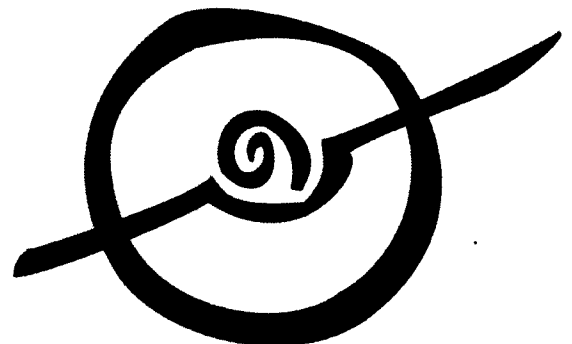


Heritage Conservation Strategy for
Aboriginal sites in the lands owned by
Valad Funds Management Ltd and Sargents P/L,
in the Eastern Creek Business Park (Stage 3) Precinct Plan
Blacktown, NSW.

July 2005



Report prepared for Valad Funds Management Ltd and Sargents Pty Ltd

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1. INTRODUCTION

Falcon Ridge Pty Ltd on behalf of Valad Funds Management Ltd and Sargents Pty Ltd commissioned this report. The report provides an additional assessment of the likely Indigenous conservation outcome that is to be achieved by the SEPP 59 Eastern Creek Business Park (Stage 3) Precinct (JMcD CHM 2004a). It outlines the Indigenous heritage conservation strategy for the lands owned by Valad Property Group and Sargents Pty Ltd within the Stage 3 Precinct, identifying requirements for mitigation (at the construction stage) and ongoing management requirements for the lands to be conserved. It also continues the Indigenous consultation process.

1.1 Scope of this study

The objectives of the Indigenous heritage investigations were to:

- determine the cultural significance of this release area by integrating the results of previous archaeological investigation with further consultation with Aboriginal groups;
- inform the Aboriginal groups of the continuing development process within the study area; and,
- prepare a Heritage Management Strategy for inclusion in future Precinct Planning.

Earlier management work done within the SEPP 59 Eastern Creek lands identified development opportunities and constraints in terms of Aboriginal cultural and archaeological heritage (JMcD CHM 2002a). A strategic approach to managing lands with identified Indigenous heritage values was the goal of this study. Some of the SEPP59 Eastern Creek lands have already been the subject of release and precinct planning. A 42 hectares parcel off Wallgrove Road constitutes the Eastern Creek Business Park Stages 1 and 2. The Stage 3 release area (including the current lands), comprises approximately 720 hectares, of the Eastern Creek Employment Area. Part of the Stage 3 release area (c.600 hectares) included the lands owned by Austral, Hartford Lane Pty Ltd (Wonderland Surplus lands), Jacfin and Tesrol was the subject of a previous study (JMcD CHM 2004a). The current lands make up the remainder of the Eastern Creek Business Park (Stage 3).

This current study includes lands in the release area previously identified as 'Ray Fitzpatrick' and 'Sargents'. The analysis of the SEPP 59 lands (in their entirety) is adopted here given the goals of a meaningful cultural heritage outcome. In discussion, the broader SEPP 59 lands are distinguished from the current lands, which are described throughout as the Eastern Creek Business Park (Stage 3) Western Precinct.

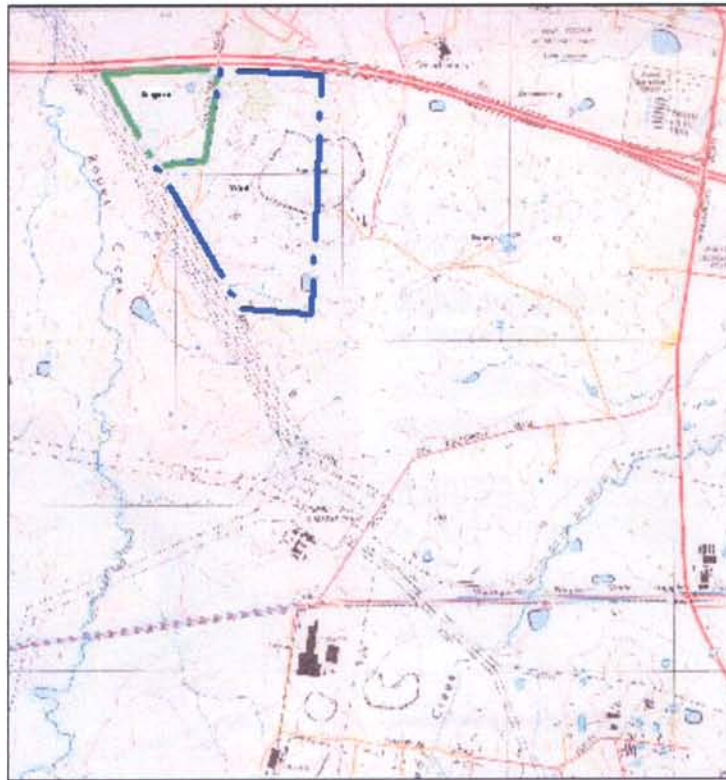
1.2 Summary of previous findings and recommendations

The previous investigation identified 42 known surface artefact scatters within the SEPP 59 lands. These sites were found on most landholdings. Discovery depended significantly on surface exposure.

The Cumberland Plain is generally an aggrading land surface that results in artefact scatters/Aboriginal sites being buried over time. The surface findings are thus merely

indicative of the archaeological evidence present across this land. Land-use impact assessment was undertaken to determine which lands had the best potential to contain intact archaeological evidence. This is generally considered the best way to determine which of the SEPP 59 lands have archaeological significance, in terms of conservation potential and outcomes.

Figure 1: Location of the study area (Prospect 1:25k topographic map sheet). The lands included in this strategy are outlined in blue and green.



A strategic approach should be taken to the management of Indigenous heritage sites. The overriding goal of the management model is for a representative sample of these areas to be set aside for conservation.

A number of management zones were defined in the earlier planning study.

Zone 1 is defined as containing lands with high potential to contain intact deposit. Ultimately, the conservation area(s) should come from these lands. Two other sensitivity zones were also identified – Zones 2 and 3. These ultimately will represent no constraint to development, but there may be a requirement for further investigation of archaeological sites/features within Zone 2 areas. Zone 3 lands have no archaeological sensitivity, and require no planning consideration.

Selection of the conservation area will be on the basis of representativeness, overlap with other high conservation values (e.g. biodiversity), and the location of vital (i.e. unavoidable) infrastructure. Input from the Aboriginal community was identified as an important component of this selection process.

Figure 2: Aerial photo of the SEPP59 Eastern Creek Western Precinct. The Sepp59 Lands are outlined in red; the current study area is outlined in blue and green.



2. ABORIGINAL COMMUNITY CONSULTATION

The study area falls within the boundaries of the Deerubbin Local Aboriginal Land Council (DLALC). Phil Khan of the Deerubbin LALC took part in the original survey work for the overall SEPP59 lands on 5 July and 14 August 2002. The DLALC were contacted during the course of this study and were informed that comment on this report work would be required.

The study area also falls within the area of interest to the Darug Tribal Aboriginal Corporation (DTAC) and the Darug Custodial Aboriginal Corporation (DCAC). While these two groups have been involved in previous survey related to the broader SEPP59 lands, they have not specifically visited the current study area. They too have been informed of the current process and will also be invited to comment on the report.

Figure 3: Proposed Conservation Areas and Riparian Zones in the current study area (Valad lands).

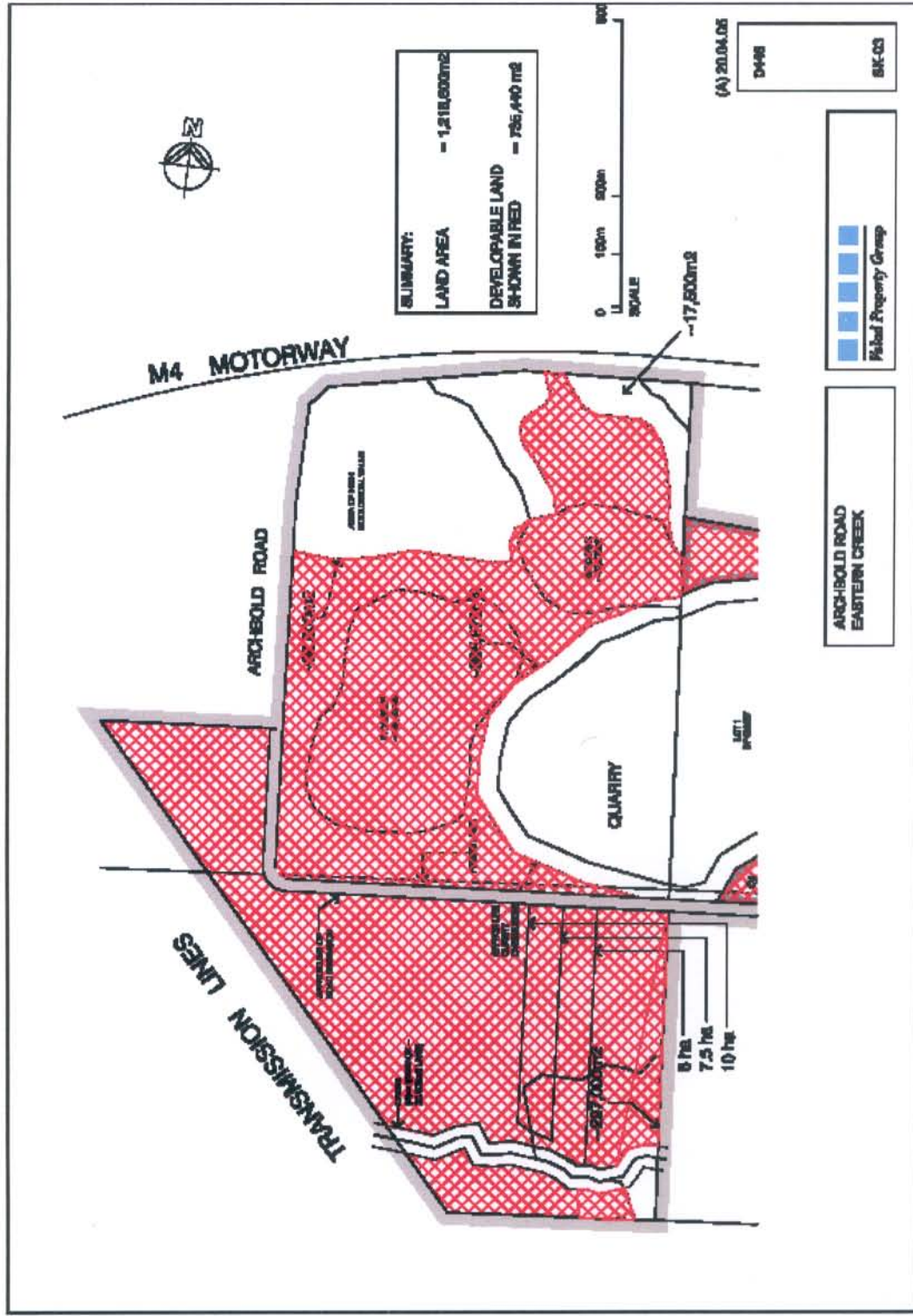
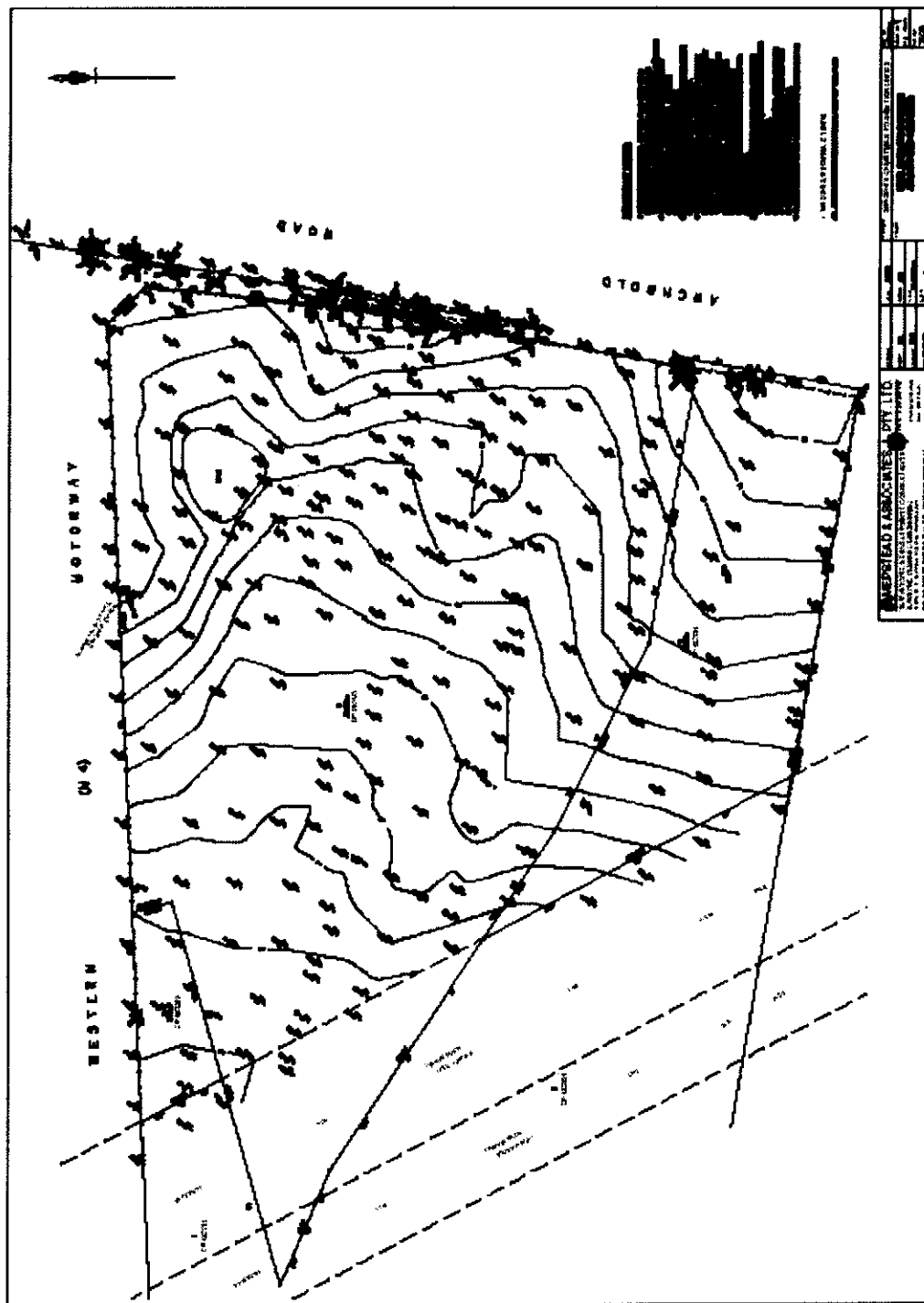


Figure 4: Survey plan of the Sergeant's land. Note that there is an area of 1.6ha outside the designated SEPP59 boundary to the west (beneath the transmission line easement).



3. THE STUDY AREA

3.1 General Description

The land subject to this Heritage Conservation Strategy comprises c.120 ha immediately south of the M4 Motorway. Its western boundary is several sets of transmission lines that run to the east of Ropes Creek. This land is currently within two different land holdings (Figure 2)¹. Within the study area is Archbold Road. The original SEPP59 calculations are used as reference in this analysis.

3.2 Geology and Topography

The study area is located on the Cumberland Plain, west of Sydney. The bedrock geology is comprised of Bringelly Shale (Rwb) of the Wianamatta Group. The study area is in the Ropes Creek catchment.

Within the SEPP 59 lands there are two high points, with elevation above 90m (AHD). These form part of a distinctive ridgeline within the SEPP59 lands (the Reservoir is located on the highest point here).

Within the current study area the slopes are relatively gentle. The lowest elevation within the study area is the Ropes Creek floodplain area in the north-west (c.42 metres AHD). Most of the natural landforms within the study area are below 60 metres AHD (NB there are some mounds of spoil associated with the Pioneer Quarry up to 90m AHD).

Landscape analysis

The SEPP59 study area was stratified according to topographic units. These were mapped (using MapInfo), and the proportions of these calculated (Table 1). This landscape mapping was shown (JMcD CHM 2002a: Figure 4).

The following topographic categories are used throughout the discussion.

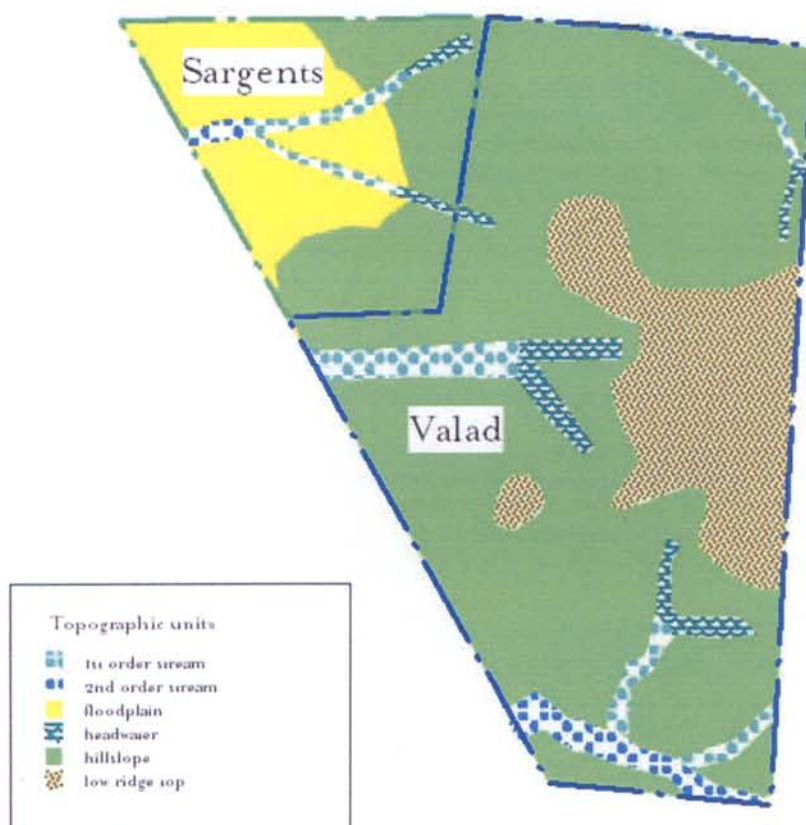
| | |
|-----|---|
| CB | Creek bank, < 50 m to water, flat land |
| FP | Flood Plain, > 50 m to water, flat land to slightly sloping |
| SW | Slope < 200 m to water |
| HS | Hill Slope > 200 m to water, site on slope |
| LRT | Low Ridge Top >200 m from water, <10 m elevation above ck |
| RT | Ridge Top > 200 m to water, >10 m elevation above creek |

¹ Note that the 'Valad lands' in the current study are those identified in the previous planning study as 'Ray Fitzpatrick' (JMcD CHM 2002a: Figure 3). Note also that there is an additional 1.6 ha of land in the Sargent's landholding, which is outside the SEPP59 boundary (beneath the transmission line easement).

Table 1: Current Precinct – topographic landscape analysis, compared with SEPP59 lands study.

| Topographic Unit | Code | Study Area (ha) | %f | SEPP59 Area (ha) | %f |
|------------------|-------|-----------------|-------|------------------|-------|
| Ridgetop | RT | 0 | 0 | 3.3 | 0.5 |
| Low ridge top | LRT | 19.1 | 15.2 | 115.2 | 19.0 |
| Hillslope | HS | 80.4 | 64.0 | 402.4 | 66.4 |
| Headwater | SW/CB | 3.7 | 2.9 | 13.5 | 2.2 |
| 1st order stream | CB1 | 6.1 | 4.9 | 18.3 | 3.0 |
| 2nd order stream | CB2 | 2.8 | 2.2 | 12.65 | 2.1 |
| 3rd order stream | CB3 | 0 | 0 | 7.4 | 1.2 |
| Floodplain | FP | 13.7 | 10.9 | 33.8 | 5.6 |
| | | 125.8 | 100.2 | 606.5 | 100.0 |

Figure 5: Landscape units within the current study area



The SEPP59 lands are dominated by hillslopes (66%) with the next largest unit being low ridgetops (19%). The numerous streams within the study area were found to cover a relatively small area. Floodplains were found associated with Reedy and Ropes Creeks. Both of these areas are also associated with Quaternary alluvium.

The current study area is predominantly hillslope, in roughly the same proportions as found in the broader study area (Table 1). Two landscape units present within the SEPP59 lands – Ridgetops and 3rd order stream – do not occur in the current study area. Conversely, first order streams and floodplain landscapes occur in higher proportions within the current study area compared with the broader SEPP59 lands.

3.3 Hydrology and stream order

The creeks in the current study area drain westward into Ropes Creek. The only permanent stream in the vicinity of the study area is Ropes Creek – which runs south to north beyond the western boundary of the study area.

Stream Order

The logic behind the stream order model is that in any particular climate and landscape a threshold catchment area is necessary to allow permanent stream flow or the establishment of waterholes with extended longevity (i.e. months to years). On the Cumberland Plain (average annual rainfall between 700 and 900 mm), the critical point where these conditions are met appears to be at the junction of two second or third order streams. The stream order rankings used are not related to the system used by DIPNR to assess stream size. Rather they are a predictive tool upon which Aboriginal site location can be based.

Stream order within the current study area were mapped during the larger SEPP 59 study (see Figure 5). No entire catchments occur within the SEPP 59 lands nor indeed within the current study area. Most of the streamlines here are headwater gullies and first order streams (see Table 1). Two of the streamlines become second order streams within the study area, one within the Valad lands and the other within Sargents land.

3.4 Vegetation

The Cumberland Plain originally contained a complex of woodland and forest associations adapted to the mostly clayey soils. Most of the original vegetation in the study area has been cleared to some extent. There is a mosaic of existing land-use impacts (see below), which has resulted in parts of the current study area being completely cleared of original vegetation, while other patches remain fairly intact.

3.5 Existing Land-use Impact

The study area has suffered a variety of previous land-use disturbance impacts. These have affected the ground surface and sub-soil, and would have resulted in the damage or destruction of potential Aboriginal sites. Most of the current study area was cleared sometime prior to 1947 (JMcD CHM 2002a: Appendix 3).

In order to quantify the previous land-use impacts across the study area, aerial photo interpretation and analysis was undertaken. This mapping was ground-truthed during the survey (JMcD CHM 2002a). Details of this mapping exercise can be found in the previous

report. In keeping with previous studies (JMcD CHM 1997, 1999, 2002b), the following definitions were used:

High disturbance - Severe disturbance to the soil. Buildings, houses, suburbs, roads, market gardens, poultry farms, BMX tracks, rubbish tips, formed tracks, dams, drains and other excavations.

Moderate disturbance - Cleared of trees at some time, cultivated or extensive soil disturbance probable – caused by machinery or extended periods of trampling. Much of this area has been used for small agricultural pursuits such as orchards, and the remainder carries improved pasture.

Low disturbance - Partly cleared and grazed at some time, but apparently never subject to extreme soil disturbance.

This disturbance mapping for the SEPP 59 is shown elsewhere (JMcD CHM 2002a: Figure 4). Calculations of land-use disturbance proportions across the current study area were made (Table 2).

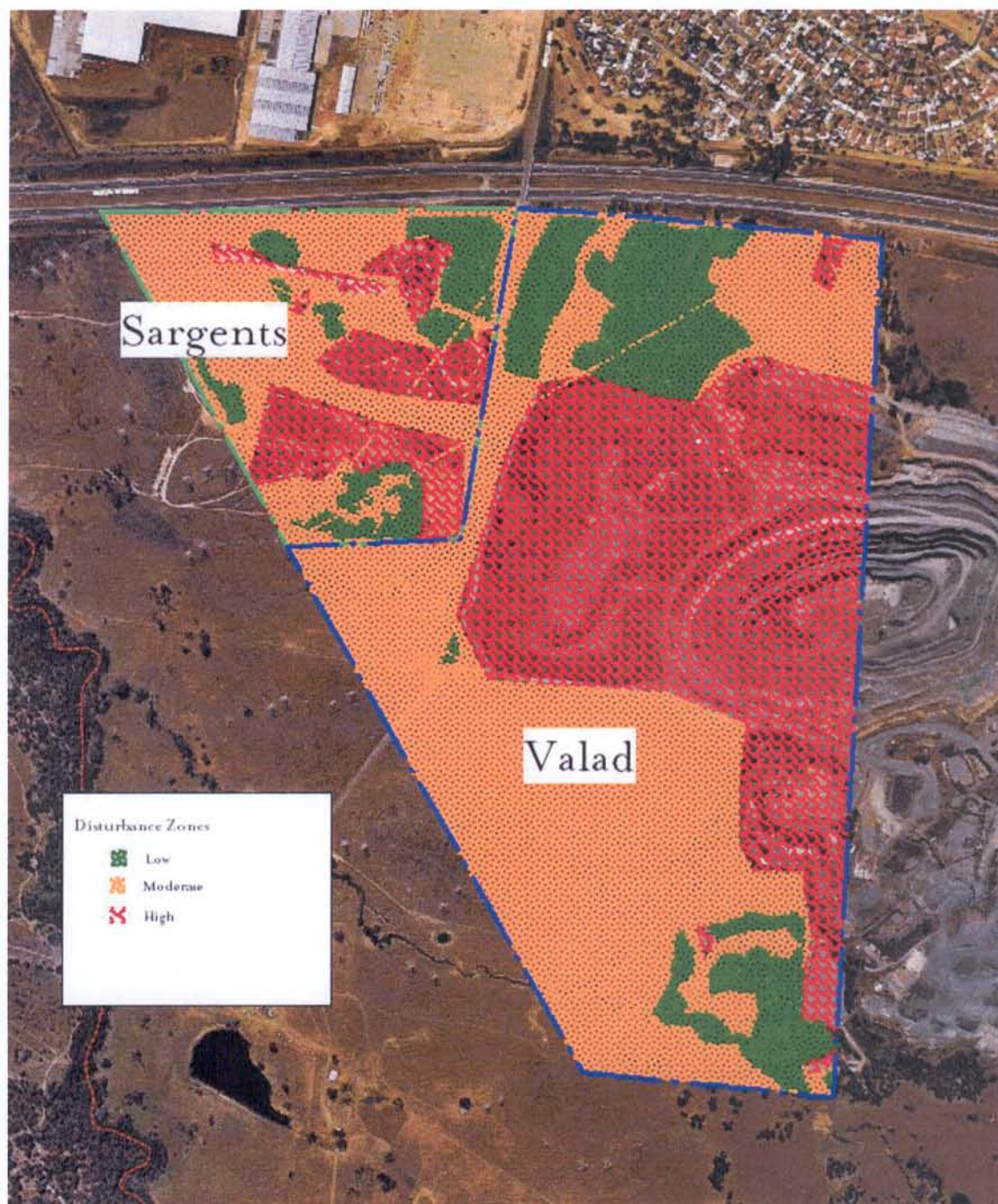
Just under half of the study area (46.5%) has suffered moderate previous land-use impact (Table 2, Figure 6). A small proportion (14%) has suffered only low levels of previous disturbance, while almost 40% has had extremely high levels of disturbance.

Table 2: Current study area and SEPP 59 lands. Proportion of land-use impact zones.

| Disturbance | Area (ha) | %f | SEPP59 Area (ha) | %f |
|-------------|-----------|-------|------------------|------|
| Low | 17.5 | 13.9 | 115 | 19.0 |
| Moderate | 58.6 | 46.5 | 320 | 52.8 |
| High | 49.9 | 39.6 | 171 | 28.2 |
| | 126 | 100.0 | 606 | 100 |

These areas of existing land-use impact are important in assessing the potential of the land within the study area to contain intact archaeological deposit – and areas that may have conservation potential. This information, combined with an assessment of representative landscapes within the SEPP 59 lands, has formed the basis for conclusions about the conservation of cultural landscapes within the study area [being the western portion of the SEPP59 lands]. The proportion identified for conservation in the broader SEPP59 area is also an important part of this consideration.

Figure 6: Proportion of different land use impact zones within the current study area.



4. ARCHAEOLOGICAL CONTEXT

4.1 Regional context

Archaeological research in the last twenty years has provided a significant amount of evidence on the nature of Aboriginal occupation across the Cumberland Plain. The most common site type on the Cumberland Plain is the open artefact scatter / open campsite (89%), followed by scarred trees (2.1%). Isolated finds and combination open/other site types accounted for another 3.5% of the recorded features. Shelter sites and grinding grooves – found mainly around the periphery of the Plain at the shale-sandstone junction – accounted for another 3.6% of recorded sites.

Predictive model

A number of previous studies (see JMcD CHM 2002a for reference and more detailed discussion of archaeological context) have resulted in the development of a comprehensive predictive model for sites on the Cumberland Plain.

It is predicted that the size (density and complexity) of archaeological features will vary according to permanence of water (i.e. ascending stream order), landscape unit and proximity to lithic resources in the following way:

- In the headwaters of upper tributaries (i.e. first order creeks) archaeological evidence will be sparse and represent little more than a background scatter;
- In the middle reaches of minor tributaries (second order creeks) will be archaeological evidence for sparse but focussed activity (eg. one-off camp locations, single episode knapping floors);
- In the lower reaches of tributary creeks (third order creeks) will be archaeological evidence for more frequent occupation. This will include repeated occupation by small groups, knapping floors (perhaps used and re-used), and evidence of more concentrated activities;
- On major creeklines such as the lower reaches of Second Ponds and Caddies Creeks (fourth order) will be archaeological evidence for more permanent or repeated occupation. Sites will be complex and may even be stratified;
- Creek junctions may provide foci for site activity; the size of the confluence (in terms of stream ranking nodes) could be expected to influence the size of the site;
- Ridgetop locations between drainage lines will usually contain limited archaeological evidence although isolated knapping floors or other forms of one-off occupation may be in evidence in such a location;
- Naturally outcropping silcrete will have been exploited and evidence for extraction activities (decortication, testing and limited knapping) would be found in such locations.
- Sites in close proximity to an identified stone source would cover a range of size and cortex characteristics. As one moves away from the resource, the general size of

artefacts in the assemblage should decrease, as should the percentage of cortex. The increasing number of new (in particular) silcrete sources has made the testing of the distance decay model (Dallas & Witter 1983) more difficult, and suggests that this model is a poor mechanism for explaining raw material preferences around the Plain.

- Most sites on the Cumberland Plain have been dated to the late Holocene and it had been argued (Kohen 1986) that most date to the last 1,000 years. There is increasing evidence, however, (McDonald 1993, McDonald & Rich 1993a, JMcD CHM 2001a) that dates obtained from shelter sites around the Sydney region (e.g. Attenbrow 1987, McDonald 1994) are comparable to stone tool assemblages on the Plain. It is reasonable to assume that occupation of this area had commenced by c. 14,000 years ago (Kohen *et al.* 1981), and continued until the arrival of white settlers. Most sites, however, will date to the last 3,000 years. It is unlikely that very early dates (eg. 40,000 yrs, such as have been posited by Nanson *et al.* 1987) would be expected within the region: recent testing of the Cranebrook Terrace revealed no artefacts below 2 metres depth, and bioturbation was proposed as the mechanism for these occurring at such depth (Kohen 1997).

On the margins of the shale plain, in the interface between the shale and sandstone geologies, a further element can be added to this model.

- Where sandstone features occur (either overhangs or platforms), these may have provided a focus for a number of activities, either camping or art production (for the former) or the production/sharpening of axes (for the latter). Sandstone platforms may also have been used for the production of art (i.e. engravings) although these are very rare on the margins of the Plain.

The current study area is located mainly on elevated topography – but between (and quite close to) three relatively permanent creeklines (Ropes, Reedy and Eastern Creeks). First and second order streams drain most of the current study area. Only Reedy Creek, flowing through the south-western corner, is a third order stream.

The predictive model would suggest that the most common archaeological evidence in the SEPP 59 lands would be artefact scatters – either as multiple finds (open sites) or as a single occurrence (isolated finds). These could be expected to be fairly small (in terms of artefacts number and density) although more complex sites might be expected in the vicinity of Reedy and Ropes Creeks. Scarred trees may occur if old trees (> 200 years) remain: air photo interpretation indicates that there are only patches of vegetation which remain as original vegetation. Scarred trees, of Aboriginal origin then, are unlikely to be found.

4.2 Recorded sites on SEPP 59 Lands

The high number of recorded sites in the SEPP59 lands relates to the number of previous studies that have been done in the vicinity (JMcD CHM 2002a: see Table 4; Figures 6 and 7). The original archaeological assessment (JMcD CHM 2002a) involved survey of all landholdings².

² It should be noted that the inspection of the Pioneer land, due to safety concerns by Pioneer, was restricted to a visit to the pit and viewing of the southern creekline from the top of the spoil. General access to the lands here was not encouraged.

A total of 22 surface open sites, 19 surface isolated relics and a scarred tree with open artefact scatter were recorded in the SEPP59 lands (Table 3). A number of areas with Potential Archaeological Deposit (PAD) were also defined on the basis of land-use mapping (JMcD CHM 2002a: Figure 4). This can be translated into archaeological sensitivity mapping (Figure 4). At this stage individual PAD locations have not been individually identified. These are defined as broad zones of potential.

Table 3: Summary of recorded sites within the SEPP 59 lands

| Site type | Number | %f |
|---------------------------------------|--------|------|
| Open Site | 22 | 52.4 |
| Isolated find | 19 | 45.2 |
| Scarred Tree + Open Site ³ | 1 | 2.4 |
| | 42 | 100 |

5. DISCUSSION

5.1 The Master Plan development and selection of Conservation Areas.

State Environmental Planning Policy No. 59 (SEPP 59) – Central Western Sydney Economic and Employment Area – has rezoned certain land in Western Sydney for the purposes of establishing new employment and residential lands in order to promote economic growth. In February 2003, in terms of employment, the subject land at Eastern Creek was intended to enable future provision of increased employment generating development.

A Precinct Plan for most of the Eastern Creek Employment Area, as defined and required by SEPP 59, was prepared on behalf of the Landowners Group for submission to and adoption by Blacktown City Council (APP 2004).

The Precinct Plan provides for:

- increased transport links within the site and to the wider region (both vehicular and non-vehicular);
- appropriate conservation of native flora and fauna species;
- appropriate conservation of Indigenous and non-Indigenous heritage and archaeological items;
- rehabilitation of the existing quarrying land;
- built form guidelines;
- open-space provision and public domain improvements.

³ Although this scar may not be Indigenous in origin (see discussion in JMcD CHM 2002a: 24), there is an associated artefact scatter.

Overall, the Precinct Plan is similar to a Development Control Plan, and is to be used to inform future development in this part of the Eastern Creek Employment Area. The Development Framework for the Eastern Creek Employment Area provides a strategy and vision for the Precinct Plan, and collates the recommendations of the Supporting Studies (of which this report is one) to provide a structure for future land development.

Conservation areas (Figure 3) shall not be developed for any other purpose. These areas are to be preserved so as to promote ecological diversity within the Employment Area and, as far as possible, improve the water quality within the creeks on the land. They offer protection to ecological communities, and archaeological landscapes within their boundaries. Conservation areas located on private land parcels are to be maintained appropriately in accordance with a Conservation Management Plan prepared for submission to the consent authority at DA stage.

Riparian areas can be utilised for passive recreation purposes, subject to detailed planning, and will add to the character, amenity and presentation of the precinct. Riparian Zones will be subject to revegetation, drainage and some passive recreational activities, such as walking tracks and seating. Therefore these areas offer a measure of protection, rather than full protection for the ecological communities, landscapes and archaeological sites. The primary purpose of the riparian zones is stream-bank stability and local water quality.

5.2 The identification of lands with conservation values

In order to appropriately manage the Indigenous heritage values across the SEPP 59 lands these needed to be assessed for their archaeological and social significance. The previous report (JMcD CHM 2002a, 2004a) documented these archaeological values. Here, further discussions with the Aboriginal community have attempted to identify socially significant locations and/or landscapes. Further assessment of the scientific value of the conservation areas is also addressed.

The previous analysis assessed the conservation values of landscapes generally across the SEPP 59 lands. This included the identification of lands with the greatest potential to contain intact archaeological deposit (i.e. only minimally disturbed by previous land-use impact), and those which are locally (and regionally) threatened by existing urban development. These two factors affect the assessment of high conservation potential.

The land-use mapping (Figure 5) was reinterpreted as one of archaeological sensitivity (Figure 7). Three zones are identified:

- Zone 1 – High archaeological potential
- Zone 2 – Moderate Archaeological Potential
- Zone 3 - Low (or no) archaeological potential

These zones were used to assist in the assessment of the sites and landscapes within the SEPP 59 lands. The sites in each land holding were plotted on the background of sensitivity mapping (JMcD CHM 2002a: Figures 8–11).

Figure 7: Archaeological sensitivity zones within the study area.

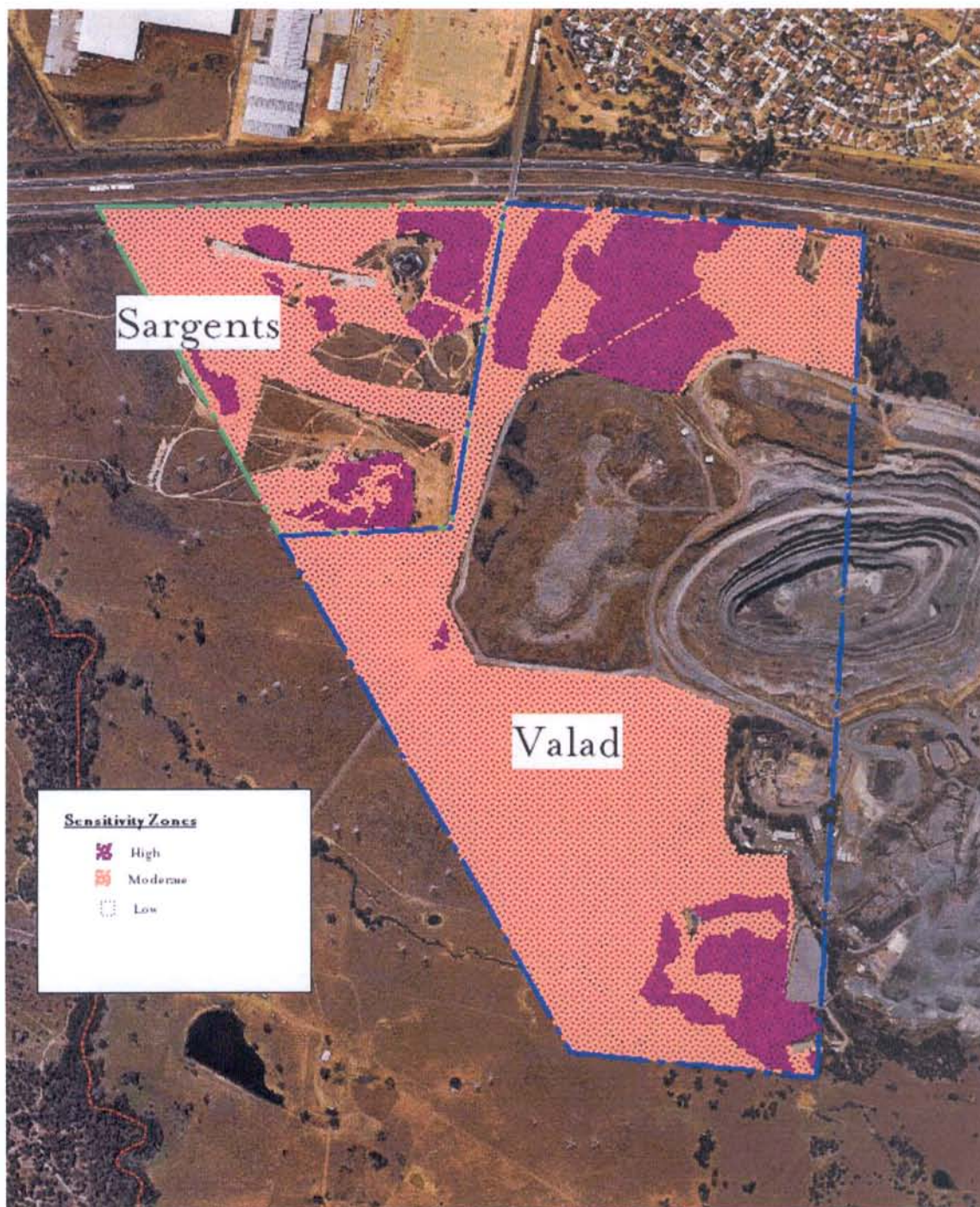


Figure 8: Proposed conservation and riparian corridors on the Valad Land, overlain on background of air photo (NB. At this stage Sargents consider the entirety of their land to be developable).

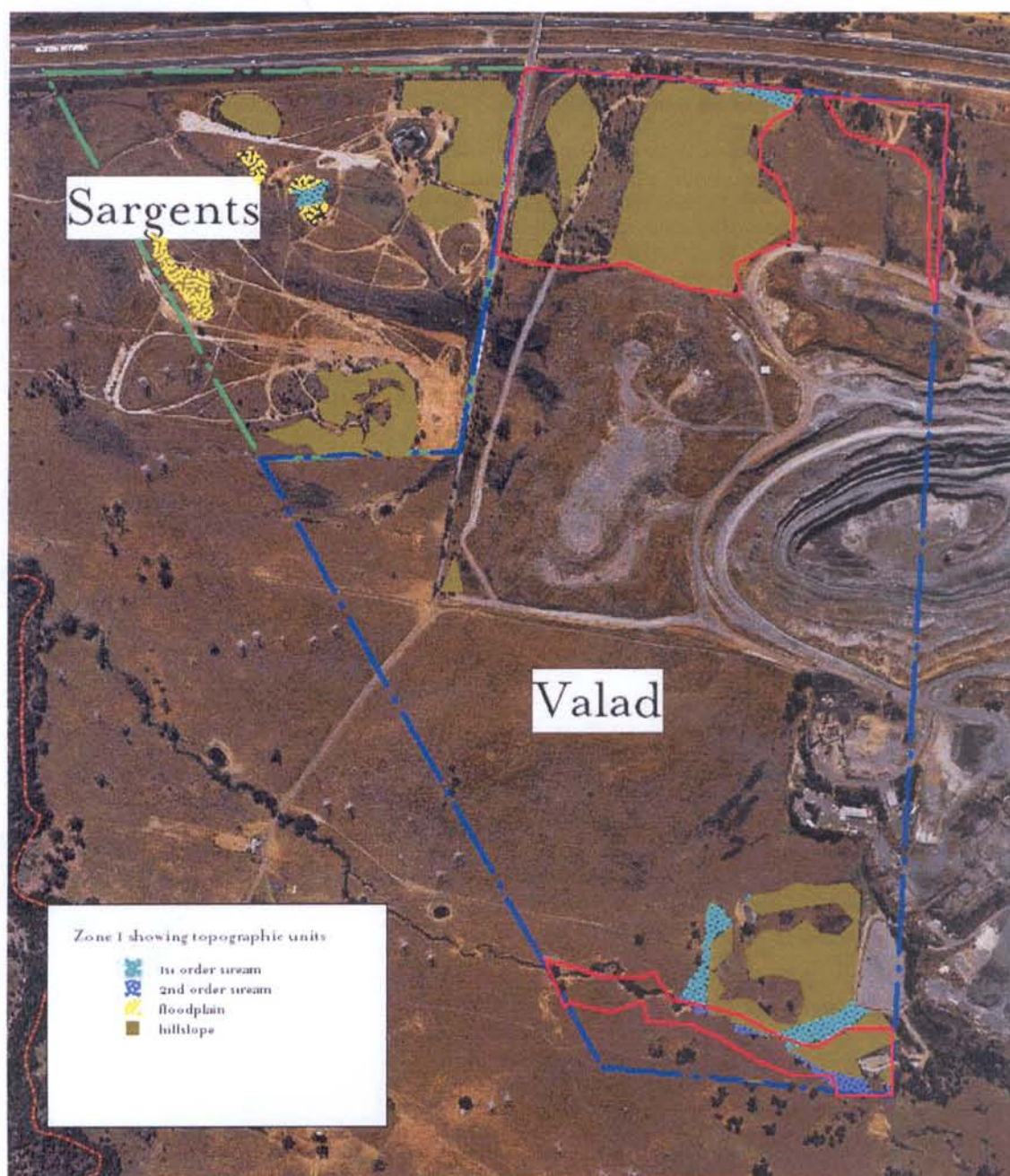


Regional Landscape analysis

Previous analyses have shown that the following landscapes and topographic elements – in relatively good condition – are rare across the Cumberland Plain. These represent higher value landscapes, in terms of local heritage conservation requirements. Aboriginal sites located in these landscapes would have intrinsically higher conservation potential, because the number of such sites likely to be remaining in the Cumberland Plain is low. The high value landscapes are:

- shale hillslopes (Minchinbury and to a slightly lesser degree, Ashfield);
- first order tributary creeklines; and,
- shale ridges and low ridgetops (particularly Minchinbury and Bringelly).

Figure 9: Study Area showing proposed Conservation Areas and Riparian Zones (red) overlain by topographic units with high archaeological sensitivity (Zone I).



There are a number of locations within the current study area where there are landscapes in good condition with high regional and local conservation needs (particularly hillslopes, or first order streams: see Figure 9). This identification of high conservation value is based on levels of existing (low) disturbance.

In the SEPP 59 lands we can also identify landscapes that are 'threatened' in terms of the proportions which have already been heavily impacted (Table 4). Less than 20% of the SEPP

59 lands remain in pristine condition. Some of the landscapes here have been more heavily impacted than others (Table 4).

Table 4: SEPP 59 lands. Proportions of different topographic units in each archaeological sensitivity zone.

| Topography | Zone 1 (ha) | % SEPP 59 | Zone 2 (ha) | % SEPP 59 | Zone 3 (ha) | % SEPP 59 | Total (ha) |
|------------------|----------------|--------------|----------------|--------------|----------------|--------------|------------|
| Headwater | 1.2 | 8.7 | 7.3 | 54.4 | 5.0 | 36.9 | 13.5 |
| 1st order stream | 3.2 | 17.7 | 9.1 | 49.6 | 6.0 | 32.7 | 18.3 |
| 2nd order stream | 2.9 | 22.6 | 7.3 | 57.5 | 2.5 | 19.8 | 12.7 |
| 3rd order stream | 4.8 | 65.1 | 2.1 | 29.0 | 0.4 | 5.9 | 7.3 |
| Floodplain | 4.8 | 14.3 | 15.0 | 44.3 | 14.0 | 41.4 | 33.8 |
| Hillslope | 75.5 | 18.8 | 237.3 | 59.0 | 89.6 | 22.3 | 402.4 |
| Low ridge top | 22.0 | 19.1 | 40.1 | 34.8 | 53.1 | 46.1 | 115.2 |
| Ridgetop | 0.6 | 18.7 | 2.0 | 61.0 | 0.7 | 20.3 | 3.3 |
| | 115.0 | 19.0 | 320.2 | 52.8 | 171.2 | 28.2 | 606.5 |

When we consider those landscapes that are considered 'threatened' in the regional (Cumberland Plain) and local (i.e. SEPP 59) context, several landscapes within the current study area have intrinsically higher significance from an archaeological conservation perspective. Notably these do not always correlate with identified surface scatters, for reasons of surface visibility, described previously.

There are several sizeable Zone 1 areas that encompass these landscape parameters (Figure 9). These have been the focus of conservation area selection.

Assessment of the designated Conservation Areas

The master planning processes for this Eastern Creek Precinct, driven by a combination of biodiversity and cultural considerations have arrived at a selection of two conservation areas (areas of high ecological value) and one Riparian corridor zones (see Figure 10). These have been analysed to determine the 'success' of the conservation outcome across the current study area⁴. This analysis has involved the quantification of archaeological sensitivity zones (Figure 7, Table 5) within these conservation areas and an assessment of the representativeness of the landscapes (Figure 9, Table 6) within these.

⁴ The remainder of the SEPP 59 lands are included in this calculation to ensure the validity of the overall conservation outcome.

Figure 10: Current study area with conservation areas showing different archaeological sensitivity rankings.

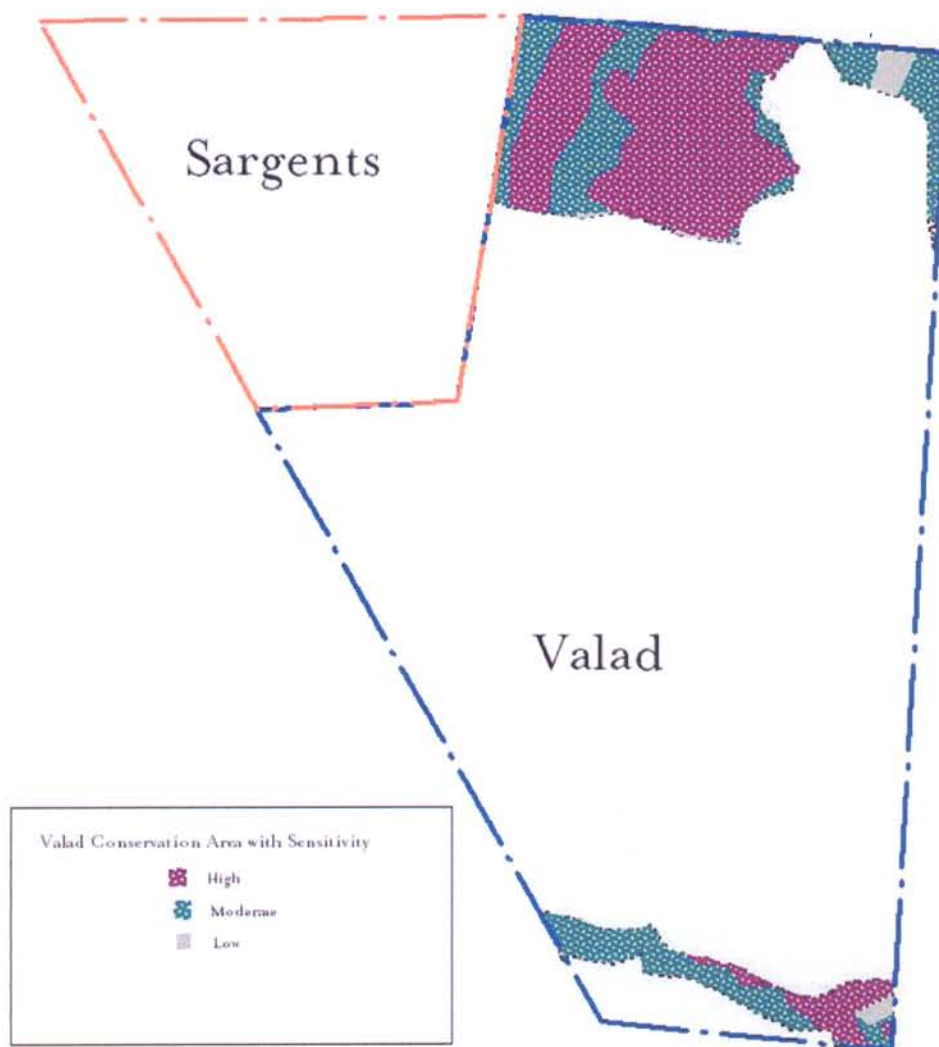


Table 5: Proportions of different sensitivity zones within the Valad Conservation Areas and Riparian Zones.

| Sensitivity Zones | CA ha | %f |
|-------------------|-------|-------|
| Zone 1 | 9.4 | 63.4 |
| Zone 2 | 5.4 | 34.2 |
| Zone 3 | 0.5 | 2.5 |
| | 15.3 | 100.1 |

Table 6: Proportions of topographic zones within the SEPP59 study area Conservation Areas and Riparian Zones.

| Topographic Unit | Area (ha) | Total area in SEPP 59 | %f |
|---------------------|-----------|-----------------------------|------|
| Ridgetop | | 3.3 | 0 |
| Low ridgetop | 9.6 | 115.2 | 8.3 |
| Hillslope | 35.1 | 402.4 | 8.7 |
| Headwater | 6.2 | 13.5 | 45.9 |
| First order stream | 0.7 | 18.3 | 3.6 |
| Second order stream | 2.8 | 12.65 | 21.9 |
| 3rd order stream | 6.6 | 7.4 | 89.4 |
| Floodplain | 6.6 | 33.8 | 19.4 |
| | 67.5 | 606.5 | 11.1 |

Table 7: Proportions of land with high archaeological sensitivity, showing topographic units in the proposed study area Conservation Area and Riparian Zones.

| Topography | SEPP 59 Total (ha) | % of SEPP 59 | Zone I (ha) | Zone I % of SEPP 59 | Zone I in study area (ha) | Zone I in study area CA (ha) | CA % of Zone I |
|---------------------|-----------------------------|--------------------|----------------|------------------------------|---------------------------------------|---|----------------------|
| Headwater | 13.5 | 2.2 | 1.2 | 8.7 | 0 | 0 | - |
| 1st order stream | 18.3 | 3 | 3.2 | 17.7 | 0.9 | 0.6 | - |
| 2nd order stream | 12.7 | 2.1 | 2.9 | 22.6 | 0.3 | 0.2 | 66.6 |
| 3rd order stream | 7.3 | 1.2 | 4.8 | 65.1 | 0 | 0 | - |
| Floodplain | 33.8 | 5.6 | 4.8 | 14.3 | 0.7 | 0 | 0 |
| Hillslope | 402.4 | 66.4 | 75.5 | 18.8 | 15.1 | 8.3 | 55.0 |
| Low ridge top | 115.2 | 19 | 22 | 19.1 | 0 | 0 | - |
| Ridgetop | 3.3 | 0.5 | 0.6 | 18.7 | 0 | 0 | - |
| | 606.5 | 100 | 115 | 19 | 17.0 | 10.1 | 37.9 |

The following points can be made:

- In terms of total land area, the conservation areas and riparian zones (c. 15 hectares) within the study area represent an 2.5% conservation outcome in terms of the SEPP 59 lands and a 12% conservation outcome in terms of the current study area (Table 5);
- In terms of capturing a representative set of landscape elements, all except floodplain have been included (Table 6);
- In terms of capturing a representative set of SEPP 59 landscapes (Table 7), the proportions of all topographic zones in the Conservation outcome reflect the general characteristics of the area, with the exception of floodplains. The idealised target areas

identified in the strategic land-use study (JMcD CHM 2002a: Table 15) are realised – with the exception of floodplains;

- In terms of conserving lands with conservation value (i.e. highest archaeological sensitivity), around 9.4 hectares of land in the conservation areas is Zone I (Table 5). This means that 55% of the land with the best conservation value (in the subject lands) will be conserved.⁵ The conservation areas and riparian zones contain c. 0.5 ha of land without Indigenous conservation value (but are of consequence for biodiversity and riparian issues);
- In terms of conserving regionally threatened landscapes, the designated conservation areas capture a good proportion of shale hillslopes and first order streams (c. 50% of those with high sensitivity) but are less successful in terms of the floodplain zone (0% with high sensitivity).

The overall conclusion regarding the conservation outcome for the study area is that it generally meets the SEPP59 requirements for appropriate conservation of Indigenous heritage and archaeological items. This is certainly the case with the Valad land – less so for the Sargents. An additional area should be set aside on the Sargents land (Zone I/floodplain) to ensure that the overall conservation outcome from the subject land is achieved.

5.3 Conservation Management Strategy

One of the aims of the SEPP 59 legislation is the provision of optimal environmental and planning outcomes for SEPP lands. As indicated above, the current SEPP 59 precinct Plan aims to have an Indigenous heritage conservation outcome. Significant areas are to be conserved for their heritage significance.

The defined conservation areas and riparian zones capture a representative set of SEPP 59 landscapes (except for the floodplain zone), a high proportion of which has the best conservation potential. Attempts have also been made to identify any areas of Aboriginal significance, which should also be accommodated. An appropriate conservation outcome has been achieved and a meaningful management outcome is thus anticipated.

A conservation management strategy is required to ensure that the identified conservation areas are managed appropriately and that the heritage values are identified and maintained.

It is envisaged that no development – or archaeological investigation – will take place within the defined conservation areas and that these will be managed into the future on the basis of their Aboriginal (and other) heritage values.

Protocols and strategies still need to be developed for the management of these conservation areas.

The land falling outside the defined conservation areas and riparian zones are deemed suitable for development.

⁵ It is notable that the lands set aside for the riparian zones generally have lower archaeological potential (cf. Figures 3 and 9). This is significant given the likely impacts that will occur within the Riparian Zones.

In summary, the Indigenous conservation management strategy for the current study area and the broader Eastern Creek Business Park (Stage 3) Precinct Plans have been based on the following principles:

- A set of representative landscapes with high potential to contain intact archaeological deposit is contained in the conservation areas;
- The conservation areas also contain sites and or areas with high cultural (or social) value;
- The conservation areas and riparian zones represent a 12% conservation outcome (in terms of current land area) and a c.55% conservation outcome in terms of lands with high conservation value. The selection of the conservation area has been achieved by considering a range of environmental values and development requirements (i.e. development yield, best/requisite location of infrastructure, conservation outcome, and etc.);
- The conservation management strategy needs to consider the long term management of the identified conservation areas;
- Having identified the conservation areas and riparian zones within the study area, the remainder of the land should be considered as developable;
- Archaeological sites/landscapes falling within the developable lands are not a constraint to development. However, these sites should be managed in accordance with a defined set of management principles (see below). High value sites in a representative set of SEPP59 landscapes should be salvaged to mitigate against their destruction.

Management of cultural heritage items

The appropriate management of cultural heritage items is usually determined on the basis of their assessed significance as well as the likely impact of the proposed development. Scientific, cultural and public/education significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of a site, place or area are resolved.

Cultural significance

This type of assessment indicates the importance of a site, place or feature to the relevant cultural group – in this case the Aboriginal community. Aspects of cultural significance include assessment of sites, items, and landscapes that are traditionally significant or that have contemporary importance to the Aboriginal community. This importance involves both traditional links with specific areas as well as an overall concern by Aboriginal people for their sites generally and the continued protection of these. This type of significance may not be in accord with interpretations made by the archaeologist – a site may have low scientific significance but high Aboriginal significance (or *vice versa*).

Scientific significance

Assessing a site in this context involves placing it into a broader regional framework, as well as assessing the site's individual merits in view of current archaeological discourse. This type of significance relates to the ability of a site to answer current research questions. It is also based

on a site's condition (integrity), information potential and representativeness and/or rarity (see above).

Public significance

Sites that have public significance do so because they can educate people about the past. By reducing ignorance about why sites are important to the Aboriginal and scientific community, our human heritage can be protected from ignorant or inadvertent destruction. For a site to have high public significance it should contain easily identifiable and interpretable elements, and be relatively easily accessed.

Assessment of the SEPP 59 Sites

Deerubbin LALC (DLALC), the Darug Tribal Aboriginal Corporation (DTAC) and the Darug Custodians Aboriginal Corporation (DCAC) will address the cultural significance of the area. Representatives of each group have inspected the study area and all groups have been offered the opportunity to address the cultural significance of sites in this area.

The public significance of the sites within this SEPP 59 area is assessed as being generally low on the basis of their poor surface manifestations. Open sites are extremely difficult to appreciate by a lay-public due to the 'invisibility' of the evidence present.

The scientific significance of the open site and PADs cannot be easily assessed on the basis of their surface manifestation(s). Instead, a ranking of archaeological potential is made, based on the land-use mapping (and subsequent zoning for archaeological sensitivity), localised disturbance factors and the predictive model. Assessments were made for all identified surface features that have been identified within the SEPP 59 lands (JMcD CHM 2002a: Table 14). These are reiterated here (Table 8).

Managing identified sites/landscapes in the developable lands

The management strategy for the current study area is predicated on a landscape-based philosophy. Rather than targeting only sites of known extent or known significance (e.g. by surface manifestation or through sub-surface investigation), zones based on landscape parameters have been defined. These areas should be managed on the basis of their archaeological sensitivity (Table 8).

The developable land has been ranked for its archaeological sensitivity and contains landscapes that are residual Zone 1, Zone 2 and Zone 3 areas. A range of development proposals would impact the archaeology in these areas. Differing levels of management are required, based on defined management principles and protocols.

High sensitivity areas (e.g. residual Zone 1, and possibly Zone 2) which fall within the developable lands will require archaeological investigation. Archaeological evidence should be salvaged here from a representative range of landscapes as these occur within the current study area. This salvage will provide archaeological evidence and context for the conservation areas and mitigate against the destruction by development of c. 66 hectares of land with archaeological potential. Of this land, c. 7.9 ha is identified as having high archaeological sensitivity.

Zone 3 (c. 60 hectares) is assessed as having minimal or no archaeological potential. There is no constraint to development in these areas, and further archaeological works will not be undertaken in these areas. It should be noted that the Aboriginal community might wish to

monitor development which takes place in this zone, particularly along streamlines and waterways.

5.4 Management Principles

On the basis of the regional archaeological context (the representativeness or rarity of archaeological sites and predictive modelling), current research questions, regional landscape analysis and land-use mapping, the following general management principles apply for sites and landscapes with Aboriginal heritage values which occur within the developable lands. These principles are predicated on there being a conservation outcome.

- Sites and/or landscapes with high archaeological potential or Aboriginal significance (particularly in threatened landscape) should be subject of further investigation to ensure that information is retrieved prior to their destruction. Selection of salvage areas should be made on the basis of a 'whole of development' approach and be landscape based;
- Sites and/or landscapes with moderate archaeological potential or Aboriginal significance should be managed on the basis of their assessed significance. If representative landscapes fall within this zone which are absent from Zone I lands, then these should be the target of salvage excavation;
- Sites and/or landscapes of low or no archaeological potential or Aboriginal significance do not require planning consideration or further archaeological investigation in relation to the proposed development;
- A *Consent to Destroy* from the Director NSW NPWS should be sought for each Precinct. This should be made on the basis of a 'whole of development' approach. This will be subject to Salvage conditions only in Zones I and 2;
- The Deerubbin LALC, DTAC and DCAC may wish to collect any surface artefacts prior to their destruction and monitor the initial construction activity across the developable lands.

Strategies and protocols are required to guide all future Aboriginal heritage work across this Precinct. These are needed to cover site investigation, planning and ongoing management of the conservation areas. These strategies and protocols need to be flexible. They also need to include robust compliance/validation procedures. The overriding aim of these is to minimise the necessity for undue procedural delay as well as streamlining and increasing the usefulness of the archaeological investigations.

The following flowchart summarises the basis for the conservation management strategy (Figure II).

It had originally been envisaged that the entire SEPP 59 lands would be released through one Precinct Plan. This process offers significant benefit in terms of the orderly (and meaningful) management of cultural heritage sites. The lands, which are included in the current Precinct Plan, are of substantial size, and the process of assessing these in the context of the overall SEPP 59 lands means that the overall strategic approach has been achieved.

By determining a conservation outcome at the outset, and by adopting a conservation management model, the following benefits will accrue:

- A sustainable and valid conservation outcome is achieved (as required by the SEPP 59 process);
- There is certainty regarding developable lands;
- The costs relating to conservation (and impact mitigation) can be shared;
- The procedural elements can be simplified by each individual landholder across the Precinct applying for a 'whole of development' Section 90 consent. This will accommodate all known sites and archaeologically sensitive landscapes.

Table 8: Summary of assessed significance for identified sites in the study area.

| NPWS | Site name | Site type | Local Topography | Surface Artefacts | Raw Material | Disturbance | Sensitivity Zone |
|-----------|------------|-----------|------------------|-------------------|--------------|-------------|------------------|
| Valad P/L | | | | | | | |
| | M4U4 | OS | HS | 3 | S | High | 3 |
| | RF ISF1 | ISF | HS | 1 | Q | Low/High | 1/3 |
| | RF ISF2 | ISF | HS | 1 | S | Low/High | 1/3 |
| Sargents | | | | | | | |
| 45-5-0565 | BTSW/13 | OS | FP | 2 | S/C | Mod | 2 |
| | Sargents 1 | OS | HS | 2 | S/IM | High | 3 |
| | Sargents 2 | OS | HS | 2 | S/Q | Low/High | 1/3 |
| | | | | | | | |

5.5 Further archaeological work

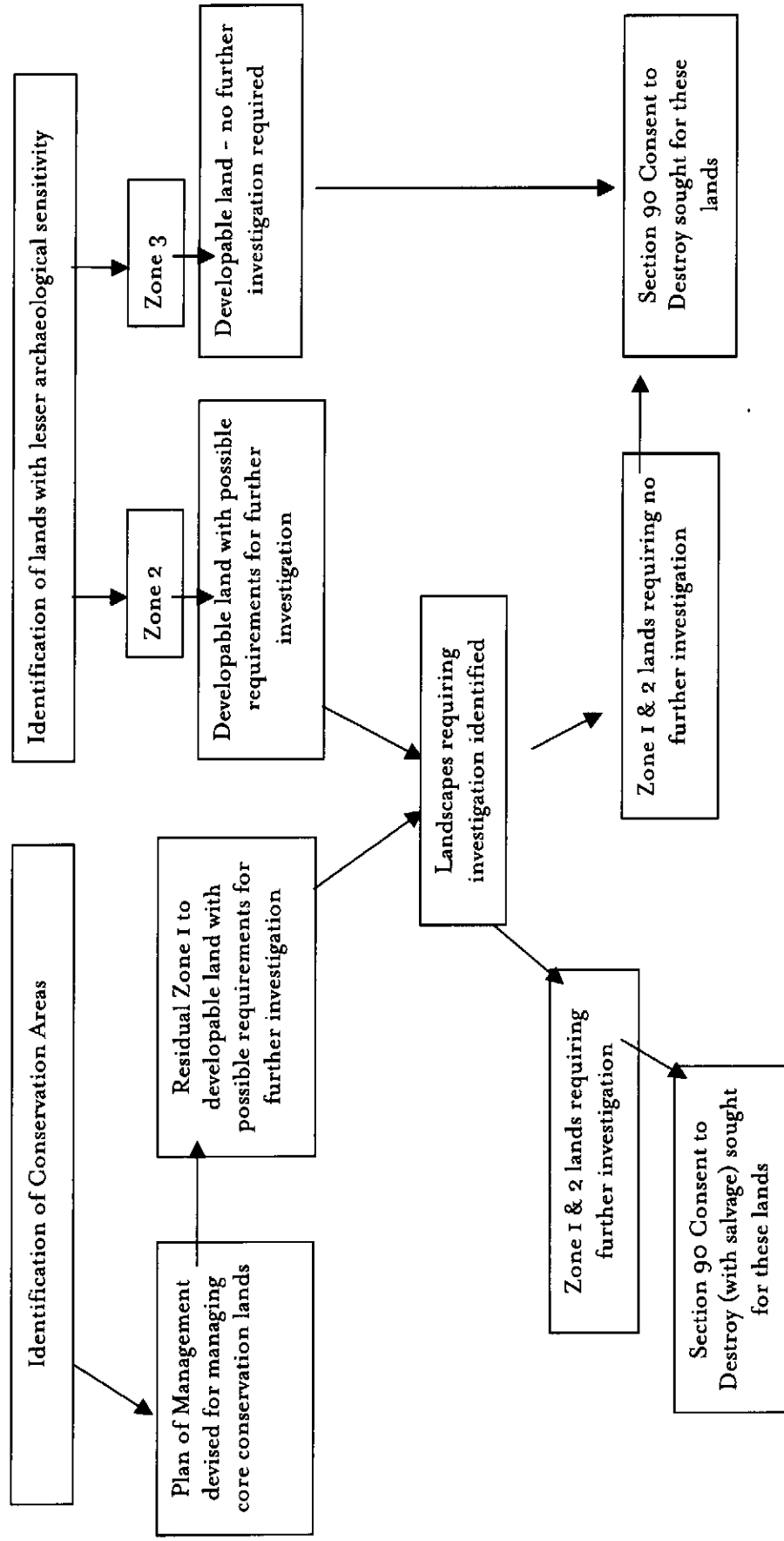
One of the overriding goals of cultural heritage management is the preservation of a representative sample of the archaeological record into the future. A concomitant goal is the better understanding of the resource that we are trying to conserve. As part of the conservation management strategy, it is envisaged that this understanding would emanate from the salvage of sites in the developable lands prior to development proceeding.

It is suggested that a representative set of landscapes with high archaeological potential be salvaged as part of this management strategy. This salvage would involve open area excavation. The selection of these locations will depend on development impact and the identification of high value areas to be affected.

Selection of the areas for salvage needs to be undertaken when development impacts are more firmly established.

The lands that are the prime candidates for future works are identified on Figure 9.

Figure 11: The Precinct planning process – applying the conservation management model.



6. RECOMMENDATIONS

The following recommendations are made on the basis of:

- legal requirements of the *National Parks and Wildlife Act NSW* 1974 (as amended) whereby it is illegal to damage, deface or destroy an Aboriginal Relic without the prior written consent of the Director, Department Environment & Conservation NSW;
- the interests of the Deerubbin Local Aboriginal Land Council, the Darug Tribal Aboriginal Corporation and Darug Custodian Aboriginal Corporation;
- the findings of the strategic land-use study done across the SEP59 lands;
- the conservation areas defined during this study;
- the SEPP 59 requirements to appropriately manage Indigenous heritage.

It is recommended that:

- 1 The Conservation Areas identified for the current study area is a good conservation outcome for Indigenous heritage. With the exception of the floodplain landscape, the representative range of sensitive SEPP 59 landscapes are included within the designated conservation areas;
- 2 The identified riparian zones will permit revegetation, drainage works and some passive recreation. As such they will also offer a measure of protection for vegetation communities, landscapes and relics – pending minor localised disturbance. As most of these areas are assessed as having less Indigenous conservation potential these proposed uses are considered appropriate;
- 3 As part of the conservation management strategy, a Plan of Management will be required to ensure the ongoing survival of high Aboriginal and archaeological (and flora and fauna) values in the designated conservation areas;
- 4 Land that falls outside the defined Conservation Areas and Riparian Corridors should be considered to be developable and unconstrained by Indigenous heritage issues. The developable lands should be managed on the basis of the sensitivity mapping and the defined management principles (Figure 7; section 5.4);
- 5 There will be a range of impacts within developable land on landscapes which have High Archaeological Sensitivity (Zone 1) and Moderate Archaeological Sensitivity (Zone 2; see Figure 7). A sample of these should be selected for sub-surface investigation (salvage) as mitigation against their destruction;
- 6 Areas and/or landscapes within Zone 3 have low archaeological potential. These should be considered as developable, and without archaeological constraint. There is no requirement for further investigation in these areas, although the Aboriginal community may wish to be involved in the monitoring at the time of land clearance;
- 7 A number of identified archaeological surface features occur across this Precinct. These would ordinarily be managed on the basis of their assessed significance and/or potential. Those identified sites which fall within the developable lands will require section 90 Consent from the Director General of Department of Environment and Conservation (DEC) prior to construction commencing. Impacts will need to be

defined before this can be granted. The Conservation Management Strategy directs that these would be managed on the basis of a 'whole of development' clearance across the developable lands;

- 8 When the Precinct Plan has been accepted, the range of impacts defined and representative locations chosen for salvage, each landowner should apply for a 'whole of development' Section 90 consent from DEC;
- 9 One copy of final copy of this report (each) should be sent to:

Mr Frank Vincent
Chairperson
Deerubbin LALC
PO BOX V184
MT DRUITT VILLAGE NSW 2770.

Ms Leanne King
Darug Tribal Aboriginal Corporation
PO Box 441
BLACKTOWN NSW 2148

Mrs Leanne Wright
Darug Custodian Aboriginal Corporation
PO Box 36
KELLYVILLE NSW 2155

- II Three copies of this report should be sent to:

Ms Lou Ewins
Manager Cultural Heritage Division
Sydney Zone DEC
PO Box 1967
HURSTVILLE NSW 2220.

7. REFERENCES

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APPENDIX

ABORIGINAL REPRESENTATIVE GROUP RESPONSES

(DLALC, DACHA, & DCAC to be added when received)

Darug Aboriginal Cultural Heritage Assessments

ABN 51734106483

Gordon Morton & Associates

Mob: 0422 865 831

Fax: 45 677 421

Celestine Everingham

90 Hermitage Rd., Kurrajong Hills, 2758

Ph/Fax: 45677 421

Mob: 0432 528 896

5.10.09.

Attention

Christopher Biggs
Light House
Business Centre

re Survey at Light House Business Centre.

Gordon Morton from DACHA undertook the
field inspection on the above site with
Jo McDonald Cultural Management P/L. DACHA
supports the proposed activities and development
— the area in question was very disturbed
and no Darug artifacts were located.

Yours Sincerely,
Gordon Morton

DARUG CUSTODIAN ABORIGINAL
CORPORATION

PO BOX 81 WINDSOR 2756

ABN: 81935722930

PH: 45775181 FAX: 45775098 MOB: 0415770163

mulgokiwiii@aol.com

18 January 2010

Attention: Christopher Biggs.

SUBJECT: Aboriginal Heritage assessment – Light Horse Business
Centre, Eastern Creek.

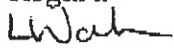
Dear Christopher,

The Darug Custodian Aboriginal Corporation have received the
management plan inclusive of the findings and recommendations
reported by JoMcDonald Cultural Heritage management consulting for
the Light Horse Business Centre, Eastern Creek.

Our group supports the recommendations and findings discussed
during our site visit, included in the plan of management for this area.

We look forward to working with you on this project please do not
hesitate to contact us with all enquiries on the above numbers.

Regards



Leanne Watson



DARUG TRIBAL ABORIGINAL CORPORATION

PO Box 441

Blacktown, NSW, 2148

PH/Fax: (02) 9622 4081

Mobile 041 543 926

Email: darug_tribal@live.com.au

ABN: 77 184 151 969 ICN: 2734

27/11/09

Dear Sandra

Re: The LIGHT HORSE BUSINESS PARK ABORIGINAL HERITAGE MANAGEMENT PLAN

Having read the report we support all the recommendations including the application for the s90.

Hugs & Smiles

Sandra Lee

Secretary

Darug Tribal Aboriginal Corporation

DARUG
THE TRADITIONAL CUSTODIANS OF DARUG LAND

www.darug.org.au

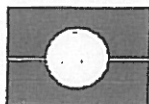
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Gordon Workman

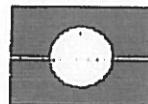
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DARUG - LAND - OBSERVATIONS



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Po Box: 571 Plumpton, NSW 2761
Phone: 029831 8868 or 0415 663 763



30-10-2009

**MS Jo McDonald
Cultural Heritage Management Pty Ltd**

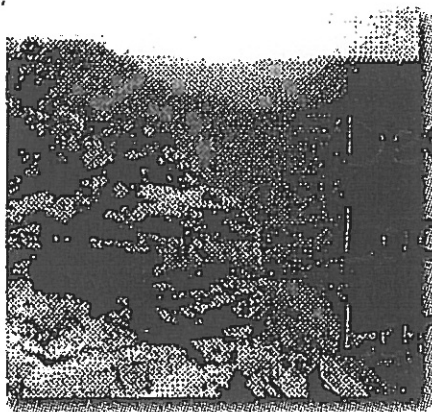
**RE: The Light Horse Business Centre Eastern Creek
Aboriginal Heritage Management Plan**

**After reading through your Draft of the, The Light Horse Business
Centre Eastern Creek Aboriginal Heritage Management Plan**

**We at D.L.O find that the draft is very good and cover's all of our
concerns and we are happy with the Recommendations in this
report and would like to be kept informed of any and all works to
be carried out on this site**

Yours faithfully

**Uncle
Gordon Workman
Darug Elder**



Deerubbin Local Aboriginal Land Council

5/271 Beames Avenue
PO Box 3184
Mt Druitt Village
NSW 2770 Australia

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Fax: (02) 9832 2496
Email: Staff@Deerubbin.org.au
Web: <http://www.deerubbin.org.au>

Chris Biggs
DAD Industries
32 Burrows Road
ALEXANDRIA NSW 2015

Our Reference: 2081

29 September 2009

**Subject: Protection of Aboriginal Cultural Heritage
Dial a Dump Industries Facility
Old Wallgrove Road, Eastern Creek**

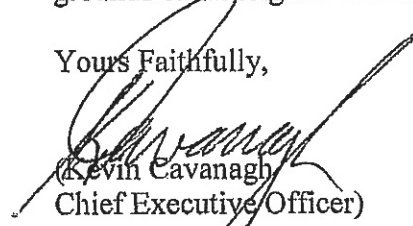
Dear Mr Biggs,

A representative of the Deerubbin Local Aboriginal Land Council (Steve Randall) inspected Dial a Dump Industries Facility, Old Wallgrove Road, Eastern Creek on 30 August 2009. An Aboriginal cultural heritage assessment was undertaken to evaluate the likely impact the proposed development has on the cultural heritage of the land.

Our representative reports, that, because of extensive ground disturbance within the study area, no Aboriginal cultural materials (in the form of stone artefacts, for example) were found.

Deerubbin LALC therefore, has no objections to the proposed development on the grounds of Aboriginal cultural heritage.

Yours Faithfully,


(Kevin Cavanagh
Chief Executive Officer)

c.c. Miranda Firman - Aboriginal Heritage & Planning Officer, Department of
Environment, Climate Change & Water.
c.c. General Manager - Blacktown City Council
c.c. Sandra Wallace - Jo McDonald Cultural Heritage Management Pty Ltd

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