Edmondson Park Composite Site Master Plan
Aboriginal Heritage Management Plan

Liverpool City Council & Campbelltown City Council

Final Report

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Tharawal LALC Sites Officer.....Lance Syme
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Executive Summary

This Heritage Management Plan (HMP) describes the process and management outcomes of a preliminary Aboriginal heritage assessment (Phase One) of the Edmondson Park Composite Site (EPCS) to guide the future planning policies of Liverpool and Campbelltown City Councils. The assessment was undertaken by Australian Museum Business Services (AMBS) in 2002 and 2003 and was one of numerous studies carried out to determine the capability of the EPCS to support urban development, after consideration of the environmental, social and cultural constraints of the Edmondson Park area.

A strategic approach to the management of Aboriginal heritage across the EPCS was taken. This included the identification of areas of archaeological and cultural sensitivity within the EPCS in Phase One, and the formulation of conservation management guidelines to address these sites and landscapes in accordance with current legislative requirements and standard archaeological practice (Phase Two). These strategies will ensure that appropriate measures are in place to guide not only council planning policy for the site, but also the development of specific areas within the EPCS with archaeological and cultural sensitivity.

In summary, the Phase One study identified 15 additional archaeological sites and relocated two previously recorded sites within the EPCS based on the inspection of landforms likely to yield archaeological sites. Several areas of cultural significance to the local Aboriginal community (Tharawal Local Aboriginal Land Council and Cubbitch Barta Native Title Claimants Aboriginal Corporation) were also identified, along Cabramatta Creek in the north western corner of the site and along Maxwells Creek in the south east corner of the EPCS. The majority of newly recorded sites were low density artefact scatters located either on creek flats or surrounding low gentle slopes adjacent to the creekline. Many of these were identified as potentially being associated with subsurface archaeological deposits. Most of the creeklines and their surrounding flats and low slopes in areas of low ground disturbance have also been designated as archaeologically sensitive.

The key objective of the HMP is the incorporation of as many of the important sensitive areas as possible, in conversation zones. Where this is not feasible, mitigation measures are proposed to address their loss as well as for other less sensitive areas, prior to development commencement.

Contents

Figures

Tables

1 Introduction

The Aboriginal Heritage Management Plan (AHMP) was prepared to guide the future development policies of Liverpool and Campbelltown City Councils for the Edmondson Park Composite Site (EPCS). It was developed on the basis of the Aboriginal heritage assessment of the EPCS (Phase One of the study) and the management outcomes prepared in consultation with the local Aboriginal community groups. The assessment was undertaken as one of numerous studies carried out to determine the urban development capability of the EPCS after consideration of the environmental, social and cultural constraints of the Edmondson Park area.

The strategic approach taken for the management of Aboriginal heritage across the EPCS included the identification of areas of archaeological and cultural sensitivity and the formulation of conservation management guidelines to address these sites and landscapes (Phase Two). The strategies are designed to ensure that appropriate measures are in place to guide both council planning policy, as well as the development of specific areas with archaeological and cultural sensitivity within the EPCS.

This report describes the rationale and methodology behind the Phase One study and its findings, and presents management and mitigation strategies (Phase Two) based on the identification of areas of high, medium and low archaeological and cultural sensitivity.

2 Phase One: Preliminary Aboriginal Heritage Assessment

Phase One of the Aboriginal Heritage Assessment and Management component identified areas of archaeological and/or cultural sensitivity within the EPCS with the express purpose of formulating conservation management strategies and appropriate mitigation measures (to be developed in Phase 2 of the study) to address significant archaeological and cultural sites and landscapes for inclusion in the EPCS Master Plan.

As discussed in Section 6, portions of the EPCS have been the subject of two previous heritage studies for planning purposes. These studies (Smith 1989, Dallas 1999) identified a number of surface Aboriginal sites and associated areas of archaeological sensitivity. The Phase One study supplements this existing archaeological knowledge of the EPCS with the aim of presenting an overall view of the site as an archaeological and cultural landscape.

The main objectives of the preliminary Aboriginal Heritage Assessment were to:

- assess the archaeological values of the EPCS after consideration of the known local (Edmondson Park) and regional (Cumberland Plain) archaeological resource;
- determine specific landscapes in which sites were likely to be exist within the development site;
- highlight areas requiring special consideration in the planning process. These areas were to be mapped in order to generate a base from which planning policy and management strategies could be formulated with regard to Aboriginal heritage; and

- identify the Aboriginal cultural values of the development area by consultation with Tharawal Local Aboriginal Land Council (TLALC) and Cubbitch Barta Native Title Claimant Aboriginal Corporation (CBNTCAC).

The integration of cultural and archaeological values ensures that appropriate development controls and management strategies reflect both aspects. In this respect, a holistic approach to the conservation of archaeological and cultural landscapes is promoted rather than management of individual sites.

3 Legislative Framework

Aboriginal sites in New South Wales are protected by the *National Parks and Wildlife Act 1974* and most often investigated and assessed under the *Environmental Planning and Assessment Act 1979*. Principles for assessment and conservation management are provided by the non-statutory ICOMOS Australia Burra Charter 1999 (the Burra Charter). The recommendations presented in this report have been set within this framework.

3.1 New South Wales National Parks and Wildlife Act 1974

All Aboriginal objects (termed "relics" prior to amendment of the Act [*Amendment Act 2001 No.130*]) are protected under Section 90 of the *National Parks and Wildlife Act 1974*. Sites of Aboriginal significance that do not necessarily contain archaeological materials may be gazetted as Aboriginal places and are also protected under Section 90 of the Act. This protection applies to all Aboriginal objects, regardless of their significance or land tenure. Under Section 90, it is an offence to destroy, deface, damage or desecrate an Aboriginal object or Aboriginal place without the prior issue of a Heritage Impact Permit (Section 90 consent, formerly referred to as "Consent to Destroy") by the Director-General of the National Parks and Wildlife Service (NPWS). The amended Act requires that reasonable precautions and due diligence must be taken to avoid impacts on Aboriginal objects.

3.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that impacts on the environment, the definition of which includes heritage, be considered prior to land development. Local environmental plans prepared in accordance with the EP&A Act determine appropriate land use and development opportunities.

Parts IV and V of the EP&A Act stipulate the manner in which consent authorities (i.e. local councils and NSW Department of Infrastructure, Planning and Natural Resources) grant development consent by ensuring that consideration of potential impacts on the environment, inclusive of Aboriginal sites and heritage considerations, are addressed by the proponent prior to development commencement. This usually involves the preparation of an environmental impact assessment, including a full archaeological assessment.

3.3 The Burra Charter 1999

The Burra Charter (1999) provides guidance for the conservation and management of places of cultural significance (cultural heritage places). The Charter was adopted by Australia ICOMOS (the Australian National Committee of ICOMOS - the

International Council on Monuments and Sites) in 1979 with recent revisions adopted in 1999. The Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians.

In summary, Aboriginal objects, and by implication Aboriginal "sites", in New South Wales are protected. A Heritage Impact Permit (Section 90 consent) for all Aboriginal sites must be obtained from the NSW NPWS prior to impact on the site. Heritage Impact Permit applications are determined on the basis of the significance of the heritage item or place. NPWS policy requires relevant local Aboriginal groups be given the opportunity to present an informed view on the application so that these views can be taken into account by NPWS when determining the application.

4 Consultation

Consultation with key stakeholder groups has been ongoing throughout Phases One and Two of the Edmondson Park master planning process. Discussions and meetings have occurred with the APP project team, Civitas urban designer, Liverpool City Council, Campbelltown City Council, Tharawal Local Aboriginal Land Council, Cubbitch Barta Native Title Claimant Aboriginal Corporation and NSW National Parks and Wildlife Service.

4.1 Aboriginal Community Consultation

An initial site familiarisation visit was conducted by AMBS with the TLALC and CBNTCAC on November 20th 2002. Alison Nightingale and Megan Mebberson (AMBS Archaeologists), Ms Glenda Chalker (CBNTCAC) and Mr Lance Syme (TLALC) attended although Kathryn Przywolnik (NPWS Regional Archaeologist) and Tanya Koeneman (NPWS Aboriginal Heritage Officer) were not available on the day. The visit aimed to involve the Aboriginal community groups in a discussion on how to best address the cultural assessment of the local landscape with a view to identifying opportunities and constraints in terms of cultural values, should they differ from archaeological values. With input from this meeting, the site inspection methodology was formulated and then discussed prior to the commencement of fieldwork.

Four days of fieldwork were conducted from the 2nd to 5th December 2002 and involved members of both Aboriginal groups. Ms Chalker and Mr Syme participated in the inspection along with other members of each group over the four days. Areas of archaeological sensitivity were identified by the field team and probable areas of constraint discussed also. Ms Chalker was particularly interested in the high ridge and easterly facing slopes associated with Cabramatta Creek in the north west of the EPCS near where EPCS 5 and 6 were located. She identified this area as one of cultural interest also.

A copy of the Phase One report was reviewed for comment by both Aboriginal community groups and the draft constraints map discussed with Ms Chalker and Mr Syme to further confirm areas of archaeological and cultural sensitivity. A synopsis of the Phase Two report (i.e. this AHMP) including proposed management zones and strategies was reviewed and discussed with Ms Chalker and Mr Syme during two

meetings in January 2003. At these meetings, the preparation of a cultural statement by each group was discussed and specific issues and strategies for the EPCS AHMP formulated with input from Ms Chalker and Mr Syme. Since July 2003, a copy of the draft AHMP and final Master Plan have also been forwarded to the TLALC and CBNTCAC, for their comment. Their input has not yet been received, however, comments can still be provided during the exhibition period.

Input from the Aboriginal community in particular, has been an integral part of the project. The development of this AHMP has been a direct result of the active participation of the TLALC and CBNTCAC with AMBS in both phases of the project. Consequently, their input has been incorporated within this document in an effort to conserve part of the history of Aboriginal land use of the area in the future development of EPCS, thus creating a sense of continuity of place.

4.2 Government Agency Consultation

Liaison with the NSW National Parks and Wildlife Service (NPWS) was also a key part of the consultation process. AMBS has attended several meetings (October and December 2002; February 2003) with NPWS, conducted through the Conservation Planning Unit. Discussions were also held with the NPWS Central Aboriginal Heritage Unit Archaeologist, Kathryn Przywolnik, who covers the study area, throughout Phases One and Two.

A meeting to discuss the draft AHMP recommendations was held in mid February at NPWS. This meeting was attended by Alison Nightingale and Megan Mebberson (AMBS), Kathryn Przywolnik, Tanya Koeneman, Elise Stocker (NPWS) with Glenda Chalker (CBNTCAC) and Lance Syme (TLALC). NPWS were generally supportive of a master plan which integrated and considered areas of both archaeological and cultural sensitivity.

4.3 Client Consultation

AMBS has also attended key meetings with APP project managers throughout the heritage assessment. General consultation has mainly been conducted via phone, fax and e-mail with AMBS attendance at two progress meetings and government agency workshop.

5 Study Area

The EPCS site is dominated by the Cabramatta and Maxwells Creek catchments which spread across the study area (see Figure 1). Cabramatta Creek runs in the north western corner of the site and consists mainly of first order tributaries which feed into the creek to the north where it becomes a third to 4th order creek. Three arms of Maxwells Creek also traverse the EPCS. A small arm (first to third order) of this catchment begins in the north east of the site while two larger arms cut through the middle of the EPCS and the southern half of the site in the former Defence lands at Ingleburn. Most of the tributaries are first order creeks which feed into the main arm just north of Campbelltown Road where the creek becomes a 4th order waterway before exiting the site to the east. Recorded Aboriginal archaeological sites have been identified along both catchments within the EPCS, at their headwaters and further down stream.

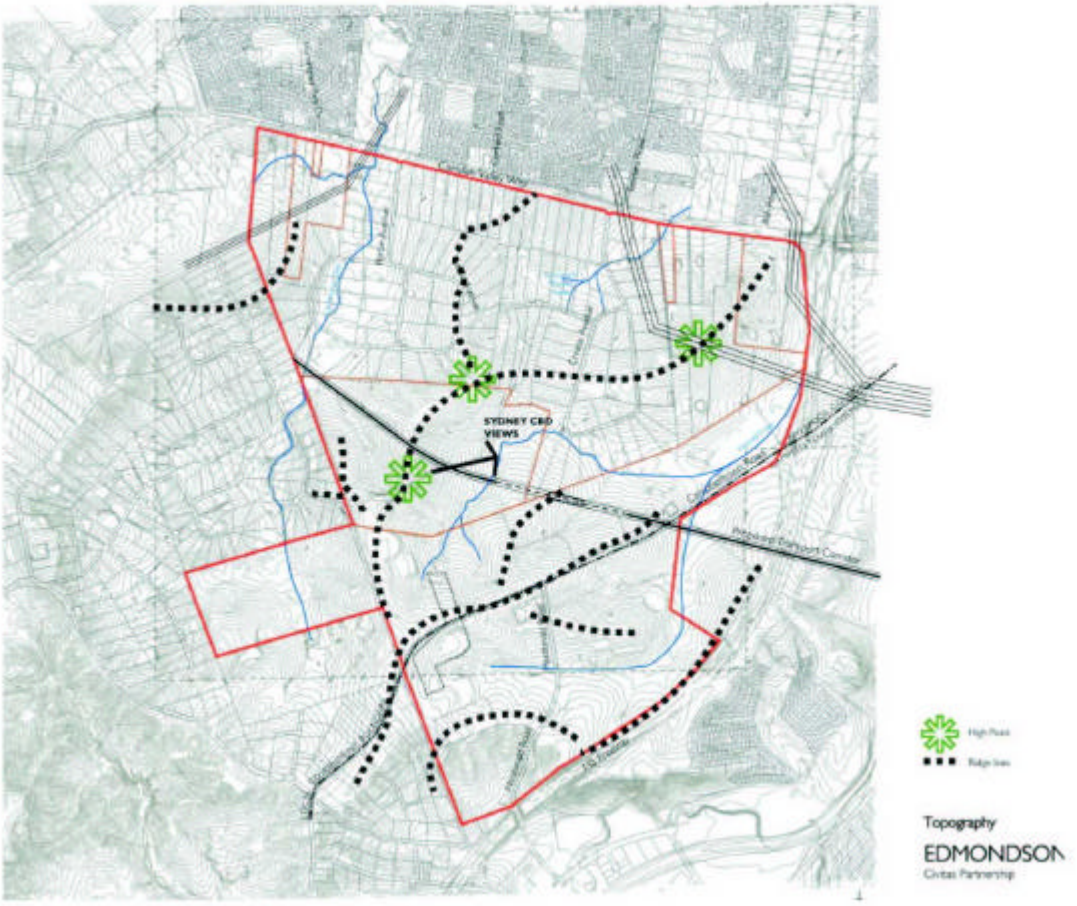

Figure 1 Topography within EPCS

The EPCS is typified by low, undulating topography, much of which has been cleared. The study area falls into the Cumberland Lowland physiographic region which consists of low lying floodplains and low hills on Wianamatta Group Shales. Areas along Cabramatta and Maxwells Creeks are also associated with the South Creek soil landscape which typically consists of very deep alluvium sediments over Wianamatta Group Shales and Hawkesbury Sandstone. South Creek soils are prone to erosion, as the high sand content is dispersible and therefore prone to reworking through fluvial events (Bannerman & Hazleton, 1990).

5.1 Land Use History

A review of aerial photos held at NSW Land and Property Information was undertaken to ascertain the degree to which recent land use is likely to have affected the EPCS. A summary of the past land use history is given below.

The earliest aerial photographic record dates to 1947. The vast majority of the site had been extensively cleared. Only the Cabramatta and Maxwells Creek corridors to the north west and east of the site respectively, appeared to have remnant vegetation around the immediate creek banks. There were scattered stands of trees across the site however much of the vegetation appeared to be regrowth. There was a wide band of such vegetation across the mid portion of the site surrounding one of the three arms of Maxwells Creek which runs through the site. The portion of land to the west of

Zouch Road also appeared to be regrowth although the southwestern corner may have been original vegetation.

The northern half of the site (Landcom and privately owned land) had been farmed or grazed almost continuously since 1947. The most intensively worked areas seem to have been those properties between Jardine Drive (east) and the Hume Highway and those around Croatia Avenue and east to the golf course. Land immediately east of Cabramatta Creek, beyond what is now Rynan Avenue, (including two first order tributaries) was the most extensively farmed area within the site in 1947, as cultivation (furrows) was visible here and in two other areas on the western side of the creek. Further evidence of ploughing was seen on the northern boundary of the Landcom land, next to a substantial area which had been completely stripped. Numerous dams had also been constructed in the last 50 years and the Sewerage Treatment Works was a constant feature on the landscape since 1947.

The main Landcom portion of the EPCS, apart from the pistol range (as the land was part of the Ingleburn Military Camp) and associated activities, seems to have undergone less disturbance than much of the remaining site. As a result of the military activities, however, the ridge on which the range was situated had been extensively modified and the associated hill peak had undergone widespread erosion. An established boundary track outlined the Landcom portion and this had been stripped and cleared on a regular basis.

There were also smaller eroded tracks throughout the portion. It would appear that the land where the proposed South West Rail Link and bus priority route intersect and the rail station will be constructed had been cleared prior to 1947 and grazed for the last 50 years.

The Ingleburn Military Camp (built in 1939) covered the majority of the portion of the EPCS south of Campbelltown Road and a triangular section between Zouch and Campbelltown Roads. Large areas around the buildings were devoid of ground cover in the 1947 photo, probably due to significant wear and tear from construction and heavy vehicle traffic. A multitude of established tracks ran through the military area which was almost devoid of vegetation in the portion south of Campbelltown Road. Only the “horse paddock”, a relatively steep area in the southernmost corner of the site, and sections of Maxwells Creek to the east of the site seemed to be relatively undisturbed. A later map of the site (see Dallas 1999) showed this eastern area as a grenade range and therefore it is likely to have also undergone impact. The camp had undergone notable change since its construction, most notably a large central complex of buildings in the southern portion of the camp between the Mt. St. Quentin Barracks and the Military Police had been demolished in the last 50 years. Bardia Village was not visible until the 1961 photo. In later photos (1961-2002) the vegetation around the military camp became more established as buildings were demolished and areas fell into disuse.

Overall, it seems that the majority of the site had been subjected to a variety of agricultural and developmental impacts, mainly as a result of continual farming practices in the northern half of the site and extensive military use of the southern half of the site. The archaeological resource across the EPCS is expected to have been affected by these intensive land uses.

6 Archaeological Context

6.1 Cumberland Plain

Investigation of the archaeology of the Cumberland Plain has intensified over the last 25 years as a result of the spread of urban development and the need for environmental impact assessment (EP & A Act 1979). Most investigations conducted within this framework have been restricted by small study areas, as defined by individual developments, and limited project briefs. While a recent comprehensive regional archaeological model for the Cumberland Plain has not been completed, these studies provide a broad descriptive picture of the archaeological character of the region, which is summarised below.

Local topography, geology and historical land use patterns have contributed to knowledge of the types of archaeological sites observed across the Cumberland Plain and the landscapes in which they are found. The main trends identified in the region include:

- the dominance of low density surface open artefact scatters and isolated finds (single artefacts) over other site types;
- a paucity of scarred trees due to land clearance;
- artefact scatters commonly located in close proximity to permanent water sources along creek banks and on elevated areas such as ridges. More complex sites and main "base camps" are usually located adjacent to water sources (McDonald and Rich 1993; Baker 1999). Major stream confluences are key locations for occupation sites, although lower density sites also occur away from creeklines. Smith (1989) originally suggested that most archaeological sites occurred within 50 m of a water source, however recent archaeological work at Mungerie Park Town Centre along Caddies Creek (Baker 1999) and Parklea Leisure Centre at Stanhope (Collis and Baker 2003) has shown that artefactual material may be found more than 200 m away from water sources;
- subsurface archaeological deposits are often recovered in areas where no visible surface archaeological remains are evident (McDonald and Rich 1993);
- artefacts are predominantly made from "St Marys silcrete", available from a number of sources which occur within the St Marys Formation (sandy clay sediments derived from the Wianamatta Group) in the north western Cumberland Plain at St Marys, Colebee/Dean Park (Plumpton Ridge) , Marsden Park, Llandilo and Ropes Creek (English and Baker 1997);
- other raw materials observed in assemblages include indurated mudstone sourced from Nepean River gravels and small quantities of quartz and volcanic stone (also referred to as tuff) thought to be derived from Rickabys Creek gravels; and
- artefact assemblages usually comprise whole flakes, flaked pieces and a small proportion of formal tool types associated with the manufacture of backed artefacts attributed to late Holocene occupation.

6.2 Southern Cumberland Plain

A number of archaeological subsurface investigations have been undertaken on the southern Cumberland Plain, in which the EPCS is located, in recent years. These excavations were located at West Hoxton, Hoxton Park, Wattle Grove, The Crossroads and Maxwells Creek. All are within several kilometres of the study area.

Brayshaw McDonald Pty Ltd (Rich and McDonald 1995) undertook the excavation of site WH 3 at Cowpasture Road, West Hoxton (approximately 3 km north west of the EPCS) in 1995. The excavation recovered a total of 3686 artefacts, the highest artefact density yet recovered on the southern Cumberland Plain. Artefacts occurred in sandy loam topsoil approximately 15-30 cm deep along a remnant alluvial terrace. Despite evidence of ploughing, most of the artefact assemblage was recovered from two silcrete knapping floors in the western part of the site. The knapping floors were approximately 3 x 2.5 m (Strip 10 knapping floor) and 4 x 4 m (Strip 9 knapping floor). Debitage accounted for the majority of the assemblage with cores, backed artefacts and retouched pieces making up 2.1% of the silcrete component. The same could not be said of the mudstone component where cores, backed artefacts and retouched pieces accounted for 8.8%, almost four times that of the silcrete assemblage. The quartz assemblage (1.1% of the total assemblage) yielded bipolar cores and flakes. It was also suggested that the backed blades produced on this floor may have been used to replace broken indurated mudstone artefacts found discarded amongst the silcrete knapping debitage. In addition to the knapping features, a low to moderate density artefact scatter was found over the majority of the site.

The site was interpreted as one where backed blade production took place in two key locations within the site. The use of bipolar knapping techniques on quartz and silcrete was thought to indicate that the site was formed in the Middle-Late Bondaian period (within the last 3,000 years) (Rich and McDonald 1995). The authors suggest the nature of the assemblage (variety of raw materials and tool types) and the extent of the site, show that the site was occupied on numerous occasions and that some specialised tool production was practiced.

Two separate excavations were undertaken at Wattle Grove (approximately 6 km east of the study area). Sites WGO_{3-1} and WGO_{3-2} were excavated by Haglund in 1995, site WGO_{3-2} was further excavated by Jo McDonald Cultural Heritage Pty Ltd in 1998. The excavation of site WGO_{3-1} recovered a total of 35 artefacts, 68% of these were silcrete (Haglund 1995). The artefacts provide evidence of a small silcrete knapping event with some discard of used tools. One silcrete tool from this site was examined for usewear and residues, this analysis revealed that the tool was used for woodworking (Haglund 1995).

A total of 290 artefacts were recovered from the excavation of site WGO_{3-2} (Haglund 1995) and a further 1,838 artefacts were recovered from the 1998 excavation (Jo McDonald CHM Pty Ltd 1998). The majority of artefacts from both excavations were made out of silcrete, 76% and 92% respectively. Four knapping floors were located during the 1998 excavation. Analysis of these artefacts showed that the silcrete used on the site had been prepared elsewhere as the majority of the cortex on artefacts had been removed prior to being brought to the site. The analysis also revealed that knapping focused on the production of geometric backed artefacts over backed blades, although backed blades were still being manufactured. Eight artefacts from the 1995 excavation were analysed for usewear and residues. Of these, five had evidence of use including woodworking, plant processing and meat processing (Haglund 1995: Appendix E).

The distribution of artefacts within WGO_{3-2} indicated two main uses of the site, the first being the knapping of stone to produce artefacts. The site was also used as a camp site where a variety of resources were utilised as indicated by the presence of a hearth and used tools. A charcoal sample taken from the hearth located in Trench 5 was radiocarbon dated to 1580 +/- 60 BP (Beta-120747).

Excavation of site HPC1, Hoxton Park (approximately 3 km north of the current study area) recovered a total of 60 artefacts (AMBS 1996). The HPC1 site had previously been used for market gardening and AMBS noted that the soil profile was highly disturbed as a result. It was concluded that the site suggested low intensity use, probably related to general foraging in the vicinity of Hinchinbrook Creek. No temporal context was given for the site.

Four archaeological investigations have been undertaken along Maxwells Creek in Prestons, approximately 2.5 km north east of the EPCS. In 1989, Smith first identified surface site MC1, as part of her investigation of the Liverpool Release Area. The site was exposed on a large patch of denuded ground located 90 m east of the Maxwells Creek. The ground has been disturbed by trail bikes, with artefacts occurring along the edges of this track. It was thought that the site may extend into undisturbed areas surrounding the track. The site, located on a low rise at the eastern edge of a melaleuca swamp, consisted of nine artefacts, (four silcrete and five chert artefacts) in an area approximately 10 x 3 m. Smith also identified an associated area of PAD to the north of MC1 and recommended that excavation was required if development was to occur in the area.

In 1999, two separate archaeological surveys (AMBS 1999, Jo McDonald 1999a) were on the east side of Maxwells Creek, roughly 150 m south of Jedda Road, west of Wonga Road and north of Kurrajong Road. Both surveys identified an area of PAD immediately adjacent to MC1. McDonald recommended archaeological sub-surface testing investigation be undertaken as in contrast to much of Maxwell's Creek which had been subject to heavy development, this portion was considered to be one of the few remaining areas of undisturbed creek bank. In addition, AMBS (1999) noted that artefacts were scattered over a much larger area than had been recorded by Smith. This was attributed to the continued degradation of the landscape by trail bikes. AMBS located an additional six artefacts, (silcrete) in an area approximately 300 x 50m. All three archaeological surveys of the area identified PAD in association with site MC1.

The first subsurface investigation of this area (AMBS 2000) was an archaeological testing/salvage program of two areas along the route of a planned sewerage main. Upon completion of this testing/salvage program, AMBS undertook further testing/monitoring along this route. All areas excavated and monitored had been designated as PAD associated with surface artefact scatter MC1. The aim of the first testing/salvage program was to excavate two 4 x 4 m areas (OA1 and OA2) to remove any archaeological deposit that was present at the entry and exit point of the bore used to lay a sewer beneath the PAD. The second testing/monitoring program was required due to a change in the planned method of laying the sewerage main. The archaeological investigation consisted of mechanical excavation of a continuous 46 x 1 m transect, in 1 x 1 m squares, along the proposed sewer route while Gandangara Local Aboriginal Land Council were to monitor the excavation of the remaining

portion of the sewer. A total of 151 stone artefacts were recovered from the excavations, 32 from OA1, 34 from OA2 and 85 from Area 3. Conflated surface artefact density in all areas was low, 2 artefacts/ m^2 in OA1, 2.1 artefacts/ m^2 in OA2 and 1.9 artefacts/ m^2 in Area 3. Raw materials included silcrete, chert, indurated mudstone, petrified wood, volcanic and quartz. Silcrete was the most common artefact raw material. Artefact types included backed artefacts, whole flakes, broken flakes, flaked pieces, a ground stone axe head and heat shatter. The most common artefact type was the flaked piece.

Artefacts retrieved from the excavation of OA1, OA2 and Area 3 provided evidence of a low-density artefact scatter (throughout the area and extended the boundary of site MC1 200 m north of its previously recorded boundary. The site was interpreted as one where Aboriginal people made long term use of Maxwells Creek and its resources. MC1 did not contain evidence of the intensive knapping of stone. Although two cores are present within the assemblage recovered, there were no debitage concentrations associated with the reduction of these cores at the site, suggesting that knapping was undertaken to supply a specific tool need or that this activity took place outside the excavated area. In this respect the site is similar to sites VP1, the Crossroads and HPC1. All of these sites contain evidence of the gradual deposition of artefacts either through single artefact discard or through single small knapping events.

Excavation of the Crossroads Site (immediately east of the EPCS) recovered a total of 92 artefacts (Navin Officer 1998). From the analysis of artefacts, Navin Officer concluded that the site represented a series of small-scale knapping events, possibly associated with the maintenance of spear barbs (Navin Officer 1998: 24). The artefact scatter is also described as being consistent with 'background scatter' (Navin Officer 1998: 25). The presence of an array of small-scale knapping events at one site is unique on the southern Cumberland Plain. The presence of several bipolar pieces as well as one Bondi Point suggested that the site was formed in the Middle to Late Bondaian period, at least in the last 2,000 years (Navin Officer 1998: 25).

6.3 Edmondson Park Composite Site

The EPCS has been the subject of several previous investigations (Smith 1989, Dallas 1999a and 1999b) in which broad archaeological trends were proposed based on the known regional archaeological context of the Cumberland Plain and in particular, the southern Cumberland Plain.

Open artefact scatters and isolated finds have previously been recorded across the EPCS (Table 1). As Edmondson Park has a limited number of old growth trees, scarred trees were not expected nor recorded within the EPCS. The previously recorded sites found within the study area included 13 open artefact scatters and five isolated finds, comprising a total of 276 artefacts. Most sites were located in areas of low or moderate disturbance along tributaries of Maxwells Creek, either on the alluvial flats immediately adjacent to the creekline or on the associated elevated, gently sloping undulating rises above the creeks.

Table 1 Sites Previously Recorded within the EPCS

Site Name	*NPWS Site ID*	*Site Type*	*Artefact frequency*	*Level of Significance or Archaeological Potential*
EP-1	45-5-0788	OAS	3	Low- considered to have minimal archaeological potential
EP-2	45-5-0789	OAS	6	Low- considered to have minimal archaeological potential
MC-3	45-5-0780	OAS	14	Very high- likely to yield *in situ* archaeological deposit, have educational value
MC-4	45-5-0781	OAS	6	Low- considered to have minimal archaeological potential
MC-5	45-5-0782	OAS	41	Very high- likely to yield *in situ* archaeological deposit, have educational value
MC-6	45-5-0783	OAS	15	High- likely to yield *in situ* archaeological deposit, have educational value
MC-7	45-5-0784	OAS	4	Moderate- considered to have some potential for archaeological deposit
DD 1	45-5-2455	OAS	2	Low- site condition poor, unlikely for sub surface archaeological deposit
DD 2	45-5-2456	OAS	35	Low- site condition poor, unlikely for sub surface archaeological deposit
DD 3	45-5-2457	OAS	114	Low- site condition poor, degree of disturbance, however considered to have low- medium potential for undisturbed sub surface archaeological deposit
DD 4	45-5-2458	OAS	2	Medium/high- site condition fair, considered to have good potential for undisturbed sub surface archaeological deposit
DD 5	45-5-2459	OAS	12	Low- site condition poor, degree of disturbance, however considered to have low- medium potential for undisturbed sub surface archaeological deposit
DD 6	45-5-2460	OAS	17	High- site condition good, considered to have high potential for undisturbed sub surface archaeological deposit
IA 5	N/R	IF	1	Not assessed, considered to be part of larger artefact scatter obscured due to poor visibility
ISF 1	N/R	IF	1	Low- no archaeological potential
ISF 2	N/R	IF	1	Low- no archaeological potential
ISF 3	N/R	IF	1	Low- no archaeological potential
ISF 4	N/R	IF	1	Low- no archaeological potential

* N/R= site not registered with NPWS; OAS= open artefact scatter, IF= isolated find

Smith conducted an investigation of the proposed Liverpool Release Area (LRA) for Liverpool City Council in 1989. The constraints study documented Aboriginal sites within the LRA and a predictive model was developed to assist in the identification of

areas of archaeological potential. The total study area covered approximately 2,700 hectares with the majority of the land used for rural-residential activities. The portion of the EPCS north of Campbelltown Road fell within the study area (Precinct 6).

The study recorded 21 previously unrecorded sites of which 19 were open artefact scatters, five were isolated finds and two were scarred trees. Seven open artefact scatters were recorded within the EPCS, five of these were located on the middle arm of Maxwells Creek and two open artefact scatters were recorded on the northern arm of the same creek close to Croatia Ave. No sites were recorded along Cabramatta Creek although Smith (1989) only inspected two very small portions of this watercourse in comparison to the inspection areas traversed along Maxwells Creek. Smith assessed MC-3, 5 and 6 as being highly sensitive and having the potential to yield *in situ* archaeological deposits. Smith recommended that these areas be protected in conservation zones where possible, or subject to sub surface testing to determine whether undisturbed archaeological deposits were present.

Smith predicted that the availability of water influenced site location and that sites would be common along permanent creeks and swamp margins. Creek banks and flats were therefore the most likely topographical features to yield sites. The floodplains and swamps associated with Cabramatta and Maxwells Creeks were considered to be the areas of greatest archaeological potential.

Dallas (1999) also undertook preliminary assessments of the Ingleburn Defence Site and the Landcom portion of the EPCS. The former assessment identified six surface archaeological sites, DD 1-6, and four isolated finds (ISF 1-4) mainly found in association with tributaries of Maxwells Creek in the south east of the site and along the headwaters of Cabramatta Creek in a portion of Defence land west of Zouch Road. Dallas observed that much of the site had been subject to land disturbance including agricultural activities in the nineteenth and twentieth centuries. The construction and development of the military base since 1939 however, has had the greatest impact of the original land surface. A network of built structures and associated infrastructure (roads, plumbing, electricity etc) have transformed much of the landscape and the site has undergone significant vegetation clearance and regrowth over the last 60 years.

Dallas did however, located two substantial archaeological sites in the south of the Ingleburn Military Camp (DD 2 and 3) which yielded approximately 150 artefacts combined. These sites are less than 100 m apart and probably constitute one large artefact scatter. Three of the six sites recorded by Dallas (DD 1, 2 and 5) were considered to be have disturbed contexts and were assessed as having little or no archaeological potential. No further work was recommended at these sites. The remaining sites (DD 3, 4 and 6) were assessed as having good archaeological potential. Dallas recommended further investigation (through test excavation) of DD 3 and 4 to establish the extent and nature of the deposits and conservation of DD 6. The Landcom study was confined to a desktop investigation and the area was not subject to archaeological inspection.

Navin Officer Heritage Consultants undertook an Aboriginal heritage assessment of the Campbelltown LGA in 2001. The objective of the study was to provide in consultation with the local Aboriginal community and Campbelltown City Council, a

comprehensive understanding of the Aboriginal archaeological resource within the Campbelltown LGA. The southern portion of the Ingleburn Military Area investigated by Dallas (1999) was included in this study.

The known archaeological record for the Campbelltown LGA includes 120 Aboriginal sites as listed on the NSW National Parks and Wildlife Service Aboriginal Heritage Information Management System (Navin Officer 2002). Of these 120 sites, almost 63 % (N=72) are rock shelters with either art and/or associated archaeological deposit. Artefact scatters and isolated finds combined constitute just 23 % (N=27) of the total recorded sites. Other site types included grinding grooves (N=9), scarred trees (N=5), PAD (N=3) and well sites (N=2). The authors note that the significant bias towards rock shelters is the result of previous studies specifically geared in favour of the identification of such site types which were found in sandstone topographies beyond the Cumberland Plain.

The Ingleburn Military Area was identified by Navin Officer as a "built up urban/industrial landscape" containing pockets of land where original land surfaces, including well-drained, elevated ground in close proximity to watercourses, may still be intact and old growth trees may be present within remnant vegetation. In this landscape, the potential for open artefact scatters and PAD to still be present is considered to be moderate with scarred trees considered to be low-moderate. While the potential for rock shelters and platforms in this landscape is noted, such landforms are not expected in the Luddenham or Blacktown soil landscapes which cover the Ingleburn Military Area. Moreover, no such sites were observed during the Dallas investigation (1999).

The surrounding less disturbed landscape around Ingleburn is identified as consisting of mid to basal valley slopes (east) and moderate to steep shale slopes (west) and valley floor (south). These landscapes and therefore predicted site types, are also apparent within EPCS. These landscapes were considered to have the moderate to high potential to all yield open artefact scatters and PAD with minimal potential for scarred trees and sandstone-based sites such as grinding grooves and shelters.

These studies indicate that there are known potential constraints to be considered in the prediction of other archaeologically sensitive areas in the current EPCS study. The findings of these studies in combination with McDonald's 2001 investigation of Southern Hoxton Park Aerodrome in West Hoxton, (approximately four kilometres north of the EPCS), form the archaeological framework in which the EPCS investigation was set.

The main documented archaeological site distribution patterns for surface sites in and around the EPCS are summarised below:

- the majority of recorded sites are surface open artefact scatters and isolated finds;
- archaeological sites are found on all major landforms except where historic and recent land use have modified original landscapes thus destroying archaeological sites;
- most surface sites have been located in close proximity to permanent water sources (creeklines and soaks) on alluvial flats and low slopes, *largely* concentrated within the first 100 m of the creeklines, on well-drained, elevated landforms. Subsurface testing across the Cumberland Plain has established that

archaeological material is present beyond this zone and is known to extend to at least 200 m away from permanent water in decreasing artefact densities;
- there is a predominance of sites at major creekline confluences as these are prime site locations;
- site location is usually linked to resource-rich zones where Aboriginal people had ready access to stone for tool-making, reliable water and a range of animal and plant resources;
- markedly fewer sites occur on ridge tops and crests;
- while surface artefact scatters may indicate the presence of subsurface archaeological deposits, surface artefact distribution and density may not accurately reflect those of subsurface archaeological deposits; and
- Aboriginal scarred trees may be present in areas where remnant old growth vegetation exists, however these are quite rare on the Cumberland Plain.

In addition, predictive trends were made for areas of subsurface potential archaeological deposit (PAD). These include:
- the majority of identified PAD sites yield subsurface archaeological material;
- PAD are most likely to occur along valley floors and low slopes in well-drained and aggrading landforms;
- *in situ* archaeological material may exist in ploughed landscapes below the plough zone;
- the survival of subsurface archaeological material is likely to depend on a combination of natural erosion and sedimentation processes and historical and more recent land use patterns;
- sites were also found at higher elevations at the headwaters of Cabramatta Creek;
- the majority of sites with high to moderate artefact density were recovered within 100 m of the creekline;
- of the sites located more than 100 m away, the majority of these were associated with high order streams (5^{th} order creeks);

In summary, the locational data for sites is based on associated topography, access to permanent water, distance from water, and degree of previous land disturbance.

7 Inspection Methodology

On the basis of the predictive model which linked archaeological site distribution with higher order creeklines and associated topography, and land disturbance information, the four day inspection aimed to cover areas considered to have archaeological potential. Several of the previously recorded sites were also to be revisited to better define visible site boundaries.

Prior to inspection, the degree of previous land disturbance was mapped (Figure 2) to assist with inspection methodology. Archaeological site destruction is likely to have already occurred throughout the EPCS due to previous land use such as land clearance and grazing, ploughing, residential development and associated infrastructure (roads, sewerage and electricity), particularly in the northern half of the site and through use of the southern half of the site for military purposes.

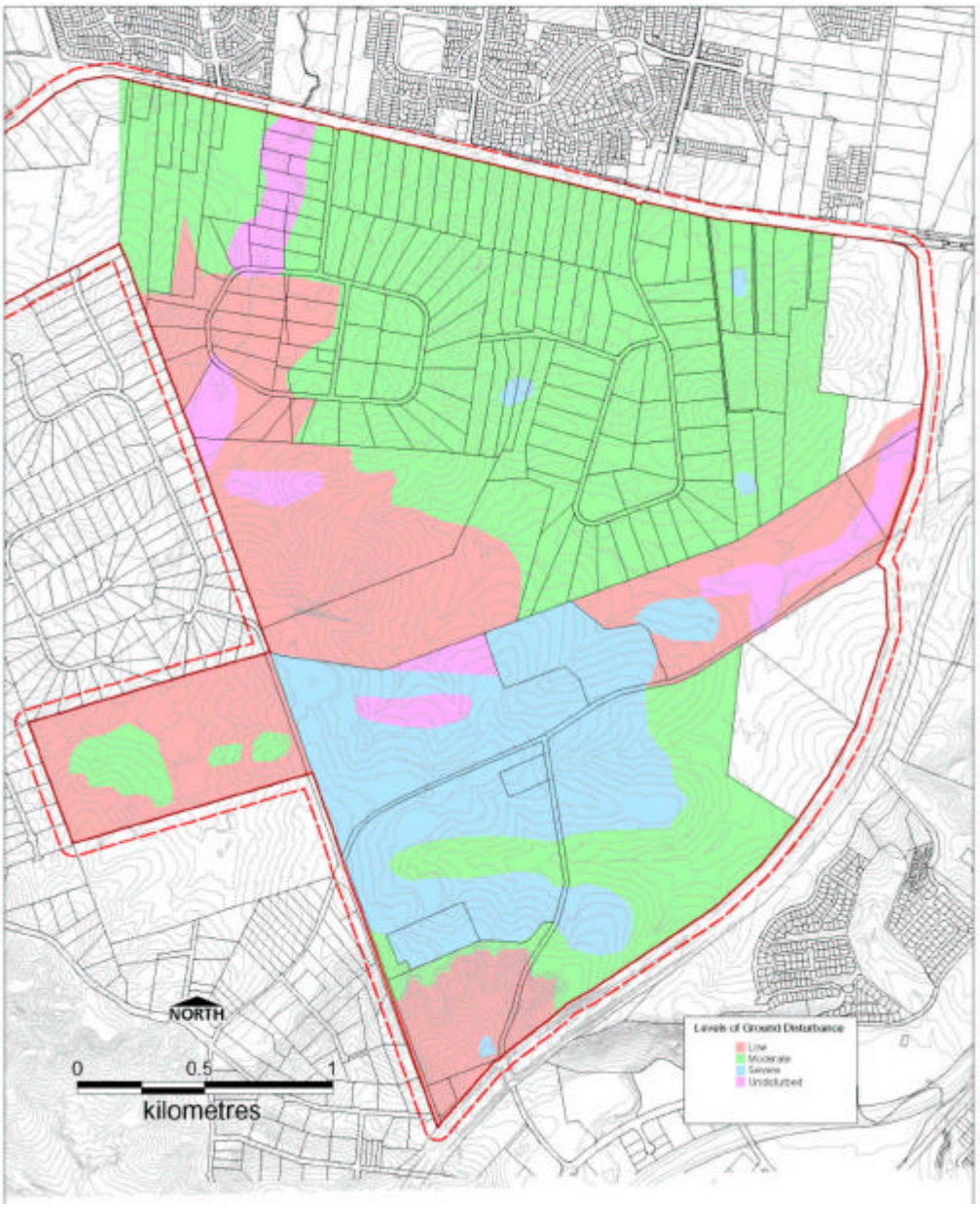

Figure 2 Ground Disturbance within EPCS

These activities have potentially disturbed or destroyed the archaeological context of surface archaeological material and subsurface archaeological deposits across the site, and are likely to have caused artefact displacement (ie. the removal of archaeological material from its original context).

For the purposes of assessing the archaeological potential of the EPCS, the degree of disturbance has been estimated. Three categories have been assigned to distinguish areas within the site (Table 2). The associated impacts of past land use practices on the archaeological resource are summarised for each category.

Table 2 Disturbance Categories

Degree of Disturbance	*Impact Description*	*Impact on Archaeological Resource*
Undisturbed	No apparent disturbance to original land surface	*In situ* archaeological deposits may be present
Low	Non-mechanical vegetation clearance and stock grazing	Archaeological material will retain some spatial integrity although localised displacement is expected
Moderate	Mechanical vegetation clearance and cultivation (ploughing), sheet/gully erosion	Archaeological materials may be present, although localised spatial displacement and artefact damage likely; *in situ* deposits may remain below plough zone.
Severe	Removal of topsoil via excavation for urban and industrial development, road and infrastructure construction, landscaped gardens, sheet erosion through natural causes and development	While archaeological sites may be destroyed, remnant dispersed archaeological material may survive. The context of such material may be unknown.

In general, the EPCS site can be divided into two main categories: areas which have been severely impacted through the construction of the Ingleburn Military Camp in the southern half of the site; and those of moderate disturbance through agricultural activities in the northern half of the site. Only the immediate banks of Cabramatta Creek, the middle arm of Maxwells Creek and several small patches of land in the northern part of the site appear to have mature vegetation (1947 aerial photo), which indicates these areas have minimal disturbance.

Four broad landform units were identified within the study area. The major unit across the EPCS consists of undulating terrain which is interspersed with alluvial creek flats and footslopes associated with Cabramatta and Maxwells Creeks. There are also three high points within the site, the most prominent being the ridgeline within the Landcom site. The remaining two high points lie west of Cabramatta Creek and east of Croatia Ave. The fourth major unit is a very steep slope in the south of the Ingleburn Military Campbelltown which abuts the M 5 Motorway (Figure 3).

The site inspection therefore concentrated on:

- the major landform units considered likely to contain archaeological sites;
- the tributaries of Cabramatta and Maxwells Creeks where previous inspection had not been conducted;
- tributary confluences;
- flats and slopes around creeklines;
- areas where the original land surface was thought to be intact (ie areas of low disturbance);
- high points in the landscape which may have served as vantage points;
- areas of substantial ground exposure; and
- areas where moderate and high disturbance had also occurred to establish whether archaeological material was still in evidence.

Inspection was undertaken in four days (2nd to 5th December, 2002) and aimed to sample the major landform units within the EPCS, including creek banks and associated alluvial flats, low slopes and foothills above the creeklines and several high

points (ridges and spurs) in the western portion of the site. The program was as follows:

- Day One: the north eastern arm of Maxwells Creek through privately owned land;
- Day Two: the middle arm of Maxwells Creek through Defence land, privately owned land and the Landcom site;
- Day Three: Cabramatta Creek; and
- Day Four: the Ingleburn Military Camp

The inspection of the northern half of the site under private ownership was subject to landowner's permission to enter properties.

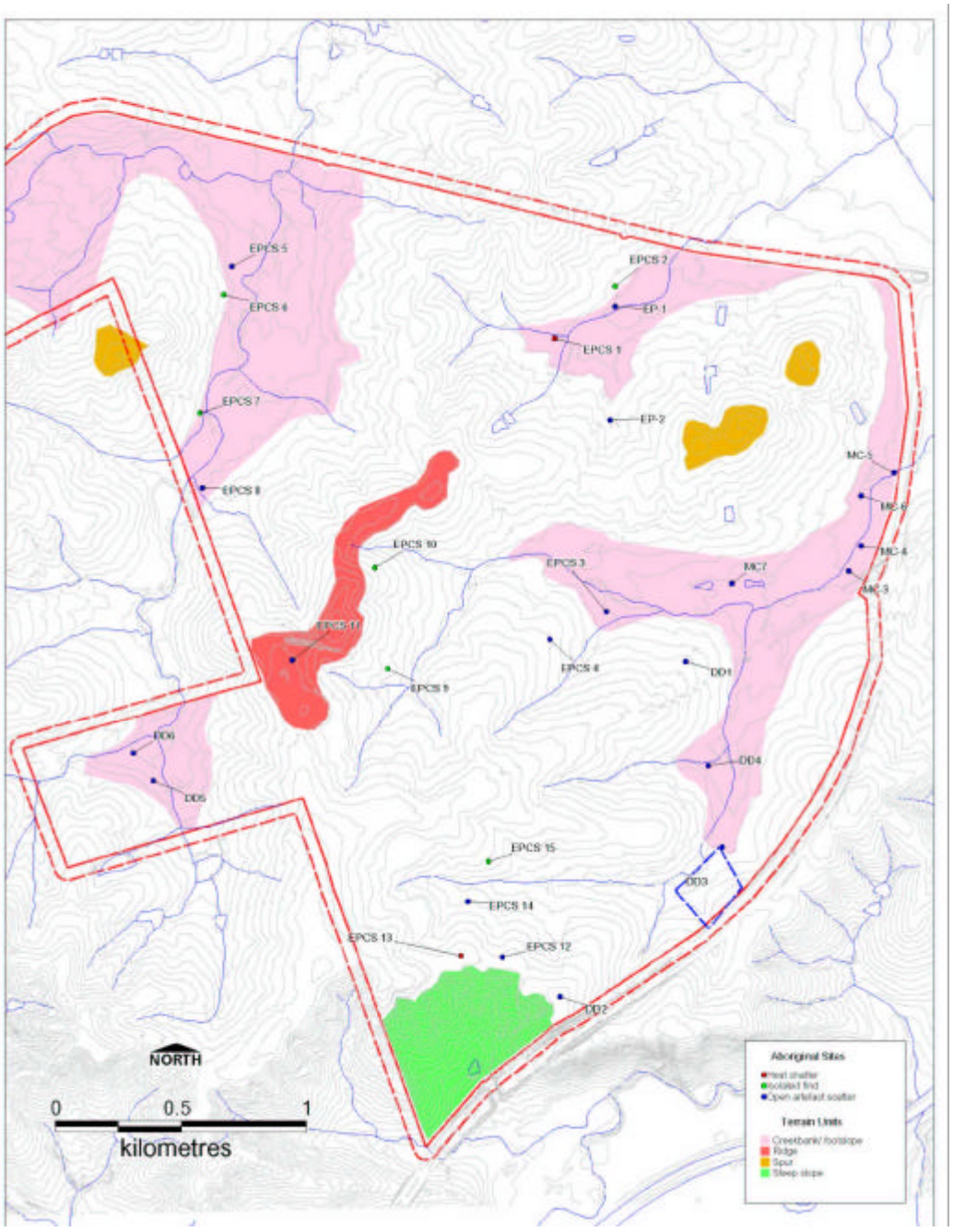

Figure 3 Recorded Aboriginal Sites and Terrain Units

8 Results

A total of 15 new recordings were made during the inspection over four days. Of these, five were isolated finds, seven were artefact scatters consisting of five of less artefacts plus heat shatter and three sites which contained no artefacts but yielded raw material pieces which had been heat shattered (Figure 3). Two previously recorded sites (MC-7 and DD 3) were relocated. Several previously recorded sites could not be located. These were EP-1 and 2, and DD 4.

The majority of sites were located within proximity of a creekline, either on flats adjacent to a watercourse or on the low slopes above a watercourse. Archaeological evidence was found in areas of low or moderate disturbance. A summary of the areas covered by the site inspection is given below.

Day One: The north eastern arm of Maxwells Creek was covered east of Croatia Road to the headwaters north of a small road. Much of the creek flats west of Croatia Road have been disturbed by agriculture as furrowing and ditches were observed. East of Croatia Road, the northern side of creek consisted of a gentle southern facing slope above the creekline while the southern side was relatively flat. Smith's site EP-1 (three artefacts) on the northern side of the creekline on Croatia Road could not be relocated although an isolated find (EPCS 2) was recorded in close proximity to EP-1 and is probably associated with the new sites. The northern slopes of this tributary are considered to be more conducive to Aboriginal occupation than the southern flats.

The headwaters of this arm of the creek have been modified and are no longer running creeklines, a likely effect of the drought influences also. At the confluence of the first order tributaries, a small eastern facing slope offers an easterly aspect and may have moderate archaeological potential, as it appears to be one of the limited areas along the creekline that may remain relatively undisturbed. In areas on northern side of the creekline towards the peak of the hillslope, evidence of market gardens are visible while the eastern half of the hill appears only to have been grazed. Substantial ground surface exposures were limited, however the dry conditions in cleared areas assisted the inspection provided good visibility on the hillslopes. The area is considered to have archaeological potential, however substantial subsurface archaeological deposits are not expected here and are likely to have been disturbed by agriculture.

Portions of the hilltop and western facing slopes to the east of Croatia Road were also inspected. Residents commented that the northern and eastern sides of this peak had been extensively farmed as market gardens over the last 35 years. No inspection of these eastern slopes was attempted as it was under crop. Site EP-2 (Smith 1989) east of Croatia Road could not be relocated but the area consists of an ephemeral soak with undulating surrounds and is considered to have archaeological potential as there appears to be no surficial evidence of ploughing.

Day Two: The middle arm of Maxwells Creek was accessed from the southern stretch of Croatia Road and good ground exposures were located within a training track behind residential properties along this road. Small dirt tracks leading to two wider dirt vehicle tracks in the vicinity of two settling ponds (associated with the sewerage works) were inspected and MC-7 (Smith 1989) was relocated. Good visibility was also experienced on a series of vehicle and pedestrian access tracks along the southern

creek bank heading west on the Ingleburn Military Camp boundary (Bardia Village). A cleared area used as dirt bike track was encountered and a low density artefact scatter recorded in the creek confluence (first and third orders). This landscape is associated with a gentle sloping eastern facing low hill between the creeklines which is considered likely to yield further archaeological material and *in situ* subsurface archaeological deposits. A small artefact scatter EPCS 4 was located on the vehicle access track running up this slope behind Bardia Village also indicates that archaeological material is present higher up the slope. The eastern boundary track of the Landcom site was traversed back to Croatia Road crossing a third order tributary of Maxwells Creek.

Day Three: The western side of Cabramatta Creek running parallel with Rynan Road was walked as accessed from Jardine Drive. The creek flats and associated low hill slopes and ridge were inspected and a low density artefact scatter (EPCS 5) found on eastern facing low slope about 50 m from the creekline. The area has been furrowed, probably for tomatoes as these are planted on the western side of the hill. There is good archaeological potential on this eastern facing ridge running south along the creekline. The peak is one of three vantage points across the site.

An isolated artefact (EPCS 6) was found in the road cutting on eastern side of Jardine Drive. The western creek flats in this area were also inspected with good ground visibility but no archaeological material was recorded. The creekline was also searched past the southern section of Jardine Drive, and isolated artefact (EPCS 7) was found in track exposure about 20 m west of the 1st order tributary.

The headwater tributaries of Cabramatta Creek were inspected in the Landcom site although they have been modified by the vehicle access track around the boundary of the site. The western boundary track was traversed up the moderate northern facing slope. This north western section of the Landcom site was interspersed with smaller vehicle and foot tracks. These were also searched for archaeological material but none was found. Apart from these tracks, the northern slope appears to be relatively undisturbed.

The associated gentle to moderate slopes surrounding the headwaters of the middle arm of Maxwells Creek were also considered to be likely site locations and therefore are considered likely to yield *in situ* subsurface archaeological deposits.

Day Four: The southern portion of the Landcom site was inspected with the concentration on less disturbed areas around the main peak, where substantial disturbance from the pistol range and associated military activities have visibly impacted the top of the ridge. A scatter of two artefacts (EPCS 11) was located on a vehicle track just south of the pistol range although given their location, these pieces are unlikely to be *in situ* because of the surrounding land disturbance. A 1st order tributary of Maxwells Creek on the southern slopes of this feature appears to be relatively intact. Visibility here was limited to small pockets of erosion, although an eastern facing gentle slope at the headwater is considered conducive to Aboriginal occupation and may yield *in situ* archaeological material. The southern vehicle access boundary track (heading east) and two similar tracks heading north were also inspected. The northern track ran parallel to a 2nd order tributary and two isolated finds (EPCS 9 and 10) were recorded above this creekline.

Table 3 Newly Recorded and Relocated Sites and their Contents

Site Name	Status	Site Type[1]	Location (AMG)[2]	Topography	Type and Area of Exposure	Contents
EPCS 1	New	HS		Maxwells Creek tributary (2nd order) flats	Rotary hoe track 1x100 m	1 red silcrete raw material heat shattered piece
EPCS 2	New	IF		Undulating low slopes above Maxwells Creek tributary (3rd order)	Croatia Road road reserve 2 x 500 m	1 orange brown silcrete flaked piece with retouched margin and 3 flake scars (40 x 26x20 mm)
EPCS 3	New	OAS		Maxwells Creek tributary (1st & 3rd order confluence) flats	Dirt bike track 3 x 400 m	1 red silcrete whole flake (26 x 19 x 8 mm); 1 brown/ cream mudstone whole flake (18x15x4 mm); 1 pink silcrete broken flake (proximal frag) (6x5x2 mm); 1 red silcrete broken flake (proximal frag) (5x4x2 mm)
EPCS 4	New	OAS		Undulating low slopes above Maxwells Creek tributary (1st & 3rd order confluence)	Dirt vehicle track 10 m x several km	1 green grey broken flake (distal frag) (15x8x5 mm); 1 red silcrete whole flake (18x18x8 mm); 1 orange mudstone flaked piece (heat shattered) (25x18x8 mm)
EPCS 5	New	OAS		Undulating low slopes above Cabramatta Creek tributary (4th order)	Erosion and ants nest on hill side (furrowed area) 15x5 m	1 red silcrete whole flake (15x15x2 mm); 1 orange red silcrete broken flake (distal frag) (15x12x2 mm); 1 pink silcrete whole flake (18x13x5 mm)
EPCS 6	New	IF		Undulating low slopes above Cabramatta Creek tributary (4th order)	Jardine Drive road cutting 2 x 500 m	1 red silcrete whole flake (recent snap), weathered (38x30x12 m)
EPCS 7	New	IF		Undulating low slopes above Cabramatta Creek tributary (1st order)	Eroded track 5x20 m	1 yellow grey mudstone whole flake (34x20x8 mm)
EPCS 8	New	OAS		Maxwells Creek tributary (3rd order) flats (modified)	Eroded vehicle track 5m x several km	1 cream mudstone flaked piece (heat shattered) (15x10x5 mm); 1 cream mudstone heat shattered piece (16x14x4 mm)
EPCS 9	New	IF		Undulating low slopes above Maxwells Creek tributary (2nd order)	Eroded track 4x15 m	1 cream mudstone whole flake (21x18x5 mm)
EPCS 10	New	IF		Moderate slope above Maxwells Creek tributary (2nd order)	Eroded vehicle track 5 m x several	1 coarse orange mudstone flaked piece, weathered (25x10x5 mm)

				km	
EPCS 11	New	OAS	Hill peak/ridge top above Maxwells Creek tributary (1st order)	Eroded vehicle track 5 m x 200 m	1 quartz whole flake (12x10x4 mm); 1 cream mudstone broken flake (distal frag) (7x6x3 mm)
EPCS 12	New	OAS	Hill peak/ridge top	Erosion on hill side (disturbed) 20x40 m	1 tan mudstone broken flake (proximal frag) (35x26x17 mm); 1 tan mudstone whole flake (35x20x8 mm); red & orange mudstone whole flake with edge damage (55x30x15mm); 1 red silcrete flaked piece (22x13x9 mm); 1 cream mudstone heat shatter piece (9x5x3 mm); 1 cream grey mudstone heat shatter piece (9x6x3 mm); 1 red silcrete (in situ) artefact (18x12 mm)
EPCS 13	New	HS	Hill peak/ridge top	Erosion on hill side (disturbed) 10x20 m	1 cream mudstone heat shattered piece (two pieces, recent break) (18x13x3 mm); 1 cream mudstone heat shattered piece (25x12x5 mm); 1 mudstone heat shattered piece (18x17x5 mm)
EPCS 14	New	OAS	Moderate hill slope above Maxwells Creek tributary (1st order)	Eroded track 2x500m	1 orange mudstone flaked piece (7x5x2 mm); 1 red silcrete broken flake (proximal frag) (18x15x2)
EPCS 15	New	HS	Moderate hill slope above Maxwells Creek tributary (1st order)	Erosion on hillside 30x20 m	1 orange mudstone heat shatter piece (27x12x9)
MC-7	Prev. recorded	OAS	Maxwells Creek tributary (3rd- 4th order) flats (disturbed)	Eroded vehicle track 40x25 m	1 red silcrete broken flake (proximal frag) (25x20x5 mm), 1 red silcrete whole flake (20x11x5 mm); 1 red silcrete whole flake (15x11x6 mm); 1 red silcrete flaked piece (20x16x4 mm); 1 quartz flaked piece (10x10x5 m)
DD 3	Prev. recorded	OAS	Maxwells Creek tributary 1st order) flats (disturbed)	Eroded gully wash 50x500 m	Several concentrations of silcrete & mudstone artefacts running along washed out gully line (from Hume Hwy) with at least 100 + artefacts eroding out

[1] HS= Heat shattered raw material; OAS= Open artefact scatter; IF= Isolated find

[2] Grid references for site locations have been removed from the report for public display for confidentiality purposes.

Inspection of the Ingleburn Military Camp was concentrated in the least disturbed southern portions of the site on either side of McDonald Road. DD 3 (Dallas 1999) was revisited and the estimated visible boundaries of the site were located. It would seem much of the south eastern slope from the Hume Highway has archaeological potential around the adjacent 1st and 2nd tributaries of Maxwells Creek, and is considered likely to yield *in situ* archaeological material, despite some portions of the site being affected by military use of the area as a grenade practice area. This site was the most substantial spread of artefacts observed over the four day inspection. The potential for it to extend further upstream is considered to be high. DD 4 (Dallas 1999) could not be relocated.

The southern, less disturbed, portion of the former military site on the western side of McDonalds Road was also inspected. This was concentrated along the southern boundary fence on a northerly facing moderate hill slope in several exposures caused by erosion. Sites EPCS 11 and 12 were recorded here although both were in the vicinity of remnant army foundations and there was evidence of ground disturbance nearby. EPCS 12 did not contain any artefacts but was recorded as the heat shattered raw materials (mudstone) were probably imported and therefore were likely to be transported by Aboriginal people. Two additional sites were located down slope of EPCS 11 and 12. These were both found on vehicle and foot tracks either side of a 1st order tributary of Maxwells Creek. Given the degree of disturbance in the immediate vicinity of the sites, is it is unlikely that these artefacts are *in situ.*

9 Significance Assessment

The established criteria for assessing significance of archaeological sites and the significance of the EPCS landscape, on the basis of the current study findings and the regional archaeological record of the Cumberland Plain, is summarised below.

Significance assessment can generally be described under three broad headings (Pearson and Sullivan, 1995:7):

- value to groups such as Aboriginal communities (social significance);
- value to scientists and other information gatherers (scientific/archaeological significance); and
- value to the general public in the context of regional, state and national heritage.

9.1 Social / Cultural Significance

This area of assessment concerns the value(s) of a feature or site to a particular community group or groups, in this case the local Aboriginal communities. Aspects of social significance are relevant to sites, objects and landscapes that are important or have become important to the local Aboriginal communities. TLALC and CBNTCAC were asked to comment on the social significance of the EPCS landscape to their communities. Discussions in the field with Ms Glenda Chalker (CBNTCAC) and further consultation with Ms Chalker and Mr Syme during AHMP development, indicated that the local Edmondson Park area had considerable cultural value, as recorded corroborees had taken place locally in the 1800s (Glenda Chalker pers. comm., December 2002). The cultural values, which compliment and support the archaeological values of the EPCS, have been incorporated in this AHMP to ensure

that the site is representative of the greater landscape utilised by Aboriginal people over time, rather than a number of individual Aboriginal sites within the EPCS boundaries.

The main output from participating Aboriginal organisations is the Statement of Cultural Significance (SOSC) for the EPCS. The views expressed in these statements have been included in the text and presented in full in *Appendix A*.

Following the development of Master Plan, in consideration of the areas identified as being culturally sensitive, the final development footprint was forwarded to both the CBNTCAC and TLALC for comment. Their views on the final Master Plan have not yet been received, however, it is anticipated that comments will be received during the exhibition period.

9.2 Scientific / Archaeological Significance

NPWS guidelines provide recommended criteria for assessing scientific or archaeological significance. These include:

- *Archaeological Research Potential* - significance may be based on the potential of a site or landscape to explain past human behaviour through further research and can incorporate the intactness, stratigraphic integrity or state of preservation of a site, the association of the site to other sites in the region, or a datable chronology. Research questions may be set within a local, regional or even a broader context and may also relate to methodological and theoretical issues;
- *Representativeness* - all sites are representative of those in their class (site type/subtype) however, the issue here relates to whether particular sites should be conserved to ensure a representative sample of the archaeological record is retained. Representativeness is based on an understanding of the regional archaeological context in terms of site variability in and around the study area, the resources already conserved and the relationship of sites across the landscape; and
- *Rarity* - defines how distinctive a site may be, based on an understanding of what is unique in the archaeological record and consideration of key archaeological research questions (ie. some sites are considered more important due to their ability to provide certain information). It may be assessed at local, regional, state and national levels.

For open artefact scatters, evidence required to adequately assess significance includes information about the potential of associated subsurface deposits, the integrity of these deposits, nature of site contents and extent of the site. A review of information about previously recorded sites within the local area and region enables the rarity and representativeness of a site to be assessed.

High significance is usually attributed to sites which are rare or unique and whose loss would affect our ability to understand an aspect of past Aboriginal use/occupation of an area. In some cases, a site may be considered highly significant because similar sites are now rare due to destruction of the archaeological record through development. Medium significance is attributed to sites which provide information on an established research question. Low significance is attributed to sites, which cannot contribute new information about past Aboriginal use/occupation of an area. This may be due to site disturbance or the nature of the site's contents.

Significance assessment provides the basis for management recommendations. As a general rule:

- sites that are assessed as highly significant warrant protection against the impact of development or land use;
- sites that are assessed as moderately significant may not warrant protection against the impact of development or land use. However they may warrant the implementation of mitigation measures (which may include further archaeological investigation) prior to the impact of development or other land use; and
- sites that are assessed as having low significance may not warrant protection against the impact of development or land use, nor do they warrant the implementation of mitigation measures prior to the impact of development or other land use.

9.3 Archaeological Landscape of the EPCS

The inspection of the EPCS yielded 15 newly recorded sites, including five isolated finds, seven artefact scatters and three scatters of heat shattered material. Two previously recorded sites (MC-7 and DD 3) were also relocated. The majority of new sites were low density artefact scatters located either on creek flats or surrounding low gentle slopes adjacent to the creekline.

Information combined from the current inspection and previous archaeological investigations indicates that the archaeological distribution across the EPCS is widespread with 28 locations containing archaeological material. In this respect, it is likely that most of the creeklines and their surrounding flats and low slopes are archaeologically sensitive, especially those which have remained relatively intact despite the degradation of some of the headwaters and immediate creek banks through agricultural land practices and more recent military and urban development. These investigations also indicate that the archaeological distribution of sites is in keeping with the predictive archaeological model which suggests the most archaeologically sensitive areas within the EPCS will be alluvial flats and low, gentle slopes above creeklines and confluences. Very few archaeological sites have been located within areas of high and moderate disturbance away from the creeklines.

In general, the small surface artefact scatters found in the EPCS during the inspection are unremarkable. The artefact types (flakes and flaked pieces) and raw materials (silcrete and mudstone) are typical of those found throughout the rest of the Cumberland Plain. However, it should be noted that the assessment of surface sites remains preliminary as the extent of a site is usually constrained by ground surface visibility and therefore, accurate characterisation of a site is difficult at this level. Only through subsurface excavation of a site can the extent and nature of the deposit be determined.

For this reason, several of the recorded sites are considered to have associated archaeological potential due to their landscape context and limited previous disturbance. These values are presented in Table 4 following.

Table 4 Archaeological Sites located during Survey and their Archaeological Potential

Site name	Site type	Topography	Site integrity	Potential for associated *in situ* subsurface archaeological deposit
EPCS 1	HS	MCT (2nd order) flats	Ploughed paddock	Minimal: the immediate area was searched and no other material found. The paddock has been cultivated and a drainage ditch dug through it approximately 10 m away.
EPCS 2	IF	Undulating low slopes above MCT (3rd order)	Road reserve/cutting	Low: EP-1 is close by but has also been affected by road construction. Likely that archaeological material remains in the vicinity however it is less likely that *in situ* material remains.
EPCS 3	OAS	MCT (1st & 3rd order confluence) flats	Dirt bike track	High: artefacts situated at creek confluence which is also associated with a easterly facing low slope that is relatively undisturbed. In situ deposits are also expected on this slope.
EPCS 4	OAS	Undulating low slopes above MCT (1st & 3rd order confluence)	Dirt vehicle track	High: this scatter was located within the same confluence as EPCS 3 further up slope. *In situ* deposits are expected on this slope because of its prime geographic location.
EPCS 5	OAS	Undulating low slopes above CCT (4th order)	Erosion and ants nest on hill side (furrowed)	Moderate to High: while this scatter was also small, it was located on the foot slopes of a substantial rise overlooking Cabramatta Creek. *In situ* deposits may be expected on this slope below the plough zone because of its prime geographic location: the associated ridge is one of three vantage points across the site.
EPCS 6	IF	Undulating low slopes above Cabramatta Creek tributary (4th order)	Jardine Drive road cutting	Low: the find was located in a disturbed environment in the roadside. The lower creek bank did not reveal any archaeological material despite good exposure. The site is on the foot slopes of the same ridge associated with EPCS 5 which has more potential up slope.
EPCS 7	IF	Undulating low slopes above CCT (1st order)	Eroded track	Moderate: the find is on the high side of Cabramatta Creek on the southern edge of the above-mentioned ridge. It is also approximately 10-15 m from the creek bank where the topsoil profile is between 10-50 cm deep. This creek corridor is also relatively undisturbed and therefore there is good archaeological potential here.
EPCS 8	OAS	MCT (3rd order) flats (modified)	Eroded vehicle track	Low: this small scatter is on the vehicle access track around the Landcom site. The area has been built up and the creekline modified as a result. Unlikely that the scatter is *in situ* or that intact archaeological deposits will be present in the immediate area.
EPCS 9	IF	Undulating low slopes above MCT (2nd order)	Eroded track	Low to Moderate: the find was located on a small track about 20 m west of a Maxwells Creek tributary on a gentle eastern facing slope which is conducive to Aboriginal occupation.

EPCS 10	IF	Moderate slope above MCT (2nd order)	Eroded vehicle track	Low: it is likely this artefact has been washed down slope and is out of context. The slope is also moderately steep and it is unlikely that in situ deposits exist here.
EPCS 11	OAS	Hill peak/ ridge top above MCT (1st order)	Eroded vehicle track	Low: like EPCS 10, this scatter is in an area of high disturbance and the finds are likely to be out of context.
EPCS 12	OAS	Hill peak/ ridge top	Erosion on hill side	Low to Moderate: this site is on a gentle hillslope close to building remnants and therefore this area is likely to be disturbed, to what degree remains uncertain. Topsoil here is unlikely to be deep and an *in situ* archaeological deposit is also unlikely.
EPCS 13	HS	Hill peak/ ridge top	Erosion on hill side	Low: this scatter is within an area of exposure and recent disturbance. No artefacts were found and little potential for in situ archaeological deposit.
EPCS 14	OAS	Moderate hill slope above MCT (1st order)	Eroded track	Low: small scatter found in eroded track on moderate slope just north of building remnants. Unlikely to be *in situ* deposits as a result of this.
EPCS 15	HS	Moderate hill slope above MCT (1st order)	Erosion on hillside	Low: this find was located in an area of disturbance in the vicinity of previous military buildings where little archaeological potential is expected.
MC-7	OAS	MCT (3rd- 4th order) flats (disturbed)	Eroded vehicle track	Low to Moderate: this scatter is in an area of some disturbance close to the sewerage works. There is some potential for the site to extend along the creekline.
DD 3	OAS	MCT 1st order) flats (disturbed)	Eroded gully wash	High: the largest site recorded within the EPCS spread over an area of some disturbance with some portions probably intact. There remains a good potential for *in situ* deposits here.

* MCT= Maxwells Creek tributary; CCT= Cabramatta Creek tributary

In summary, the combined surface EPCS archaeological record is typical of much of the archaeology of the Cumberland Plain in that it represents a number of low density small artefact scatters comprising mainly silcrete and mudstone flakes and flaked fragments yielded from the alluvial floodplains of numerous ephemeral and more permanent tributaries in the area where natural resources attracted Aboriginal people. The exception within the EPCS in terms of artefact density, visible site extent and artefact variety is DD 3. This site's clear potential for associated sub surface deposits also currently renders it of local archaeological and cultural importance.

10 Issues, Opportunities and Constraints

10.1 Issues

A number of key issues relating to Aboriginal heritage have emerged from Phase One as noteworthy when considering the EPCS planning process. These include:

- the consideration of Aboriginal archaeological and cultural values as equally important as other identified values such as ecological, social and developmental

principles, given that the visible surface archaeological evidence may not be indicative of the potential archaeological and cultural values of an area or landscape;

- the importance of ongoing involvement of the local Aboriginal community, namely the Cubbitch Barta Native Title Claimant Aboriginal Corporation and the Tharawal Local Aboriginal Land Council, in all consultation and decision-making processes relating to the conservation and mitigation of Aboriginal heritage. In addition, there should be recognition of Aboriginal cultural values associated with archaeologically sensitive landscapes and their relevance to Aboriginal communities and their links with the past;

- the incorporation of ecological, archaeological and cultural values through the preservation of existing creeklines, especially the immediate creek banks, surrounding alluvial plains and low slopes where the most sensitive archaeological areas are predicted to remain in accordance with the regional and local known archaeological context; and

- the undermining of the environmental and cultural values of a designated conservation corridor through which two major linear developments will potentially run and therefore reduce the ecological and cultural value of such a zone.

10.2 Areas of Constraint - Archaeological Sensitivity

Over the EPCS, the Phase One assessment assisted in the identification of areas of archaeological sensitivity where *in situ* archaeological deposits are considered likely to remain. Most sensitivity areas are associated with known surface archaeological manifestations or landforms conducive to Aboriginal occupation. Areas were divided into four categories in accordance with their estimated archaeological potential, as described below and seen in Figure 4.

10.2.1 Areas of High Sensitivity

Areas of high sensitivity are those where the original landscape has not been significantly disturbed and include locations conducive to Aboriginal occupation. These locations have either surface archaeological evidence and/or have the potential to yield substantial subsurface archaeological deposits based on landform and degree of disturbance. On this basis, three broad areas are considered to be highly sensitive. These are:

a) The western alluvial flats of Cabramatta Creek and associated eastern facing slopes of a low spur located on the boundary of Jardine Drive. This landform includes EPCS 5, 6 and 7. While the low eastern foot slopes above the creek indicate that ploughing has occurred here, the area is still considered to have the potential to yield subsurface material, especially on higher ground overlooking the creek. The Aboriginal community representatives also indicated that this rise is an area of interest to them as it was one of two high points on the EPCS site which overlooked a permanent creekline where Aboriginal people are most likely to have camped.

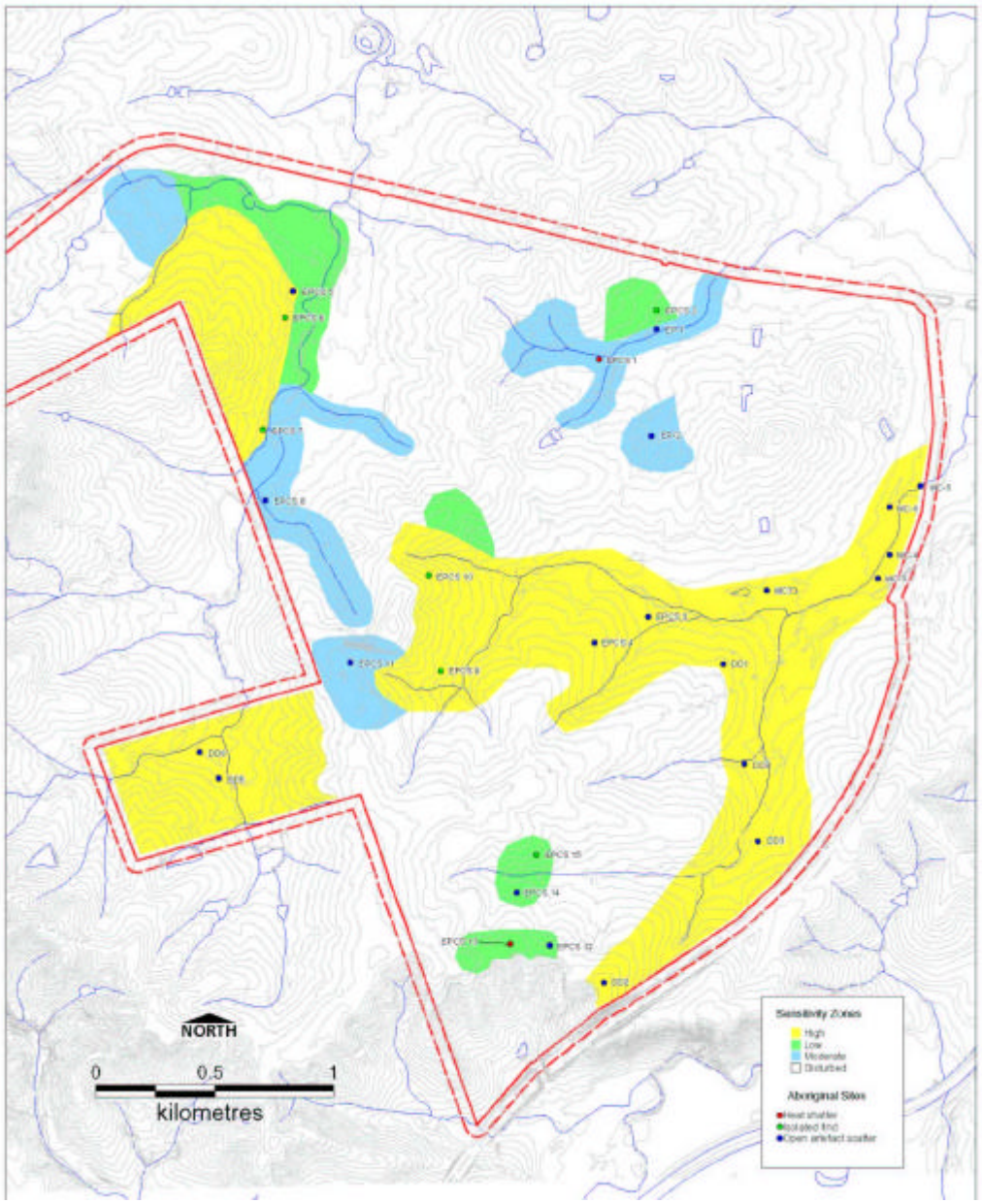

Figure 4 Archaeological Sensitivity Zones within EPCS

b) The reserve off Zouch Road (Ingleburn Military Camp) incorporating second order tributaries of Cabramatta Creek contains two sites (DD 5 and 6) recorded by Dallas. While DD 5 was considered to be disturbed, DD 6 was assessed as having a high potential for *in situ* archaeological deposits. Both sites are also within a stream confluence and on the footslopes of a gentle rise.

c) The middle and southern arms of Maxwells Creek are considered to be highly sensitive as there is clear archaeological evidence that these waterways were visited by Aboriginal people and that along much of the middle arm of the creek, minimal land disturbance has occurred in the immediate vicinity of the creekline. There are several places in particular along the creek where landforms conducive to Aboriginal occupation occur. These are:

1. at the confluence of headwaters of Maxwells Creek, mainly along the second order tributary between EPCS 9 and 10 on a eastern facing gentle slope overlooking the creekline;

2. in the vicinity of EPCS 3 and 4 at the confluence of a first and third order tributary just north of Bardia Village associated with an east facing low slope which is relatively undisturbed. In situ deposits are expected on this slope; and

3. the main southern arm of the creek extending along the eastern boundary of the site, in the vicinity of DD 1, 2, 3 and 4 where there is visible evidence of widespread archaeological material and the potential for in situ subsurface archaeological deposits.

10.2.2 Areas of Moderate Sensitivity

Areas of moderate sensitivity are those where the original landscape has been partially disturbed by past land uses although subsurface archaeological deposits are likely to remain intact to some degree. These locations have been identified by surface archaeological evidence or their potential to yield subsurface archaeological deposits based on landform and degree of disturbance. Four areas are considered to be moderately sensitive. These are:

a) The southern facing slope associated with the main ridge within the Landcom site beyond the main area of military disturbance (grenade range). This borders a first order tributary of Maxwells Creek and is a gently sloping vegetated area with a number of vehicle tracks through it.

b) The first and second order headwater tributaries of Cabramatta Creek in the vicinity of EPCS 7 and 8. Most of this area is floodplain or low slopes and the first order creek has been modified through military use. The eastern arm of the creek is within Jardine Drive but has only known to have been cropped in recent history and intact archaeological deposits may be present in the deep alluvial topsoil (between 30-50 cm).

c) The confluence of two second order tributaries of Cabramatta Creek in the north eastern corner of the site. This area is currently cropped with tomatoes and has probably been regularly ploughed over the last 50 years however, the area is considered sensitive as it is at the base of an archaeologically sensitive ridge which is likely to have been occupied regularly by Aboriginal people. There remains the potential for intact archaeological deposits to exist beyond the plough zone.

d) Although EP-2 was not relocated during the inspection, the surrounding landscape is low foothills surrounding a small soak, which has been modified in parts, where Aboriginal people may have camped.

10.2.3 Areas of Low Sensitivity

Areas of low sensitivity are those where the original landscape has been more substantially disturbed by past land uses and subsurface archaeological deposits are likely to remain intact to a lesser degree. Locations were identified by surface evidence or their potential to yield subsurface archaeological deposits based on landform. Five areas are considered to be of low sensitivity. These are:

a) The banks of Cabramatta Creek off the Camden Valley Way have been cropped almost continually since 1947. As this portion of the creek is a higher order stream, the banks and surrounding low slopes would have originally been highly sensitive, however due to heavy cropping and residential development, the immediate creek surrounds are likely to be substantially disturbed and the archaeological context of any deposits will have been compromised. There remains the potential for pockets along the creek to yield more intact deposits.

b) The east facing slopes of the main northern rise off Camden Valley Way at Croatia Ave which lies adjacent to Maxwells Creek, which appears to have undergone heavy cropping and some grazing. It is cleared but the eastern side overlooking the creekline may have some archaeological potential as the discovery of EP–1 and EPCS 2 has shown.

c) A small area behind residences south of Croatia Avenue, north of the middle arm of Maxwells Creek, may also yield subsurface archaeological material. It comprises a low slope which leads to the creek bank, however, a training track (bike/trotting) has disturbed this area.

d) Two areas in the south of Ingleburn Military Camp where EPCS 12, 13, 14 and 15 were located in areas of disturbance associated with former military buildings and much vehicle traffic. All sites were on sloping ground and within 200 m of a first order tributary of Maxwells Creek. While it is unlikely that the recorded surface archaeological material is *in situ*, its presence suggests the area has been utilised by Aboriginal people. For this reason there remains a low potential for subsurface archaeological deposits to be present in these two defined areas within a broader disturbed area.

e) The northern arm of Maxwells Creek is relatively flat on the southern side but has gently sloping ground to the north where small surface sites have been recorded. A variety of agricultural land uses have occurred along the creekline which may have caused localised displacement of archaeological material however in tact archaeological deposits may exist beyond the plough zone.

10.2.4 Disturbed Landscapes

The remainder of the site has been categorised as disturbed landscape because of the substantial degree of previous land disturbance that has taken place. While the presence of archaeological material within these zones cannot be ruled out, it is considered unlikely that intact archaeological deposits would still be present.

10.3 Areas of Constraint - Cultural Sensitivity

The statements of cultural significance from the Cubbitch Barta Native Title Claimant Aboriginal Corporation (CBNTCAC) and Tharawal Local Aboriginal Land Council (TLALC) confirm that areas identified as having high archaeological sensitivity also have considerable cultural value (see Figure 5). In particular, Ms Chalker (CBNTCAC) distinguishes landscapes along Maxwells and Cabramatta Creeks associated with surface sites MC-3 to 7, DD 1 to 6, and EPCS 3 to 10. Specific areas of high cultural value include:

- the Maxwell's Creek confluence and adjoining alluvial flats and low slopes associated with EPCS 4 and DD 1, where the proposed rail line will impact both surface sites and their potential archaeological deposits;
- the spread of artefacts along the southern arm of Maxwell's Creek associated with DD 2, 3 and 4 and the immediate creek banks;
- the high ridge/hill area which adjoins Cabramatta Creek in the northwest corner of the EPCS, associated with EPCS 5, 6 and 7. This area is considered both archaeologically and culturally sensitive as an elevated portion of the landscape in close proximity to a permanent water source, where Aboriginal people would have camped and utilised local resources. This area has also identified as one of ecological value; and
- the area west of Zouch Road containing sites DD 5 and 6. This area was also identified as one of ecological value because of the remnant Cumberland Plain bushland.

While areas of high archaeological sensitivity across the EPCS are considered to be of equal value, the TLALC and CBNTCAC statements indicate that, while Aboriginal land use be acknowledged throughout the development area, the above-mentioned portions of the site are of great importance to the Aboriginal community and as such, their conservation should be addressed as part of the Master Planning process.

10.4 Areas of Opportunity

The main areas for development opportunity in consideration of the Aboriginal heritage of the EPCS are:

- within the former Ingleburn Military Camp property south of Campbelltown Road and west of Macdonald Road where there remains minimal or no archaeological potential as a result of the previous ground disturbance caused by the construction of the military facility in 1939 and its continual site use up until the late 1990s. Sites EPCS 12, 13, 14 and 15 were located in the southern half of the site within an area of former military buildings and are considered to have minimal Aboriginal archaeological potential within areas of archaeological sensitivity and disturbed landscapes; and

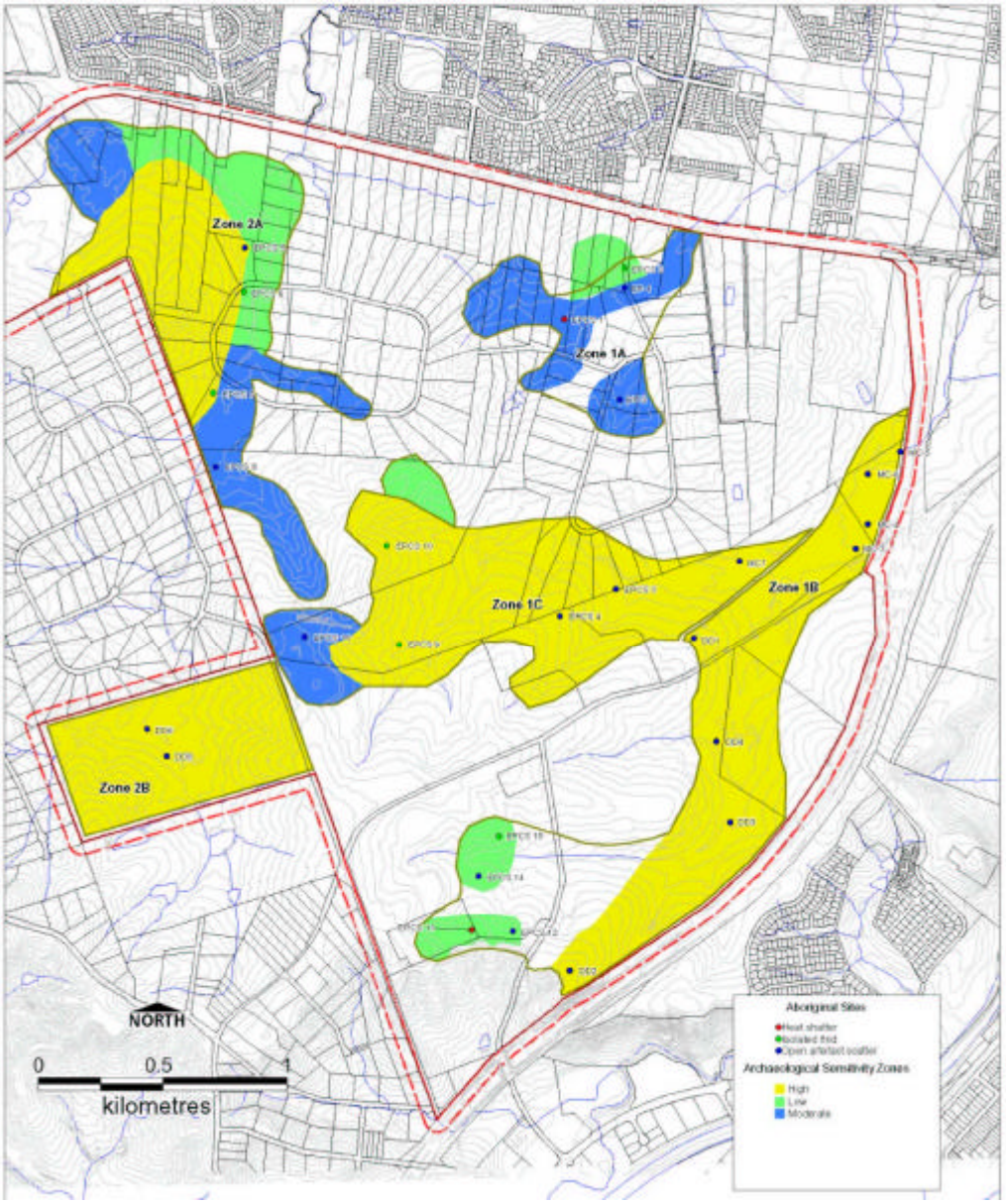

Figure 5 Archaeological Management Zones and Areas of Cultural Significance

- much of the northern half of the EPCS (off Camden Valley Way) where previous ground disturbance has diminished the potential archaeological value of the area. This includes areas which have been categorised as "disturbed landscape" due to substantial rural and/or residential land use.

11 Phase Two: Heritage Management Objectives

The key objective of the EPCS AHMP is the recognition and acknowledgment of past Aboriginal land use of the EPCS as part of the wider Cumberland Plain through the conservation and management of important archaeological and cultural landscapes that exist within the development site. These remnant portions represent a diminishing cultural resource across the Cumberland Plain in Western Sydney.

In the EPCS, there remains the potential to incorporate important archaeological and cultural areas within the development footprint and make provisions for the conservation of individual sites and the surrounding archaeologically sensitivity landscapes at the master planning level.

12 Heritage Management Principles

- The archaeological potential of the EPCS must be considered in relation to the diminishing local archaeological resource of Edmondson Park and the wider Cumberland Plain impacted by the rapid urban spread of Western Sydney. In this respect the AHMP assumes that landscapes are archaeologically sensitive on the basis of landform, previous ground disturbance and known archaeological record. In keeping with the Aboriginal community's wishes, these areas should be kept intact as much as possible through their inclusion in conservation zones.

- In general, all areas of high archaeological sensitivity should be avoided and protected against development impact or land use. Areas of moderate archaeological sensitivity may not warrant protection against development impact or land use, however they may require the implementation of mitigation measures (which may include further archaeological investigation) prior to development. Areas of low archaeological sensitivity may not warrant protection against development impact, nor do they warrant the implementation of mitigation measures prior to the impact of development or other land use.

- The minimisation of development impacts on known sites and potential archaeological deposits, wherever possible. Where this is not considered viable by all parties, a qualified archaeologist in consultation with the local Aboriginal community groups, should determine as appropriate, the scope of any further investigative or mitigative work which may be required prior to development approval and ground disturbance activities.

- Liverpool and Campbelltown City Councils issue development consents with enforceable conditions to ensure developers comply with heritage guidelines. Councils should also ensure that all development submissions where heritage will be affected are referred to NPWS for approval as required.

- All strategies have been formulated in consultation with Aboriginal community group representatives, Glenda Chalker (CBNTCAC) and Lance Syme (TLALC). Consultation was ongoing throughout Phases One and Two. As a result, the strategies recommended here have been devised at several round table discussions during the formulation of this document.

- Accordingly, all future decisions regarding Aboriginal heritage within the EPCS should continue to involve the above mentioned parties and any Aboriginal heritage officers at Council.

13 Strategies and Recommendations

Ideally, all areas of archaeological and cultural sensitivity would be incorporated into the EPCS development proposal, and conserved and managed. The strategic approach taken to managing Aboriginal heritage within the EPCS assumes potential planning outcomes within the scope of the EPCS development footprint. In general, the development footprint predominantly provides for a residential zone in the northern part of the site while the southern half of the site is deemed commercial as the town centre.

In the final development footprint, sites MC-3, 4, 5, 6 and 7, DD 1, 2, 5 and 6 and EPCS 3, 8, 9 and 11 fall within the proposed Environmental Protection/Conservation Area. A number of sites will also be protected within Public Recreation Parks, including DD 3 and 4 and EPCS 1 and 7 and possibly EP-2, which appears to be situated on the boundary of a Public Recreation Park and Residential Area. Drainage works are allowed within Public Recreation Parks, however their impact would need to be assessed at the DA stage. The conservation of archaeological sites is encouraged as they represent the surface manifestation of potential archaeological deposits (PAD) which may remain on the alluvial flats and low-lying footslopes surrounding Maxwells and Cabramatta Creeks. While many of the known sites are to be incorporated in the proposed Environmental Conservation Areas, their associated areas of archaeological sensitivity must also be considered in this process.

Accordingly, the principal management strategies for the EPCS highlight where, due to the high level of sensitivity of an area, conservation is the only recommendation proposed. In other cases where it is considered that development will impact an area of sensitivity, a mitigative option is also proposed.

13.1 General Management Strategies

The management strategies proposed in this AHMP have been developed in consideration of the known and potential Aboriginal archaeological sites and consultation with the local Aboriginal community. Further detailed survey of the site was considered ineffective due to the disturbed nature of much of the EPCS away from the creeklines and the dense ground cover across the site which hindered the preliminary inspection. As three studies (Smith 1989, Dallas 1999, AMBS 2003) have now covered the least disturbed parts of the EPCS and identified areas of archaeological sensitivity, the heritage management focus is on the preservation of as many of these areas as possible, with further targeted investigation of individual sites to define possible site boundaries.

Definition of site boundaries may require subsurface investigation. However, in accordance with the wishes of the local Aboriginal community, disturbance of any archaeological site through excavation will be kept to a minimum to ensure that sites will remain as intact as possible.

With these issues in mind, the following recommendations are proposed for the identified areas of Aboriginal archaeological and cultural sensitivity:

- The formulation of individual management plans for identified conservation management zones (see below) which incorporate known surface sites and associated areas of sensitivity. Plans should be developed in consultation with a qualified archaeologist and the local Aboriginal community (including Tharawal Local Aboriginal Land Council and Cubbitch Barta Native Title Aboriginal Corporation). This may require further inspection of the conservation zone to determine considerations specific to individual areas. Management plans should incorporate the following points:

    - offsets established on either side of creeklines;
    - minimisation of site degradation through site rehabilitation (bush regeneration);
    - level of site access (local Aboriginal community and the general public);
    - protection of surface archaeological material (collection or other options); and
    - ongoing conservation zone management and responsibility.

- Where modification to creek banks is required, the scope of any associated archaeological investigatory work to be discussed with the Aboriginal community.

- All further investigative and mitigative work to be completed to the satisfaction of NPWS and the Aboriginal community, as part of the development application process and prior to the commencement of *any* ground disturbance activities associated with the EPCS residential and commercial development. This includes infrastructure such as above and below ground surface services such as roads, sewerage and transmission lines.

- As the planning and assessment of the proposed South West Rail Link and rapid transport corridors were not part of this study, detailed archaeological investigations should be undertaken as part of their environmental assessment process. Similarly, no suitable mitigation measures can be formulated without detailed development plans and an analysis of all potential impacts to archaeological and/or cultural sites and deposits.

- Recognition of the Aboriginal land use of the Edmondson Park area through educational opportunities via landscape interpretation. Possibilities include interpretive signage, heritage trail through the site and education programs conducted through local schools and community groups. Indigenous cultural tours to incorporate Aboriginal land use information.

- Consideration of establishment of green areas within residential and commercial areas which may incorporate other areas of moderate archaeological potential.

13.2 Management Zones

In order to address all areas of archaeological and/or cultural sensitivity, and in particular, those of moderate to high potential, two principal management zones have been identified based on the creek catchments that transverse the EPCS, namely Maxwells and Cabramatta Creeks. These have been subdivided into five sub-catchments (see Figure 5) which encompasses all known surface archaeological sites and associated areas of sensitivity.

Following this, zones have been categorised as:

- Maxwells Creek - Zone 1

a) Zone 1A: northern branch of Maxwells Creek including sites EPCS 1, 2 and 3, and EP-1 and 2;
b) Zone 1B: south eastern branch of Maxwells Creek which crosses Campbelltown Road including MC-3, 4, 5 and 6, DD 1, 2, 3 and 4, and EPCS 12, 13, 14 and 15;
c) Zone 1C: remaining branches of Maxwells Creek which runs across the mid portion of the EPCS including MC-7, EPCS 3, 4, 9, 10 and 11.

- Cabramatta Creek - Zone 2

d) Zone 2A: northern branch of Cabramatta Creek crossing Jardine Drive including EPCS 5, 6, 7 and 8;
e) Zone 2B: southern portion of Cabramatta Creek including DD 5 and 6.

13.3 Specific Zone Strategies to maximise conservation of Aboriginal heritage

13.3.1 Zone 1A

- A buffer of at least 50 m be placed around existing branches of the creek. Within this zone, EP-1 will be conserved.
- The preservation of EP-2 and associated PAD as a green area within the residential development.
- Section 90 consent to destroy EPCS 1 and 2 (as sites of low-moderate sensitivity) and surface collection of artefacts, in accordance with local Aboriginal community wishes.

13.3.2 Zone 1B

- Preservation of sites MC-3, 4, 5 and 6, and DD 1, 2, 3 and 4.
- 50 m buffer either side of creek with the conservation zone to include at least 100 m west of the main creek branch where DD 3 and 4 are located.
- DD 3 to be stabilised and revegetation in accordance with local Aboriginal community wishes.
- Restricted access to the areas by general public and limited to passive activities with defined walking and/or bike trails.
- Mitigation option: Artefacts at DD 3 and 4 to be collected or by left *in situ* and covered, in accordance with local Aboriginal community wishes.
- Section 90 consents for EPCS 11, 12, 13 and 14 (as sites of low sensitivity) and surface collection of artefacts in accordance with local Aboriginal community wishes.

13.3.3 Zone 1C

- Preservation of sites MC-7, EPCS 3, 9, 10 and 11.
- Preservation of a representative sample of the archaeologically sensitive area at the creek confluence associated with EPCS 3 with inclusion of the associated archaeologically sensitive eastern facing low slope for at least 100 m from the creekline.
- Mitigation option: Artefacts protected either by collection and safe keeping or by leaving them *in situ* and covering the spread of artefacts, in accordance with local Aboriginal community wishes.
- Restricted access to the areas by general public and limited to passive activities with defined walking and/or bike trails.
- Test excavation and salvage of the archaeologically sensitive area at the creek confluence associated with EPCS 3 and 4 where impact cannot be avoided.

13.3.4 Zone 2A

- Preservation of sites EPCS 5, 6 and 7.
- Recognition of the hilltop and slope being of high cultural sensitivity to the local Aboriginal community.
- Preservation of a representative sample of the archaeologically sensitive area on the hill top associated with EPCS 5.
- 50 m buffer either side of the creek.
- Test excavation of the archaeologically sensitive area on the hill top associated with EPCS 5 to determine the extent of archaeological material (support of Aboriginal community doubtful as excavation will further disturb archaeological context of this sensitive area).
- Mitigation option: Artefacts protected either by collection and safe keeping or by leaving them *in situ* and covering the spread of artefacts, in accordance with local Aboriginal community wishes.
- Restricted access to the areas by general public and limited to passive activities with defined walking and/or bike trails.

13.3.5 Zone 2B

- Preservation of sites DD 5 and 6.
- Mitigation option: Artefacts protected either by collection and safe keeping or by leaving them *in situ* and covering the spread of artefacts, in accordance with local Aboriginal community wishes.
- Restricted access to the areas by general public and limited to passive activities with defined walking and/or bike trails.

13.4 Aboriginal heritage and the EPCS Master Plan

These Aboriginal heritage management zones have been considered in the development of the EPCS Master Plan. The development footprint has been finalised in consideration of a number of environmental and social issues and in consultation with government agencies and stakeholder groups. As many sites possible have been protected within Environmental Protection/Conservation Zones or Public Recreation Parks. It was not possible to incorporate all Aboriginal sites within conservation areas. These sites would need to be considered in respect to any future works which

may impact on Aboriginal heritage sites and values and appropriate mitigation works carried out. Note that it is an offence to impact on an Aboriginal site without the appropriate consent issued by NPWS (see section 13.5 below).

The general location of Aboriginal sites in relation to the final development footprint is shown in Figure 6 and the effect of the Master Plan on these sites is listed in Table 5 below.

Table 5 Site locations within Master Plan final development footprint

Site Name	Master Plan Zone	Conserved/Impacted
EPCS 1	Public recreation park	Conserved
EPCS 2	Village	Impacted
EPCS 3	Boundary of Environmental Protection/Conservation area and Town Centre	Potentially conserved
EPCS 4	Town Centre / Proposed Transit Corridor	Impacted
EPCS 5	Residential	Impacted
EPCS 6	Rural Residential – Zoned 1(f) Landscape Protection	Conserved
EPCS 7	Public recreation park	Conserved
EPCS 8	Environmental Protection/Conservation area	Conserved
EPCS 9	Environmental Protection/Conservation area	Conserved
EPCS 10	Residential	Impacted
EPCS 11	Environmental Protection/Conservation area	Conserved
EPCS 12	Residential	Impacted
EPCS 13	Residential	Impacted
EPCS 14	Residential	Impacted
EPCS 15	Residential	Impacted
EP-1	Boundary of Village and Public recreation park	Potentially conserved
EP-2	Residential	Impacted
MC-3	Environmental Protection/Conservation area	Conserved
MC-4	Environmental Protection/Conservation area	Conserved
MC-5	Environmental Protection/Conservation area	Conserved
MC-6	Environmental Protection/Conservation area	Conserved
MC-7	Environmental Protection/Conservation area	Conserved
DD 1	Environmental Protection/Conservation area	Conserved
DD 2	Environmental Protection/Conservation area	Conserved
DD 3	Public recreation park	Conserved
DD 4	Public recreation park	Conserved
DD 5	Environmental Protection/Conservation area	Conserved
DD 6	Environmental Protection/Conservation area	Conserved

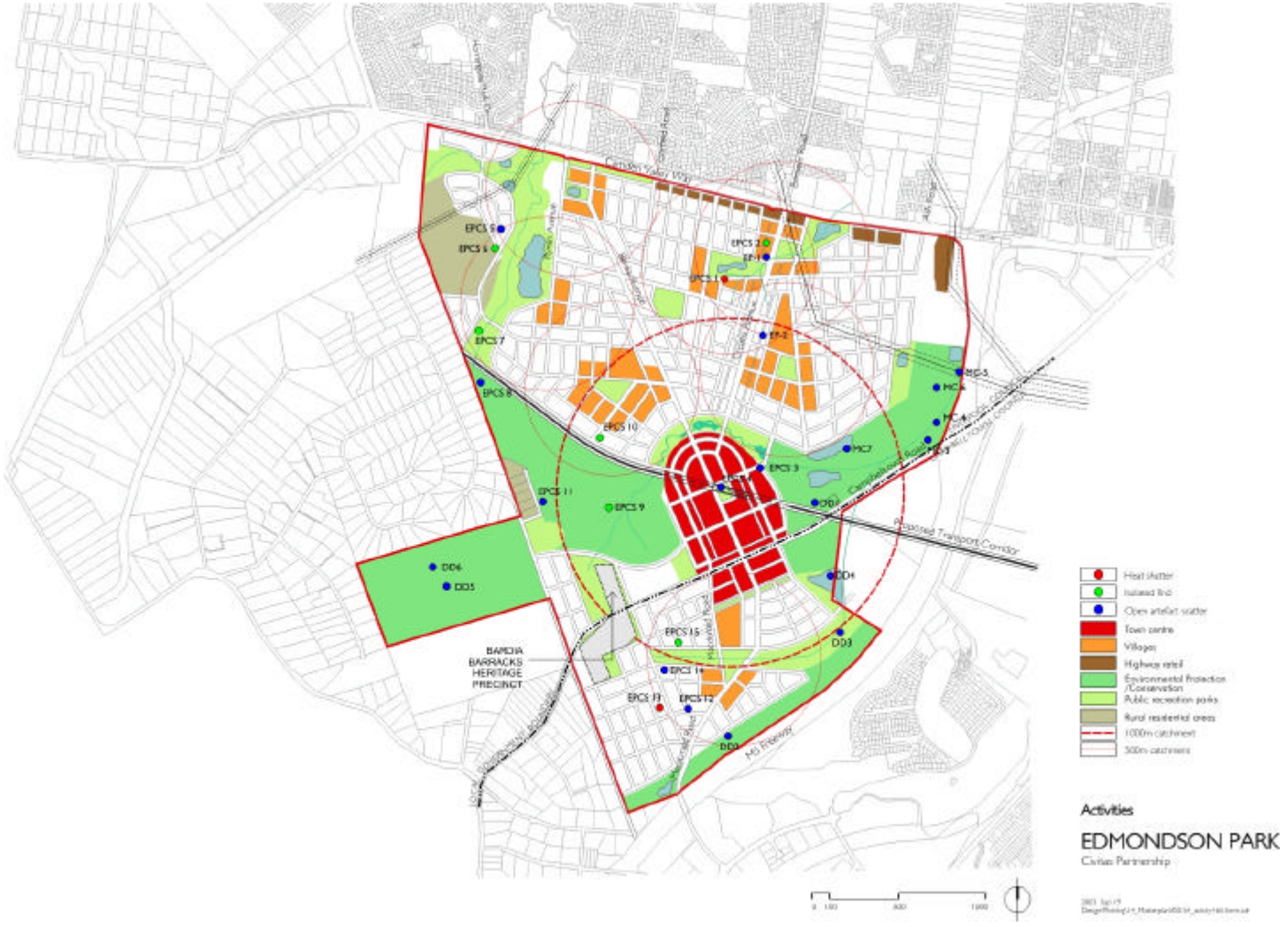

Figure 6 Master Plan final development footprint and Aboriginal heritage sites

13.5 Legislative obligations

In New South Wales, items of Aboriginal heritage are protected under the *National Parks and Wildlife Act 1974*.

Under the Act, an "Aboriginal object" (formally known as "relic") is defined as "any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains". As such, "objects" are confined to physical evidence and are commonly referred to as Aboriginal sites.

All "objects" are protected under section 90 of the Act. It is an offence to destroy, deface or damage an Aboriginal site without the prior consent of the Director-General of NPWS.

The NPW Act does not provide protection for spiritual areas or natural mythological areas that have no physical remains of Aboriginal occupation, unless they have been declared an Aboriginal Place under section 84 of the Act. An Aboriginal Place is a place which has been declared as such by the Minister for the Environment because it has been shown that the place is or was of special significance to Aboriginal culture. It may or may not contain physical objects.

Development consent does not equate to a consent to destroy an Aboriginal object or Aboriginal Place (section 90 consent) issued under the NPW Act. A consent to destroy is required to be granted by the NPWS before an Aboriginal site or Aboriginal Place can be disturbed. Failure to obtain this consent may result in prosecution.

13.6 Management Issues

13.6.1 Management Responsibilities

While conservation and management of areas of archaeological sensitivity is proposed, the responsibility for the ongoing administration and care of these areas needs to be addressed.

Ultimately, NSW National Parks and Wildlife Service is the statutory body responsible for all Aboriginal objects and places in NSW. However, at a local level, the short and long term management of conservation areas within the EPCS should also be governed by local stakeholders which may include, but not be limited to:

- Liverpool City Council;
- Campbelltown City Council;
- Tharawal Local Aboriginal Land Council;
- Cubbitch Barta Aboriginal Corporation;
- Private Landowners; and
- Other local community interest groups.

The establishment of an EPCS Aboriginal Heritage Management Group is proposed to address the initial development of conservation areas and their preparation, as well as their ongoing upkeep. This group should include members of local Aboriginal organisations, Liverpool and Campbelltown City Councils and local EPCS community interest groups. This group should consult with and be answerable to NPWS.

14 References

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Appendix A Local Aboriginal Community Statements of Cultural Significance

THARAWAL
LOCAL ABORIGINAL LAND COUNCIL

17 February 2003

Liverpool City Council
1 Hoxton Park Road
LIVERPOOL NSW 2170

To Whom It May Concern:

Re: Edmonson Park Composite Site

This letter is to confirm the involvement of the Tharawal Local Aboriginal Land Council in the initial consultation process for the Edmonson Park Composite Site (EPCS). The EPCS is situated in South Western Sydney, it is defined by the Camden Valley Way to the north, the F5 Freeway to the East and existing residential development to the west. The EPCS covers a total of 774 Ha. and falls within both the Liverpool City Council and the Campbelltown Council LGA's

Field surveying was conducted during early December, with the participation of Tharawal LALC and Cubbitch Barta NTACC. Cubbitch Barta where represented by Glenda Chalker, Rebecca Chalker and Judy Fullgar, our representatives included Lance Syme, Leanne Hestelow and Tania Saunders. Meagan Memberson and Alison Nightingale where the consulting Archaeologists representing Australian Museum Business Services.

During the field survey 15 previously unidentified sites were located. These included five isolated finds, seven artefact scatters consisting of five of fewer artefacts plus heat shatter and three sites which contained no artefacts but yielded raw material pieces which had been heat shattered. Two previously recorded sites (MC 7 and DD 3) were relocated. Several previously recorded sites could not be located. These were EP 1 and 2, and DD 4.

From this period of field work areas of archaeological sensitivity were mapped and a series of recommendations were developed in consultation with the archaeologists, Tharawal and Cubbitch Barta. In response to the project parameters the recommendations developed are quite broad.

- Impact upon areas determined to be of moderate to high in significance, including creek lines and associated flats and low slopes, is to be avoided. It is further recommended that appropriate boundaries around creek lines should be determined.

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by the local Aboriginal community in consultation with a qualified archaeologist to ensure that these archaeological sensitive corridors are protected;

- Where avoidance of areas of high and/or moderate sensitivity is not feasible, discussions with the local Aboriginal community should proceed to determine appropriate strategies for the conservation and preservation of these areas.
- A test excavation program should be undertaken prior to any ground disturbance activities. Targeted test excavation will further define the extent and nature of the archaeological deposit (and or potential archaeological deposit);
- Further survey of the EPCS is considered unwarranted given the archaeological work previously undertaken on site and the limited ground visibility encountered during the current study. Test excavation is therefore recommended in areas of sensitivity where further investigation is required to more accurately assess the value of the predicted archaeological deposit. In light of this assessment, a more definitive management strategy can be adopted.
- In areas of low archaeological sensitivity (where recorded archaeological sites have been identified with little archaeological potential) it is recommended that, with the support of the local Aboriginal community groups, consent to destroy should be sought.

Yours in Indigenous Struggle,

per T. Saunders

Robyn Williams
Chairperson
Tharawal Local Aboriginal Land Council

Cubbitch Barta Native Title Claimants
Aboriginal Corporation,
55 Nightingale Road,
PHEASANTS NEST. N.S.W. 2574.

Ms Megan Mebberson,
Australian Museum Business Services,
1 Stanley Lane,
EAST SYDNEY. N.S.W. 2010

RE: EDMONDSON PARK
ABORIGINAL HERITAGE ASSESSMENT

The study was carried out over a five day period , beginning on the 20th November, 2002 with a field trip, in which the writer Glenda Chalker, Lance Syme (Tharawal Local Aboriginal Land Council), Megan Mebberson, and Alison Nightingale (AMBS)took part. The fieldwork took place from the 2nd through to the 5th December, 2002.

Previously recorded sites within the area consisted of 11 artefact scatters and five isolated finds.

During the four day field work ten new artefact scatters were recorded and five isolated finds within the area.

The site recorded as DD3 was relocated, of which I have spent considerable time over the last couple of years, working with a company emplolyed by the Department of Defence, in revegetating and in the removal of grenade material. This site I have been told over the years would be conserved as it is, along with the revegetation , in order to preserve this site, as open space. The Department of Defence recognised the significance of DD3 and DD6 & DD5,to include them in areas of conservation.

The areas that contained archaeological material on the creek lines have been identified and divided into subcatchments, in order to identify them more easily.

Maxwells Creek
Sub Catchment, Zone 1A, which takes in the sites identified as EPCS 1, 2 and 3 and EP 1 and 2.
According to the information provided at this point in time it appears that this area will be impacted by the proposed transit way. This area has been identified as having a medium to low potential to contain further material. This however does not mean that the area does not contain in situ materials and if impacted will require further investigation..
If these sites can be avoided then there is no need for further work. If these sites are in the way, then test excavation should take place to determine the extent of these sites and their true potential.

Sub Catchment, Zone 1B, which takes in the sites identified as MC 3, 4 , 5 and 6, DD 1, 2, 3 and 4, EPCS 12, 13, 14 and 15.

According to the information at the present time, part of this area will be impacted by the proposed rail line. This area has a high cultural significance, and all attempts should be made to avoid this area. It would appear the site DD 1 will be impacted by the proposed rail line The sites recorded as DD2, DD 3 and DD4, are spread in such a way that it is possible that this area is a continual line of visible artefacts along this creek line , and the another area with the sites recorded as MC 3, MC 4,MC 6 and MC 5 , also appear to be on the same principle as the other sites in this zone All these sites excepting EPCS 4 are also within the ecological sensitive area.
The sites identified as EPCS12, 13, 14 & 15, are in a highly disturbed area.

Sub Catchment , Zone 1C, which takes in MC 7, EPCS 3, 4, 9, 10 and 11.
This area has also been identified as having a high cultural significance, as well as ecologically sensitive, with the exception of EPCS 11 , which is still within the medium sensitivity area identified. It would appear that most of this area is to be impacted by the proposed rail line. The site identified as EPCS4 appears to be at the crossroads for the proposed rail line and the proposed transit way There appears to be no way of avoiding this site, as per the present plan.
This whole area should be avoided if at all possible, perhaps with further work within the area of EPCS 4 if it cannot be avoided.

Sub Catchment, Zone 2A, which takes in EPCS8, 7, 5 and 6.
There are three levels of sensitivity in this area, and three sites, EPCS 5, 6 & 7 lay on the fringes of the highly culturally sensitive area, with EPCS8 , in the moderately sensitive area. This area has been identified as culturally sensitive, because of the sites that fringe on this high ridge area, give an indication of the potential of the area. Within the region, high ridge areas all have been used by Aboriginal people in the past, who have left behind remnants of their life, which today is what is known as sites. This area is also environmentally sensitive, with the remnant Cumberland Plain Woodland that encompasses this area.

Sub Catchment Zone 2B, which contains DD 5 & 6 .
This area has been identified as culturally and environmentally sensitive. As well as the two sites in this area, it also contains remnant Cumberland Plain Woodland. I have worked with the Consultants who did the removal of all metal objects, including grenade and bullet fragments from this area, and was told that this area would remain intact, therefore the two sites would be preserved as they are.

It is difficult to make real recommendations at this point in time, because there are still, unanswered questions, such as the width of corridors, and the impact zones, etc., that may affect sites within the immediate vicinity.

This land which the proposed Edmondson Park is to be built, was the traditional land of the Dharawal people, of which I am a descendant. This area is important to the Dharawal people, because this is where one of the last recorded corroborees in the Sydney Region took place in 1850. Corroborees probably took place in this area on a regular basis, and the creek lines were used for camping by peoples from other groups, such as the Dharuk and Gundungurra, and from the North, South & West of the area.

It is possible that this area could be used a model, for preservation of its sites, considering that there have been so many other sites within the immediate area that have been destroyed. I also acknowledge that sometimes an agreement can be reached, when there are no other options, but not in all cases, can we allow the destruction of every site within an area. We cannot go on destroying all the sites, because if that happens, sooner, rather than later, they will be all gone, gone forever, and we will have lost the history of Australia, before colonisation.

This is just not a map with sites along the creek beds, this is a whole landscape that was used by Aboriginal people, who lived their lives in this landscape and left behind remnants of their lives and possibly deaths, that are yet to be discovered.

These sites tell our history, and if we lose it all, what do we tell our children and grandchildren of in the future.

Yours truly,

G Chalker.

Glenda Chalker