Sheepwash Creek Realignment,

Latrobe Valley

Cultural Heritage Management Plan

AAV CHMP No.: 11386
Size of the Activity Area: Large
Type of Assessment: Complex Assessment
Sponsor: Loy Yang Power Management Pty Ltd
Cultural Heritage Advisor: Melinda Albrecht
Authors: Melinda Albrecht
Date of Final Completion: 12 January 2011

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Photo Caption (Coverplate): Sheepwash Creek looking south towards Loy Yang Power Station in the northern portion of the activity area_13Sept10_Melinda Albrecht

The consultants would like to thank the following people for their involvement and assistance in completing the project:

Lloyd Hood Peter Hood, Jarred Hood and Tim Patton (GLaWAC), Jon Missen, Dale McKenzie and Nikki Anderson (Loy Yang Power), David Mathews, Andrew Long, Ricky Feldman, Eric Endacott, Bell-girl Jasmine Robertson, Matthew Whincop, Henry Lion, Karl Van der Hilst, Jay Yost, Adrianne Michaels, Nick Berry, Brandon Hocking, Helene Athanasiadis, Josara (and Otto) de Lange

Jon Missen
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17/1/2011

To Whom It May Concern:

Evaluation of Cultural Heritage Management Plan: Sheepwash Creek Realignment Latrobe Valley (CHMP 11386)

I refer to your application to the Gunai Kurnai Land and Waters Corporation, received on the 12/1/2011, for approval of a Cultural heritage management plan (management plan) for the proposed Sheepwash Creek Realignment Latrobe Valley (CHMP 11386)

This management plan meets the standards prescribed for the purpose of s.53 and s.61 of the Aboriginal heritage Act 2006 (the Act), and is in the approved format. Therefore, to section 63(1) of the Act the Gunai Kurnai Land and Waters Aboriginal Corporation approve the CHMP (11386).

Please contact Barry Kenny on 0457708386 or by email vivien.kenny@bigpond.com if any further information is required.

Yours Sincerely

Barry Kenny
Rap Chairperson
Gunai Kurnai Land and Waters Aboriginal Corporation

Sheepwash Creek Realignment,

La Trobe Valley

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Project Code: LYPM6
Report Date: 12 January 2011
Status: Final

ANDREW LONG + ASSOCIATES

EXECUTIVE SUMMARY

Background

This CHMP has been mandatorily prepared to allow activities associated with the proposed construction works that may disturb Aboriginal cultural heritage places within the activity area, and provide contingency arrangements for managing the discovery of any further Aboriginal cultural heritage places identified during construction works associated with the development. The works consist of realigning the existing course of Sheepwash Creek at Loy Yang in the La Trobe Valley to facilitate future coal mining activities within this area.

The activity area is located within the Latrobe City Council.

Cultural Heritage Advisor

This CHMP has been authored by qualified archaeologists and heritage consultants, experienced in professional Aboriginal heritage assessment and evaluation since 1991, in accordance with section 189 of the *Aboriginal Heritage Act* 2006. Qualification details can be found in Appendix 5.

The Cultural Heritage Advisor and author of this CHMP: Melinda Albrecht, Project Manager

Activity Description

The works associated with the activity area include the realignment of the existing course of Sheepwash Creek to the East of its existing alignment by approximately 250 m. This realignment is required to allow for future coal mining activities associated with the expansion of the Loy Yang Power coal mine.

The Loy Yang Power coal mine is situated within an area of undulating plains, rising to low hills in the south. The activity area is located on cleared land that is currently being utilised for agricultural purposes such as sheep grazing, and the growing of potatoes and other agricultural crops. The area lies between Flynns Creek to the east and Traralgon Creek to the west. Although no permanent watercourses occur within the area ephemeral drainage lines are present. Sheepwash Creek runs in a northeasterly-south westerly direction across the proposed activity area. The land is predominantly cleared land used for pastoral, silviculture and coal extraction activities.

The likely impact of the proposed activity on land surfaces within the activity area will be extensive. The open-cut expansion involves the extraction of coal using open-cut coal mining methods. The existing open-cut expands in a north easterly direction into this zone at a rate of 250 – 300 m per year. The activity area covers the open-cut development area for the period 2010-2014. The overburden and topsoil of the activity area will be removed down to an average depth of 9m. The coal and interseam material is then excavated down to a depth of 200m below existing ground level. Around the top rim of the mine a fire water main is installed above ground.

The creek will be diverted for approximately 3.5km using a purpose built clay lined channel that will reconnect to the existing alignment to the North. The channel will be topsoiled and grassed to provide erosion protection during larger flows. A retardation basin and diversion embankment also forms part of the works.

Evaluation Methodology

Based on the results of the desktop and standard assessments and at meetings with the RAP a testing programme combining controlled 1x1m hand excavations, controlled shovel test pits and a limited amount of mechanical testing was implemented as the most effective means of investigating the archaeological potential across the activity area.

The specific aims of the subsurface testing programme were as follows:

1. initially establish the stratigraphy through controlled hand-excavation;
2. determine the presence / absence of subsurface archaeological deposits and gather more information on the nature of soil deposits through a programme of shovel test pits;
3. determine the boundaries of any identified Aboriginal cultural heritage place within the activity area, through targeted shovel test pitting; and
4. determine the nature and significance of any identified Aboriginal cultural heritage places.

The testing was undertaken from the 11 October 2010 until the 22 of October 2010, resulting in 10 days of excavation and field recording.

Aboriginal Heritage Values

The current evaluation has assessed the Aboriginal cultural heritage potential of the activity area, where the realignment of the existing course of Sheepwash Creek to allow for future coal mining activities associated with the expansion of the Loy Yang Power Station is proposed. The standard and complex assessments explored the archaeological potential of the activity area and resulted in the identification of 1 surface artefact and 8 subsurface artefacts that represent four Aboriginal cultural heritage places of low scientific significance (8221-0158, 8221-0159, 8221-0160 and 8221-0161). All of these Aboriginal cultural heritage places were located within close proximity to Sheepwash Creek, on the undulating plains directly adjacent to the creek.

Within the artefact assemblage silcrete was the predominant raw material identified, closely followed by quartzite, and with one quartz artefact also represented. All of these Aboriginal cultural heritage places are low density sites, with two of the artefact scatters represented by an isolated artefact each. These findings support the results of the desktop assessment, which found that diffuse isolated stone artefact occurrences were the most common site type across the broader study area.

There was a degree of ground disturbance noted during the excavations undertaken for the complex assessment, with mixed and mottled soil deposits evidenced across all landforms that comprise the activity area. This disturbance is most probably the result of agricultural activities, such as clearing of vegetation and ploughing that have taken place across the property since European settlement. This land clearance and agricultural uses of the activity area such as ploughing and stock grazing will have contributed to the disturbance of surface and shallow subsurface Aboriginal cultural heritage places, and could explain the paucity of Aboriginal cultural heritage places located within the property. The long history of intensive land use and the removal of most of the native vegetation across the activity area have resulted in the disturbance of the majority of the original topsoil across the activity area, which will have affected the survival of *in situ* Aboriginal archaeological deposits.

The results of the evaluation have also determined that no dense deposits of stone artefacts or other materials of cultural origin representing Aboriginal cultural heritage places of high significance are likely to occur in the activity area.

Given the rigor applied to the evaluation methodology through a Standard and Complex Assessment, it is possible to conclude that there is low potential for any deposits of Aboriginal stone artefacts or other materials of cultural origin to be disturbed by the proposed activity.

There are no rocks, caves or overhangs within the activity area, and so no possibility for rock art sites or quarries. No mature native trees remain within the activity area, leaving no possibility for scarred trees to be present.

VAHR No.	**8221-0159 (Cummings Road 6)**
Mapsheet:	Rosedale 8221
Cadastral Details:	Allotment 5R A TP 4871 Parish No. 3020
Grid reference:	E464605 N5767799 (Primary Coordinate on VAHR)
Site type:	Artefact Scatter
Area:	15.35m^2
Scientific Significance Rating:	Low
Date documented and name of recorder	11-10-10 Nick Berry

Table 1: Description of 8221-0159

VAHR No.	**8221-0158 (Cummings Road 7)**
Mapsheet:	Rosedale 8221
Cadastral Details:	Allotment 5R A TP 4871 Parish No. 3020
Grid reference:	E464727 N5767605(Primary Coordinate on VAHR)

Site type:	Artefact Scatter
Area:	0.76m^2
Scientific Significance Rating:	Low
Date documented and name of recorder	13-09-10 Melinda Albrecht

Table 2: Description of 8221-0158

VAHR No.	**8221-0160 (Old Hyland Hwy 4)**
Mapsheet:	Rosedale 8221
Cadastral Details:	Allotment 5G A TP 4871 Parish No. 3020
Grid reference:	E464784 N5769162 (Primary Coordinate on VAHR)
Site type:	Artefact Scatter
Area:	11.40m^2
Scientific Significance Rating:	Low
Date documented and name of recorder	12-10-10 Melinda Albrecht

Table 3: Description of 8221-0160

VAHR No.	**8221-0161 (Old Hyland Hwy 5)**
Mapsheet:	Rosedale 8221
Cadastral Details:	Allotment 5G A TP 4871 Parish No. 3020
Grid reference:	E465028 N5769162 (Primary Coordinate on VAHR)
Site type:	Artefact Scatter
Area:	11.40m^2
Scientific Significance Rating:	Low
Date documented and name of recorder	13-10-10 Melinda Albrecht

Table 4: Description of 8221-0161

Recommendations and Section 61 Matters

Will the activity conducted in a way that avoids harm to Aboriginal Heritage?

The evaluation undertaken as part of this CHMP has determined that the activity can be undertaken without harm to Aboriginal cultural heritage over the majority of the activity area, however four Aboriginal cultural heritage places (8221-0158, 8221-0159, 8221-0160 and 8221-0161) are located within the activity area and will be impacted by the activity. These four Aboriginal cultural heritage places have been investigated in detail as part of this CHMP and the stone artefacts comprising these sites have been collected and the place extent for each of these locations has been comprehensively investigated through a programme of radial shovel test pits.

The sponsor cannot modify the layout of the development to avoid impact to the four Aboriginal cultural heritage places within the construction zone without substantial economic considerations which would be unjustifiable taking into account the low scientific significance of these Aboriginal heritage places.

The results of the standard and complex assessments undertaken as part of this management plan have indicated that the activity area has been disturbed by previous land uses associated with the agricultural land uses of the property and the clearing of most vegetation. The majority of the original topsoil across the activity area will have been removed during these processes. This previous ground disturbance will have impacted on the survival of dense or stratified archaeological deposits across all sections of the activity area.

Will the activity conducted in a way that minimises harm to Aboriginal Heritage?

The activity will not be conducted in a way that minimises harm to Aboriginal cultural heritage. All of these sites of low scientific significance are located within the construction zone for the proposed realignment of the creek and expansion of the Loy Yang coal quarry. The four Aboriginal cultural heritage places (8221-0158, 8221-0159, 8221-0160 and 8221-0161) present within the activity have been investigated in detail as part of this CHMP. The stone artefacts representing these four sites have been collected by the CHA for scientific investigation and the place extent for each of these locations has been comprehensively investigated through a programme of radial shovel test pits. There is no evidence of further archaeological deposits in a surface or subsurface context. As such, the activity cannot be conducted in a way to minimise harm to the Aboriginal heritage places (8221-0158, 8221-0159, 8221-0160 and 8221-0161) without a significant redesign of the proposed development that would be unjustifiable considering the low scientific significance results of this evaluation, and other environmental, economic and social considerations.

The artefacts comprising these Aboriginal cultural heritage places will be repatriated within a revegetation area north of the activity area near Minniedale Road upon the coal quarry expansion (Section 8.4).

Specific measures required of the management to Aboriginal cultural heritage likely to be affected by the activity, before, during and after the activity

All Aboriginal cultural heritage recovered during the complex assessment for this CHMP is currently held by the CHA and remains the property of the RAP(s) (if present). In this instance it will be the responsibility of the CHA to:

- Catalogue the Aboriginal cultural heritage;
- Label and package the Aboriginal Cultural Heritage with reference to provenance; and
- With the RAP (if present), arrange storage of the Aboriginal Cultural Heritage in a secure location nominated by the CHA together with copies of the catalogue and assessment documentation.
- Facilitate the reburial of the Aboriginal Cultural Heritage in an appropriate location, preferably in close proximity to the original find spot, upon completion of the activity. This location will be a revegetation area near Minniedale Road, north west of the current activity area.
- Aboriginal cultural heritage material is to be placed in a non-plastic, permeable container for reburial.
- The location of the reburied material is to be recorded and clearly entered on the existing site card for the registered place.
- The sponsor is to facilitate the cost of reburial.

8221-0159 (Cummings Road 6)

Based on the results of the assessment there is no requirement for salvage excavation of this Aboriginal cultural heritage place of low scientific significance. The area containing this Aboriginal cultural heritage place has been extensively tested and 3 subsurface artefacts have been identified. The subsurface artefacts from this site were collected during the excavations at this artefact find spot and will be repatriated within a revegetation area north of the activity area near Minniedale Road upon the coal quarry expansion.

8221-0158 (Cummings Road 7)

Based on the results of the assessment there is no requirement for salvage excavation or protection measures for this Aboriginal cultural heritage place of low scientific significance. The area containing this site contains a high level of previous ground disturbance, and only 1 surface artefact has been identified at this location. This artefact was found in a highly disturbed context, atop an agricultural dam embankment. Due to the highly disturbed nature of this location, site definition excavations were not undertaken at the artefact find spot.

8221-0160 (Old Hyland Hwy 4)

Based on the results of the assessment there is no requirement for salvage excavation of this Aboriginal cultural heritage place of low scientific significance. The area containing this site has been extensively tested and only 4 subsurface artefacts were identified. These artefacts were collected by the Cultural Heritage Advisor during the testing programme for this CHMP and will be repatriated within a revegetation area north of the activity area near Minniedale Road upon the coal quarry expansion.

8221-0161(Old Hyland Hwy 5)

Based on the results of the assessment there is no requirement for salvage excavation of this Aboriginal cultural heritage place of low scientific significance. The area containing this site has been extensively tested and only 1 subsurface artefact has been identified. This artefact was collected by the Cultural Heritage Advisor during the testing programme for this CHMP and will be repatriated within a revegetation area north of the activity area near Minniedale Road upon the coal quarry expansion.

It is concluded that no further scientific investigations or other specific measures are required for the remainder of the activity area.

Recommendations

Throughout the commencement of the complex assessment and following the completion of the testing programme, discussions were held between the CHA and Lloyd Hood of the GLaWAC. During these informal conversations, the management recommendations and Section 61 matters to be considered in relation to the approval of the CHMP and the contingencies to be implemented during the activity were discussed and formulated. The information presented below, and in the following sections of the CHMP are based on these discussions.

Based on the results of the assessment which identified four Aboriginal cultural heritage places (8221-0158, 8221-0159, 8221-0160, 8221-0161) of low scientific significance within the activity area, there are no specific requirements recommended in relation to these Aboriginal cultural heritage places. The area containing these Aboriginal cultural heritage places has been extensively tested and one surface stone artefact and 8 subsurface artefacts have been identified. The subsurface artefacts were collected by the Cultural Heritage Advisor for scientific investigation during the testing programme for this CHMP. Harm cannot be avoided to these Aboriginal cultural heritage places, and the artefact scatters (8221-0158, 8221-0159, 8221-0160, 8221-0161) will be fully impacted by the construction activities for the proposed activity.

The artefacts recovered during the complex assessment should be reburied within the revegetated area discussed below at the completion of construction works associated with the coal quarry expansion.

All Aboriginal cultural heritage recovered during the complex assessment for this CHMP is currently held by the CHA and remains the property of the RAP(s) (if present). In this instance it will be the responsibility of the CHA to:

- Catalogue the Aboriginal cultural heritage;
- Label and package the Aboriginal Cultural Heritage with reference to provenance; and
- With the RAP, arrange storage of the Aboriginal Cultural Heritage in a secure location nominated by the CHA together with copies of the catalogue and assessment documentation before, during and after the activity as follows:
    - Before: secured by the CHA in a secure location, namely the ALA office at 54-58 Smith Street, Collingwood, 3066.
    - During: secured by the CHA at a secure temporary on-site office and subsequently transferred to 54-58 Smith Street, Collingwood, VIC, 3066 for analysis.
    - After: will be securely stored at 54-58 Smith Street before repatriation to the revegetation location north of the activity area near Minniedale Road, and area determined by the Sponsor, and CHA in consultation with the RAP. The location of any area in which Cultural Heritage is relocated shall be recorded by a Cultural Heritage Advisor using appropriate Heritage Record and Object Collection Forms and associated documentation in accordance with the relevant standards (e.g. Aboriginal Affairs Victoria's *Guide for Preparing a Cultural Heritage Management Plans 2007 (Appendices 3 and 4)*), and reported to the Secretary DPCD.
- AAV and RAP(s) will be notified of any changes to the above storage locations.

- Consistent with the contingency arrangements in this CHMP, the CHA shall label and package the Aboriginal cultural heritage with reference to provenance.
- Aboriginal cultural heritage material is to be placed in a non-plastic, permeable container for reburial.
- The location of the reburied material is to be recorded and clearly entered on the existing site card for the registered place.
- The sponsor is to facilitate the cost of reburial.

Standard contingency plans for the possible discovery of further Aboriginal cultural heritage, as per Clause 13(1) Schedule 2 of the Aboriginal Heritage Regulations 2007, are to be adopted during the implementation of the activity (Section 10).

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PART 1: ASSESSMENT

1

INTRODUCTION

1.1 Reason for Conducting the Cultural Heritage Management Plan

This CHMP has been mandatorily prepared to allow activities associated with the proposed construction works that may disturb Aboriginal cultural heritage places within the activity area, and provide contingency arrangements for managing the discovery of any further Aboriginal cultural heritage places identified during construction works associated with the development. The works consist of realigning the existing course of Sheepwash Creek at Loy Yang in the La Trobe Valley to facilitate future coal mining activities within this area.

When is a cultural heritage management plan (CHMP) required?

A mandatory CHMP is required for an activity if (Regulation 6)-

(a) all or part of the activity area for the activity is an area of cultural heritage sensitivity; and
(b) all or part of the activity is a high impact activity.

Is this activity area an area of cultural heritage sensitivity?
Yes. Part of the activity area does overlap with an area of cultural heritage sensitivity identified as a waterway according to Regulation 23 as Sheepwash Creek is encompassed within the activity area. In addition, there are five Aboriginal cultural heritage places located within 200m of the current activity area (Maps 2 and 4)

Is this activity a high impact activity?
The proposed activity is a high impact activity, as defined in Division 5 of the Regulations as it includes:

Buildings and works for specified uses (Regulation 43)

> (1) The construction of a building or the construction or carrying out of works on land is a high impact activity if the construction of the buildings or the construction of carrying out of the works -
> (a) would result in significant ground disturbance; and
> (b) is for or associated with the use of the land for any one or more of the following purposes -
> (xxvi) land used to generate electricity, including a wind energy facility

1.2 The Name of the Sponsor

The sponsor of this CHMP is Loy Yang Power Management Pty Ltd (Appendix 2).

1.3 The Name of the Cultural Heritage Advisor

This CHMP has been authored by qualified archaeologists and heritage consultants, experienced in professional Aboriginal heritage assessment and evaluation since 1991, in accordance with section 189 of the *Aboriginal Heritage Act* 2006. Qualification details can be found in Appendix 5.

The Cultural Heritage Advisor of this CHMP:

Melinda Albrecht Project Manager

The author of this CHMP is:

Melinda Albrecht Project Manager

1.4 The Location of the Activity Area

The activity area is located approximately 148 km southeast of the Melbourne CBD near Traralgon, Central Gippsland. The activity area is approximately 221 hectares in size. The proposed expansion of the power station extends in a northerly and easterly direction from Stage 5 of the Loy Yang power station complex, taking in the slightly undulating land adjoining Sheepwash Creek as well as encompassing a portion of Sheepwash Creek itself (see Map 1).

The activity area is located within the Latrobe City Council.

1.5 The Owners and Occupiers of the Land

Property Reference/ Lot Number	Owner/Occupier
Lot 1, Plan TP890725	Loy Yang Power Management Pty Ltd
Part of Allotment 5G, Section A, Parish of Loy Yang	Loy Yang Power Management Pty Ltd
Part of Allotment 5R Section A, TP4871, Parish of Loy Yang	Loy Yang Power Management Pty Ltd

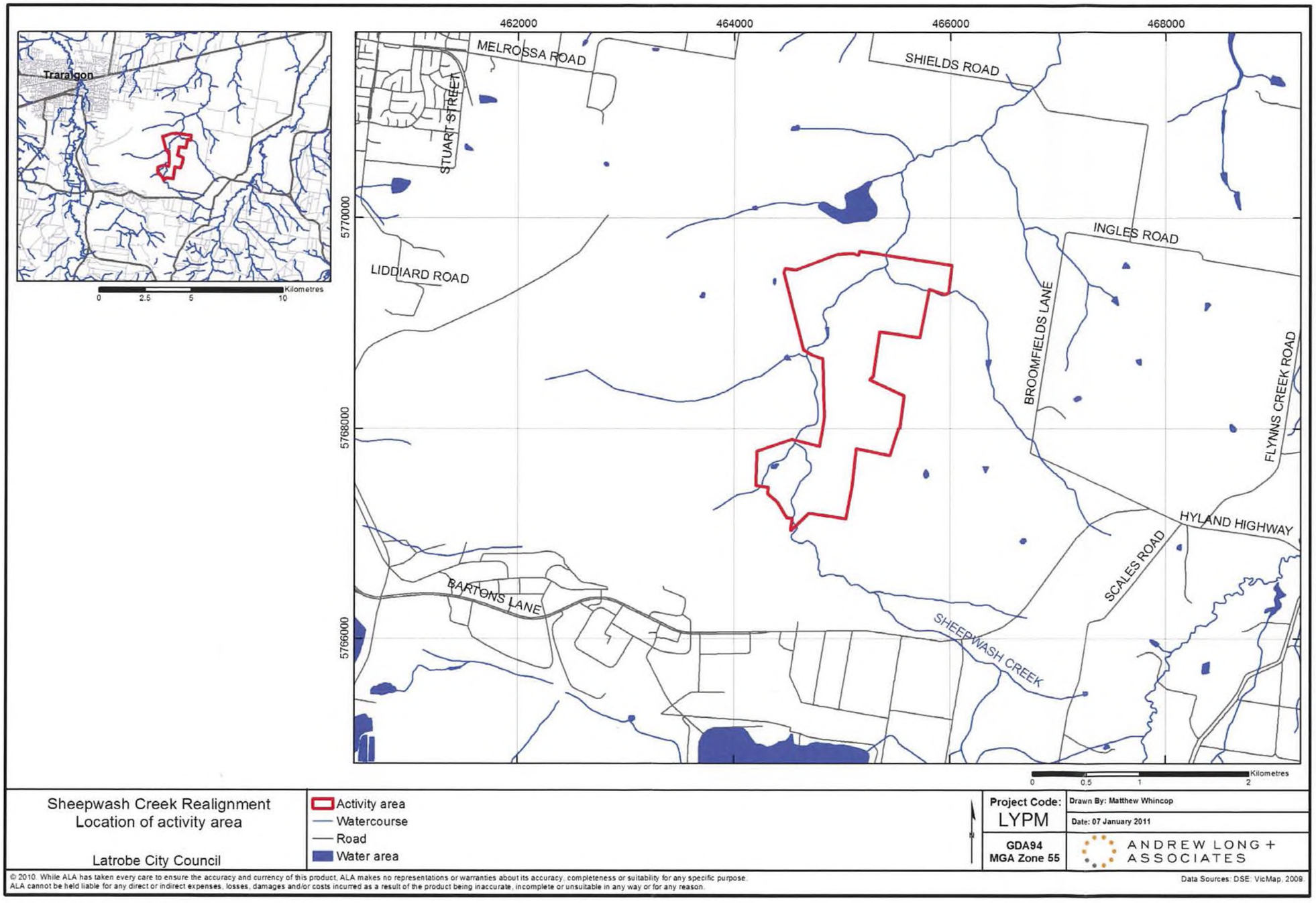
Table 5: Owners and occupiers of the activity area.

1.6 Notice of Intent to Prepare a Cultural Heritage Management Plan

Notice of intent to prepare a CHMP, as required by Section 54 of the Aboriginal Heritage Act 2006 was submitted to the Secretary of the Department of Planning and Community Development, and to Barry Kenny, Deputy Chair of the Gunai Kurnai Land and Waters Aboriginal Corporation on 6 August 2010. The Gunai Kurnai elected to evaluate the CHMP on 18 August 2010 (Appendix 2). The activity area is located on property that is owned by the Loy Yang Power Station, who has engaged SMEC Urban Consulting Group for the purposes of this CHMP.

1.7 Registered Aboriginal Parties

At the time the notice of intent to prepare a CHMP was submitted, the Gunai Kurnai Land and Waters Aboriginal Corporation (GLaWAC) were the Registered Aboriginal Party (RAP) for the activity area. Pursuant with Section 65 of the Act the Secretary, GLaWAC will review the CHMP (Appendix 2).



Map 1: Location of the activity area.

2

ACTIVITY AREA

2.1 Description of the Activity

The works associated with the activity area include the realignment of the existing course of Sheepwash Creek to the East of its existing alignment by approximately 250 m. This realignment is required to allow for future coal mining activities associated with the expansion of the Loy Yang Power coal mine.

The Loy Yang Power coal mine is situated within an area of undulating plains, rising to low hills in the south. The activity area is located on cleared land that is currently being utilised for agricultural purposes such as sheep grazing, and the growing of potatoes and other agricultural crops. The area lies between Flynns Creek to the east and Traralgon Creek to the west. Although no permanent watercourses occur within the area ephemeral drainage lines are present. Sheepwash Creek runs in a northeasterly-south westerly direction across the proposed activity area. The land is predominantly cleared land used for pastoral, silviculture and coal extraction activities.

The likely impact of the proposed activity on land surfaces within the activity area will be extensive. The open-cut expansion involves the extraction of coal using open-cut coal mining methods. The existing open-cut expands in a north easterly direction into this zone at a rate of 250 – 300 m per year. The activity area covers the open-cut development area for the period 2010-2014. The overburden and topsoil of the activity area will be removed down to an average depth of 9m. The coal and interseam material is then excavated down to a depth of 200m below existing ground level. Around the top rim of the mine a fire water main is installed above ground.

The creek will be diverted for approximately 3.5km using a purpose built clay lined channel that will reconnect to the existing alignment to the North. The channel will be topsoiled and grassed to provide erosion protection during larger flows. A retardation basin and diversion embankment also forms part of the works.

Map 1 shows the location of the activity area.

2.2 Extent of the Activity Area

Map 1 shows the location of the activity area. Map 2 defines the extent of the activity area (Maps 1 and 2).


Traralgon
0
2.5
5
BROOMFIELDS LANE
Metres
250
500
1,000
Sheepwash Creek Realig
Map of activity area sho
Aboriginal places within
Latrobe City Council
By: Matthew Whincop
07 January 2011
ANDREW LONG + ASSOCIATES
© 2010. While ALA has taken every care to ensure the accura
ALA cannot be held liable for any direct or indirect expenses.
Data Sources: DSE: VicMap, 2009

3

DOCUMENTATION OF CONSULTATION

3.1 The Notice of Intention to Prepare a Cultural Heritage Management Plan

At the time the notice of intent to prepare a CHMP was submitted to the Secretary, the Gunai Kurnai Land and Waters Aboriginal Corporation (GLaWAC) were the Registered Aboriginal Parties (RAP(s)) for the activity area. Pursuant with Section 65 of the Act the Secretary, GLaWAC will review the CHMP (Appendix 2).

3.2 Registered Aboriginal Parties and Applicants

As GLaWAC are a RAP for the activity area, they were informed of the fieldwork and proposed subsurface testing programme (via telephone 23 August 2010) and were invited to participate in the field programme conducted on 13-14 September 2010. Following the completion of this field survey, the subsurface testing methodology for the complex assessment was formed during informal discussions with Lloyd Hood of the GLaWAC. A testing methodology combining hand excavations of 1x1m test pits, and a series of shovel test pit transects across the activity area, as well as some mechanical testing of the generally flat to gently undulating pasture land was agreed upon within these discussions. Following these informal discussions in the field, Lloyd Hood indicated that a formal meeting prior to the commencement of the subsurface testing programme was not required. Representatives of the GLaWAC participated in both the standard and complex assessment of the CHMP (Table 6).

Date of Correspondence	Form of Correspondence	Participants
23-08-2010	Telephone	MA and LH
13-09-2010 to14-09-2010	Informal discussion in the field to discuss testing methodology	MA and LH
11-10-2010 to 15-10-2010	Informal discussion in the field	MA and LH
22-10-10	Telephone to discuss results of testing	MA and LH
27-10-10	Telephone to discuss management recommendations and Section 61 matters	MA and LH

MA: Melinda Albrecht (ALA)
LH: Lloyd Hood (GLaWAC)

Lloyd Hood indicated that a formal meeting following the completion of the complex assessment was not required. Throughout the commencement of the complex assessment and following the completion of

the testing programme, discussions were held between the CHA and Lloyd Hood of the GLaWAC. During these informal conversations, the management recommendations and Section 61 matters to be considered in relation to the approval of the CHMP and the contingencies to be implemented during the activity were discussed. The results of these discussions can be seen within the recommendations section of this CHMP (Sections 8 and 9).

3.3 Participants in the Assessment

Participant	Organization	Position	Component	Date(s) 2010
Melinda Albrecht	ALA	Project Manager	Complex Assessment	13-09-10, 14-09-10,11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10
Nick Berry	ALA	Project Archaeologist	Complex Assessment	11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10
Jay Yost	ALA	Project Archaeologist	Complex Assessment	11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10,
Adrianne Michaels	ALA	Project Archaeologist	Complex Assessment	11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10
Karl Van der Hilst	ALA	Project Assistant	Complex Assessment	11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10
Henry Lion	ALA	Project Archaeologist	Complex Assessment	18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10
Brandon Hocking	ALA	Project Assistant	Complex Assessment	19-10-10, 20-10-10, 21-10-10, 22-10-10
Lloyd Hood	GLaWAC	Representative	Complex Assessment	13-09-10, 14-09-10, 11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10
Peter Hood	GLaWAC	Representative	Complex Assessment	11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10
Jarred Hood	GLaWAC	Representative	Complex Assessment	11-10-10, 12-10-10, 13-10-10,

Tim Patton	GLaWAC	Representative	Complex Assessment	14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10 11-10-10, 12-10-10, 13-10-10, 14-10-10, 15-10-10, 18-10-10, 19-10-10, 20-10-10, 21-10-10, 22-10-10

Table 6: Participants in the Assessment

4

DESKTOP ASSESSMENT

4.1 Method of Assessment

This section outlines the aims, methods and results of the Desktop Assessment. The aims of the Desktop Assessment were threefold:

- to determine the level of previous investigation of the activity area and the surrounding region;
- to determine the presence of registered Aboriginal cultural heritage places within the activity area; and
- to determine the environmental context of the activity area with regard to landform and geomorphology.

The methods used to undertake the desktop assessment included:

- using appropriate sources, including Victorian government on-line information, reviewing and summarising relevant environmental background;
- searching Victorian Aboriginal Heritage Register (VAHR) and other research sources (cf. consultancy reports, academic research etc.) for information relating to the activity area and the geographic region (a VAHR search was undertaken on 23/09/2010); and
- reviewing and analysing this information to identify or characterise the Aboriginal heritage site types and locations likely to be present within the activity area.

4.2 Obstacles

There were no obstacles to undertaking the Desktop Assessment.

4.3 Persons Involved in the Desktop Assessment

The desktop assessment was conducted prior to the commencement of the Standard Assessment and Complex Assessment. The following individuals were involved:

- Melinda Albrecht, Project Manger

4.4 RAP Information

Please note that no oral information was collected during the desktop assessment.

4.5 Geographic Region

It is important to understand the geographic and environmental context of the activity area in order to gain a better understanding of the possible resources available to Aboriginal people prior to European contact. In addition, this information assists in determining whether natural environmental processes (e.g. weathering of land surfaces) will have impacted on Aboriginal Cultural Heritage Places.

The activity area is located approximately 148 km southwest of the Melbourne CBD at Loy Yang Power land, south east of Traralgon, Central Gippsland. The proposed activity is the realignment of the existing course of Sheepwash Creek for the expansion of an open-cut coal mine. The sponsor for this CHMP assessment is Loy Yang Power Management who operate a 2,000 megawatt thermal power station and an open-cut brown coal mine which supplies the power station and the neighbouring 1,000 megawatt Edison Mission Energy Loy Yang B power station.

The activity area is located north east of the existing Loy Yang Power Station Complex and takes in Sheepwash Creek in the north western portion of the activity area, as well as a minor tributary which forms a gully in the eastern portion of the activity area. The activity area is dissected by the Old Hyland Highway which runs north west to south east throughout the centre of the activity area. The activity area is bound in the east by and south by fence lines, and in the west by a pine plantation, informal vehicle tracks and fence lines, and by the course of Sheepwash Creek which is the eastern boundary of the Stage 5 Loy Yang Power Management CHMP which was undertaken by Albrecht in 2010 (Albrecht 2010).

The geographic region containing the activity area has been defined as the area within a 2km radius of the proposed realignment, which includes the land north of the activity area to around Shields Road, east of Broomfields Lane south of Hyland Highway and west to around Farmers Road. The geology of the geographic region comprises the undulating plains, or rolling downs of the Haunted Hills Gravel Rock Formation of the South Victorian Riverine Plains (Map 6).

4.6 Review of the Landforms or Geomorphology of the Activity Area

4.6.1 Landforms / Geomorphology

The Gippsland basin, of which the study area forms a component, is one of the world's major coal and petroleum producing basins (Gloe 1984, 83). The Latrobe Valley Depression, roughly situated between the towns of Moe and Sale essentially comprises an elongated, asymmetrically pitched syncline, defined to the north by the Central Gippsland highlands and to the south by the South Gippsland Hills. The basin was initially developed during the Lower Cretaceous period, but is perhaps best characterised by the deposition of remarkably thick coal deposits during the Oligocene to Late Miocene periods, known as the Morwell and Yallourn Formations.

The northern half of the LYPM property is dominated by the Morwell Formation, where horizontal brown coal seams up to 230 m in thickness are buried beneath Pleistocene deposits of gravels, sands and clays (cf. 'Haunted Hill Gravels') associated with the present drainage pattern (Gloe 1984, 84-85 & 88-89). The Power Station is situated on a formation known as the 'Loy Yang Dome' located in the central part of the wider LYPM study area, which is characterised by thinner coal seams and the occurrence of interseam sediments (cf. mudstones). The southern part of the wider LYPM area consists of dissected uplands along the edge of the South Gippsland Hills, which are dominated by block-faulted Lower Cretaceous sediments (Gloe 1984, 85).

In broad terms the wider Loy Yang Power station area consists of two main geomorphologic land systems. These are defined as the South Victorian Riverine Plains and the South Victorian Uplands (LCC 1972), with the current activity area located within the South Victorian Riverine Plains land system:

A. *South Victorian Riverine Plains* - this land system comprises broad alluvial valleys with active watercourses, lateral terraces and surface features formed during Pleistocene times. Eucalypt forest dominated by river red gum (*E. camaldulensis*) originally extended across this region. The landscape is characterised by Traralgon Creek along the western boundary of the wider LYMP study area, and undulating plains in the north.

B. *South Victorian Uplands* – this land system comprises an extensive complex of hills flanking the Hoddle Range. Uniform sand and silt based soils occur throughout this zone, and the natural vegetative structure consists of low eucalypt forest (cf. Yellow stringybark; *E. muellerana*) with dense undergrowth (Djekic 1998, 3), most of which has been cleared. This landscape is characterised in the wider study area by moderately steep hills.

The geology of the activity area consists of the Haunted Hills Gravel Rock Formation (Neogene – Quaternary) comprising sedimentary fluvial deposits of sand, silt, gravel and ferruginous sand.[1]

The topography of the activity area is characterised by undulating plains (otherwise termed 'rolling downs'). The northern tip of the activity area contains a moderately inclined hill overlooking a gully formed by an unnamed tributary of Sheepwash creek. The southern portion of the activity area is dissected by Sheepwash Creek, with this area containing occasional ridges adjacent to the creek line (Map 3).

4.6.2 Environment

The climate of the study region is broadly described as temperate, characterised by warm summers and cool winters. In general terms the region is colder and wetter than surrounding districts (e.g. East Gippsland and Westernport). The LYPM property has a recorded average precipitation rate of 700-900 mm, which mostly occurs during winter and spring (Long et al. 1999, 14). As a consequence the river and major creek valleys of the region are prone to annual flooding. The mean annual rainfall for the wider study area (Morwell) is 724.6mm.[2] Soils within the activity area are dominated by brown/grey silt with some sandy deposits along Sheepwash Creek.

Wesson and Beck (1981: 15) noted that the relatively low temperatures are unlikely to have deterred Aboriginal occupation of the region, but may have influenced its character. In agricultural terms the climatic conditions are ideal for dairying and stock raising.

Little remains of the native vegetation of the region with the rolling plains cleared for agricultural purposes. There are some remaining stands of mature native trees present, notably river red gum (*E. camaldulensis*) and some stringybark species on hill crests. Stands of tea tree (*Melaleuca* sp.) also occur along sections of Sheepwash Creek, with wattle (*Acacia* sp.) on the higher slopes. Currently the landscape has been almost entirely cleared, with exotic pasture grasses predominant. The only vegetation remaining within the activity area consists of some remnant native vegetation, with small numbers of mature river red gum along Sheepwash Creek, and along the road reserve of the remaining portion of the Old Hyland Highway.

Prior to 1750 vegetation in the activity area was most likely dominated by grassy woodlands of *Eucalyptus. Tereticornis* (Gippsland Red Gum) and *Eucalyptus camaldulensis* (River Red Gum) with a

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[1] GeoVic: http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=geovic– accessed 30/08/10

[2] BOM -http://www.bom.gov.au/climate/averages/tables/cw_090069.shtml – accessed 30/08/10

Kangaroo grass (*Themeda triandra*) understorey, or a grassy woodland of *E. pauciflora*, *E. rubida* and *E. ovata*[3] (Map 5).

Aboriginal occupation may often have been focused on waterways, which would have provided a wider range of resources for Aboriginal people than the plains, with freshwater mussels, fish, eels, waterbirds, lizards and small marsupials a reliable food source throughout most of the year.

Water rushes and marsh vegetation as well as a number of plant-food resources important to Aboriginal people would have grown in nearby rivers and creeks. The rivers, creeks, lagoons and swamp areas, such as Sheepwash Creek, and its tributaries would have supported various species of fish, eel, frogs, tortoises and other aquatic species as well as various birds, kangaroos, wallabies, wombat, possums and emu inhabiting the plains of the wider study area. Plants were used for non-culinary purposes; such as making nets, baskets, and ornaments. Kangaroo Grass (*Themeda triandra*), was used in the manufacture of fishing nets (Zola and Gott 1992, 58), while Tussock grass fibres were used to make string for bags, baskets and mats.

4.7 Victorian Aboriginal Heritage Register Search

VAHR No	Field Name	Site type	Site Context	Site Contents
8221-0004	Loy Yang Creek 1*	Surface scatter	Adjacent to east bank of Sheepwash Creek	S (Q, F)
8221-0005	Loy Yang Creek 3*	Surface scatter	Adjacent to east bank of Sheepwash Creek	S (Q)
8221-0006	Loy Yang Creek 2*	Scarred tree	Adjacent to east bank of Sheepwash Creek	BSRS
8221-0015	Minniedale 1	Scarred tree	Flat level land; lowland plain	BSRS/TH
8221-0081	Cummings Road 1	Isolated Artefact	A silcrete flaked artefact located on flat land 50 m east of Sheepwash Creek within broader undulating plains.	S (S)
8221-0082	Cummings Road 2	Isolated Artefact	A silcrete flaked artefact located on flat land 50 m east of Sheepwash Creek within broader undulating plains.	S (S)
8221-0083	Cummings Road 3	Isolated Artefact	A silcrete broken flake located on flat land 40 m east of Sheepwash Creek within broader undulating plains.	S (S)
8221-0088	Plantation 1	Surface Scatter	Two silcrete fragments and a broken silcrete flake located at the interface of the South Victorian Riverine Plains and Uplands.	S (S)
8221-0089	Minniedale Road Artefact 1	Isolated Artefact	One silcrete fragment, one broken flake located on undulating plains	S (S)
8221-0090	Minniedale Road Artefact 2	Isolated Artefact	One silcrete flake located on undulating plains	S (S)
8221-0091	Minniedale Road Artefact 3	Isolated Artefact	One silcrete flake located on undulating plains	S (S)
8221-0092	Minniedale Road Scatter 1	Surface Scatter	Three silcrete artefacts (fragment, flake & blade) and a quartzite fragment located on undulating plains	S (S, Qte)

[3] Biodiversity Information: http://www.dse.vic.gov.au/conserv/EVC-PDF/GipP0055.pdf – accessed 30/08/10

VAHR No	Field Name	Site type	Site Context	Site Contents
8221-0112	Minniedale Road 3	Isolated Artefact	One quartzite flake located on undulating plains.	S (Qte)
8221-0113	Minniedale Road 4	Isolated Artefact	One silcrete flake located on undulating plains.	S (S)
8221-0114	Hyland Highway 1	Surface Scatter	Top or edge of hill, rise, dune	S (S, Q)
8221-0121	Minniedale Road Artefact 5	Surface Scatter	One silcrete fragment, a silcrete core and a quartz fragment located on undulating plains.	S (S, Q)
8221-0122	Minniedale Road Scatter 6	Surface Scatter	Four silcrete stone artefacts (fragment, two flakes and a retouched flake) on undulating plains.	S (S)
8221-0123	Minniedale Road Artefact 7	Surface Scatter	A single silcrete blade located on undulating plains.	S (S)
8221-0124	Minniedale Road Artefact 8	Surface Scatter	A single broken core located on undulating plains.	S (S)
8221-0145	Old Hyland Hwy 1	Artefact Scatter	Two silcrete arefacts located within a flat to gently inclined plain	S (S)
8221-0146	Old Hyland Hwy 2	Artefact Scatter	1 quartz artefact located within a flat to gently inclined plain	S (Q)
8221-0147	Old Hyland Hwy 3	Artefact Scatter	1 quartz artefact located within a flat to gently inclined plain	S (Q)
8221-0148	Cummings Road 4	Artefact Scatter	1 fine-grained silcrete artefact located on a flat to gently inclined terrace overlooking Sheepwash Creek	S (S)
8221-0149	Cummings Road 5	Artefact Scatter	7 silcrete artefacts located within a flat to gently inclined terrace overlooking Sheepwash Creek	S (S)

Table 7: Aboriginal Cultural Heritage Places located within the geographic region containing the activity area.

S = Stone (S) = Silcrete, (Qte) = Quartzite, (Q) = Quartz, (F) = Flint; **BSRS** = Bark slab removal scar, **TH** = Toe holds, **?** = unconfirmed, * Correctly known as 'Sheepwash Creek'

A total of 24 Aboriginal cultural heritage places have been recorded within the geographic region containing the activity area. None of these Aboriginal cultural heritage places were identified within the activity area, with the sites closest to the activity area consisting of four isolated silcrete artefact sites located adjacent to Sheepwash Creek (8221-0081, 8221-0082, 8221-0083 and 8221-00148) and the artefact scatter 8221-0149 represented by 7 silcrete artefacts that were located during the complex assessment for the Stage 5 Loy Yang Power Station expansion CHMP (Albrecht 2010). These Aboriginal cultural heritage places are listed in Table 7

Aside from the scarred trees 8221-0015 (Minniedale 1) and 8221-0006 (Loy Yang Creek 2), the registered Aboriginal cultural heritage places within the geographic region containing the activity area are all diffuse stone artefact occurrences primarily comprising silcrete artefacts, but with quartz, quartzite and flint stone artefacts also represented in smaller quantities. These Aboriginal cultural heritage places were generally located on undulating plains away from both major and minor watercourses, although several sites, 8221-0081 (Cummings Road 1), 8221-0082 (Cummings Road 2), 8221-0083 (Cummings Road 3), 8221-0148 (Cummings Road 4), 8221-0149 (Cummings Road 5), 8221-0004 (Loy Yang Creek 1), 8221-0005 (Loy Yang Creek 3), 8221-0006 (Loy Yang Creek 2)were located within 50 m of Sheepwash Creek. One Aboriginal cultural heritage place, 8221-0088 (Plantation 1) was located on the interface between the undulating plains and uplands to the south of the current activity area.

As a general statement, the registered scarred trees in the study region are low in significance, primarily due to a lack of diagnostic traits and the tendency of previous researchers to record ambiguous or natural examples or scarring as cultural events. Nevertheless, one highly significant example 8221-0015 (Minniedale 1) was recorded within 2km west of the current activity area, indicating that other authentic

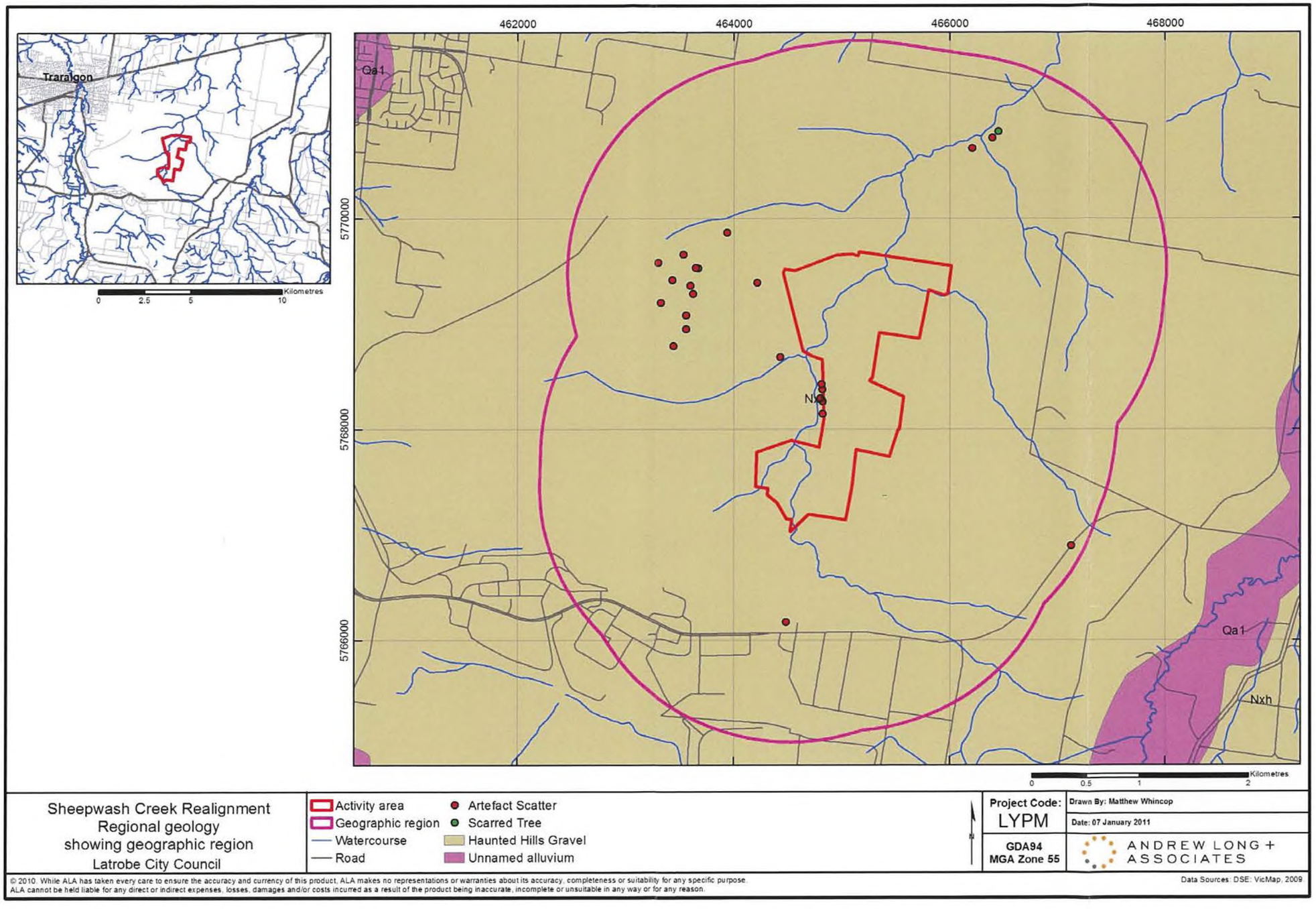
scarring events may be preserved in the wider study area (Long *et al.* 1999, 39). The presence of a registered scarred tree 8221-0015 (Minniedale 1) in proximity to the activity area is reflective of the broader archaeological record with significant numbers of scarred trees occurring in the wider region (Long *et. al.* 1999, 26-27). The preservation of mature native trees is an important factor influencing the distribution of this site type. There are instances of mature native vegetation along the Old Hyland Highway which runs west to east across the centre of the activity area, as well as instances of mature native trees in some of the paddocks that comprise the activity area. Therefore, there is a possibility that previously unidentified scarred trees may be present within the activity area.

By comparing the results of previous archaeological investigations across the broader study area, and within the areas adjacent to the current activity area, the following conclusions can be drawn. These assist in formulating site predictive statements for the activity area, and provide comparative data against which the results of the standard assessment and subsurface testing programme can be assessed;

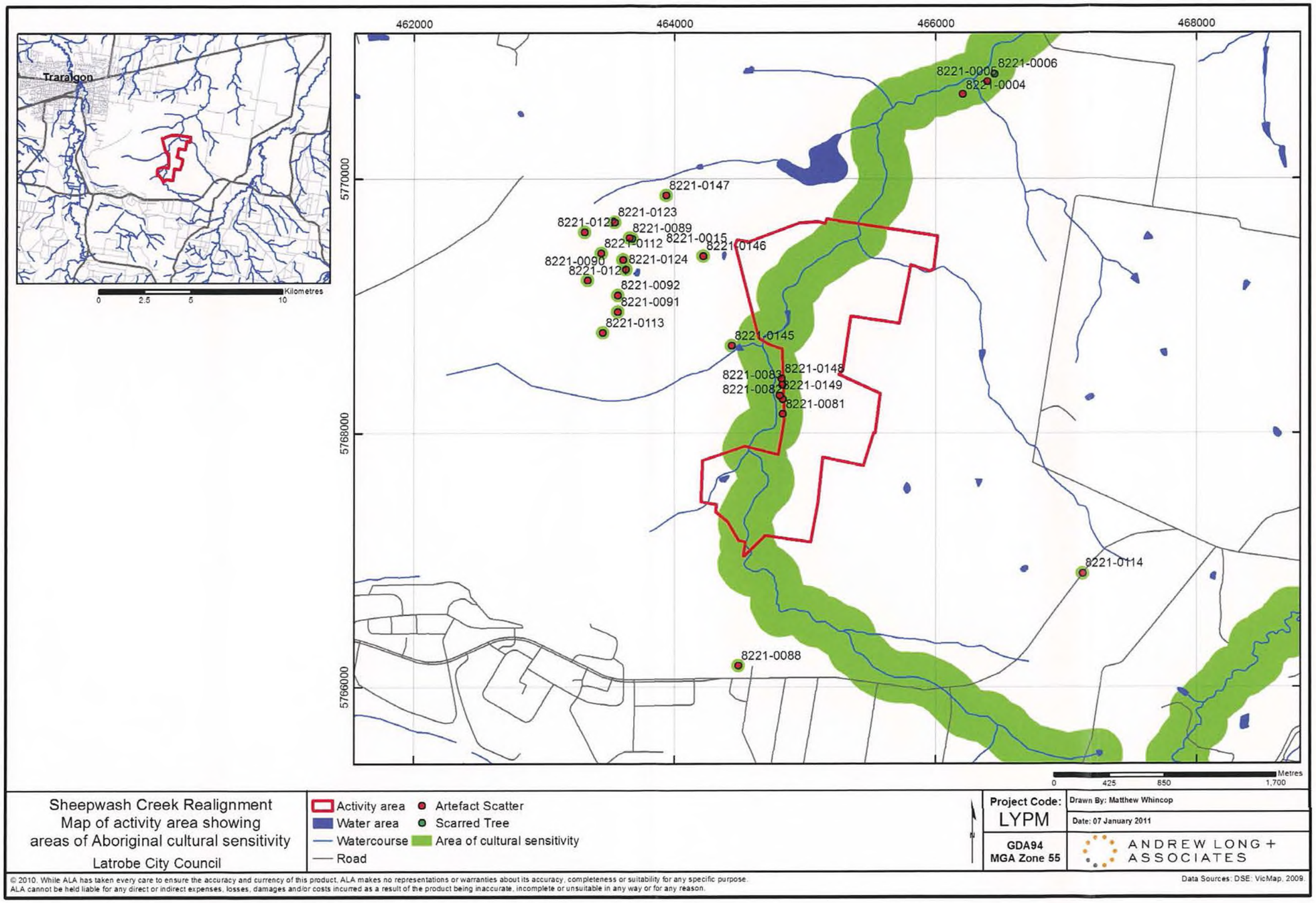
1. Stone artefact occurrences varying in density from artefact scatters containing more than one artefact [n=8] to isolated finds [n=13]) are the most frequent Aboriginal cultural heritage places occurring within the study region. In the majority of instances these have been located either on river terraces or next to creeks, however, this type of site has also been recorded along top of ridges, on hillsides, undulating land and flat plains. Only four of the artefact scatters were found in a subsurface context, with the majority of the registered Aboriginal cultural heritage places within the geographic region surface scatters or single surface artefacts.

2. Scarred trees have also been recorded in the geographic region [n=2]. The preservation of mature native trees across the study area is an important factor influencing the current distribution of scarred trees.

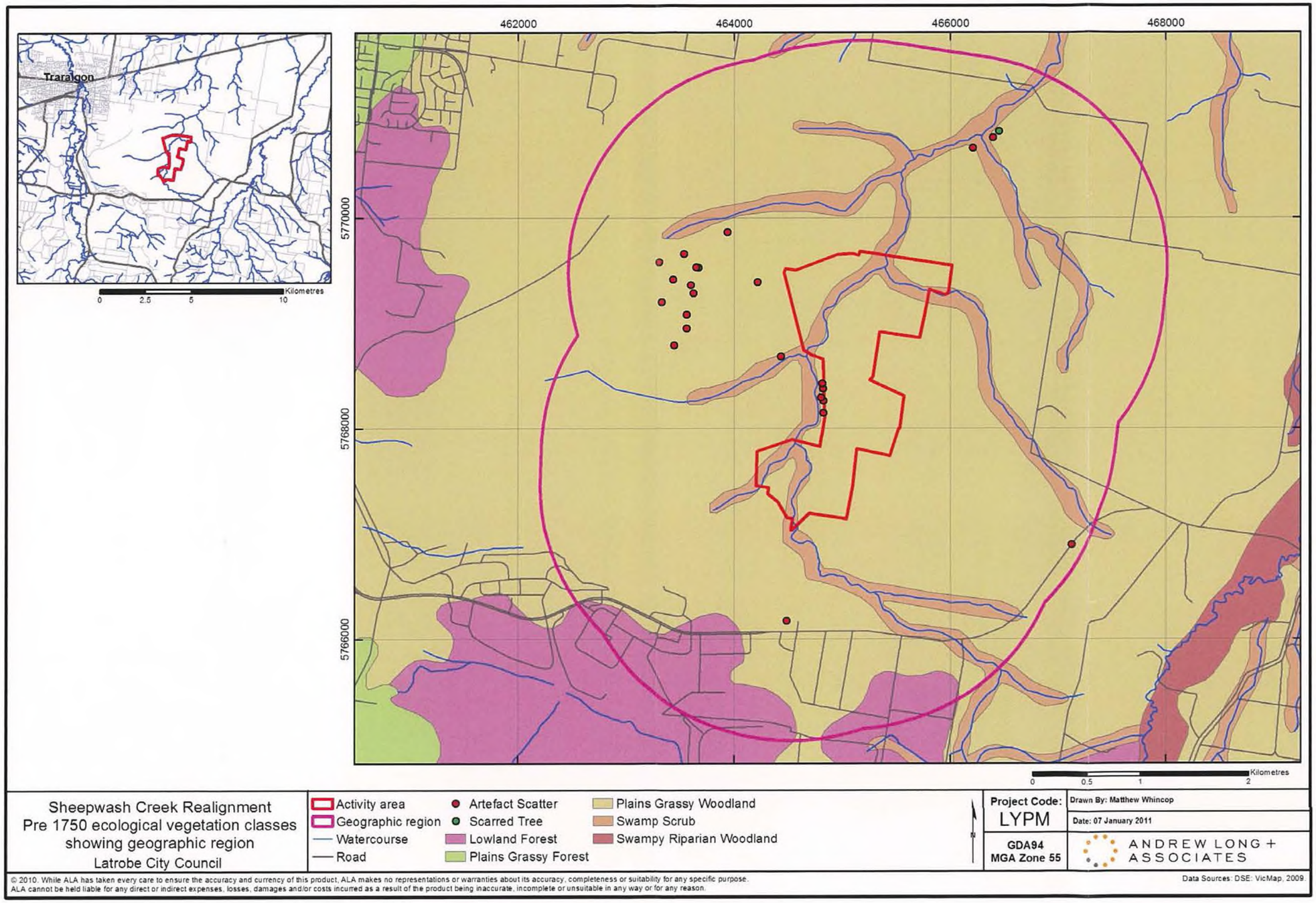
3. The existing archaeological record of the study area reflects the regional pattern in microcosm. All zones of the LYPM property are predicted to contain stone artefact occurrences, though their precise location will be determined by landform. In particular the margins of Sheepwash Creek and its tributaries may potentially contain artefact scatters. This was confirmed by the results of the CHMP for Stage 5 expansion of the power station (Albrecht 2010) where two previously unregistered Aboriginal cultural heritage places (8221-0148 and 8221-0149) and one previously recorded Aboriginal cultural heritage place (8221-0081) were identified on the flat to gently inclined terrace overlooking Sheepwash Creek.



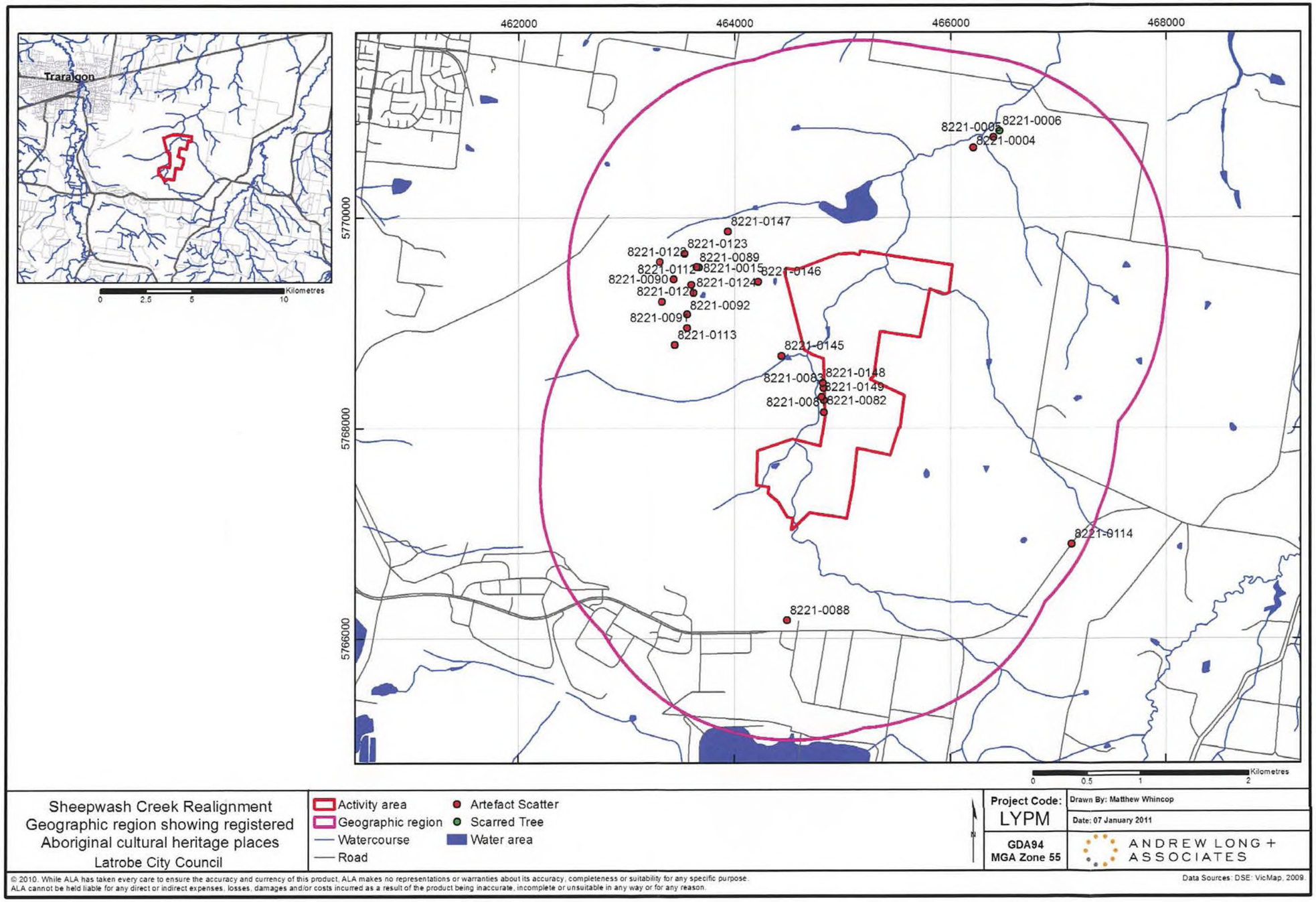
Map 3: Geology of the activity area (GeoVic data)



Map 4: Areas of cultural heritage sensitivity within vicinity of the activity area (GeoVic data)



Map 5: Vegetation within the activity area pre 1750 (Biodiversity Map 1750 EVC)



Map 6: Geographic region containing the activity area

4.8 Review of Historical and Ethno-Historical Accounts of Aboriginal Occupation in the Geographic Region

In this section the available ethnohistorical information relating to Aboriginal people in the study region is briefly reviewed. This information can assist in formulating a model of Aboriginal subsistence and occupation patterns in the Traralgon area. In conjunction with an analysis of the documented archaeological record of the area (See Section 4.9), the ethnohistorical information also assists in the interpretation of archaeological sites occurring in the activity area, and in predicting the location of archaeological sites and site types.

There has been no prior investigation of ethnohistorical evidence for the study area, though Ian Stuart (nd.) produced a brief review of published data for the wider Gippsland plains region as part of the Latrobe valley coalfields study (Djekic 1998).

There are several problems concerned with correctly identifying and describing 19th century Aboriginal groups in Victoria, largely as a result of discrepancies in early European accounts and the difficulties early settlers had in understanding Aboriginal languages and social systems. Furthermore, the devastating effects of European settlement, such as the loss of traditional lands and resources, the spread of disease, social breakdown and removal of both groups and individuals to reserves and mission stations have added further complexities. As a result it is hard to identify and document the specific Aboriginal clan groups in the study region both before and after the period of initial European settlement.

A language group consisted of independent sub-groups of closely related kin, or 'clans', who were spiritually linked to designated areas of land through their association with topographic features connected to mythic beings or deities. Clan lands were inalienable, and clan members had religious responsibilities, (e.g. conducting rituals) to ensure 'the perpetuation of species associated with the particular mythic beings associated with that territory' (Berndt 1982, 4).

There is currently little information available for the Aboriginal population of the study region in the 19th century. The activity area is located within the territory of the *Kurnai* or *Ganai* peoples (Clark 1990, 364; Barwick 1984), who occupied East Gippsland between Wilson's Promontory and the New South Wales border. Groups who belonged to another broad group of peoples known today as *East Kulin*, were situated immediately west of the Traralgon area, and their social territory may also have incorporated the region. During the post-contact period relations between the *Kurnai* and the peoples based in the Port Phillip area, notably the *Woiwurrung* and *Bunwurrung*, were invariably strained, and there are several accounts of violent raids and reprisals between these groups and the *Kurnai* (Gunson 1968, 7-9; Thomas in Legislative Council 1859, 62). The region of South Gippsland adjoining Westernport Bay was considered to be disputed territory as a result of this antipathy, and presumably acted as a buffer zone to relieve social friction (Gunson 1968, 3; Smyth 1876 vol. 1, 412).

Alfred Howitt, an early anthropologist who spent much time in Gippsland, noted that the *Kurnai* comprised of six distinct sub-groups: *Brataualong*, *Braiakaulung*, *Tatungalung*, *Brabralung*, *Krauatungalung* and *Bidawal* (Clark 1998b). The study area lies within the traditional territory of the *Braiakaulung* people, who occupied the Latrobe River Valley, and the valleys of the Thompson, Avon and Macalister Rivers. The southern boundary of this territory occurs along the Strezlecki Ranges (Howitt 1904: Sketch Map of Gippsland). Clark (1998b, 187-188) has identified the *Bunjil Kraura* as the *Braiakaulung* clan most closely associated with the Traralgon region.

The only known references regarding the *Bunjil Kraura* are in relation to a *Birraark*, or medicine man who belonged to the clan (Howitt 1904, 393), a 'leading man', who carried the clan name of *Bunjil-kraura*, meaning 'West Wind' (Howitt 1904, 738).

A review of the ethnohistorical literature indicates that there are few direct references to the *Braiakaulung* language group, with most documentation on the *Kurnai* people centring on the *Tatungalung* language group, who were based around the Gippsland lakes. In order to provide information on the Aboriginal occupation of the study area, the following section relies on references to the *Kurnai* in general, where specific information is not available for the *Braiakaulung*.

Population estimates during the period of European contact for the Kurnai range from 700 to nearly 5,000 (Fison & Howitt 1880, 181; Rhodes 1996, 15; Smyth 1876 vol 2: 36). In the period before pastoral settlement, the affects of introduced disease and resulting inter-tribal conflict effectively decimated the Aboriginal population of Victoria, while aggression, dispossession and alcohol abuse in the first 20 years of European occupation further reduced the survivors. By 1857 there were 50 people left in the *Braiakaulung*, and they considered were the largest language group among the *Kurnai* people at this time (Pepper & de Araugo 1985, 113).

Almost all references to *Kurnai* subsistence strategies relate to the people of Gippsland in general, or specifically to those occupying the fringes of the Gippsland Lakes. As a result, there is very little information regarding the types of activities undertaken on the inland plains and foothills, particularly in the Latrobe basin.

The Rev. John Bulmer (Smyth 1876 vol. 1, 141-143) has described the seasonality of the *Kurnai*, who moved between different resource zones on a regular basis. The spring and summer months were spent exploiting seasonal coastal and lake resources such as birds, eels and mullet as well as plant foods (e.g. kangaroo apples). Autumn and winter was spent in the hinterland hunting kangaroo, koalas and wombats as well as collecting various vegetable roots.

Robinson was informed that all the tribes from Gippsland seasonally went to the mountains around Omeo to collect Bogong moths (Clark 1998a vol. 4, 88).

Food procurement tasks were divided between men and women. Men were responsible for hunting, spearing fish, cooking, butchering and dividing meat. Women collected plant foods, shellfish, hunted small animals and fished with lines and nets from canoes on the lake (Rhodes 1996, 17).

The following section documents the occupation of the study region by Aboriginal people in the period after direct European contact (post-1839), and details the effects of land displacement, disease and social disruption to the nature of Aboriginal society and behaviour patterns. Most historical references to the *Braiakaulung* during this time concern either inter-tribal conflict or conflict with European settlers.
It has been suggested that disease associated with European contact had a large effect on the decline of the Aboriginal population (Butlin 1983). Butlin (1983) argues that smallpox was by far the most important factor in the destruction of the Aboriginal societies of south-east Australia.

Sealing activities occurred on the Victorian coast from around 1800 to 1829. The major centres were at Wilson's Promontory and Phillip Island (Gaughwin 1983, 46-7). The *Braiakaulung*, close to Wilson's Promontory, would have felt the direct effects of the disruption of groups along the coast and suffered from diseases introduced by sealers.

There is extensive documentation for a state of open warfare between the *Kulin* and *Kurnai* peoples during the early post-contact period (Gaughwin 1983, 57-58; McBryde 1984, 277-278). There are a number of recorded incidences where raiding parties from Gippsland travelled to the Melbourne region

to enact vengeance, which generally resulted in further reprisals. It is not clear whether this conflict predates European settlement, but may be related to the spread of disease prior to direct contact. In Aboriginal society, death is invariably interpreted as a malign act on behalf of traditional enemies, usually a neighbouring, but different group. A.W. Howitt (1904, 257), however, notes that the *Bunwurrung* intermarried with the *Kurnai*, indicating that the two peoples were also on amicable terms under certain circumstances.

In 1844 the Chief Protector of Aborigines for Port Phillip, George Robinson journeyed to Gippsland with George Haydon, passing along the coastal plains between Port Albert and Lake Wellington, 40 km south-east of the study area. Although they did not observe Aboriginal people during this section of their trip, they were informed of inter-tribal conflict between Aboriginal people from the Melbourne area and the *Kurnai* (Haydon 1983 vol. 2, 98-99):

> *...it gave them an opportunity of retaliating on their old and formidable enemies, the Gipp's Land Tribes, who had invaded Westernport some years since, and had nearly annihilated the whole tribe.*
>
> (Haydon 1983, 99)

Around 1848, 30 *Kurnai* (probably *Braiakaulung*) living along the La Trobe River were killed in an attack by a band of *Wurundjeri*. This was followed by the *Kurnai* making reprisal attacks over the following years (Pepper & de Araugo 1985, 92).

Conflicts between different political groups within the *Kurnai* are also known to have occurred. In April 1855 William Dawson, a settler in Sale wrote of an attack by the *Brabralung* on the *Braiakaulung*, while they were camped near settlers houses 'endangering the whites, for the weaker party tries to get shelter indoors' (in Pepper & de Araugo 1985, 108). The *Brabralung* then continued further east, where they attacked another group of Aborigines who were camped at 'The Heart'.

A final inter-tribal battle is said to have taken place on the Tambo River in 1855, involving members of the *Braiakaulong* (Pepper & de Araugo 1985, 108-9). This may have been a reprisal for the raid described by Dawson.

In the early 1840s the rapid settlement of the region by squatters led to conflict with the *Kurnai* as they were dispossessed of their land and forced to rely on Europeans for provisions.

In 1844 Charles Tyers, Commissioner of Crown Lands for Gippsland, responded to the conflict between Aboriginal people and settlers by sending an expedition which included the Native Police to search for a party of *Kurnai* who had been stealing cattle. The party eventually tracked down a group on the La Trobe River. After being fired on, the people ran into the scrub and Tyers proceeded to burn the 'beef' which they had left behind, to demonstrate that 'stealing and killing the settlers' stock must stop'. Tyers later reported that no further complaints were made from Bushy Park and Mewburn Park, however cattle was still being taken from other parts of Gippsland (Pepper & de Araugo 1985, 34).

At Glencoe, 40 km to the east of Loy Yang, John Campbell acquired a cannon as defence against the *Braiakaulung* who were in the area. In 1845 the Campbells fired the cannon above the heads of a group of *Braiakaulung* who then prepared to attack. According to J. Darlot:

> *...[the Campbells] loaded the gun to the muzzle with nails, broken bottles and anything they could lay hands on, and awaited the final charge of the enemy. As was expected the blacks in a large body and armed with their native weapons made a determined rush to force their way into the building...the gun was discharged right amongst them...many of them were fatally wounded.*
>
> (Pepper & de Araugo 1985, 42)

Despite the intensity of the conflict during the early 1840s, the *Kurnai* on the La Trobe River were still frequently spearing the cattle of run holders as late as 1844 (Synan 1994, 22), indicating a prolonged campaign of resistance to the occupation of their land.

The massacre of Aboriginal people by heavily armed groups of European settlers has been discussed at length by Gardner (1983). Some reported incidences were allegedly in retaliation for the murders of Europeans (1983, 8), while others were killed by 'government' sponsored expeditions carried out in 1847 in search of a 'white woman' thought to be held captive by the *Kurnai* (*ibid*., 10). Henry Meyrick, a squatter who settled at Hastings on the Mornington Peninsula in 1846, wrote of the *Kurnai*:

> *No wild beast of the forest was ever hunted down with such unsparing perseverance...Men, women and children are shot whenever they can be met with...It is impossible to say how many have been shot, but I am convinced that not less than 450 have been murdered altogether...*
>
> (Meyrick 1939, 136-137)

Regardless of the recorded reasons for the massacres, it is probable that many of the atrocities were racially motivated, and undertaken purely to eliminate 'competition' for the resources of the land.
Through the combined influence of disease, conflicts and dispossession, the number of *Kurnai* in the study region rapidly dwindled after European contact. People in search of food and other basic items began living on the fringes of Sale or pastoral stations like Bushy Park, at Maffra, where government rations were available (Penney 1997, 116). By 1857 the *Braiakaulung* population was listed as only 50 people (Pepper & de Araugo 1985, 113).

An Aboriginal camp existed in Sale up to a least 1853 when Charles Tyers was told that this group of Aboriginal people were being supplied alcohol by some of the settlers (Pepper & de Araugo 1985, 98). Aboriginal people were also living at 'The Heart' station, 10 km east of Sale, and two *Braiakaulung* worked for a settler in Sale in 1855. In the early 1860s, the *Braiakaulung* were still a distinct cultural entity; in 1861 the Revd. F. A. Hagenauer observed a large camp at the junction of the Thomson and Macalister Rivers where Ramahyuck Mission was later established (Pepper & de Araugo 1985, 127).

Eventually the remaining members of the *Braiakaulung* were forced to formally move onto Ramahyuck Mission, established in 1862 by the Presbyterian Church, or to Lake Tyers, established in 1863 (Synan 1994, 23). It has been documented that *Kurnai* people, including some from Sale, gathered at Lake Tyers in 1863 to celebrate the reservation of land (Pepper & de Araugo 1985, 125).

When Ramahyuck mission closed in 1907, the remaining residents were sent to Lake Tyers Station. *Kurnai* people continue to live at Lake Tyers today, with the granting of land under the *Aboriginal Lands Act* 1970 giving the station residents formal ownership of the land (Pepper & de Araugo 1985, 221-229 & 262).

The association between Aboriginal people and the Loy Yang district is not well documented at this stage, with the *Braiakaulung*, probably having only infrequent contact with the European squatters who moved into the district. The swift seizure of fine pastoral land in the Latrobe valley quickly dispossessed the people from their territory, effectively preventing them from pursuing their traditional lifestyle. After an initial period characterised by violent conflict and the ravages of disease (1839-1850), the remaining Aboriginal people in the district were forced to eke out an existence on pastoral stations and the fringes of developing townships (e.g. Sale), before being gathered together at Ramahyuck Mission and Lake Tyers Station during the 1860s.

4.9 Review of Reports and Published Work about Aboriginal Cultural Heritage in the Region

Previous archaeological research consists of *regional studies*, which assist in characterising the general pattern of archaeological site distribution across a broad region, and *localised studies*, which assist in developing an understanding of archaeological sensitivity and the extent and scope of prior investigation in a relatively limited area or environment.

Previous archaeological work conducted in the study area consists of two cultural resource management studies, carried out in response to development projects (Djekic 1998; Witter *et al* 1976) and miscellaneous recordings of sites by Dan Witter and Mark Clendon. Despite the amount of previous archaeological research, the archaeology of the Loy Yang district remains largely undocumented. Consequently, a more extensive cultural management study carried out by Jane Wesson and Wendy Beck (1981) to the west of the study area will also be reviewed to provide comparative data for the interpretation of the Aboriginal archaeological record of the study area.

Regional Studies

The following studies have examined the archaeology of the Traralgon district within a regional, rather than a localised context.

The Latrobe Valley Basin study region has received some systematic archaeological assessment, notably by Djekic (1998) and a large cultural resource management project near Morwell (Wesson & Beck 1981). Various minor cultural resource management projects have been undertaken in the region, though these have not added significantly to our understanding of the archaeological record.

Driffield Project (1981)

In 1981 Jane Wesson and Wendy Beck recorded 132 Aboriginal archaeological sites in the Driffield SEC Project Area, 20 km west of the study area. These comprised 22 stone artefact scatters, 109 isolated artefacts, two silcrete quarries and four scarred trees (Wesson & Beck 1981, 27).

The majority of these sites were clustered near the Morwell River and the adjoining Haunted Hills. It should be noted, however, that these areas, in particular the Haunted Hills, also exhibited the greatest degree of surface visibility, and received a correspondingly high degree of survey coverage (Wesson & Beck 1981, 20-22). The results of the Driffield Project found that 36% of the sites occurred on rises/ridges, 35% on hillsides, 10% on creek banks, 10% on undulating land, 5% on flat plains and 5% on river terraces (Wesson & Beck 1981, 47).

As part of the project, stone artefacts were collected from 8 of the 22 sites. The raw materials were analysed in detail, allowing Wesson and Beck to categorise two types of surface scatters (Wesson & Beck 1981, 30-32):

- sites with 80-90% fine grained silcrete;
- sites with at least 10% of the three main raw material types (fine grained silcrete, medium grained silcrete and quartz), but no more than 60% of any one type.

The Driffield Project found that all microliths, retouched and utilised flakes and blade cores were made from fine grained silcrete, suggesting that the first type of artefact scatters were microlith manufacturing sites (Wesson & Beck 1981, 32). It should be noted, however, that tools made up only a small proportion (between 0-10%) of each site assemblage as represented in the collected material.

Localised studies

There are several localised studies of the Traralgon district that have relevance to the current project. The most relevant of these to the current CHMP are the Stages 1-5 management plans undertaken for the Loy Yang Power Management area by Andrew Long and Associates (Long *et al* 1999; Long & Schell 2002; Schell 2004, Schell 2006 and Albrecht 2010).

Loy Yang Power Property Stage 1 (Long *et al.*, 1999)

Long *et al* (1999) carried out a management plan for Stage 1 of the Loy Yang Power Management property, west of the current activity area. The field survey focused on re-identifying registered sites (four scarred trees and three surface scatters) and determining areas of archaeological potential. The four previously recorded Aboriginal scarred trees were inspected, one of these (8221-0014) was determined to be a natural scar, whilst another tree (8221-0016) was no longer present. The remaining two scars (8221-0006, Loy Yang Creek 2 & 8221-0015, Minniedale 1) were determined to be of Aboriginal origin. Three surface scatters (8221-0004 – Loy Yang Creek 1, 8221-0005 – Loy Yang Creek 3 & 8221-0044 – Loy Yang) could not be re-identified due to poor surface visibility and previous surface collections at the sites. During the field assessment three isolated silcrete stone artefacts (8221-0081, Cummings Rd 1, 8221-0082, Cummings Road 2 and 8221-0083, Cummings Road 3) were identified (Long *et al*. 1999, 2).
The management plan determined that the area south of the Hyland Highway varied in Aboriginal archaeological potential. In particular, the Sheepwash Creek area was determined as an area of high Aboriginal archaeological sensitivity (Long *et al*. 1999, 104-5) with stone artefact occurrences and scarred trees predicted to occur in this area.

Loy Yang Power Property Stage 2 (Long & Schell 2002)

Long & Schell (2002) conducted a field assessment of three areas within the Loy Yang Power Management property, areas to the north west, south and south east of the current activity area.
The survey of the study area south of the Old Highland Highway achieved 100% survey coverage. Due to recent ploughing the visibility across this area was moderate to high varying between 15-90%. The survey coverage and visibility of the area north of the Old Highland Highway was limited due to thick grass cover, with the only visibility provided by several firebreaks (Long and Schell 2002, 63-64). In order to better determine the presence of subsurface deposits in the area of low surface visibility north of the Old Highland Highway, 10 test pits were manually excavated along a hill slope adjacent to a tributary of Sheepwash Creek (2002, 66). One surface scatter (8221-0092) and five isolated artefacts (8221-0089, Minniedale Road 1, 8221-0090, Minniedale Road 2, 8221-0091, Minniedale Road 3, 8221-0112, Minniedale Road 3 and 8221-0113, Minniedale Road 4) were located within the study area during the survey south of the Old Highland Highway. All sites comprised diffuse stone artefacts and were recorded in an area that had recently been ploughed, which was considered a major factor in the identification of these sites (2002, 23). No Aboriginal sites were identified during either the survey or subsurface testing north of the Old Highland Highway.

Information on the location of Aboriginal sites and landforms known to be archaeologically sensitive in the region was used by Long & Schell (2002) to identify a zone of *moderate* archaeological potential to contain Aboriginal sites. This zone extended along the side and top of a hill adjacent to a tributary of Sheepwash Creek (2002, 34-35).

The results of the assessment determined that the stone artefact occurrences located within the study area reflect the highly diffuse nature of this site type in areas within the South Victorian Riverine Plains away from major watercourses.

Loy Yang Power Property Stage 3 (Schell 2004)

Subsequent to the Long & Schell (2002) assessment, a subsurface testing and salvage programme was undertaken, targeting the same area (Schell 2004). This aimed to salvage registered Aboriginal site

material and undertake further subsurface testing adjacent to Sheepwash Creek, using mechanical methods.

During the field programme surface visibility in parts of the study area were very high due to recent ploughing and as a result the programme took advantage of these conditions to re-identify Aboriginal site material and increase survey coverage of the study area. The survey identified four additional Aboriginal sites (8221-0121, Minniedale Road Artefact 5; 8221-0122, Minniedale Road Scatter 6; 8221-0123, Minniedale Road Artefact 7; 8221-0124, Minniedale Road Artefact 8) comprised of diffuse stone artefact occurrences, and two silcrete stone artefacts associated with previously registered Aboriginal site (8221-0092, Minniedale Road Scatter 1) (2004, 13, 15).

The salvage and subsurface testing programme involved exposing shallow subsurface deposits to a depth of c. 15 cm at four registered site locations (8221-0089, Minniedale Road 1; 8221-0090, Minniedale Road 2; 8221-0091, Minniedale Road 3; 8221-0092, Minniedale Road Scatter 1) and five transects in an area adjacent to Sheepwash Creek. The areas were exposed with a grader, with deposits stripped off in 5-10 cm layers. No Aboriginal site material was identified during this aspect of the field programme (2004, 13).

The results of the study supported the findings of Long and Schell (2002), in that stone artefact occurrences located within the study area were determined to conform to the existing pattern of surface sites. This pattern comprises diffuse stone artefact sites in undulating plains away from major water courses in this region. The study highlighted the difficulty in identifying these diffuse stone artefacts in the absence of high ground surface visibility provided by ploughing (2004, 19).

Loy Yang Power Property Stage 4 (Schell 2006)

Schell (2006) conducted a field survey and subsurface testing programme of freehold property located north east of the main Loy Yang Power Station complex. This property was approximately 85 hectares in size, and consisted of cleared land that was utilised for pastoral and agricultural purposes. The area was sample surveyed, with a focus on areas of ground surface visibility. There was low ground surface visibility at the time of the survey due to thick pasture grasses. No Aboriginal cultural heritage places were identified during the survey. Mechanical excavation of 13 transects was also undertaken at this time focusing on the area north of Sheepwash Creek. The majority of these transects revealed light to moderately brown loamy soil overlying red brown clay at the base. No Aboriginal cultural heritage material was identified during these excavations (Schell 2006, 16). Schell determined that the study area was of low Aboriginal archaeological potential due to the landforms present within the property and the known distribution of Aboriginal cultural heritage places in the region.

Loy Yang Power Management Stage 5 (Albrecht 2010)

Albrecht (2010) conducted a field survey and subsurface testing programme for a cultural heritage management plan on behalf of Loy Yang Power Management for the proposed expansion of the open-cut coal mine (Albrecht 2010, 7). One silcrete surface artefact was identified during the field survey. The subsurface testing programme consisted of the hand excavation of a series of 40cmx40cm shovel test pits and three 1x1m test pits within two areas identified during the standard assessment has having moderate and moderate to high Aboriginal archaeological potential. These areas consisted of a gully formed by an unnamed tributary of Sheepwash Creek and Sheepwash Creek itself (Albrecht 2010, 52). The remaining general testing areas identified during the standard assessment as having low to moderate Aboriginal archaeological testing were tested with the excavation of 19 mechanical transects and a 1x1m test pit. There were three previously registered Aboriginal cultural heritage places, comprising isolated artefact sites, within the activity area at the time of the commencement of the CHMP. The locations of the three previously registered Aboriginal heritage places were all subject to targeted shovel test pitting to determine the nature and extent of these sites. During this testing one artefact was located at one of these sites (8221-0081), however the other two sites were not relocated

(Albrecht 2010, 58). One 1x1m test pit, one shovel test pit and three of the mechanical test pits excavated across the activity area contained Aboriginal stone artefacts (Albrecht 2010, 66). A total of 13 artefacts were identified during the testing programme, 11 of these were silcrete, and two were quartz (Albrecht 2010, 70). Most of these artefacts (n=7) were located during the excavation of a 1x1m test pit near Sheepwash Creek at a depth range of 100-150mm. A total of 6 Aboriginal cultural heritage places (artefact scatters) were identified during the testing, and Albrecht recommended that one of these artefact scatters located adjacent to Sheepwash Creek (8221-0149) be subject to a salvage programme.

Loy Yang Gas Pipeline (Nicolson & Amorosi 2000; Goulding & Schell 2001)

Nicolson and Amorosi (2000) carried out a preliminary Aboriginal and historical cultural heritage assessment of a gas pipeline, the southern section of the route follows the alignment of the proposed Hyland Highway deviation (area A). The assessment involved inspecting the area from nearby roads and a pedestrian survey component.[4] No sites were identified during the assessment however the area was assessed as having Aboriginal archaeological potential.

Goulding & Schell (2001) surveyed the entire gas pipeline route by pedestrian transects at 5 m intervals, however the only area south of the Hyland Highway which provided any ground surface visibility was within the plantation section of the route. To provide a better indication of the nature of cultural material in surface and subsurface deposits in areas of low visibility 5 test pits (40 x 40 cm x 20 cm) were undertaken at the Sheepwash Creek crossing area. No cultural material was located as a result of the survey or subsurface testing program.

Latrobe Coalfields Survey (1981)

Djekic (1998) conducted a survey of the Latrobe Valley Coalfields in 1981, including a section of the Traralgon Coalfield on which the study area is located. The following summary relates to Djekic's survey results in the Traralgon Coalfields region.

Djekic examined foothills and downs and river valley land systems at Loy Yang (Djekic 1998, 17). The survey concentrated on areas of high visibility around the current overburden heap and the pipeline easement which runs west from Loy Yang Power Station (Djekic 1998, 17-18). A total of four surface scatters, four isolated finds and a scarred tree were identified in this area. (Djekic 1998, Figure 4).

The Latrobe Coalfields Project concluded that the stone artefact scatters in the Traralgon Coalfields contained a high representation of lithic implements (30% to 60% of the assemblage) in the form of retouched, utilised and backed flakes (Djekic 1998, 31). This pattern in the relative proportion of implements was not repeated in the remainder of the study area (Djekic 1998, 31), indicating some degree of specialised usage at this location.

Loy Yang – Bass Strait Pipeline (1976)

In 1976 Dan Witter, Stewart Simmons and Peter Irish undertook an archaeological survey of a 55 km long pipeline easement between the Loy Yang Power Station and Lake Denison. They recorded 13 artefact scatters, four shell middens, four potential 'burnt mounds' and two cooking pits. No sites were recorded within LYPM Property. Elsewhere along the route, sites were recorded on frontal dune, terrace edge, lowland plain, upland ridge, stream valleys and terrace landforms (Witter *et al* 1976, 8). On more detailed investigation, the burnt mounds were found to be natural features (Simmons 1983). No particular distribution pattern was identified between site type and environmental context, aside from broad resource based associations (ie. water availability and campsites; shell middens and the coastal margin).

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[4] The entire area was not subject to a pedestrian survey, as access to private land had not been negotiated.

Miscellaneous VAS / AIAS Recordings (1975)

The majority of sites currently identified in the study area were the result of miscellaneous recording by Dan Witter (VAS) and Mark Clendon (AIAS) in 1975. They recorded two artefact scatters (8221-0004 – Loy Yang Creek 1 & 8221-0005 – Loy Yang Creek 3) and six scarred trees (8221-0006, Loy Yang Creek 2 and 8221-0012, Traralgon South 2, 8221-0013, Traralgon South 3, 8221-0014, Minniedale Road, 8221-0015, Minniedale 1 and 8221-0016, Minniedale 2). The artefact scatters were recorded adjacent to Sheepwash Creek, and consisted of dispersed milky quartz and flint lithics (8221-0014 and 8221-0016 were later deemed to be natural scars).

The scarred trees were mainly present eucalypts distributed across the undulating plains of the north section of the LYPM property. More recent inspection has revealed the Aboriginal origin of some these scars to be doubtful.

4.10 A Review of the History of the Use of the Activity Area

Aboriginal peoples' occupation of the study area likely extends over thousands of years. This occupation would have taken the form of temporary camps used on a seasonal basis, making use of diverse resources in the area. The landscape was undoubtedly well known to generations of people and it is probable that associations extended to spiritual attachments (see Section 4.8).

Squatting runs were established in the wider Loy Yang region following the initial exploration of the area by Paul Strzelecki and Angus McMillan between 1839 and 1841 (Spreadborough & Anderson 1983), though the impact on the environment during this period was limited to the introduction of exotic grasses and understorey species. A survey plan depicting the location of the Loy Yang Pre-emptive Right (LSIC 8724) has indicated that during the 1850s the rolling plains of Loy Yang region were characterised by grassland and open forest composed of 'white gum, box, lightwood and peppermint'. The selection of freehold agricultural allotments during the latter 19th century resulted in land clearance and ploughing, which had a more significant impact on the landscape. These processes have steadily continued to the present day, with much of the original forest cover being lost through land clearance and logging; pastoralism remains the dominant land use of the northern section of the study area.

Extensive coal extraction began in the Latrobe valley with the establishment of the Great Morwell Coal Mining Company in 1887 (Drucker 1984, 46-47), though this activity was generally on a small scale. The development of electricity generation lead to the search for suitable coal reserves in the post-World War I period, and the establishment of the Yallourn open-cut and power station in the early 1920s, which began supplying electricity to Melbourne in 1924. During the ensuing decades several additional power stations and open-cut mines were established in the Morwell and Yallourn districts, leading to the current industrial landscape of the Latrobe valley.

Despite the likely occurrence of brown coal exposures in the Sheepwash Creek valley, there is no available evidence to suggest that extraction of coal took place within the study area until the establishment of the Loy Yang Power station.

In the 1970s the State Electricity Commission began purchasing properties in the Loy Yang district for the purpose of brown coal extraction (Huffer 1979, 84) and in 1977 work commenced on the Loy Yang Power Station (Court 1976). Approximately 20 km^2 within the west central section of the study area is utilised in the extraction of brown coal and associated infra-structure.

Very little remnant vegetation exists in the study area, with the exception of remnant mature river red gum (*E. camaldulensis*) specimens in road reserves and the predominantly cleared agricultural paddocks.

The area is largely comprised of cleared land, although some areas of regenerated native woodland exist in the southern section of the broader study area.

The Old Hyland Highway area bisects land currently being used for pastoral and silviculture purposes. This area has been subject to ground disturbance through the clearing of native vegetation, dam and fence construction. Ploughing activities have also been carried out in the area.

4.11 Implications

By comparing the results of the background research and the archaeological investigations previously undertaken with the study region, the following conclusions can be drawn regarding the nature of Aboriginal archaeological material within the activity area:

- Ethnographic observations indicate that the activity area is located within the traditional language boundary of the *Braiakaulung* people, a sub-group of the *Kurnai* or *Ganai* Aboriginal people. The *Bunjil Kraura* are the clan from this language group who are associated with the Traralgon region.

- The activity area contains a single minor drainage line (Sheepwash Creek) that runs north-south along the western portion of the activity area, and a minor unnamed ephemeral tributary of Sheepwash Creek that forms a gully in the top northern portion of the activity area. River and creek corridors were important locations for Aboriginal people exploiting the riverine resources of the Latrobe River and smaller swamps and tributaries, such as Flynns Creek and Sheepwash Creek, therefore there is a possibility that Aboriginal cultural heritage places may be identified along these waterways.

- Development of the land for pastoral and farming land use activities will have impacted upon the preservation of archaeological materials relating to Aboriginal occupation of the area. Historical activities that would have occurred within the activity area would have been directly associated with the pastoral and later agricultural development of the region. Vegetation clearance and agricultural uses of the activity area will have contributed to the disturbance of surface and shallow subsurface Aboriginal cultural heritage places.

- Previous archaeological work in this region has demonstrated that diffuse isolated stone artefact occurrences will be the most common site type in the activity area, with scarred trees also a possibility. The majority of the stone artefacts that have been identified within the study region are made from silcrete and quartz with chert and quartzite also represented to a lesser degree.

- The previous archaeological field surveys and subsurface testing programmes undertaken across the study region have provided adequate assessment of obtrusive site types such as scarred trees, however poor ground surface visibility has been a major factor in the identification of stone artefact scatters and any shallow subsurface remains such as stone artefact scatters and burials.

- There is low to moderate potential for Aboriginal archaeological sites to have survived *in situ* in the activity area due to the known presence of diffuse stone artefacts on the South Victorian Riverine Plains in the Traralgon area. The long history of intensive land use and the removal of most of the native vegetation over the property have resulted in the disturbance of the majority of the original topsoil across the activity area, which will have affected the survival of *in situ* Aboriginal archaeological deposits.

- The activity area has been modified as a result of previous land clearing and other land uses of the property. The modifications that have occurred to the activity area (such as land clearing and other land uses of the property) may have impacted the survival of intact archaeological deposits, although the potential for archaeological materials to be present cannot be discounted. There are 23 Aboriginal cultural heritage places located within the geographic region containing the activity area, with the majority of these sites comprising surface artefact scatters. As shown by the results of the desktop assessment, it is possible that Aboriginal cultural heritage will be present within the activity area therefore a standard assessment was carried out under Regulation 58 (1).

5

STANDARD ASSESSMENT

5.1 Introduction

This section outlines the aims, methods and results of the field survey undertaken for the activity area, including descriptions of individual survey areas.

5.2 Previous Sites

There were no previously registered Aboriginal cultural heritage places within the activity area at the time of the current survey.

5.3 Method of Assessment

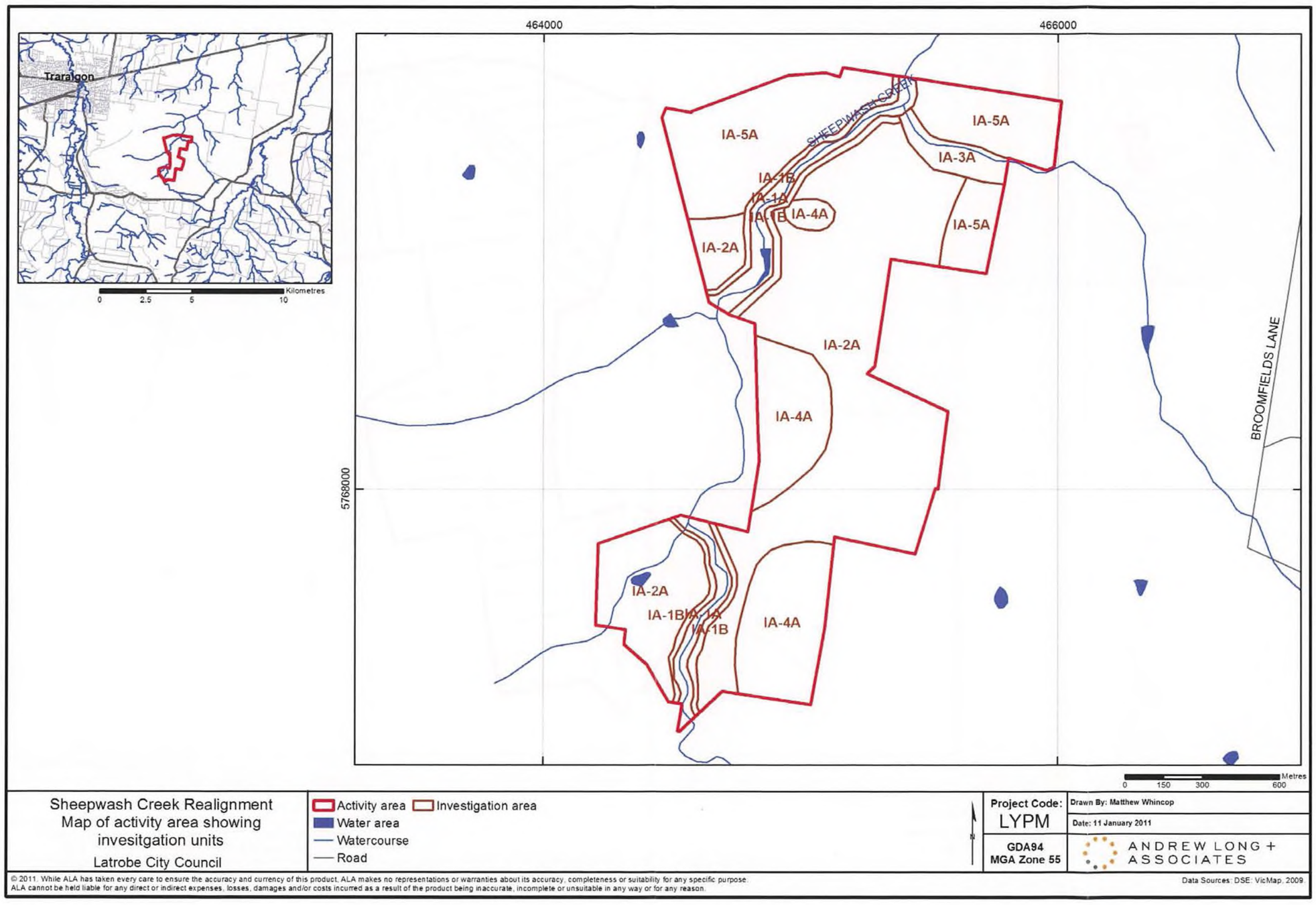
The aims of the current field survey were twofold:

- to inspect all areas with ground surface visibility for Aboriginal archaeological sites within the activity area;
- to undertake a general assessment of the overall archaeological potential of the activity area.

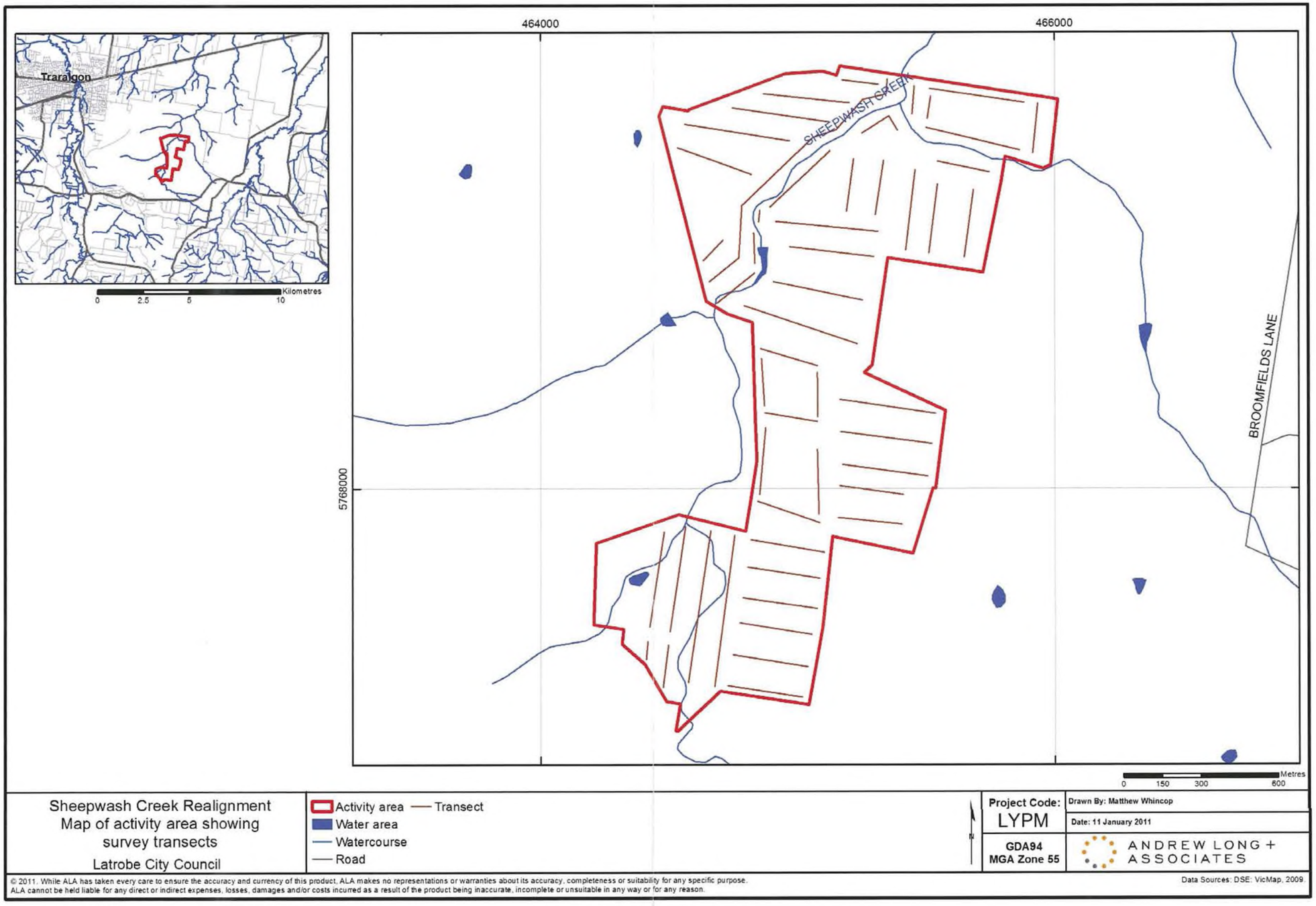
The field survey strategy was dictated by a need to systematically examine all landforms present in the activity area. Due to the large size of the activity area a combined pedestrian and vehicular field survey was undertaken. The activity area was divided into five Investigation Areas (IA), with Investigation Area 1 further divided into two Investigation Units based on differences in landform. Investigation Areas 1A and 1B are located in the south western and north western sections of the activity area and focus on and around Sheepwash Creek; Investigation Area 2 is the flat to very gently inclined plains landform that can be found across most sections of the activity area; Investigation Area 3 is the gully in the north western portion of the activity area; Investigation Area 4 contains the gentle ridges that overlook the creek and wetland areas associated with the Creek, and Investigation Area 5 is the moderately to steeply inclined rises within the northern section of the activity area (refer to Map 7).

The standard assessment took place on 13-14 September 2010. The survey was undertaken by a combination of vehicular and pedestrian transects that targeted sections of the activity area containing potentially archaeological sensitive landforms such as water sources, ridgelines and rises. The pedestrian transects were spaced with both people in the field team approximately 2-3 metres apart, and each individual examining all surface exposures within the activity area in accordance to archaeological practice outlined in Burke and Smith (2004, 65-69). The activity area was generally examined in east-west transects, with some transects also walked north to south. Several sections of the activity area, especially the heavily grassed gently undulating pasture land in the southern portion of the activity area, were

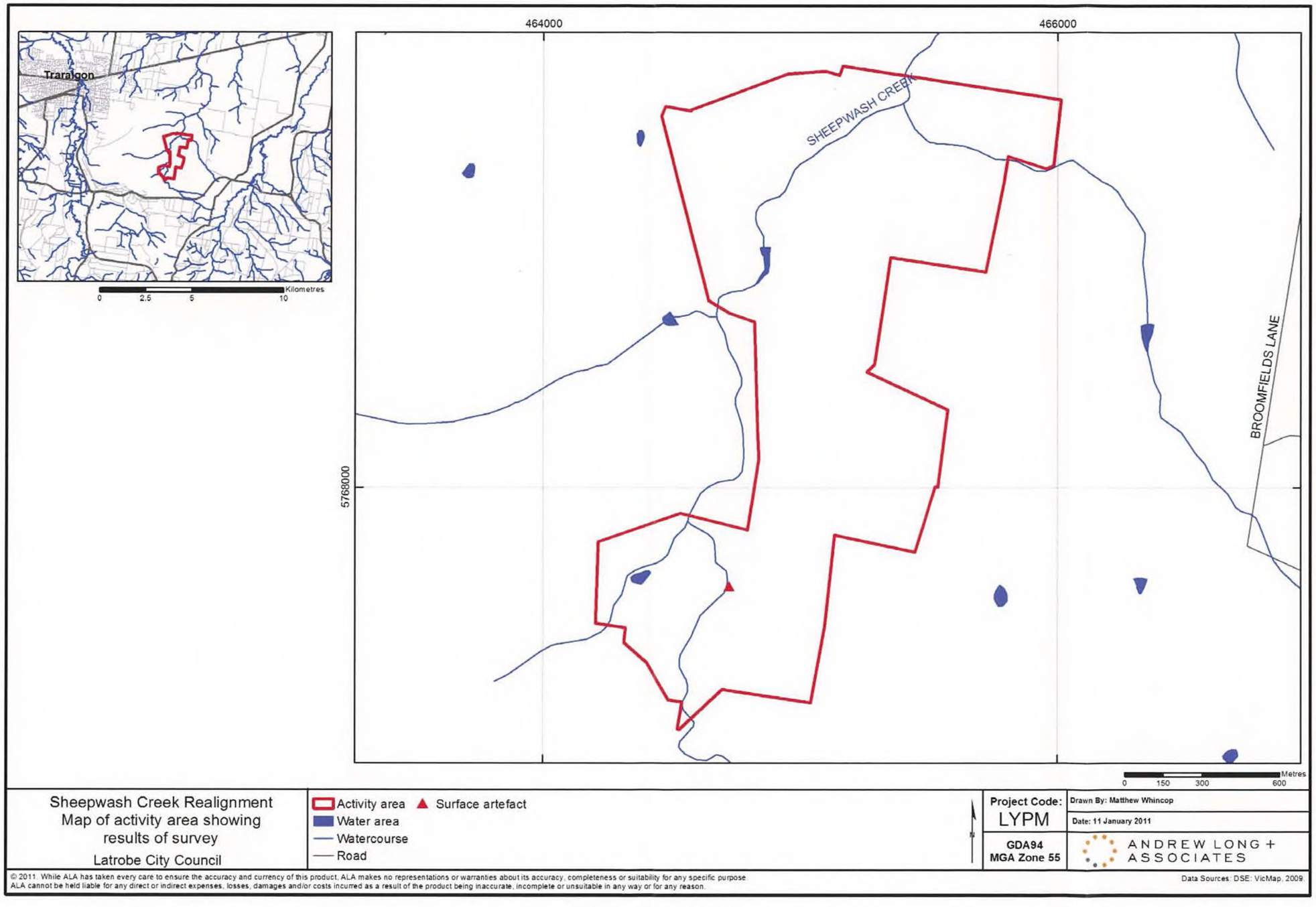
examined by vehicular transects. Sections of the ground surface with good visibility were then examined by pedestrian survey (Map 8). Ground surface visibility across the activity area was extremely limited due to a thick grass cover. Pedestrian spacing was sufficient to identify any areas of significant ground exposure and these areas were extensively targeted (refer to Tables 9 to 14). The average ground surface visibility of the activity area ranged between 1-3 % at the time of the survey. All of the mature trees within the activity area were examined for cultural scarring, however no culturally scarred trees were identified during the standard assessment. There were no caves or overhangs present within the activity area.



Map 7: Investigation Area (IA) used during the standard assessment.



Map 8: Survey Transects



Map 9: Map of survey results

5.4 Obstacles

Thick short and long grass cover obscured the ground surface visibility over much of the activity area. Overall there were moderate levels of disturbance across the activity area, with the property having been cleared for agricultural purposes probably during European settlement of the region.

5.5 Participants Involved in the Standard Assessment

Participant	Organization	Position	Component	Date(s)
Melinda Albrecht	ALA	Project Manager	Standard Assessment	13-09-10 14-09-10
Lloyd Hood	Gunai Kurai Land and Waters Aboriginal Corporation	Representative	Standard Assessment	13-09-10 14-09-10

Table 8: Participants involved in the Standard Assessment

5.6 RAP Information

Please note no oral information was collected during the standard assessment.

5.7 Results

For the purposes of the field survey the activity area was divided into five different Investigation Areas (Map 7). A description of each Investigation Area is presented below in Tables 9 to 14.

Investigation Area 1	Investigation Area 1A	Aboriginal Place Identified	NO
Survey Method	Pedestrian/Vehicular	Type	-
Sampling Strategy	Sample	List	--
No. of Participants	2	Historical Place Identified	NO
Transect Width	4-6m	Type	--
Transect Spacing	2-3m	Archaeology Sensitivity Rating	Moderate-high
Visibility		Disturbance Rating	Moderate
Exposure(s)		Comments	This Investigation Area contains Sheepwash Creek, and is utilised for agricultural purposes, primarily sheep grazing. Contains some modified native vegetation such as tea tree/Melaleuca stands within the northern portion of this IA
% ground cover on exposure(s)	5%		
% surface visibility on exposure(s)	90%		
% ground cover off exposure(s)	95%		
% surface visibility off exposure(s)	1%		
Average ground surface visibility	5.45%		
Environment			
Environmental Settings	Inland		
Landform and Land systems	Lowland		
Slope	Level/flat ground to very gently inclined (>0.5 -1.5˚)		
Locality Landforms	Creek		
Water	Sheepwash Creek		
Disturbance	Cleared of most native vegetation		
Previous + Current Land use	Agricultural – sheep grazing.		
Vegetation			
Vegetation Condition	Modified Native Vegetation/agricultural		
Vegetation Type	Grassland		
Major Vegetation Types	Tea Tree/Melaleuca stands		

Plate 1: Flat to very gently inclined creek bed of IA-1A_14September10_Melinda Albrecht

Table 9: Investigation Unit 1A

Investigation Area 1	Investigation Unit 1B	Aboriginal Place Identified	YES
Method	Pedestrian/Vehicular	Type	Isolated artefact
Sampling Strategy	Sample	List	1 stone artefact
No. of Participants	2	**Historical Place Identified**	NO
Transect Width	4-6m	Type	--
Transect Spacing	2-3m	**Archaeology Sensitivity Rating**	Moderate
Visibility		**Disturbance Rating**	Moderate
Exposure(s)		**Comments**	Flat to very gently inclined plains overlooking Sheepwash Creek. This Investigation Area is utilised for agricultural purposes, such as sheep grazing. Dense grass cover across most of this IA, with some soil exposures near dams
% ground cover on exposure(s)	5%		
% surface visibility on exposure(s)	90%		
% ground cover off exposure(s)	95%		
% surface visibility off exposure(s)	2%		
Average ground surface visibility	6.4%		
Environment			
Environmental Settings	Inland		
Landform and Land systems	Lowland		
Slope	Level/flat ground to very gently inclined (>0.5 -1.5˚)		
Locality Landforms	Creek/flats and plains		
Water	Located adjacent to Sheepwash Creek		
Disturbance	Cleared of most native vegetation		
Previous + Current Land use	Agricultural – sheep grazing.		
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	Grassland		
Vegetation Types	Cleared		

Plate 2: Flat to very gently inclined plains adjacent to Sheepwash Creek IA- 1B_13September10_Melinda Albrecht

Table 10: Investigation Unit 1B

Investigation Area 2	Investigation Unit 2A	Aboriginal Place Identified	NO
Survey Method	Pedestrian/Vehicular	Type	--
Sampling Strategy	Systematic	List	--
No. of Participants	2	Historical Place Identified	NO
Transect Width	4-6m	Type	--
Transect Spacing	2-3m	Archaeology Sensitivity Rating	Low to moderate
Visibility		Disturbance Rating	Moderate
Exposure(s)		Comments	Very gently inclined plains landform. This Investigation Area is utilised for agricultural purposes, such as sheep grazing and contains dams, and a wheat crop in the central portion of the activity area
% ground cover on exposure(s)	3%		
% surface visibility on exposure(s)	10%		
% ground cover off exposure(s)	97%		
% surface visibility off exposure(s)	5%		
Average ground surface visibility	5.15%		
Environment			
Environmental Settings	Inland		
Landform and Land systems	Lowland		
Slope	Very gently inclined (>0.5-1.5°)		
Locality Landforms	Plains		
Water	None		
Disturbance	Cleared for agricultural uses; ploughed		
Previous + Current Land use	Agricultural – sheep grazing, wheat crop		
Vegetation			
Vegetation Condition	Agricultural		
Vegetation Type	Grassland		
Major Vegetation Types	Cleared		

Plate 3: Very gently inclined plains landform of IA-2A_13September10_Melinda Albrecht

Table 11: Survey Unit 2A

Investigation Area 3	Investigation Unit 3A	Aboriginal Place Identified	NO
Method	Pedestrian/Vehicular	Type	-
Sampling Strategy	Systematic	List	--
No. of Participants	2	**Historical Place Identified**	NO
Transect Width	4-6m	Type	--
Transect Spacing	2-3m	**Archaeology Sensitivity Rating**	Moderate
Visibility		**Disturbance Rating**	Moderate
Exposure(s)		**Comments**	Flat to very gently inclined tributary. This Investigation Area has been cleared of most native vegetation. Dense tall grass cover and wet underfoot.
% ground cover on exposure(s)	1%		
% surface visibility on exposure(s)	2%		
% ground cover off exposure(s)	99%		
% surface visibility off exposure(s)	1%		
Average ground surface visibility	1%		
Environment			
Environmental Settings	Inland		
Landform and Land systems	Lowland		
Slope	Flat (0.5') to very gently inclined (0.5-1.5°)		
Locality Landforms	Drainage line/Gully		
Water	Tributary of Sheepwash Creek		
Disturbance	Cleared of most native vegetation		
Previous + Current Land use	Currently fenced, although possible sheep grazing		
Vegetation			
Vegetation Condition	Agricultural/modified native vegetation		
tion Type	Grassland		
Major Vegetation Types	Grassland		

Plate 4: Flat to very gently inclined tributary of IA-3A_14September10_Melinda Albrecht

Table 12: Investigation Unit 3A

Investigation Area 4	Investigation Unit 4A	Aboriginal Place Identified	NO
Survey Method	Pedestrian/Vehicular	Type	-
Sampling Strategy	Systematic	List	-
No. of Participants	2	Historical Place Identified	NO
Transect Width	4-6m	Type	--
Transect Spacing	2-3m	Archaeology Sensitivity Rating	Moderate to low
Visibility		Disturbance Rating	Moderate
Exposure(s)		Comments	Gentle ridges overlooking creek/wetland areas associated with creek
% ground cover on exposure(s)	1%		
% surface visibility on exposure(s)	3%		
% ground cover off exposure(s)	99%		
% surface visibility off exposure(s)	2%		
Average ground surface visibility	2%		
Environment			
Environmental Settings	Inland		
Landform and Land systems	Lowland		
Slope	Very gently inclined to gently inclined (1.5-5.5°)		
Locality Landforms	Flats/Plain and ridge		
Water	None		
Disturbance	Cleared for agriculture		
Previous + Current Land use	Sheep grazing, ploughing.		
Vegetation			
Vegetation Condition	No vegetation/bare land		
Vegetation Type	Grassland		
Major Vegetation Types	Grassland		

Plate 5: Very gently to gently inclined plains landform of IA-4A_13September10_Melinda Albrecht

Table 13: Investigation Unit 4A

Investigation Area 5	Investigation Unit 5A	Aboriginal Place Identified	NO
[illegible]Method	Pedestrian/Vehicular	Type	-
S[illegible]g Strategy	Systematic	List	-
No. of Participants	2	**Historical Place Identified**	NO
Transect Width	4-6m	Type	--
Transect Spacing	2-3m	**Archaeology Sensitivity Rating**	Moderate to high
Visibility		**Disturbance Rating**	Moderate
Exposure(s)		**Comments**	Rises overlooking water sources
% ground cover on exposure(s)	3%		
% surface visibility on exposure(s)	98%		
% ground cover off exposure(s)	97%		
% surface visibility off exposure(s)	2%		
Average ground surface visibility	4.88%		
Environment			
Environmental Settings	Inland		
Landform and Land systems	Lowland		
Slope	Moderately to steeply inclined (5.6-30°)		
Locality Landforms	Ridge/Rise		
Water	None		
Disturbance	Cleared of native vegetation. Contains former potato paddock and pasture grass		
Previous + Current Land use	Agricultural – sheep grazing, crops, pasture land.		
Vegetation			
V[illegible]tation Condition	No vegetation/bare land – agricultural		
V[illegible]tion Type	Grassland		
Major Vegetation Types	Grassland		

Plate 6: Moderately to steeply inclined rise of IA-5A_14September10_Melinda Albrecht

Table 14: Investigation Unit 5A

5.9 Implications

On conclusion of the systematic field survey there was one Aboriginal cultural heritage place identified within the activity area (Map 9). This Aboriginal cultural heritage place was an artefact scatter represented by an isolated surface artefact that was located on a dam embankment in the south western section of the property (identified as Investigation Area 1B). This site was situated in a highly disturbed context, atop a built up dam bank (Plate 7). There were no other stone artefacts located in this area during the survey.

Plate 7: Dam bank where surface artefact was identified during standard assessment, facing south_13Sept10_Melinda Albrecht

At the time of survey grass cover greatly inhibited ground surface visibility and obscured sediments. There were grain crops growing in several of the paddocks that make up the activity area, as well as short pasture grass covering the majority of the area at the time of the standard assessment.

As a result of standard assessment and incorporating the results of the desktop assessment (see Section 4.11) the sections of the activity area occurring within Investigation Area 1A (IA-1A), comprising Sheepwash Creek and IA-1B containing the areas adjacent to the creek, were considered to be of moderate to high cultural heritage sensitivity (Map 7). The moderately to steeply inclined rise overlooking water sources within the northern portion of the activity area (IA-5A) was considered to be of moderate to high archaeological sensitivity. The gully in the north east of the activity area and the land adjacent to the tributary of Sheepwash Creek was assessed as having moderate archaeological sensitivity (IA-3A). The gently inclined ridges overlooking the creek and wetland area (IA- 4A) was assessed as having moderate to low archaeological sensitivity. The remainder of the alignment occurring within IA-2A, consisting of very gently inclined plains, was considered to be of low-to moderate cultural heritage sensitivity.

One Aboriginal cultural heritage place (8221-0158, Cummings Road 7), an isolated surface artefact found in a highly disturbed context, was identified as part of the standard assessment within Investigation Area 1B. Due to the possibility that Aboriginal cultural heritage could be present within the lesser disturbed sections of the activity area, further investigation of the activity area was required. It was therefore deemed necessary to undertake subsurface testing as part of a complex assessment to identify the nature, extent and significance of potential Aboriginal cultural heritage in accordance with Regulation 60 (1b).