sites are therefore assessed as having low archaeological significance.

Dalton 2, 6 and 7

These sites are artefact scatters. The visible artefacts are common artefact types and common raw materials. The site has low potential to be associated with undisturbed archaeological deposit. The site is therefore assessed as having low archaeological significance.

Dalton 5

This site is a scatter of three stone artefacts associated with an area of potential archaeological deposit (PAD). The visible artefacts are common artefact types and common raw materials.

The potential for the site to contain more artefacts is considered to be moderate. The potential for the site to be associated with subsurface archaeological deposit is moderate to high. The significance of this site/deposit cannot be determined based on available data

Dalton PAD1 and PAD2

These recordings are potential archaeological deposits. The significance of those deposits cannot be determined until additional investigations, such as subsurface testing, have been undertaken.

9. STATUTORY AND POLICY CONTEXT[1]

9.1 Environmental Planning and Assessment Act 1979

This Act (EP&A Act) and its regulations, schedules and associated guidelines require that environmental impacts are considered in land use planning and decision making. Environmental impacts include cultural heritage assessment. The Act was reformed by the *Environmental Planning and Assessment Amendment (Infrastructure and other Planning Reform) Act 2005*.

There are four main areas of protection under the Act:

- Planning instruments allow particular uses for land and specify constraints. Part 3 governs the preparation of planning instruments. Both Aboriginal and Historical (Non-Indigenous) cultural heritage values should be assessed when determining land use;

- A separate streamlined and integrated development assessment and approvals regime for major infrastructure and other projects of significance to the State is defined by Part 3A;

- Section 90 lists impacts which must be considered before development approval is granted. Part 4 relates to the development assessment process for local government authorities. Impact to both Aboriginal and Historical (Non-Indigenous) cultural heritage values are included; and

- State Government agencies which act as the determining authority on the environmental impacts of proposed activities must consider a variety of community and cultural factors in their decisions, including Aboriginal and Historical (Non-Indigenous) cultural heritage values. Part 5 relates to activities which do not require consent but still require an environmental evaluation, such as proposals by government authorities.

Under the EP&A Act the Minister for Planning may make various planning instruments such as regional environmental plans (section 51) and local environment plans (s70). The Minister may direct a public authority such as a Local Council, to exercise certain actions within a specified time, including the preparation of draft LEPs and appropriate provisions to achieve the principles and aims of the Act (s117).

If a development consent is required from council under the provisions of a LEP and a permit or license is also required from a State Government Agency an integrated development must be submitted to the consent authority. A development is an 'integrated development' if it requires an approval under s90 of the NP&W Act or if the Director General of DECC is of the opinion that consultation with an Aboriginal group or organisation should be consulted prior to a determination being made. Any development approval issued for an integrated development of this kind must be consistent with the general terms of approval or requirements provided by the relevant State Government Agency.

The EP&A Act, as amended, provides for the listing of heritage items and conservation areas and for the protection of these items or areas through environmental planning instruments (like REPs and LEPs) at the local government and State planning levels. These statutory planning instruments usually contain provisions for the conservation of these items and areas as well as an assessment process to reduce the impacts of new development on the heritage significance of a place, building or conservation area.

[1] The following information is provided as a guide only and readers are advised to seek qualified legal opinion as necessary.

Part 3A of the EP&A Act

Part 3A of the EP&A Act is an amendment which establishes a separate streamlined and integrated development assessment and approvals regime for major State government infrastructure projects, development that was previously classified as State Significant development, and other projects, plans or programs declared by the Minister for Planning.

Part 3A removes the stop-the-clock provisions and the need for single-issue approvals under eight other Acts, including the NP&W Act and the Heritage Act 1977. Environmental planning instruments such as the heritage provisions within REP and LEPs, (other than State environmental planning policies) do not apply to projects approved under Part 3A.

Where warranted the Minister may declare any project subject to Part 3A to be a critical infrastructure project. These projects only require a concept approval in contrast to other Part 3A projects which require project approval. In most circumstances, a concept approval will be obtained to establish the environmental performance requirements and consultation requirements for the implementation of the subsequent stages of the project.

Under the provisions of Part 3A, proponents of major and infrastructure projects must make a project application seeking approval of the Minister. The application is to include a preliminary assessment of the project. Application may be for concept plan approval or full approval. Following input from relevant agencies and council(s), DoP will issue the proponent with requirements for the preparation of an Environmental Assessment and a Statement of Commitments. The Statement of Commitments will include how the project will be managed in an environmentally sustainable manner, and consultation requirements.

Following submission of an Environmental Assessment and draft Statement of Commitments to DoP, these documents are variously evaluated, reviewed, circulated and exhibited. The proponent may modify the proposal to minimise impacts in response to submissions received during this process. The proponent then provides a Statement of Commitments and, following any project changes, a Preferred Project Report. An assessment report is then drafted by the Director-General and following consultation with relevant agencies, a final report with recommendations for approval conditions or application refusal is submitted to the Minister. The Minister may refuse the project, or approve it with any conditions considered appropriate.

9.2 Implications for the Dalton Peaking Power Plant Project

Aboriginal 'objects' as defined under the *National Parks and Wildlife Act 1974* have been identified within the Dalton Peaking Power Plant study area. However, as the project will be conducted under Part 3A of the *Environmental Planning and Assessment Act 1979,* single-issue approvals under the NP&W Act do not apply to this project (Section 87 and Section 90 *Aboriginal Heritage Impact Permits* will not be required for this project).

The management recommendations provided in this report should be included in the *Statement of Commitments* for the project.

10. RECOMMENDATIONS

The Dalton Peaking Power Plant project will necessitate the disturbance of ground within the footprint of the new power plant and access road.

Five sites (Dalton 2, Dalton 3, Dalton 4, Dalton 5 and Dalton 7), and areas of potential archaeological deposit (DPAD1 and DPAD2) will be directly impacted by the project.

This project is to be assessed under Part 3A of the EP&A Act. The following recommendations should be included in the *Statement of Commitments* for the project.

1. No further action is required for site Dalton 1 and Dalton 6, which are situated outside of the potential impact area.

2. Where possible, disturbance to Aboriginal archaeological sites Dalton 2, 3, 4, 5, 7 and DGP3 should be avoided.

3. If impact to Aboriginal sites Dalton 2, Dalton 3, Dalton 4, Dalton 7 and DGP3 cannot be avoided then the artefacts should be collected or relocated away from the area of impact.

4. If impact to Aboriginal site Dalton 5 and potential archaeological deposits DPAD1 and DPAD2 cannot be avoided, then a program of archaeological subsurface testing should be conducted to ascertain the presence, extent and integrity of cultural material that may be present in these areas.

5. Three copies of this report should be forwarded to the NSW OEH for their records at the following address:

   Cultural Heritage Officer
   Southern Region
   PO Box 2115
   QUEANBEYAN NSW 2620

6. One copy of this report should be forwarded to the Onerwal Local Aboriginal Land Council for their consideration and comment.

11. REFERENCES

Australia ICOMOS 1987 The Australia Icomos Charter for the Conservation of Places of Cultural Significance (The Burra Charter), Guidelines to the Burra Charter: Cultural Significance and Conservation Policy. Pamphlet, Australia Icomos (Inc).

Flood, J. 1980 *The Moth Hunters***.** Australian Institute of Aboriginal Studies, Canberra.

Heritage Office (HO) and Department of Urban Affairs and Planning (DUAP) 1996. *Regional Histories: Regional Histories of New South Wales.* Sydney.

Hughes, P. J. and M. Koettig 1983 An Assessment of an Archaeological site in a Proposed Sand Mining Area at Mt Pleasant near Dalton, NSW. Report to G.C. Schmidt Pty Ltd.

Knight, T. 2001 Stepping Stones to the Sky; Archaeological Perspectives on the Cultural Significance of the Wedding Mountains in Recent Prehistory. Unpublished MA thesis, School of Archaeology and Anthropology, Australian National University.

Koettig, M. and A. Lance 1986 Aboriginal Resources Planning Study for the City of Goulburn, NSW. Draft. Report by Anutech to Goulburn City Council.

NSW National Parks & Wildlife Service (NSW NPWS) 2003 *The Bioregions of New South Wales*. Their biodiversity, conservation and history. NSW NPWS.

Paton R. 1990 Archaeological Excavations at Site G17, Goulburn, NSW. Report to Road Traffic Authority, Goulburn.

Tindale, N. 1974 *Aboriginal Tribes of Australia: their terrain, environmental controls, distribution, limits, and proper names: with an appendix on Tasmanian tribes*. ANU Press, Canberra.

Witter, D. 1980 An Archaeological Pipeline Survey between Dalton and Canberra. Aboriginal and Historical Resource Section, NPWS, Sydney.

Witter, D. 1981 An Archaeological Salvage Investigation on the Dalton to Canberra Pipeline. Report to the NSW NPWS.

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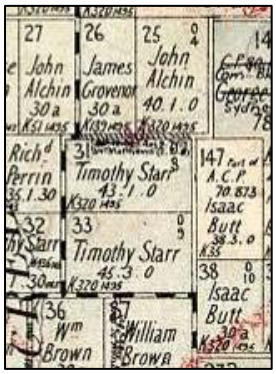
Appendix I - 2

Cultural Heritage Assessment

Dalton Peaking Power Plant - Gas Pipeline



Dalton Peaking Power Plant – Gas Pipeline

Archaeological Assessment

February 2011

A Report to URS for AGL

Navin Officer

heritage consultants Pty Ltd

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EXECUTIVE SUMMARY

- AGL has secured a site approximately four kilometres north of Dalton in southern NSW, and are considering the option of establishing a peaking power station (facility) at the site.

- This report documents the results of a cultural heritage assessment of the gas pipeline lateral between the proposed power plant site and the Moomba-Sydney Gas Pipeline. All works for the proposed pipeline will be conducted within a 45 m easement corridor.

The study found that:

- No previously recorded historical sites are located within the Dalton gas pipeline study area.

- A number of Aboriginal sites were previously recorded in the context of studies conducted for the Dalton Peaking Power Plant site, and a now superseded gas pipeline alignment.

  Relevant recordings are:

  - Dalton 2 (D2) (located within the Dalton Peaking Power Plant site); this site will potentially be directly impacted by the gas pipeline and access road easement as they traverse the power plant facility footprint;

  - Dalton Gas Pipeline (DGP2), which is situated 60 m to the northwest of the current study area, and outside of the gas pipeline easement;

  - Dalton Gas Pipeline 3 (DGP3), which is located outside of the pipeline and access road easement; and

  - Dalton PAD 1 (DPAD1) (located within the Dalton Peaking Power Plant site), which will potentially be directly impacted by the gas pipeline and access road easement as they traverse the power plant facility footprint.

- Two Aboriginal sites, artefact scatters Dalton Gas Pipeline (DGP4) and Dalton Gas Pipeline (DGP5) were identified in the gas pipeline easement in the course of the current study.

- One Aboriginal site –artefact scatter (DGP6) - was identified on the southeastern edge of the gas pipeline easement in the course of the current study.

- The Dalton gas pipeline study area is located within a broad area included in an active Native Title Claim by the Gundungurra Tribal Council Aboriginal Corporation.

This project is to be assessed under Part 3A of the EP&A Act. The following recommendations should be included in the *Statement of Commitments* for the project.

- The results of the archaeological survey and assessment should be provided to the registered Aboriginal stakeholders for the project, with an invitation to make comment and provide information where appropriate regarding cultural heritage values and management of those values. Responses received should then be addressed and considered with regard to a final cultural heritage impact mitigation program.

Previously Recorded Sites and PADs

- If impact to Aboriginal site Dalton 2 cannot be avoided then the artefacts should be collected or relocated away from the area of impact.

- If impact to potential archaeological deposit DPAD1 cannot be avoided, then a program of archaeological subsurface testing should be conducted to ascertain the presence, extent and integrity of cultural material that may be present in DPAD1.

Sites Recorded in the Current Study

- Where feasible, disturbance to Aboriginal archaeological sites DGP4, DGP5 and DGP6 should be avoided.

- If avoidance of sites DGP4, DGP5 and DGP6 is not feasible, then the following management strategies are recommended:

  a) The artefacts exposed at DGP5 should be collected and/or relocated away from the area of impact.

  b) A limited program of salvage excavation should be conducted at sites DGP4 and DGP6 with the aim of recording and analysing a larger and more representative sample of artefacts.

- If during construction of the pipeline, Aboriginal objects are encountered outside of the DGP4, DGP5 and DGP6 site recordings, then the actions defined in the Unanticipated Discovery Protocol (attached as Appendix 1) should be followed.

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TABLE OF CONTENTS

1. INTRODUCTION

1.1 Project Description

Power Station

AGL have secured a site approximately four kilometres north of Dalton in southern NSW, and are considering the option of establishing a peaking power station (facility) at the site.

The proposed development will include:

- the 750 MW Facility
  - up to four 13E2/9E Open Cycle Gas Turbine (OCGT) units, or
  - up to three 9FA style units;
- a lateral gas pipeline extending approximately 3.4 km from the facility to the Moomba-Sydney Gas Pipeline;
- a valve station; and
- a proposed access road to extend approximately 2.3 km from Walshs Road into the Facility.

A cultural heritage assessment of the power plant and internal road was conducted in 2009 (Navin Officer Heritage Consultants (NOHC) 2009).

Gas Pipeline (northern portion) and Access Road

A shared gas pipeline and access road easement would also be developed to connect the site to Walshs Road. The gas pipeline and access road would be incorporated into the one easement, shown in Figure 1.1.

The proposed pipeline and access road easement would include portions of seven Lots, as well as unnamed roads and Walshs Road, as shown in Figure 1.1.

The gas pipeline would be located underground. An access road would need to be constructed to allow access to the proposed facility. This access road is illustrated on Figure 1.1, and would extend from the point where Walshs Road makes a 90-degree left turn.

Vegetation would need to be cleared to construct the access road, and would remain permanently cleared. Areas including stockpiling and construction impacts would be allowed to regenerate following completion of construction. The maximum area of the gas pipeline (northern portion) and access road easement footprint is approximately 5 ha.

The pipeline and access road easement outlined on Figure 1.1 is wider that the total area required, however, it is provided to encompass the worst case potential impact. While the pipeline will not be several metres wide, this easement will include all laydown, construction and stockpiling activities. The area of impact for the access road is driven by the cut and fill areas required which range from 10 to 45 m in width for the access road. The gas pipeline will be laid within this easement.

Some vegetation cleared to allow the construction of this pipeline would be allowed to regenerate following completion of construction, so all vegetation clearing figures given in this report that relate to the pipeline easement are maximum amounts of clearing required, and the total amount may be less than this.

Gas Pipeline (southern portion) and Valve Station

The southern portion of the gas pipeline extends from the junction of Walshs Road to the Moomba – Sydney pipeline. In this portion the gas pipeline will utilise Walshs Road and the gas pipeline will be located in the western side of the existing road easement until the connection point is reached at the new valve station.

The gas pipeline will be an underground line (except at entry and exit points) extending from the end of the gas pipeline (northern section) and access road to the existing Sydney – Moomba supply line at a valve station adjoining the road reserve directly adjacent to Walshs Road (Figure 1.1). The majority of the gas pipeline route would be located beneath existing agricultural land and would be incorporated into the same easement at the access road.

Works would involve construction of a valve station adjoining the road reserve directly adjacent to Walshs Road, where the gas pipeline would connect to the Moomba – Sydney pipeline.

The valve station is located at the connection point to the Moomba Sydney pipeline. It will occupy an area in the order of 0.22 ha. The valve station is located on Lot 23/DP754111 and is set back 25 m from the road.

The proposed pipeline and access road easement would include portions of three Lots, as well as unnamed roads and Walshs Road, as shown in Figure 1.1.

The maximum area of the gas pipeline (southern section) footprint is approximately 0.99 ha.

This Report

This report documents the results of a cultural heritage assessment of the gas pipeline lateral between the proposed power plant site and the Moomba-Sydney Gas Pipeline (Figure 1.1).

This report was commissioned by URS Australia Pty Ltd on behalf of AGL.

1.2 Legislative Approval and Requirements

The proposed Dalton peaking power station and associated gas pipeline will be assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.3 Report Outline

This report:

- Documents consultation with local Aboriginal organisations carried out in the course of the cultural heritage assessment (Section 2);
- Describes the environmental setting of the study area (Section 4);
- Provides a heritage context for the study area (Sections 5 and 6);
- Describes the results of the data review, field survey and Aboriginal consultation program conducted in the context of the assessment (Section 7);
- Provides a significance assessment for the sites identified during the current survey (Section 8); and
- Provides conclusions and management recommendations based on the results of the investigation (Section 10).

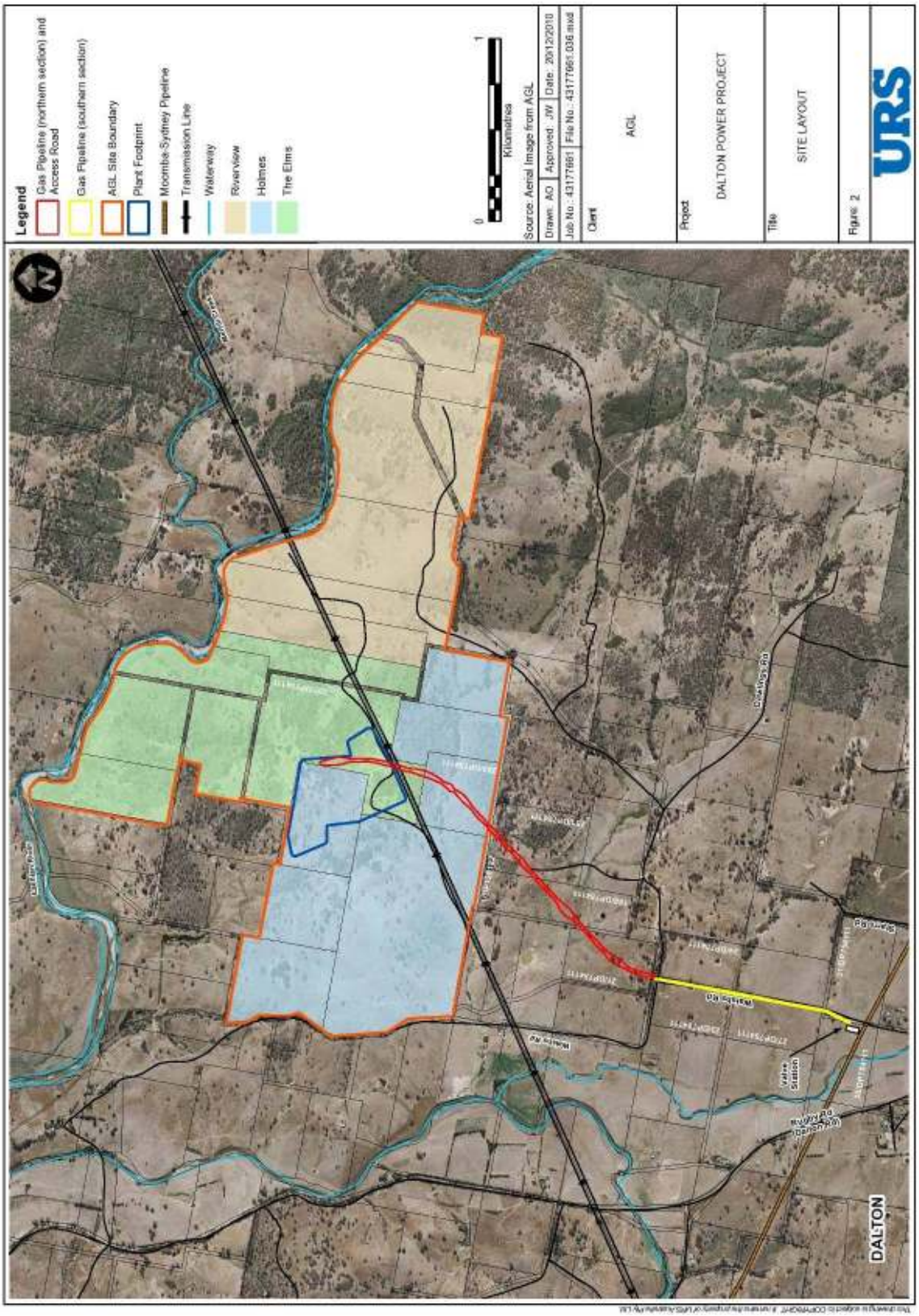

Figure 1.1 Aerial photograph showing the easement of the proposed gas pipeline at Dalton (yellow and red lines) (provided by URS)

2. ABORIGINAL CONSULTATION

2.1 Consultation Guidelines

This project is being conducted under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Department of Environment, Climate Change and Water's (DECCW) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* are being implemented for the Dalton power station and pipeline project. To date letters have been sent to the required groups/authorities, additional letters have been sent to groups identified by DECCW, and a public notice has been placed in the Yass Tribune (14 May 2010).

The Dalton gas pipeline study area falls within the boundaries of the Onerwal Local Aboriginal Land Council (OLALC), based at Yass. The Land Council was contacted by phone, email and fax to invite a representative to participate in the field survey of the pipeline easement. However, no response was received from the OLALC.

A copy of this report will be forwarded to the OLALC and other registered stakeholders for their information and records and further consultation will be conducted with these groups.

2.2 Native Title Claim

The Dalton gas pipeline study area falls within an active Native Title Claim by the Gundungurra Tribal Council Aboriginal Corporation (details: Gundungurra Tribal Council Aboriginal Corporation #6; Tribunal File No: NC97/7; Federal Court File No: NSD6060/980).

The claim covers a very large area of southeastern NSW from south of Katoomba to Goulburn (approximately 18675 km^2) including the Upper Lachlan Shire.

3. STUDY METHODOLOGY

3.1 Literature and Database Review

A range of archaeological and historical data was reviewed for the Dalton study area and its surrounds. This literature and data review was used to determine if known Aboriginal and historical sites were located within the area under investigation, to facilitate site prediction on the basis of known regional and local site patterns, and to place the area within an archaeological and heritage management context. The review of documentary sources included heritage registers and schedules, local histories, and archaeological reports.

Aboriginal literature sources included the Aboriginal Heritage Information Management System (AHIMS) maintained by the NSW Department of Environment, Climate Change and Water (DECCW) and associated files and catalogue of archaeological reports and theses held in the library of the School of Archaeology and Anthropology, the Australian National University. Sources of historical information included regional and local histories, heritage studies and theses.

Searches were undertaken of the following statutory and non-statutory heritage registers and schedules:

- Aboriginal Heritage Information Management System (AHIMS) (NSW DECCW);
- World Heritage List;
- The National Heritage List (Australian Heritage Council);
- The Commonwealth Heritage List (Australian Heritage Council);
- The Register of the National Estate (Australian Heritage Council);
- The State Heritage Register (NSW Heritage Office);
- Heritage Schedule(s) from the Gunning Local Environmental Plan 1997.
- The State Heritage Inventory (NSW Heritage Office);
- Register of the National Trust of Australia (NSW).

3.2 Fieldwork and Project Personnel

Fieldwork was conducted by archaeologists Sam Harper and Christine Gant-Thompson in January 2011. Survey was conducted on foot and involved walking along the proposed easement examining areas of visibility and micro-topographic features. An assessment of landscape disturbance and archaeological sensitivity/potential was also made in the course of the survey.

This report was prepared by Sam Harper.

4. ENVIRONMENTAL CONTEXT

The Dalton study area is situated approximately 4 km north of the village of Dalton in the South Eastern Highlands Bioregion of NSW (Figure 4.1). It is located within an Ordovician silty sandstone formation consisting of micaceous siltstone, phyllite, shale, slate, quartzite, limestone lenses and numerous porphyry dykes.

Underlying rock strata of the region from Dalton to Lake George, some 40 km to the east, is geologically active, with the lake formed along a fault system running north-south. Water is known to drain from the lake and reappear in the Yass River, leading to speculation that the groundwater lubricates the geological activity along the faults.

Soils within the study area are generally shallow to skeletal and tend to contain high levels of background gravels including quartz and shale. Shale bedrock outcrops are also common, particularly across the upper slopes and spur crests.

The pipeline easement study area is approximately 3.5 km in length and comprises two portions (southern and northern).

The southern portion begins at the junction of the Sydney-Moomba Gas Pipeline and Walshs Road, to be connected via a valve station to be constructed in the adjoining road reserve. It runs northwards along the western side of the existing road easement for approximately 1.06 km.

The northern portion runs from Walshs Road in a northeasterly direction towards the proposed power plant facility, along existing agricultural land comprised of cleared undulating paddocks, for approximately 2.4 km.

In terms of topography, the study area is situated 600 m - 1200 m east of Oolong Creek, a fourth order drainage line that flows northwards into Jerrawa Creek and beyond into the Lachlan River, approximately 3 km northwest of the proposed power plant. The easement crosses a number of smaller streams, the largest being an un-named third order drainage at the southern end. However, the majority of the gas pipeline study area corresponds to low gradient spur crests, and low to moderate gradient spur slopes. Local elevation along the proposed easement ranges from approximately 530 m to 580 m AHD.

Vegetation along the gas pipeline study area is characterised by cleared paddocks, although scattered eucalypt regrowth is also encountered along the margins of the roads and in the north around the location of the proposed power plant facility.

Prior impacts within the study area range from moderate to high. The area as a whole has been subject to vegetation clearance, fencing, grazing and erosion. In particular, the spur crests and upper slopes display very shallow soil profiles that appear to be gravelly lag deposits left behind by erosion. Other impacts include formed roads, associated drainage channels, agricultural dams and services such as overhead power lines and subsurface cables.

5. ABORIGINAL CONTEXT

5.1 Ethno-history

Tribal boundaries within Australia are based largely on linguistic evidence and it is probable that boundaries, clan estates and band ranges were fluid and varied over time. Consequently 'tribal boundaries' as delineated today must be regarded as approximations only, and relative to the period of, or immediately before, European contact. Social interaction across these language boundaries appears to have been a common occurrence.

According to Tindale (1974) the study area is located within the tribal boundaries of the Ngunnawal people.

The Ngunnawal people of the South Eastern Highlands Bioregion relied on the continuous supply of vegetables available in the tablelands. Spring, summer and autumn yielded the tubers of the yam daisy, wattle-seeds were plentiful in July and August, and orchid tubers were consumed in August and September (HO and DUAP 1996). Fish and crayfish were taken from the rivers from September to May, while possums and larger grazing animals were hunted throughout the year (NSW NPWS 2003).

The Aboriginal groups around the centre of the bioregion made an annual pilgrimage in December and January to the Bogong Mountains and Snowy Mountains where the men of various groups participated in feasts of roasted bogong moths (*Agrotis infusa*) high on the rocky granite outcrops of the mountains (NSW NPWS 2003)

The nomadic lifestyle of the Aboriginal people was disrupted by the arrival and early settlement of Europeans in the 1820s. From this time on, there were reports of diminishing water, fish and native animals so important to the Aboriginal diet.

By the 1850s the traditional Aboriginal economy had largely been replaced by an economy based on European commodities and supply points. Reduced population, isolation from the most productive grasslands, and the destruction of traditional social networks meant that the final decades of the region's indigenous culture and economy was centred on white settlements and properties (Officer 1989).

Some Aborigines adapted to the change by taking on work for the new settlers such as washing sheep, cutting bark and picking potatoes, while others chose to remain on the land and continue hunting (NSW NPWS 2003).

Early accounts of Aboriginal lifestyles in and comparable with the study locality describe aspects of a successful hunting and gathering economy and eventful social life and inter-group contacts. The material culture, which is partly reflected in the surviving archaeological record, included stone and wooden artefacts, skin clothing and bark and bough temporary dwellings (Flood 1980).

5.2 Regional Overview

Archaeological investigations within the Southern Tablelands and Highlands have been carried out since the late 1970s. Broad scale regional studies and research include Witter's (1980) work on site prediction in Australia and Flood's (1980) early synthesis of the archaeology of the highlands of south-eastern New South Wales.

Witter (1980) surveyed a 20 m wide easement for a 58 km stretch of the Moomba-Sydney gas pipeline between Dalton and Canberra. His survey crossed the Yass River and traversed hilly country in the centre of the Upper Yass River catchment. Fifteen artefact scatters, thirty two isolated finds and one historical site were recorded during the survey. The following year Witter (1981) fully excavated one site (DC2) and collected the surface artefacts from seven sites (DC1, DC3, DC5, DC6, DC9, DC11 & DC12).

Hughes and Koettig (1983) completed an assessment of an archaeological site in a proposed sand mining area at Mount Pleasant near Dalton. The site, Mount Pleasant 1, was originally recorded by National Parks and Wildlife Service staff. The assessment involved both test excavations within the proposed (sand mining) impact area and comparison with archaeological remains on the surface beyond the limits of impact and on other nearby sites. Eight test excavations, each 50 x 50 cm in area, were dug across the alluvial area to be affected by sandmining. The test excavations produced sixty six stone artefacts. Two further sites Mount Pleasant 2 and Mount Pleasant 3 were also located during the investigations.

5.3 The Study Area

A search of the AHIMS database revealed no previously recorded sites within the Dalton gas pipeline study area.

A survey of the proposed power plant facility (NOHC 2009), located immediately to the north of the gas pipeline study area, identified five Aboriginal sites, comprising three isolated finds (Dalton 1, Dalton 3 and Dalton 4), one small artefact scatter (Dalton 2), and one artefact scatter with potential archaeological deposit [PAD] (Dalton 5). One area of PAD unassociated with surface artefacts was also identified (Dalton PAD1) in the 2009 survey.

The previously recorded site Dalton 2 is located 60 m to the northwest of the current study are.

Dalton PAD1 is located 70 m to the northeast of the current study area, however, this recording may potentially be impacted by the gas pipeline and access road easement as they traverse the power plant facility footprint.

A survey for a now superseded gas pipeline alignment identified two sites (DGP2 and DGP3) in the vicinity of the current alignment.

Dalton Gas Pipeline (DGP2) is situated 60 m to the northwest of the current study area, and outside of the gas pipeline easement. Dalton Gas Pipeline 3 (DGP3) is located outside the pipeline and access road easement.

5.4 Aboriginal Site Types and Locations

An assessment of the size, context and location of Aboriginal sites in the Goulburn area by Koettig and Lance (1986) resulted in a model of site patterning for the region which has been refined by subsequent researchers. This model can be applied to the Dalton study area, which has similar landscape land use and topography.

On present evidence it appears that large sites are found on alluvial flats along major watercourses. These sites probably represent focal points of Aboriginal activity and are large, dense, and in close proximity to permanent water sources.

Smaller sites, which comprise the major portion of sites in the region, are found on undulating hills. There appears to be a decrease in the size and frequency of sites the further the distance from water. Sites also become fewer in number where ground is steeply sloping, such as on hillsides and ridge sides.

- *Open Artefact Scatters* may occur almost anywhere that Aborigines have travelled and may be associated with hunting and gathering activities, domestic camps, or the manufacture and maintenance of stone tools. These sites are sometimes referred to as ‘open campsites'.

- *Open Artefact Scatters* are the most common site type found in the region and have been recorded in a number of topographic contexts. These include ridges and hills, and the lower slopes of knolls and spurs. The sites are often associated with watercourses.

- *Isolated Finds* occur anywhere in the landscape and may represent the remnants of dispersed artefact scatters, or random loss or discard of artefacts.

- *Scarred Trees* result when bark has been removed from a tree for some particular purpose such as for the manufacture of a shield, canoe or coolamon. Scars may also be the result of making footholds in a tree to collect foodstuffs or to facilitate the removal of bark. These sites may occur almost anywhere, and may potentially survive wherever old growth trees remain within the landscape. The identification of scars as Aboriginal in origin can often remain problematic.

- *Carved Trees* are a much rarer site type than scarred trees, and are sometimes found in association with ceremonial or burial grounds. They characteristically include carved figurative and non-figurative motifs on the exposed wood created within a scar produced by bark removal.

- *Quarry (extraction or procurement)* sites are typically exposures of a geological raw material where evidence for human extraction and or preliminary processing has survived. Typically these involve the extraction of siliceous rock types for the manufacture of artefacts or the removal of ochre. To date only one Aboriginal quarry site, a chert quarry, has been located in the Goulburn district (Paton 1990).

- *Stone Arrangements* are defined as any arrangement of placed rocks that can be reasonably assigned to Aboriginal activity. Typically these include rock cairns and alignments of single or grouped stones.

- *'Bora' Grounds (Earth Circles)* functioned as a prepared stage for initiation and other ceremonial activities which held a key role in the teaching and maintenance of the complex social and religious framework within Aboriginal society. Cited frequently in early records, the Gamilaraay word 'Bora' has been used as a generic term for ceremonial sites across much of New South Wales. In the region these sites were more likely known as 'Burbung' or 'Boonan' grounds in line with the Wiradjuri or Yuin/Ngunnawal languages (Knight 2001). They consist mostly of one or more circular rings defined by mounded earth, sand and/or rocks. There may also be an associated depression within the ring. A pathway generally connected two rings and was often many hundreds of metres long. Typically, one circle was associated with more public ceremonies and the second with restricted and sacred information.

  'Bora' grounds can only be recognised or located either through detailed oral accounts or identifying surviving ground surface features. Unfortunately, most physical evidence of these sites is fragile and easily destroyed by minimal agricultural activities.

- *Burials* are generally found in soft sediments such as sand or alluvial silts, but may also occur in middens, rock shelters or hollow trees. Burials are generally only visible where there has been some disturbance of subsurface sediments or where some erosional process has exposed them.

6. HISTORICAL CONTEXT

6.1 Historical Overview

The region of the southern highlands and southern tablelands was first explored by Europeans in 1820, with settlement beginning shortly after. John Macarthur settled Taralga in 1822; various Scots arrived in the Braidwood area in the 1830s, and almost 10,000 cattle and sheep were farmed in the open country around Goulburn in 1821. The 1830s then saw the whole southern area of the bioregion occupied by squatting runs (NSW NPWS 2003).

The town of Dalton was settled in 1847. Dalton was part of Gunning Shire which was later amalgamated with Crookwell Shire and parts of Mulwaree and Yass Shires to form the Upper Lachlan Shire.

The study area runs partially along old road reserves (Figure 6.1) and also traverses:

- Portion 21 purchased by James Sawfoot;
- Portions 24 and 25 belonging to John Alchin;
- Portion 26 selected by James Grosvenor;
- Portions 31 and 33 selected by Timothy Starr;
- Portion 307 belonging to John Hallam;
- Portions 200 and 283 belonging to John Mitchell; and
- Portions 186 and 251 selected by Sam Francis.

These blocks now form components of a larger holding owned by the Starr family, who have been living in this location for five generations (Gordon Starr, pers. comm 26 February 2010).

6.2 Previous Cultural Heritage Studies

No previous cultural heritage studies have been undertaken within or near the study area.

6.3 Heritage Listed Items

There are no heritage listed items within the study area.

6.4 Historic Site Types and Locations

Unrecorded historical sites and features of heritage significance that may occur within the study area include:

- Old fence lines (such as post and rail fencing); these may occur along road easement boundaries and farmlands. Other indications of field systems, such as drainage channels and ridge and furrow ploughlands, are likely to survive in low lying agricultural ground, especially in areas that are now used for grazing, rather than cropping.
- Traces of agricultural and industrial processing or extractive sites such as quarries; these may be found throughout agricultural lands on valley floors and adjacent low ranges;
- Archaeological sites such as the occupation remains of former dwellings including homesteads, houses and huts; these will be distributed in close association with land settlement patterns, and correlated with favourable agricultural lands, trading nodes and transport corridors;

- Nineteenth-century structures such as farm dwellings, outbuildings, selector's and timber-getters huts; these may survive as standing buildings, ruins or archaeological deposits and are most likely to survive on less developed rural properties, on early portion numbers, and in or near established farm building complexes;

- Sites associated with early roads; these will be closely associated with early cadastral road reserves, watershed ridgelines, and related to early river and creek crossing points; and

- Transport and access routes such as bridle paths, stock routes, and roads of varying forms and ages; these may survive as abandoned remnants adjacent to modern transport routes, or as alignments now followed by more modern or upgraded road and track infrastructure.

Structures of historical interest and heritage significance may be standing, ruined, buried, abandoned or still in use.

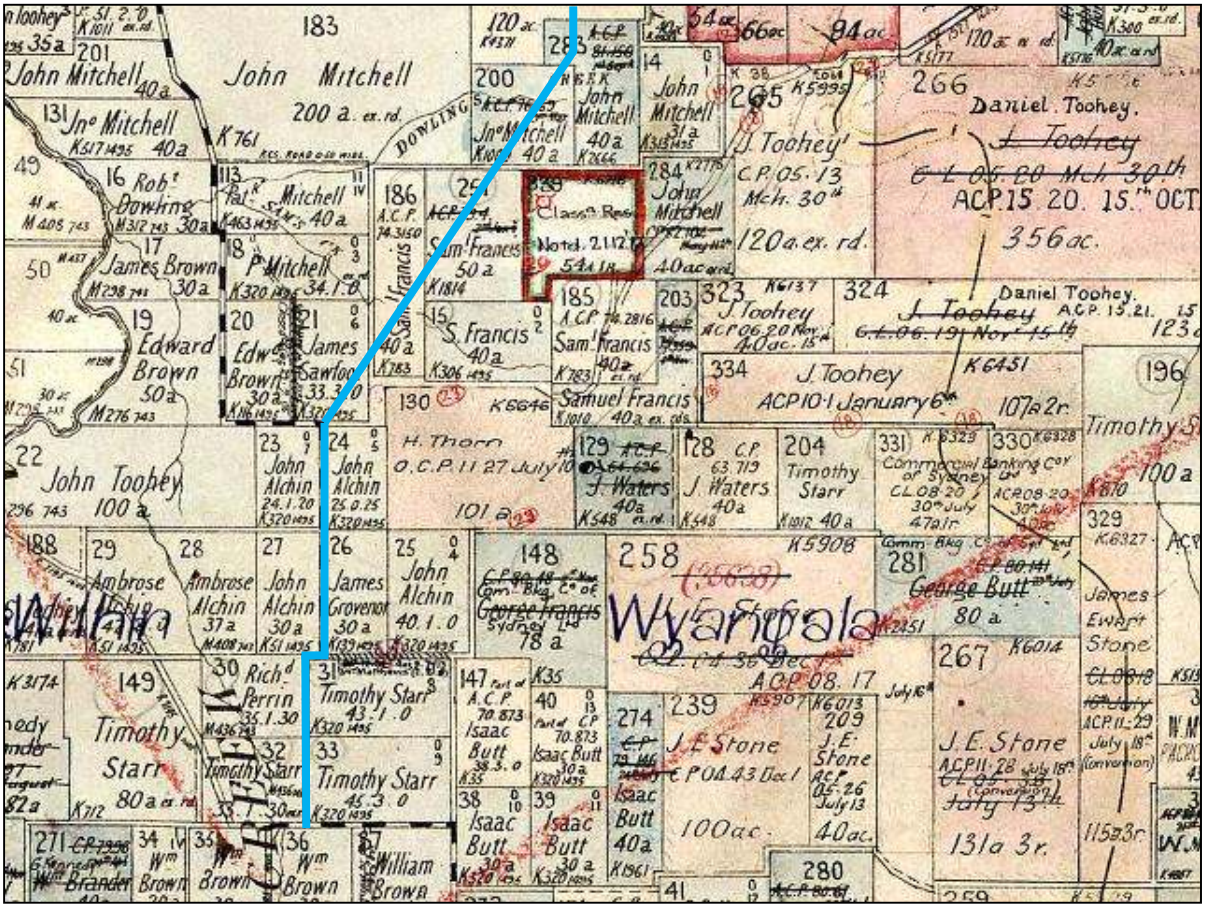

Figure 6.1 Extract of the 3rd edition Dalton Parish map (1905-1918) with study area highlighted in blue (NSW Department of Lands Image ID 10305001).

7. RESULTS

7.1 Summary

- No previously recorded historical sites are located within the Dalton gas pipeline study area.
- A number of Aboriginal sites were previously recorded in the context of the surveys conducted for the Dalton Peaking Power Plant site, and a now superseded gas pipeline alignment. Relevant recordings are:
  - Dalton 2 (D2) (located within the Dalton Peaking Power Plant site), which will be directly impacted by the gas pipeline and access road easement as they traverse the power plant facility footprint;
  - Dalton PAD 1 (DPAD1) (located within the Dalton Peaking Power Plant site), which will be directly impacted by the gas pipeline and access road easement as they traverse the power plant facility footprint.
  - Dalton Gas Pipeline (DGP2), which is situated 60 m to the northwest of the current study area, and outside of the gas pipeline easement;
  - Dalton Gas Pipeline 3 (DGP3), which is located outside the pipeline and access road easement; and
- Two Aboriginal sites, artefact scatters Dalton Gas Pipeline (DGP4) and Dalton Gas Pipeline (DGP5) were identified in the gas pipeline easement in the course of the current study.
- One Aboriginal site, artefact scatter Dalton Gas Pipeline (DGP6), was identified on the southeastern edge of the gas pipeline easement in the course of the current study.
- The potential for sites DGP4, DGP5 and DGP6 to extend beyond their exposure is suggested by continuing micro-topographic landforms on which they are located. The potential for detecting sites on these landforms is limited by ground surface visibility and the limited exposures within the study area.
- No historical sites were identified in or adjacent the study area in the course of the current study.

Sites are described below, and site locations are shown on Figures 7.4 and 7.5.

(The numbering of sites recorded in this study continues on from previous Dalton gas pipeline projects).

7.2 Previously Recorded Aboriginal Sites

Dalton 2 (D2)

GDA 701499.6159464 WGS84

This site is scatter of two artefacts located on basal slopes above a valley floor/drainage line and dam. The artefacts were visible within 50 cm of each other on animal tracks (1.5 m wide and linear) leading to a dam. Small pieces of shell were also located near the artefacts.

Visibility on the tracks was 90%. The incidence of ground exposures in the area of the site was 30% with 60% visibility in the exposures.

There is moderate potential for additional artefacts to be located in the area and low to moderate potential for subsurface archaeological deposits to be associated with the site.

Artefacts:

1. white quartz flake, 14 x 12 x 2 mm
2. green/brown silcrete blade, 21 x 10 x 3 mm

Dalton Gas Pipeline 2 (DGP2)

GDA Grid Reference: 55H 700842.6158543 – 700874 6158581

This recording comprises three stone artefacts exposed across extensive areas of sheet erosion on a low gradient spur crest. The artefacts were visible in a skeletal soil that appeared to consist largely of a gravelly lag deposit. Gravels and bedrock were exposed across much of the spur crest and adjoining upper slopes.

The artefacts recorded at the site were:

1. brown silcrete flake, proximal portion with platform faceting, 26 x 27 x 8 mm
2. brown silcrete blade, 31 x 14 x 4 mm
3. grey silcrete core with 3 platforms and 6 scars, 38 x 34 x 29

The first item was observed within an area of erosion measuring 3 x 10 m with 80% exposure incidence and 80% visibility. The other two artefacts were found about 4 m apart, 50 m to the northeast of the first item. These two pieces were observed on a stock track adjacent a similar exposure of sheet erosion. Other similar expanses of exposed ground across the crest were also inspected and found not to contain artefacts.

Given that the exposure incidence and visibility encountered across the spur was high and only three artefacts were recorded, it is probably that this site is representative of a very low density artefact distribution and/or background scatter. The soil in this location is very shallow and offers negligible subsurface potential.

The artefacts recorded at this site are approximately 10 m southeast of the centre line of the proposed gas pipeline.

Dalton Gas Pipeline 3 (DGP3)

GDA Grid Reference: 55H 701453. 6159284

A single stone artefact (grey silcrete flake with partial retouch along one margin, 24 x 24 x 7 mm) was recorded on gentle to moderate gradient upper slopes with a southeast aspect. This site is approximately 180 m south of the previously recorded artefact scatter Dalton 2 and 190 m southwest of Dalton PAD 1.

Soil in this location is characterised by a skeletal gravelly loam. Bedrock outcrops and large areas of shale and quartz gravels are exposed across the upper slopes and adjoining spur crest.

The artefact observed at DGP3 was found adjacent an ant nest in a broader area of sheet erosion and stock tracks measuring 5 x 2 m. Exposure incidence in this location was 80% and visibility averaged 70%. Exposure incidence across the surrounding area was around 10% with 50% visibility within exposures.

This site is situated about 250 m north of Dowlings Creek, which is a 2nd order drainage line at this point, and over one kilometre southwest of the Lachlan River. The slopes of a spur in this topographic context are unlikely to contain high density distributions of artefacts. Furthermore, the skeletal nature of the local soil deposit suggests that the potential for subsurface archaeological material is low.

Dalton PAD1 (DP1) – potential archaeological deposit

GDA 701594.6159420 WGS84

This potential archaeological deposit located on a low spur leading to a dam/drainage line. The area is bounded on either side by small drainage lines and measures approximately 15 x 25 m.

The incidence of ground exposures in the area of the site was 60% with 60% visibility in the exposures. Ground surface visibility was limited by gravel and grass cover.

7.3 Aboriginal Sites Recorded in Current Study

Dalton Gas Pipeline 4 (DGP4)

GDA Grid Reference: 55H 700763. 6158431

The site DGP4 consists of two stone artefacts:

1. grey-black banded chert flake, 18 x 13 x 5 mm
2. grey-black banded chert bipolar core

These artefacts were found eroding out of a skeletal soil exposure in an extended area of sheet erosion on a low gradient spur crest, with a northwest aspect. There were moderate to high levels of background quartz and shale gravels within these exposures (Figure 7.1).

The exposure in which these artefacts were observed covers an area of approximately 30 x 10 m. Exposure incidence within this landform averaged 30%, with visibility within the exposures averaging 40%.

There is a low to moderate potential for additional artefacts to occur across the spur slopes; it is expected that the potential for artefacts will increase slightly across the spur crest to the southeast.

Given that this site is located over 900 m from the nearest reliable water source (Oolong Creek), it is predicted that any additional artefacts will be present at low densities. Furthermore, given the skeletal nature of the soil in this location and the extent of erosion across the spur crest and upper slopes, any artefact that are present subsurface are unlikely to be *in situ*.

This recording is located within the proposed gas pipeline footprint.

Dalton Gas Pipeline 5 (DGP5)

GDA Grid Reference: 55H 700890. 6158525 – 700894. 6158532

This recording comprises three stone artefacts eroding out of a skeletal soil exposure along an informal vehicle track (Figures 7.2). The artefacts were visible in a skeletal soil that consisted largely

of a gravelly lag deposit. Gravels and bedrock were exposed across much of the spur crest and adjoining upper slopes.

The artefacts recorded at the site were:

1. grey banded chert flake, 13 x 10 x 3 mm;
2. rose quartz unidirectional core, 67 x 45 x 42 mm; and
3. grey quartzite bipolar core, 59 x 42 x 29 mm.

These three artefacts were found within the gravel lag/skeletal soil exposure formed by the presence of an informal vehicle track within 5 metres of each other. The exposure within which these artefacts were found covers an area of approximately 175 x 2 m. Exposure incidence within the mid-slope landform was approximately 20%, with visibility within the exposure averaging 60%.

The track to the northwest and southeast was further inspected and found not to contain artefacts.

Given that the exposure incidence and visibility encountered across the mid-slope was low, and that three artefacts were recorded, it is probable that this site is representative of a low density artefact distribution and/or background scatter. The soil in this location is very shallow and offers negligible subsurface potential.

This recording is located within the proposed gas pipeline footprint, with artefacts visible approximately 12 m southeast of the centreline of the pipeline.

Figure 7.1 Location of the artefacts recorded at DGP4, looking southeast.

Figure 7.2 Location of the artefacts recorded at DGP2, looking south.

Dalton Gas Pipeline 6

GDA Grid Reference: 55H 700919. 6158556

Ten grey silcrete stone artefacts were recorded on a gentle to moderate gradient upper slopes with a southwest aspect, forming a probable stone tool flaking floor (Figure 7.3).

1. grey silcrete blade flake, 38 x 15 x 7 mm
2. grey silcrete flaked piece, 27 x 19 x 4 mm
3. grey silcrete broken blade flake, medial section, 19 x 16 x 6 mm
4. grey silcrete flaked piece with retouch, 27 x 17 x 4 mm
5. grey silcrete broken flaked piece, distal section, 19 x 15 x 2 mm
6. grey silcrete flaked piece, 23 x 11 x 12
7. grey silcrete broken flaked piece, proximal section, 21 x 15 x 2 mm
8. grey silcrete broken flake, proximal section, 31 x 12 x 3 mm
9. grey silcrete flaked piece, 24 x 17 x 6 mm
10. grey silcrete flake with cortex and retouch, 39 x 16 x 3 mm

Soil in this location is characterised by skeletal gravelly silt and clays. Background shale and quartz gravels dominate the exposure.

The artefacts observed at DGP6 were found scattered around a dead tree, within an exposure approximately 15 x 20 m that surrounded the tree's base. Exposure incidence in this location was 20% and visibility averaged 60%. Exposure incidence across the surrounding area was around 10% with 30% visibility within exposures.

There is a low to moderate potential for additional artefacts to be associated with this exposure.

This site is situated about 400 m south of Dowlings Creek, which is a 2nd order drainage line at this point, and over two kilometres southwest of the Lachlan River. The slopes of a spur in this topographic context are unlikely to contain high density distributions of artefacts. Furthermore, given the skeletal nature of the soil in this location, any artefacts that are present subsurface are unlikely to be *in situ*.

The artefacts recorded at this site are approximately located on the southeastern edge of the proposed gas pipeline footprint.

Figure 7.3 DGP6 artefact scatter.

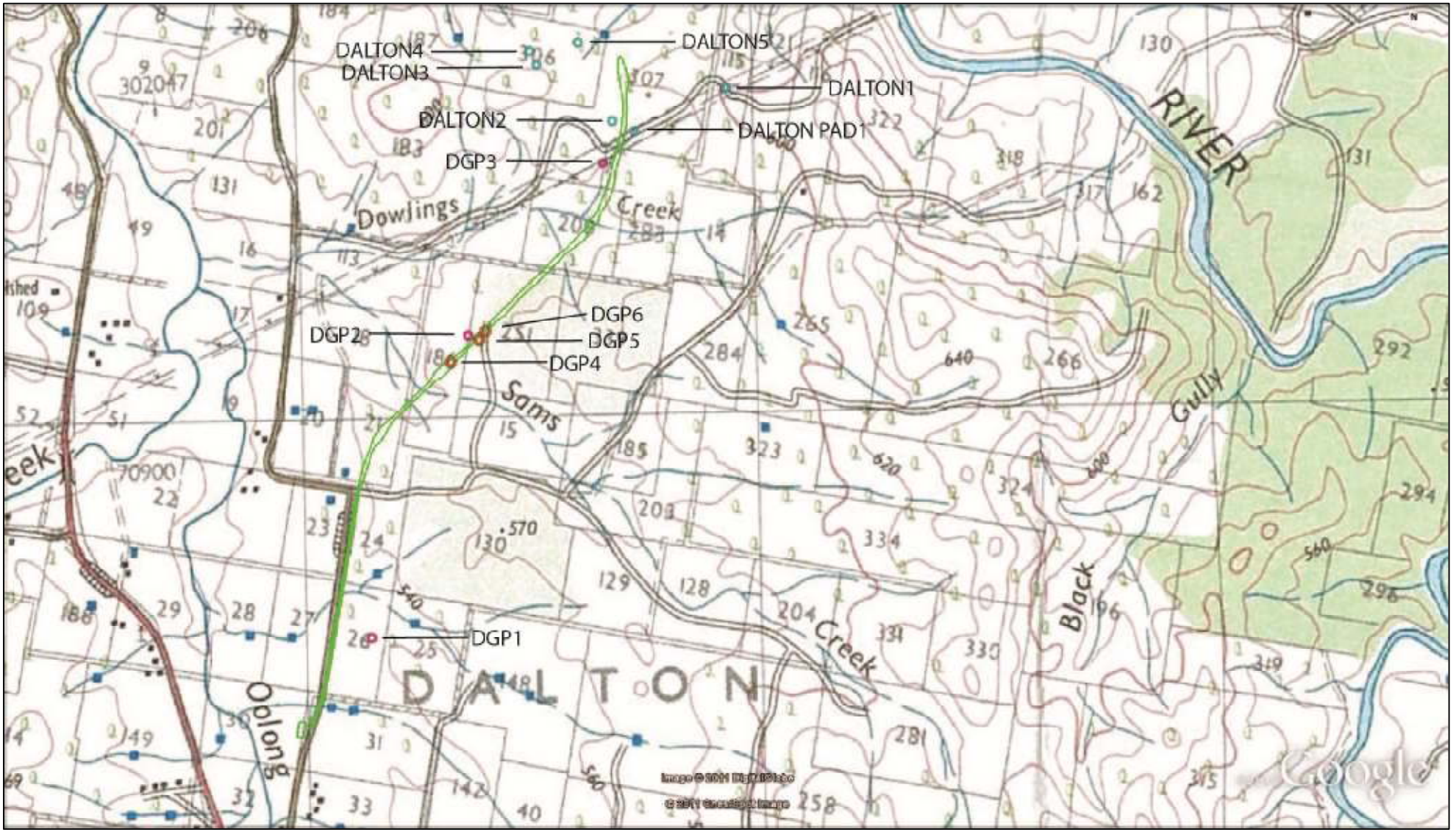

Figure 7.4 Location of Aboriginal sites in the vicinity of the proposed gas pipeline (green), including previously identified sites (blue and pink) and those recorded during the current survey (orange) (Dalton 8728- N 1:50,000 topographic map, 1st edition, NSW Department of Lands).

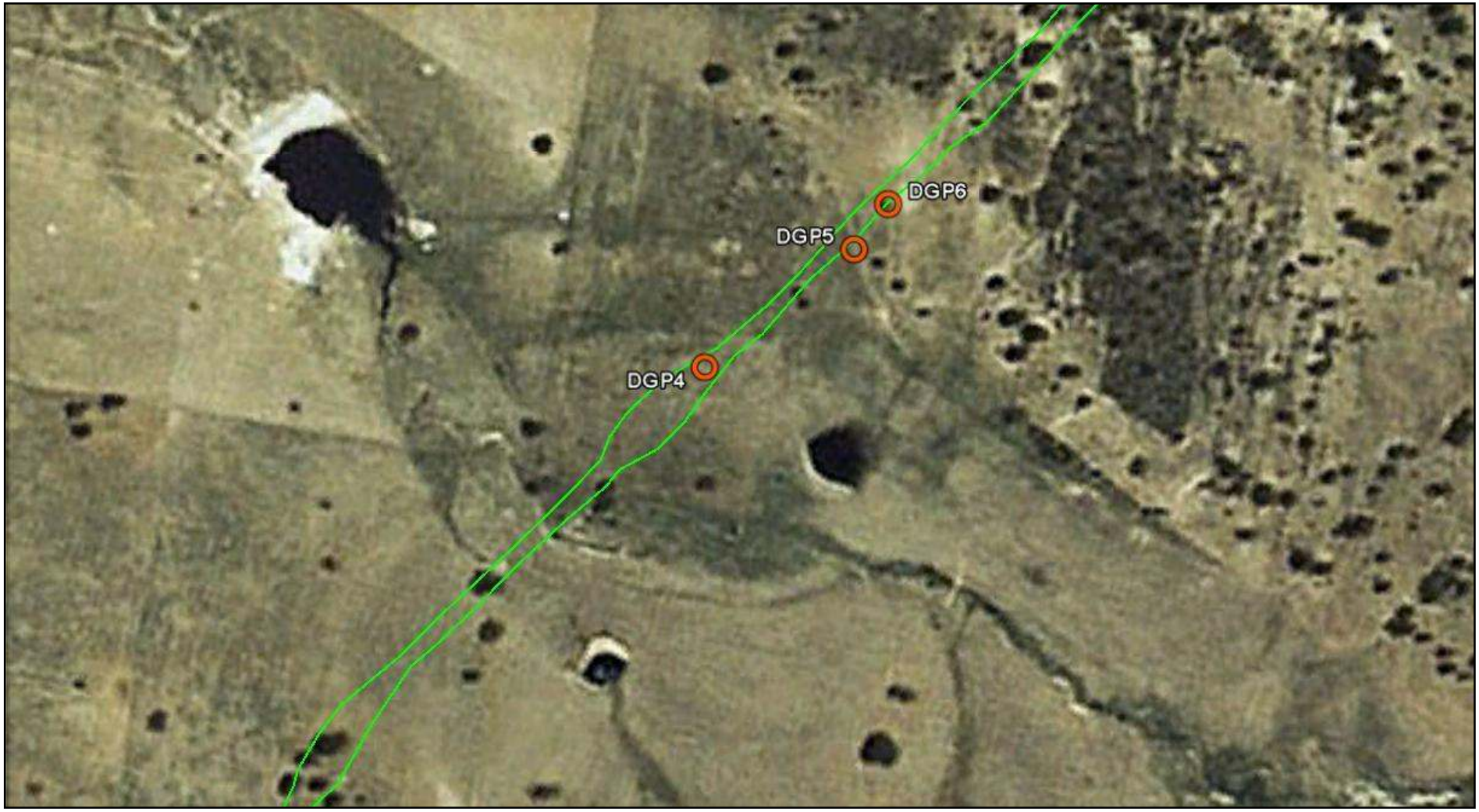

Figure 7.5 Location of identified Aboriginal sites (DGP4, DGP5 and DGP6 (orange)) recorded in current survey (green) (Base Image: Google Earth Pro).

7.4 Locations of Recordings Relative to Development

Recording Code	Recording Type	GDA Reference	Location Relative to Development
Dalton 1 (D1)	isolated find	701998.6159591	Outside power plant facility footprint – no impact
Dalton 2 (D2)	artefact scatter	701499.6159464	Directly impacted by power plant facility footprint and potentially by gas pipeline and access road easement
Dalton 3 (D3)	isolated find	701172.6159717	Directly impacted by power plant facility footprint
Dalton 4 (D4)	isolated find	701142.6159776	Directly impacted by power plant facility footprint
Dalton 5 (D5)	artefact scatter and PAD	701350.6159851 to 701432.6159838 to 701362.6159782	Directly impacted by power plant facility footprint
Dalton PAD1 (DPAD1)	potential archaeological deposit	701594.6159420	Directly impacted by power plant facility footprint and potentially by gas pipeline and access road easement
Dalton Gas Pipeline 1 (DGP1)	artefact scatter	700386. 6157225	Outside pipeline and access road easement
Dalton Gas Pipeline 2 (DGP2)	artefact scatter	700842.6158543 – 700874 6158581	Outside pipeline and access road easement - no impact
Dalton Gas Pipeline 3 (DGP3)	isolated find	701453. 6159284	Outside pipeline and access road easement
Dalton Gas Pipeline 4 (DGP4)	artefact scatter	700736.6158431	Directly impacted by gas pipeline footprint
Dalton Gas Pipeline 5 (DGP5)	artefact scatter	700890.6158525 – 700894.6158532	Directly impacted by gas pipeline footprint
Dalton Gas Pipeline 6 (DGP6)	artefact scatter	700919.6158556	Located on the southeastern edge of proposed gas pipeline footprint; would potentially be impacted by construction of the pipeline

Table 7.1 Locations of Aboriginal recordings relative to the proposed development – this table includes all recordings made in the context of the Dalton Peaking Power Plant study (NOHC 2009) and the Dalton Gas Pipeline studies.

7.5 Survey Coverage and Visibility Variables

The effectiveness of archaeological field survey is to a large degree related to the obtrusiveness of the sites being looked for and the incidence and quality of ground surface visibility. Visibility variables were estimated for all areas of comprehensive survey within the study area. These estimates provide a measure with which to gauge the effectiveness of the survey and level of sampling conducted. They can also be used to gauge the number and type of sites that may not have been detected by the survey.

Ground surface visibility is a measure of the bare ground visible to the archaeologist during the survey. There are two main variables used to assess ground surface visibility, the frequency of exposure encountered by the surveyor and the quality of visibility within those exposures. The predominant factors affecting the quality of ground surface visibility within an exposure are the extent of vegetation and ground litter, the depth and origin of exposure, the extent of recent sedimentary deposition, and the level of visual interference from surface gravels. Two variables of ground surface visibility were estimated during the survey:

- A percentage estimate of the total area of ground inspected which contained useable exposures of bare ground; and
- A percentage estimate of the average levels of ground surface visibility within those exposures. This is a net estimate and accounts for all impacting visual and physical variables including the archaeological potential of the sediment or rock exposed.

The obtrusiveness of different site types is also an important factor in assessing the impact of visibility levels.

For example, artefacts made from locally occurring rock such as quartz may be more difficult to detect under usual field survey conditions than rock types that are foreign to the area. The impact of natural gravels on artefact detection was taken into account in the visibility variables estimates outlined above.

The natural incidence of sandstone platforms suitable for grinding grooves or engraving, together with the incidence of old growth trees, are important considerations in identifying both survey effectiveness and site location patterns outside of environmentally determined factors.

Table 7.2 summarises estimates for the degree to which separate landforms within the study area were examined and also indicates the exposure incidence and average ground visibility present in each case. A total of 81% of the ground area in the study area was inspected during the survey, with 7.2% providing useable archaeological exposures.

Taking into account survey coverage, archaeologically useable exposures, and visibility variables, the effective survey coverage (ESC) was 1.4 % of the total survey area. The ESC attempts to provide an estimate of the proportion of the total study area that provided a net 100% level of ground surface visibility to archaeological surveyors.

Table 7.2 Survey Coverage Data

Landform	Main Exposure Types	Unit Area (ha)	Proportion of Unit Surveyed	Area of Unit Surveyed (ha)	Exposure Incidence %	Average Exposure Visibility %	Net Effective Exposure (ha)	Effective Survey Coverage (ESC) of Survey Unit %	Archaeological Recordings
Basal slopes	Vehicle and animal tracks, sheet and gully erosion, dams	9.2	80	7.36	2	50	0.0147	1.6	
Spur crests	Sheet erosion, vehicle and animal tracks	16.3	90	14.67	20	30	0.2934	1.8	DGP4, DGP6
Drainage lines	Sheet and gully erosion, dams, animal tracks	5	80	4	5	60	0.2	1.0	
Simple slopes	Sheet erosion, vehicle and animal tracks	4	70	2.8	10	60	0.28	1.1	DGP5
Upper slopes	Sheet erosion, vehicle and animal tracks	1.5	70	1.05	10	30	0.105	1.6	
Totals		**36.0**		**29.88**			**0.8931**	**1.4**	**3**

8. SIGNIFICANCE ASSESSMENT

8.1 Assessment Criteria

The Burra Charter of Australia defines cultural significance as 'aesthetic, historical, scientific or social value for past, present and future generations' (Aust. ICOMOS 1987). The assessment of the cultural significance of a place is based on this definition but often varies in the precise criteria used according to the analytical discipline and the nature of the site, object or place.

In general, Aboriginal archaeological sites are assessed using five potential categories of significance:

- significance to contemporary aboriginal people;
- scientific or archaeological significance;
- aesthetic value;
- representativeness; and
- value as an educational and/or recreational resource.

Many sites will be significant according to several categories and the exact criteria used will vary according to the nature and purpose of the evaluation. Cultural significance is a relative value based on variable references within social and scientific practice. The cultural significance of a place is therefore not a fixed assessment and may vary with changes in knowledge and social perceptions.

Cultural significance can be defined as the cultural values of a place held by and manifest within the local and wider contemporary Aboriginal community. Places of significance may be landscape features as well as archaeologically definable traces of past human activity. The significance of a place can be the result of several factors including: continuity of tradition, occupation or action; historical association; custodianship or concern for the protection and maintenance of places; and the value of sites as tangible and meaningful links with the lifestyle and values of community ancestors. Aboriginal cultural significance may or may not parallel the archaeological significance of a site.

Scientific significance can be defined as the present and future research potential of the artefactual material occurring within a place or site. This is also known as archaeological significance.

There are two major criteria used in assessing scientific significance:

1. The potential of a place to provide information which is of value in scientific analysis and the resolution of potential research questions. Sites may fall into this category because they: contain undisturbed artefactual material, occur within a context which enables the testing of certain propositions, are very old or contain significant time depth, contain large artefactual assemblages or material diversity, have unusual characteristics, are of good preservation, or are a constituent of a larger significant structure such as a site complex.

2. The representativeness of a place. Representativeness is a measure of the degree to which a place is characteristic of other places of its type, content, context or location. Under this criteria a place may be significant because it is very rare or because it provides a characteristic example or reference.

The value of an Aboriginal place as an educational resource is dependent on: the potential for interpretation to a general visitor audience, compatible Aboriginal values, a resistant site fabric, and feasible site access and management resources.

The principal aim of cultural resource management is the conservation of a representative sample of site types and variation from differing social and environmental contexts. Sites with inherently unique features, or which are poorly represented elsewhere in similar environment types, are considered to have relatively high cultural significance.

The cultural significance of a place can be usefully classified according to a comparative scale which combines a relative value with a geographic context. In this way a site can be of low, moderate or high significance within a local, regional or national context. This system provides a means of comparison, between and across places. However it does not necessarily imply that a place with a limited sphere of significance is of lesser value than one of greater reference.

The following assessments are made with full reference to the scientific, aesthetic, representative and educational criteria outlined above. Reference to Aboriginal cultural values has also been made where these values have been communicated to the consultants. It should be noted that Aboriginal cultural significance can only be determined by the Aboriginal community, and that confirmation of this significance component is dependent on written submissions by the appropriate representative organisations.

8.2 The Study Area

The three sites identified within the Dalton gas pipeline study area have been assessed to be representative of background scatter and/or low density artefact distributions. All of the sites were identified in areas with skeletal soils that had been variously subject to erosion. The potential for subsurface artefacts at site DGP5 was classed as negligible, and low to moderate at sites DGP4 and 6. The potential for subsurface archaeological material to remain in situ is considered to be low.

Small, low density artefact scatters are a common site type across the South Eastern Highlands. The stone artefact scatters recorded have significance within a local context, with limited information potential regarding the local use of raw materials and tool manufacture. The possible occurrence of flaking floor at site DGP6 provides an element of moderate archaeological significance.

The sites DGP4 and DGP6 have limited research and educational potential, given their local representativeness and low to moderate potential to contain subsurface artefacts. This potential is limited by the shallow nature of the deposit and low potential for undisturbed (*in situ* remains).

Site DGP5 is assessed as having low archaeological significance within a local context. Sites DGP4 and 6 are assessed as having low to moderate significance in a local context.

The assessment of the potential Aboriginal cultural values of these sites would be the subject of future Aboriginal community consultation, to be conducted when this phase of the assessment is commenced as part of a future Part 3A evaluation.

9. STATUTORY AND POLICY CONTEXT[1]

9.1 Environmental Planning and Assessment Act 1979

This Act (EP&A Act) and its regulations, schedules and associated guidelines require that environmental impacts are considered in land use planning and decision making. Environmental impacts include cultural heritage assessment. The Act was reformed by the *Environmental Planning and Assessment Amendment (Infrastructure and other Planning Reform) Act 2005*.

There are four main areas of protection under the Act:

- Planning instruments allow particular uses for land and specify constraints. Part 3 governs the preparation of planning instruments. Both Aboriginal and Historical (non-indigenous) cultural heritage values should be assessed when determining land use;

- A separate streamlined and integrated development assessment and approvals regime for major infrastructure and other projects of significance to the State is defined by Part 3A;

- Section 90 lists impacts which must be considered before development approval is granted. Part 4 relates to the development assessment process for local government authorities. Impact to both Aboriginal and Historical (Non-Indigenous) cultural heritage values are included; and

- State Government agencies which act as the determining authority on the environmental impacts of proposed activities must consider a variety of community and cultural factors in their decisions, including Aboriginal and Historical (Non-Indigenous) cultural heritage values. Part 5 relates to activities which do not require consent but still require an environmental evaluation, such as proposals by government authorities.

Under the EP&A Act the Minister for Planning may make various planning instruments such as regional environmental plans (section 51) and local environment plans (s70). The Minister may direct a public authority such as a Local Council, to exercise certain actions within a specified time, including the preparation of draft LEPs and appropriate provisions to achieve the principles and aims of the Act (s117).

If a development consent is required from council under the provisions of a LEP and a permit or license is also required from a State Government Agency an integrated development must be submitted to the consent authority. A development is an 'integrated development' if it requires an approval under s90 of the NP&W Act or if the Director General of the DECCW is of the opinion that consultation with an Aboriginal group or organisation should be consulted prior to a determination being made. Any development approval issued for an integrated development of this kind must be consistent with the general terms of approval or requirements provided by the relevant State Government Agency.

The EP&A Act, as amended, provides for the listing of heritage items and conservation areas and for the protection of these items or areas through environmental planning instruments (like REPs and LEPs) at the local government and State planning levels. These statutory planning instruments usually contain provisions for the conservation of these items and areas as well as an assessment process to reduce the impacts of new development on the heritage significance of a place, building or conservation area.

[1] The following information is provided as a guide only. Readers are advised to seek qualified legal advice relative to legislative matters.

Part 3A of the EP&A Act

Part 3A of the Act is an amendment which establishes a separate streamlined and integrated development assessment and approvals regime for major State government infrastructure projects, development that was previously classified as State Significant development, and other projects, plans or programs declared by the Minister for Planning.

Part 3A removes the stop-the-clock provisions and the need for single-issue approvals under eight other Acts, including the NP&W Act and the Heritage Act 1977. Environmental planning instruments such as the heritage provisions within REP and LEPs, (other than State environmental planning policies) do not apply to projects approved under Part 3A.

Where warranted the Minister may declare any project subject to Part 3A to be a critical infrastructure project. These projects only require a concept approval in contrast to other Part 3A projects which require project approval. In most circumstances, a concept approval will be obtained to establish the environmental performance requirements and consultation requirements for the implementation of the subsequent stages of the project.

Under the provisions of Part 3A, proponents of major and infrastructure projects must make a project application seeking approval of the Minister. The application is to include a preliminary assessment of the project. Application may be for concept plan approval or full approval. Following input from relevant agencies and council(s), DoP will issue the proponent with requirements for the preparation of an Environmental Assessment and a Statement of Commitments. The Statement of Commitments will include how the project will be managed in an environmentally sustainable manner, and consultation requirements.

Following submission of an Environmental Assessment and draft Statement of Commitments to DoP, these documents are variously evaluated, reviewed, circulated and exhibited. The proponent may modify the proposal to minimise impacts in response to submissions received during this process. The proponent then provides a Statement of Commitments and, following any project changes, a Preferred Project Report. An assessment report is then drafted by the Director-General and following consultation with relevant agencies, a final report with recommendations for approval conditions or application refusal is submitted to the Minister. The Minister may refuse the project, or approve it with any conditions considered appropriate.

9.2 Implications for the Dalton Gas Pipeline

Aboriginal 'objects' as defined under the *National Parks and Wildlife Act 1974* have been identified within the Dalton Peaking Gas Pipeline study area. However, as the project will be conducted under Part 3A of the *Environmental Planning and Assessment Act 1979,* single-issue approvals under the NP&W Act do not apply to this project (Section 90a *Aboriginal Heritage Impact Permits* will not be required for this project).

The management recommendations provided in this report should be included in the *Statement of Commitments* for the project.

10. CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

The Dalton gas pipeline project will necessitate the disturbance of ground within the 45 m wide corridor of the proposed pipeline easement.

One site and one PAD (D2 and DPAD1) have been identified in, or adjacent to, the study area for the proposed pipeline in the context of previous studies.

Both of these recording may be potentially impacted by the pipeline easement and access road easement as it traverse the power plant site.

Three sites (DGP4, DGP5 and DGP6) have been identified in, or adjacent to, the study area for the proposed pipeline in the context of the current study.

Potential impacts at these sites are as follows:

- DGP4 is within the pipeline easement and would be directly impacted by construction of the pipeline;
- DGP5 is 12 m off the centreline of the study area and would be directly impacted by construction of the pipeline; and
- DGP6 is on the edge of the footprint of the study area and would be potentially impacted by construction of the pipeline.

The potential of these sites to extend beyond their current recorded extent is probable, given the constraints of the low ground surface visibility within the study area, and the continuity of the micro-topographic landforms on which they are situated, to either side of the proposed development footprint. The likely subsurface presence of artefacts along these landforms, and their continuity outside of the proposed pipeline easement, means that avoiding impact to Aboriginal objects by minor adjustments to the easement may be problematic

10.2 Recommendations

It is recommended that

1. The results of the archaeological survey and assessment should be provided to the registered Aboriginal stakeholders for the project, with an invitation to make comment and provide information where appropriate regarding cultural heritage values and management of those values. Responses received should then be addressed and considered with regard to a final cultural heritage impact mitigation program.

The following recommendations should be included in the *Statement of Commitments* for the project.

Previously Recorded Sites and PADs

1. If impact to Aboriginal site Dalton 2 cannot be avoided then the artefacts should be collected or relocated away from the area of impact.

2. If impact to potential archaeological deposit DPAD1 cannot be avoided, then a program of archaeological subsurface testing should be conducted to ascertain the presence, extent and integrity of cultural material that may be present in DPAD1.

Sites Recorded in the Current Study

3. Where feasible, disturbance to Aboriginal archaeological sites Dalton Gas Pipeline 4, Dalton Gas Pipeline 5 and Dalton Gas Pipeline 6 (DGP4, DGP5 and DGP6) should be avoided.

4. If avoidance of sites DGP4, DGP5 and DGP6 is not feasible, then the following management strategies are recommended:

    a. The artefacts exposed at DGP5 should be collected and/or relocated away from the area of impact.

    b. A limited program of salvage excavation should be conducted at sites DGP4 and DGP6 with the aim of recording and analysing a larger and more representative sample of artefacts

5. If during construction of the pipeline, Aboriginal objects are encountered outside of the DGP4, DGP5 and DGP6 site recordings, then the actions defined in the Unanticipated Discovery Protocol (attached as Appendix 1) should be followed.

6. Three copies of this report should be forwarded to the NSW DECCW for their records at the following address:

    Cultural Heritage Officer
    Southern Region
    PO Box 2115
    QUEANBEYAN NSW 2620

7. One copy of this report should be forwarded to the Onerwal Local Aboriginal Land Council and other registered Aboriginal stakeholders for their consideration and comment.

11. REFERENCES

Australia ICOMOS 1987 The Australia Icomos Charter for the Conservation of Places of Cultural Significance (The Burra Charter), Guidelines to the Burra Charter: Cultural Significance and Conservation Policy. Pamphlet, Australia Icomos (Inc).

Flood, J. 1980 *The Moth Hunters***.** Australian Institute of Aboriginal Studies, Canberra.

Heritage Office (HO) and Department of Urban Affairs and Planning (DUAP) 1996. *Regional Histories: Regional Histories of New South Wales.* Sydney.

Hughes, P. J. and M. Koettig 1983 An Assessment of an Archaeological site in a Proposed Sand Mining Area at Mt Pleasant near Dalton, NSW. Report to G.C. Schmidt Pty Ltd.

Knight, T. 2001 Stepping Stones to the Sky; Archaeological Perspectives on the Cultural Significance of the Weddin Mountains in Recent Prehistory. Unpublished MA thesis, School of Archaeology and Anthropology, Australian National University.

Koettig, M. and A. Lance 1986 Aboriginal Resources Planning Study for the City of Goulburn, NSW. Report by Anutech to Goulburn City Council.

Navin Officer Heritage Consultants 2009 Dalton Peaking Power Plant: Cultural Heritage Assessment. Report to URS Australia for AGL.

NSW National Parks & Wildlife Service (NSW NPWS) 2003 *The Bioregions of New South Wales*. Their biodiversity, conservation and history. NSW NPWS.

Officer, K. 1989 Namadgi Pictures The Aboriginal rock art sites within the Namadgi National Park, ACT. Vol 1. Report to ACT Administration, Heritage Unit and the ACT Parks and Conservation Service.

Paton R. 1990 Archaeological Excavations at Site G17, Goulburn, NSW. Report to Road Traffic Authority, Goulburn.

Tindale, N. 1974 *Aboriginal Tribes of Australia: their terrain, environmental controls, distribution, limits, and proper names: with an appendix on Tasmanian tribes*. ANU Press, Canberra.

Witter, D. 1980 An Archaeological Pipeline Survey between Dalton and Canberra. Aboriginal and Historical Resource Section, NPWS, Sydney.

Witter, D. 1981 An Archaeological Salvage Investigation on the Dalton to Canberra Pipeline. Report to the NSW NPWS.

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APPENDIX ONE

UNANTICIPATED DISCOVERY PROTOCOL

Protocol to be followed in the event that previously unrecorded or unanticipated Aboriginal object(s) are encountered during pipeline construction and related activities

1. All ground surface disturbance in the area of the finds should cease immediately the finds are uncovered.

   a. The discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be halted; and

   b. The site supervisor and the development proponent (AGL) will be informed of the find(s).

2. If there is substantial doubt regarding an Aboriginal origin for the finds, then gain a qualified opinion from the project archaeologist (this can eliminate the necessity of further implementing the protocol for remains which turn out not to be archaeological). If a quick opinion cannot be gained, or the identification is positive, then proceed to the next step.

3. Immediately notify the following authorities or personnel of the discovery:

   a. DECCW (Queanbeyan Office ph: 6229 7000)

   b. The Onerwal Local Aboriginal Land Council (ph: 6226 5348); and

   c. The project archaeologist (if not already present).

4. Facilitate, in co-operation with the appropriate authorities and stakeholders:

   a. The recording and assessment of the finds. This will include determining if the find(s) are from a new or previously recorded site, and lodgement of a DECCW site card for all new recordings;

   b. Fulfilling any legal constraints arising from the find(s). This will include complying with DECCW directions, and HMP requirements in the case of a previously recorded site; and

   c. The development and conduct of appropriate management strategies. Strategies will depend on stakeholder requirements and the assessed significance of the find(s).

5. Where the management of find(s) involves the salvage excavation or collection of artefacts, this material will be curated according to the provisions of this HMP, unless otherwise directed by DECCW.

6. Where the find(s) are determined to be Aboriginal Objects as defined by the *National Parks and Wildlife Act 1974*, any re-commencement of construction related ground surface disturbance may only resume in the area of the find(s) following compliance with any consequential legal requirements.

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Appendix I - 3

Addendum to

Dalton Peaking Power Plant

Cultural Heritage Assessment

Addendum to

Dalton Peaking Power Plant

Cultural Heritage Assessment

Navin Officer Heritage Consultants Pty Ltd *23 June 2011*

1. Purpose of this Document

This document provides a cultural heritage assessment of a communications tower location and access road. This document forms an addendum to the following report:

> Navin Officer Heritage Consultants 2011 Dalton Peaking Power Plant: Cultural Heritage Assessment. A Report to URS for AGL

The reader is referred to the original report for additional background information and references to source material.

2. Background to Addendum

AGL have secured a site approximately four kilometres north of Dalton in southern, NSW, and are considering the option of establishing a peaking power station (facility) at the site.

The proposed development will include a 750 MW Facility (the footprint of the facility is approximately 15 ha), up to four 13E2/9E Open Cycle Gas Turbine (OCGT) units, or up to three 9FA style units, a three kilometre long gas pipeline lateral, with a corridor width of 25 -50 m from the Moomba Sydney Gas Pipeline to the Facility, and an internal road.

It has been determined that the project now requires a communications tower, communications hut and access road (Figure 1). The blue outlined area is the area of original survey.

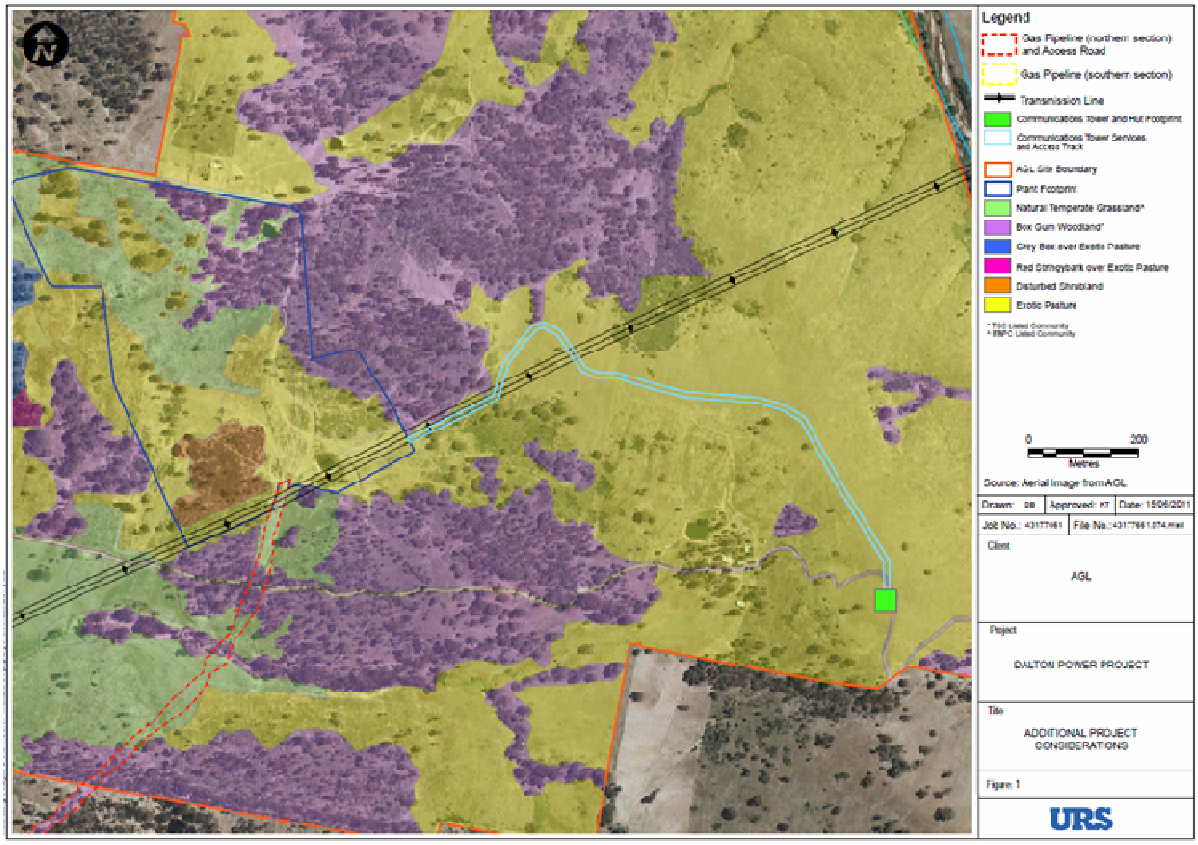

Figure 1 Location of communications tower and access road
(map supplied by URS)

3. Methodology

Fieldwork was conducted by two people over two days in June 2011. Fieldwork involved archaeological survey of the communications tower and hut footprint and access road. Survey was conducted on foot and involved walking across the study area examining areas of visibility and micro-topographic features. An assessment of landscape disturbance and archaeological sensitivity/potential was made for the subject area.

3.3 Project Personnel

Fieldwork was conducted by archaeologists Nicola Hayes, Christine Gant-Thompson and Tom Knight.

This report was prepared by Nicola Hayes.

4. Results

No previously recorded Aboriginal or historic sites or potential archaeological deposits are located in the study area. There are no areas of predicted Aboriginal or European archaeological subsurface deposits.

Visibility within the study area was low at <10%. The communications tower location is on a rocky ridge top with no archaeological potential (Figure 2).

4. Conclusions

No known or predicted Aboriginal or historic sites or archaeological deposits are located within the study area.

There are no cultural heritage constraints to the project.

Figure 2 Communications tower location looking west