

15 March 2023

Attention: Suzanne Laucht, Associate Scientist - Planning and Assessment SMEC 74 Hunter Street Newcastle, NSW 2300

Dear Suzanne,

Re: Muswellbrook Pumped Hydro Energy Storage – Lower Reservoir Aboriginal Heritage Management

Extent Heritage Pty Ltd (Extent Heritage) has been engaged by SMEC to assess the potential for Aboriginal cultural heritage of 'the lower reservoir' at Bells Mountain, near Muswellbrook, New South Wales ('study area'). The lower reservoir will form part of an ongoing program of geological investigation into the location of the proposed pumped hydro pipeline and associated infrastructure. That geological investigation will involve two boreholes and seven test pits in as many locations and associated tracks.

There is also a proposed 'upper reservoir'. This will be the subject of a separate report based on additional fieldwork.

The proposed boreholes and test pits would be drilled using a tracked drilling rig and rod carrier. This would cause localised ground disturbance in an area of some 15m x 15m at the drill site. The drilling rig and rod carrier would also be accompanied by various support vehicles including, but not limited to, MR sized rigid support trucks and water cart, LV 4wd vehicles, and the placement of water tanks. The work would also include less invasive activities in an area of some 15 x 15m around the boreholes (e.g., movement of heavy vehicles and pedestrian activity) and geophysical surveys (seismic refraction/reflection) which involves no ground disturbance or vegetation clearing. The program of borehole and test pit investigation would also involve the grading of tracks and management of tracks as illustrated in Figure 1.

To ensure full coverage during the cultural heritage survey a buffer was placed on all project works. A 30m x 30m area was surveyed for all drilling locations and a 10m corridor for all tracks. Applying this buffer makes sure that the entire disturbance footprint was surveyed and any potential sites within close proximity would be identified.

Those areas that were surveyed by archaeologists for this report are illustrated in Figure 13-Figure 29.

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SMEC is required to take into consideration the potential Aboriginal heritage impacts of the geotechnical activities in accordance with the NSW Minerals Industry *Due Diligence Code of Practice of the Protection of Aboriginal Objects in New South Wales* (NSW Minerals Council 2010) (Appendix A). This report has also been undertaken in accordance with the principles contained in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) (Appendix A). This report, and the fieldwork that it is based on, did not involve engagement with representatives of the relevant Aboriginal community. This is also reflected in the recommendations contained in this report.

In summary, no Aboriginal artefacts or places were identified in the areas surveyed during the due diligence inspection. Those parts of the study area that could be surveyed have been disturbed by a number of different factors, including land and vegetation clearance for historic farming practices and the construction of Muswellbrook Coal Company's open pit. These types of disturbance have impacted topsoils in the surveyed parts of the study area, and as a result those parts are assessed as having low potential to contain significant Aboriginal cultural objects or sites. Although four registered AHIMS sites are within close proximity to the project area (<100m) all those sites are outside the proposed project footprint and the planned geotechnical works program.

The two surveys conducted on the study area were limited by adverse weather conditions, access issues in some places, and by poor ground surface visibility. Due to heavy rainfall the first survey team was not able to access the project area where it extends into the higher elevations of Bells Mountain. The increased rainfall over the previous three years has caused significant growth in vegetation across the project area. This vegetation limited the ground surface visibility and reduced the effectiveness of the cultural heritage survey.

Although the above limitations impacted the effectiveness of the survey, the survey team was still able to assess the potential cultural heritage implications of the geotechnical works program in the lower reservoir, subject to those limitations. The proposed development is assessed as having low risk of harming Aboriginal objects or places there. Therefore, it is appropriate for the works to proceed with caution in the lower reservoir area, and in accordance with the recommendations below.

Should you have any queries in relation to our report, please do not hesitate to contact Reiner Mantei on 0422 486 468.

Yours sincerely,

Reiner Mantei Senior Heritage Advisor | Extent Heritage



1. Report aims and objectives

This report:

- Identifies any Aboriginal objects or places within the study area identified by survey, desktop research and Register searches, including areas where there is elevated potential for Aboriginal objects to be present below the ground surface. 100% coverage of the study area was not achieved so there is potential for unidentified Aboriginal objects to exist there. However, the proposed geological investigation will involve two boreholes and seven test pits in as many locations, with each potentially requiring vegetation clearance in an area measuring 15 x 15m. The survey underpinning this report only achieved 100% coverage of one borehole (BH12) and four test pits (TP1 TP4) and surrounds, and of all pre-existing access tracks. Due to dense vegetation coupled with steep terrain the survey team was not able to effectively survey TP5, TP6, TP7, BH11, and their associated tracks.
- Assesses the scientific significance of any identified Aboriginal objects or places.
- Evaluates and discusses the impacts of the proposed works on identified Aboriginal objects or places.
- Recommends baseline management measures for the proposed impacts to identified Aboriginal objects or places.
- Has been completed in accordance with the following requirements and guidelines:
 - Statutory requirements under the National Parks and Wildlife Act 1974.
 - 'Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales' (Department of Environment, Climate Change & Water [DECCW] 2010a).
 - 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' (DECCW 2010b) (the 'Due Diligence Code of Practice').

To satisfy the objectives of this report, the following tasks have been completed:

- Review of existing archaeological data, including assessments previously completed within the vicinity of the study area and relevant heritage databases.
- Investigation of the environmental context of the study area.
- Synthesis of the background information into a predictive model to inform an assessment of archaeological potential across the study area.
- Completion of an archaeological survey of the study area to test the results of the predictive model and further inform an assessment of archaeological potential.





Figure 1. Overview map of Lower Reservoir study area.



1.1 Limitations

This assessment is limited to advice regarding Aboriginal heritage risks and compliance requirements. It does not include consideration of risks that may be associated with historical archaeology, built and urban heritage, maritime heritage, locally listed heritage schedule items, Native Title or landscape heritage, as these items will be addressed in a proposed ACHAR report.

The advice is based on relevant Aboriginal heritage register searches, desktop research, site inspection adopting a sampling strategy, and identification of any heritage constraints, risks and permit approval requirements.

The survey of the area was limited due to significant ground vegetation coverage and adverse weather conditions. This made some areas inaccessible. The Ground Surface Visibility (GSV) was generally poor across the study area due to good rainfall in the preceding three years.

1.2 Authorship

This report was authored by Reiner Mantei (Senior Heritage Advisor), Lisa Flemwell (Research Assistant), and Catherine Fenech (Heritage Advisor). Mapping was completed by Mariska Marnane and Alex Murphy.



2. Legislative Protection for Aboriginal Heritage in NSW

In NSW all Aboriginal objects and places (whether recorded or as yet undiscovered) are protected by the *National Parks and Wildlife Act 1974* (the Act or NPW Act).

Under Section 86 of the Act, it is an offence to 'harm or desecrate' an 'Aboriginal object' or 'Aboriginal place' without the approval of the Director General of the Department of Planning, Industry and Environment (DPIE).

An 'Aboriginal object' is defined by the Act as:

any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.

An 'Aboriginal place' is defined by the Act as:

any place declared to be an Aboriginal place under section 84 (i.e. a gazetted place).

'Harm' excludes 'trivial or negligible' damage but is otherwise widely defined by the Act to mean 'any act or omission that':

- (a) destroys, defaces or damages the object or place, or
- (b) in relation to an object-moves the object from the land on which it had been situated, or
- (c) is specified by the regulations, or
- (d) causes or permits the object or place to be harmed in a manner referred to in paragraph (a), (b) or (c).

An offence under Section 86 of the Act could result in prosecution and significant penalties.

Heritage NSW has established a range of regulations, codes and guidelines as a framework for managing Aboriginal heritage in NSW. The staged risk management process can be summarised in the following steps:

1. Any proposed activity that may cause harm to known Aboriginal objects or places will require an Aboriginal Heritage Impact Permit (AHIP) approval prior to commencement of that activity.

An Aboriginal Cultural Heritage Assessment (ACHAR) report must be completed in support of an AHIP application to Heritage NSW.

2. There are certain exemptions in relation to 'low impact activities' under Section 58 of the *National Parks and Wildlife Regulation 2019.* These exempted low impact activities are



applicable only in areas that do not contain known Aboriginal objects or gazetted Aboriginal places.

3. The 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW' (DECCW, 2010) provides risk-based guidance regarding when an ACHAR report should be prepared in advance of a development proposal. The risk-based process is based around identification of projects that are 'likely' to harm Aboriginal objects or places.

There are Commonwealth government heritage requirements under the *Environment Protection* and *Biodiversity Conservation (EPBC) Act 1999* and the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHP) Act 1984*.

The EPBC Act will only apply to Aboriginal heritage places of National significance (of 'outstanding value to the nation').

The ATSIHP Act empowers the Commonwealth minister to make a declaration to halt proposed activities that might harm a 'significant Aboriginal area', being a place 'of particular significance to Aboriginals in accordance with Aboriginal tradition'. The Commonwealth minister will only exercise that power where they are of the opinion that the State legislation does not include appropriate protections.

The present report is intended to assist SMEC to meet its due diligence requirements in relation to borehole investigations and access tracks for the lower reservoir site having regard to the above legislation, especially the NPW Act. It is a Stage 1 investigation based on desktop research and supported by observations made during fieldwork at and around the lower reservoir. This report is not a full ACHAR. It is designed to inform a proposed 'geotech DA'. It may be augmented in the future to make a formal ACHAR for development in both the upper and lower reservoir. It is not presently an ACHAR sufficient to support an application for an AHIP in accordance with section 90 of the *National Parks and Wildlife Act 1974*.

There may be situations where an AHIP is not required. These include where the proposed activity is classified as State Significant Development under the *Environmental Planning & Assessment Act 1979*. This report assumes that the standard provisions of the *National Parks and Wildlife Act 1974* will apply to the proposed borehole excavations.

As noted above, an AHIP is also not required for activities identified as 'low impact' activities by the *National Parks and Wildlife Regulation 2009* (cl. 80b). The legislation allows for permissible 'low impact' activities to occur, which includes drilling and/or geophysical subsurface investigations. These activities are considered low risk to cause damage to Aboriginal objects. This principle does not apply when Aboriginal heritage objects are known to be present or in areas which have no evidence of past ground disturbance. No Aboriginal heritage objects were identified during the survey described in this report.



3. Archaeological background

3.1 Physical description

The lower reservoir is located on the western slopes of Bells Mountain. A prominent feature 8km northwest of Muswellbrook and 2km southwest of McGullys Gap (Figure 1, above). The study area is mostly surrounded by level and low undulating agricultural and pastoral land, with an active open-cut mine, Idemitsu's Muswellbrook Coal Company, located on its southwest. It rises rapidly to a height of 688m asl. The mountain is heavily forested with a mixture of native flora (including Ironbark, Red Gum and Spotted Gum) but some areas have been cleared to make way for dirt tracks and transmission lines. The study area is also characterised by shallow soils over occasional sandstone outcrops, increasing in number with elevation. The mountain's flanks include gullies between steep rock faces that appear to include rocky overhangs with the potential for past Aboriginal habitation. The Hunter River is c. 7km to the west fed by a number of creeks less than 2km distant.

At the time of the fieldwork inspection, the area had experienced significant rainfall over the preceding 3 years, after prolonged dry seasons. Hence, the grass and vegetation cover was thicker than that which characterised the site during an earlier due diligence survey conducted in December 2020 by Reiner Mantei (Extent Heritage).

3.2 Aboriginal archaeology in the wider area

Bells Mountain is located close to stone resources suitable for artefact manufacture. Prior to the area's settlement it contained abundant flora and fauna suitable for exploitation by Aboriginal people, and water sources were located in the vicinity. The area also includes rocky overhangs that have the potential for past human habitation. In other words, the wider area has high potential for archaeological evidence of Aboriginal habitation.

Although Aboriginal occupation of an area can produce a wide variety of archaeological material, the following site types are most common in the Muswellbrook region:

Surface scatters and isolated artefacts—Surface artefacts of stone are the most common form of Aboriginal archaeological site in the region. These may be found as isolated artefacts, usually without any obvious association with other artefacts, particular landforms or other 'sites'. Commonly, they also occur as collections of surface artefacts termed 'scatters'. Surface finds are almost impossible to date, and the function of the individual stone artefacts is often difficult to determine beyond a general level. The context of their use is difficult to ascertain. Their find spot can often reflect natural processes like erosion and water deposition rather than human activity but can be an indicator—a surface expression—of subsurface archaeological remains. In research terms the significance of isolated finds is limited. Scatters (especially dense scatters) hold greater archaeological potential as a scientific resource. It is sometimes the case that surface scatters can be used to reconstruct human activity at a general landscape level.



- Open camp sites—Camp sites that were used for short periods are usually found on relatively flat landforms in close proximity to watercourses. Camp sites that were used repeatedly or continuously for a lengthy period are more typically located on elevated ground, especially at the confluence of principal creeks. Open campsites may contain stone artefacts and/or the remains of food (such as animal bones or shell). They are commonly characterised by evidence of food preparation (for example, ashy deposits where cooking facilities were located) and concentrations of food refuse (for example, shell middens). Some may also contain evidence of more permanent shelters (gunyas), although these remains are typically ephemeral and difficult to identify in the archaeological record. Open camp sites are often buried under deposited loess, alluvium or colluvium and are usually detected when they are observed eroding out of banks or due to other ground disturbance.
- Quarry sites—These sites reflect the extraction of raw stone materials for the making of stone tools (for example, axes or spear points). Quarry sites were favoured locations for Aboriginal people who often returned to the same quarry repeatedly and over many years. These sites may display evidence of both stone removal and tool manufacture.
- Scarred trees—These sites are created when the bark or wood of a tree is removed to manufacture a tool or implement; for example, a coolamon (elongated, oval wooden dish), shield, or canoe. Typically, this leaves a scar in the shape of the final product on the trunk. Scarred trees are usually mature specimens and, therefore, rarely survive in locations where tree clearing has occurred.
- Grinding grooves—Grinding grooves are usually found in sandstone outcrops in close proximity to water (water being an important part of the grinding process). They are typically 25–50 cm long, 5–8 cm wide and 3–5 cm deep and rounded in section (Dickson 1980). They are created by the repetitive grinding action necessary for the production of edged axes and adzes; that is, the edge of an axe 'blank' is ground against the sandstone base at an angle, in a backwards and forwards motion, which wears away the base in a straight line. By alternating the angle of the blank, a sharp edge can be formed. Grinding grooves are usually found in clusters of ten to several hundred. Grinding grooves are most common where the raw material for an axe head is also available (basalt being the preferred geology for the production of an axe/adze). Some grinding surfaces are created in the preparation of food, where a stone is used to grind grain against a stone surface. Such grinding 'grooves' are usually shorter, shallower and broader than those created in axe/adze manufacture.
- Rock shelters—In locations characterised by rocky outcrops, those with naturally occurring 'overhangs' were commonly utilised by Aboriginal people for habitation. Rock shelters are typically highly productive in archaeological terms, with deep soil deposits and datable stratigraphy, often containing artefacts that are informative in terms of chronology, activity areas, archaeobotany, technologies, etc. Some contain rock art.
- Ceremony places—Some locations were favoured by Aboriginal people for the performance of ceremony (including corroborees, initiation grounds, etc). Typically, the material culture produced by these activities is ephemeral and particularly vulnerable to disturbance and destruction by later activities (for example, a cleared patch of earth made compact by repeated dancing). Initiation places might be indicated by the presence of



medium-sized stones (~300 mm diameter) configured into patterns on the ground surface (usually a ring or multiple rings, but also in narrow 'alleys' and other shapes). These locations are also vulnerable to disturbance by later activities.

3.3 Previous disturbance

There are a number of processes that can reduce the potential for Aboriginal cultural heritage sites to survive in the archaeological record. These include physical processes that have disturbed the ground surface such as erosion, faunal and floral intrusion into deposits, human habitation, and land clearing and development activities.

Table 1, below presents a series of historical aerial photographs (1958, 1964, 1972 and 1993) of the study area. The historical aerials indicate that parts of the study area has been largely undeveloped with the only works around the study area being vehicle tracks, and a small dam to the south of the study area. The biggest changes in the immediate surrounds of the study area is the location of the open cut coal mine (visible in the 1993 aerial). The study area had been mostly cleared of tree cover by 1958, with all but the eastern end of the study area, at Bells Mountain, almost devoid of trees at that time.

Year	Description	Historical Aerial
1958	No major mining works have occurred within the study area at this time. Significant tree and vegetation clearing had been undertaken by 1958 along the length of the study area (except at its eastern end).	Figure 2. Historical aerial of the study area (hard red line), 1958.

Table 1. A series of historical aerials of the study area. Source: Nearmap (2022).

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Year	Description	Historical Aerial
1964	No major mining works have occurred within the study area, however, tracks in and around the study area have been constructed by the time this aerial was captured. The eastern end remains largely uncleared but there is little tree cover along the rest of its length. A dam has been constructed to the south of the study area.	Figure 3. Historical aerial of the study area (hard red line), 1964. Source: Nearmap (2022).
1972	Some tree removal has occurred around the lower reservoir slopes of Bells Mountain.	Figure 4. Historical aerial of the study area (hard red line), 1972. Source: Nearmap (2022).



Year	Description	Historical Aerial
1993	Open-cut coal mine well advanced to the south of the study area. The study area remains largely devoid of tree cover, except the eastern end, although some under-scrubbing and tree clearing has occurred even in that location.	Figure 5. Historical aerial of the study area (hard red line), 1993. Source: Nearmap (2022).

4. Site search registers

4.1 AHIMS database search

The Heritage NSW Aboriginal Heritage Information Management System (AHIMS) is a database that includes recorded Aboriginal objects and places, as well as potential archaeological deposits (PADs).

AHIMS should be treated as indicative only. Many archaeological sites that are included on the database have not been ground-truthed by archaeologists, and some of the locational data predate accurate GPS technology.

It is important that any records included on the AHIMS are verified during ACHAR assessments to establish site status and confirm site locations.

During the fieldwork conducted for this report, the archaeologist was alert to the potential for the above sites to be present. The potential for such site types in the study area was confirmed by the results of an initial search made on 3 December 2019 (AHIMS ID: 469320), then an updated search on 7 November 2022 (AHIMS ID: 730144).



The AHIMS register search area encompassed the study area and captured all of Bells Mountain as well as the wider surroundings, including Muswell Coal Company's (MCC) area, part of McGullys Gap in the northeast, and sections of Muswellbrook township (Appendix B). The AHIMS search identified 35 sites, being predominantly artefact scatters, open campsites and scarred trees. The results identified four previously registered sites within close proximity (<100m) of the proposed geotechnical works. The AHIMS maps below (Figure 7 and Figure 8) gives an indication of their locations and boundaries but should not be treated as survey accurate.

Site Id	Site Name	Datum; zone	Easting	Northing	Context	Features
37-2-0105	Bells Mountain	AGD;56	306063	6432029	Open Site	Modified Tree
37-2-2030	CB2	AGD;56	306760	6432039	Open Site	3 artefacts
37-2-2031	CB1	AGD;56	306767	6431360	Open Site	1 Artefact
37-2-1841	MWOS3	56	306850	6431320	Open Site	Open Camp Site

Table 2. AHIMS registered sites in the general vicinity of the study area. Source: AHIMS (2022).

All four registered sites were located within close proximity of the proposed disturbances across the entire project and vary in type: a scarred/modified tree (ID# 37-2-0105), artefact scatter of three artefacts (ID# 37-2-2030), an isolated artefact (ID# 37-2-2031), and an open campsite (ID# 37-2-1841). Of these four sites, site CB2 is closest to the proposed boreholes being located on an access track that may be used by tracked vehicles as part of the proposed drilling program (Figure 8). This is reflected in the recommendations provided below.





Figure 6. The location of CB1 was identified during the December survey.





Figure 7. AHIMS registered sites in the wider area surrounding the Lower Reservoir study area.





Figure 8. AHIMS sites located within the Register search area that includes the study area.

4.2 National Heritage List and Commonwealth Heritage List

The study area is not listed on either the National Heritage List or Commonwealth Heritage List.

4.3 ATSIHPA declarations search

We understand that SMEC has not received notification that the study area is subject to an application pursuant to Sections 9 or 10 of the ATSIHP Act.



5. Desktop research

5.1 Environment and landscape

5.1.1 Soil landscape mapping

Soil landscape mapping indicates the study area is a combination of Colonel and Roxburgh (OEH 2015a) The Colonel soil landscape covers rolling hills and rolling mountains and includes Grey Clays (Ug6.11) on mid slopes, and Red Clays (ug5.37) on mid – lower slopes. Terra Rossa soils (Uf5.21) occur on limestone outcrops. Other soils typical in Colonel landscapes include Yellow Solodic Soils (Dy4.12, Dy4.12, Dy3.81) and Prairie Soil – Lithosol intergrades (Gn3.42) on sediments, all the soils in Colonel landscapes are classified as stony (OEH 2015b).

Roxburgh soil landscapes covers undulating low hills and undulation hills with elevations of 80-370m and slopes with gradings of 0-10%, with yellow podzolic soils (Dy3.11, Dy2.41) occurring on upper to mid-slopes, red Solodic soils (Dr2.43) are found more commonly on rounded hills (OEH 2015c).



Figure 9. Map illustrating the soil landscapes present within and around the study area.



5.1.2 Hydrology

The study area is located ~ 2 km from Sandy Creek, ~6km from Muscle Creek and ~7 km from the Hunter River at their closest points. Figure 10, below is a map illustrating the watercourses around the study area and the wider area of Muswellbrook. The map indicates that there is a gully, several creeks and major rivers (i.e., Hunter River), around the study area, with the closest being Sandy and Muscle Creeks.



Figure 10. Map illustrating the watercourses around the study area.

5.1.3 Landforms

Heritage NSW specifies five landscape features which are likely to indicate the presence of Aboriginal objects (DECCW, 2010):

- Within 200 m of waterways.
- Within a sand dune system.
- On a ridge top, ridge line or headland.
- Within 200 m below or above a cliff face.



• Within 20 m of or in a cave, rock shelter, or a cave mouth.

Based on analysis of topography and aerial photography (see Part 5.3, Page 18, below), the study area contains several existing waterways. The immediate 200m of land surrounding these features would qualify as a high risk landscape as categorised by Heritage NSW.



Figure 11. Map illustrating the topography within and around the study area.

Note: there are no water courses in the immediate area, but the topography of Bells Mountain has caves and cliff faces, therefore fits into the landscape features that indicate elevated potential for Aboriginal objects.

5.1.4 Past vegetation

Figure 12, below, illustrates the pre-clearance vegetation types within the study area. Most of the study area consisted of Narrow-leaved ironbark – Native Olive shrubby open forest of the central and upper Hunter Valley. Areas of derived grassland of the NSW South-Western Slopes, and narrow-leaved ironbark- Grey Box grassy woodland of the central and upper Hunter Valley area also present in the study area. The native vegetation in areas with Colonel soil landscape (see Part 5.1.1, above), have been identified as woodland with White Box, Silver top Stringybark, Red and Yellow box, with red ironbark and narrow-leaved red ironbark that occurs on Lithosols (OEH 2015b). The native vegetation typically found in regions with Roxburgh soil landscapes consists of open woodland of narrow-leaved red ironbark, white box and yellow box with some grey gum and grey box (OEH 2015c).





Figure 12. Map illustrating the types of pre-clearance identified within and around the study area.

6. Site inspection

6.1 Fieldwork

A site inspection was undertaken on 17–19 October 2022 by Reiner Mantei (Archaeologist/Senior Heritage Advisor, Extent Heritage) and Lisa Flemwell (fieldwork assistant, Extent Heritage). A follow-up site inspection was conducted 21 December 2022 by Catherine Fenech (Archaeologist/Heritage Advisor, Extent Heritage). The site inspections involved a surface survey of the lower reservoir on the Muswellbrook Coal Company (MCC), western side of Bells Mountain. The survey was conducted as a pedestrian and visual survey only, with no excavations being conducted during the fieldwork.

To ensure full coverage during the cultural heritage survey a buffer was placed on all project works. A 30m x 30m area was surveyed for all drilling locations and a 10m corridor for all tracks. Applying this buffer makes sure that the entire disturbance footprint was surveyed and any potential sites within close proximity would be identified.



7. Results

The first assessment of the MCC portion of the lower reservoir was surveyed by an archaeologist on the afternoon of 17 October and the morning of 19 October 2022, with portions of the lower reservoir within private property being surveyed on 18 October 2022. The lower reservoir study area was overgrown with thick grass and other vegetation and cut by a number of rills and gullies created by surface water. Within the study area, there were several human-made dams that were overflowing with water, which also contributed to the creation of rills across the study area.

The study area consisted of several allotments that were owned by MCC at the time of the survey. Many of the allotments were separated by fences, with cattle, horses and goats roaming the area.

The areas within the MCC land showed clear signs of previous ground disturbance due to such things as clearing for power and telecommunication lines, and the movement of LV's using the tracks to move around the boundary. The presence of cattle, horses, goats and an abundance of rabbits also meant that much of the surrounding area has been disturbed by the grazing animals and rabbit warrens.

The field survey of the lower reservoir study area on 21 December 2022 also encountered overgrown land with thick vegetation cover, including long grass and low shrubs.

The vegetation cover significantly reduced GSV to approximately 10%-20%, which constitutes a limitation on this report and its conclusions.

The portion of the study area on Bells Mountain (where elevation increased to the east of the MCC open pit mine) was not accessible at the time of survey. This was due to heavy rainfall and unsafe conditions. No borehole locations were able to be accessed in this area.

A follow-up survey was conducted on 21 December 2022, to access sections of the study area (TP 4-7, and BH11) that had been inaccessible two months earlier. TP 1-3 and BH12 were surveyed during the October survey. Unfortunately, due to dense vegetation coupled with steep terrain TP6, TP7, and BH11 remained inaccessible.

In the surveyed parts of the study area, no Aboriginal artefacts were identified. All existing AHIMS sites within close proximity to the study area were resurveyed by the field team. However, none of these sites was reidentified. It is likely that these sites were salvaged as part of the mitigation works conducted by MCC during the construction of their open pit.

The photos below were taken during the field survey by the Extent team, the photos capture the lower reservoir closer to the base and slope of Bells Mountain taken on the 17 of October 2022 and December 2022. Figure 14-Figure 29, below, illustrates the conditions of the study area during the two surveys.



7.1 BH12, TP1 and TP2

BH12, TP1 and TP2 were surveyed on 17 October 2022.

BH12 and TP1 are situated in a highly disturbed hilly, grassland environment on the lower slopes of Bells Mountain, where vegetation appears to have been fully cleared in the past. The soils in this location are particularly shallow. They have experienced significant disturbance through land clearing and erosion. These locations are also located near the open cut pit of Muswellbrook Coal, to its southwest. It should also be noted that the locality is also bounded by regrowth woodland vegetation as well regrowth vegetation.

In the area of TP1 it is primarily a conglomerate and sandstone material of various cobble-sized rocks and hence, highly unsuitable as either a quarry for lithic artefacts or as a platform for grinding activities. Based on the shallow soil profiles at the location, and observed levels of disturbance, there is low potential for in situ subsurface Aboriginal archaeology to be impacted by the proposed works there. Similarly, there is low potential for surface Aboriginal archaeological material at BH12 and TP1 to be disturbed by the proposed works.

No Aboriginal artefacts or places were identified during the inspection of BH12, TP1, and TP2. GSV was approximately 10-20%. A drainage line has been cut into the ground within the locality (Figure 18). It is evident that the locality had already experienced a very high level of disturbance prior to the inspection.

TP2 is situated in a highly disturbed hilly, grassland environment on the lower slopes of Bells Mountain, where vegetation appears to have been fully cleared in the past. This locality lies adjacent to regrowth woodland vegetation to its west. The soils in this location are shallow, and have been impacted by land clearing, erosion, and ground modification. There is evidence of significant ground modification in this locality (grading has been used to create a contour bank). A transmission tower is located approximately 100m from TP2, to its northeast.

No Aboriginal artefacts or places were identified during the inspection of TP2. Ground surface visibility was approximately 10-20%. A single piece of red silcrete was identified in an area with moderate GSV, but it had not been worked and was not an Aboriginal object.

Based on the shallow soil profiles at the site of TP2, and observed levels of disturbance, there is low potential for in situ subsurface Aboriginal archaeology to be disturbed by the proposed works there. Similarly, there is low potential for surface Aboriginal archaeological material at the TP2 locality to be disturbed by the proposed works.

7.2 TP3 and TP4

TP3 and TP4 are situated in a highly disturbed, hilly, grassland environment on the lower slopes of Bells Mountain, where vegetation appears to have been cleared and ground modification has occurred. The soils in this location are shallow. They have been impacted by land clearing and erosion.



The area around TP3 was covered in dense scrub with poor GSV. Small (c10cm), rough, natural conglomerate cobbles were visible in places but no Aboriginal objects were identified in this area. The location contains immature Ironbark trees.

TP4 is situated in a highly disturbed, hilly, grassland environment on the lower slopes of Bells Mountain, where the original vegetation has been cleared. Immature Ironbark trees were found in some locations. The locality is adjacent to remnant/regrowth woodland forest that extends from the mountain to its northeast. The area around TP4 had poor GSV. Patches of conglomerate outcropping along shallow ledges were surveyed for any signs of Aboriginal objects and other signs of activity (such as art, charcoal, or visible smoke staining). However, no Aboriginal objects or evidence of Aboriginal activities were found on the outcrop.

No Aboriginal artefacts or places were identified during the inspection of these boreholes, although ground surface visibility was limited to approximately 10-20% due to the presence of thick grass at the locality.

Based on the shallow soil profile and observed levels of disturbance, there is low potential for in situ subsurface Aboriginal archaeology to be disturbed by the proposed works there. Similarly, there is low potential for surface Aboriginal archaeological material at these locations to be disturbed by the proposed works.

The track between TP4 and TP5 had poor GSV: no sections of ground exposure were visible. This track was characterised by a steep slope and knee-high grasses and weeds and contained a fence line.

7.3 TP5 and TP6

The location of TP5 was completely obscured by an overgrown fallen tree. Around the TP5 location was dense vegetation with no GSV and no ground surface exposures. Stands of immature Ironbark and other gum trees were present in the area (see Figure 25, below).

The track between TP5 and TP6 had poor GSV due to thick vegetation cover. A small patch of grass about 90m south-west of TP6 had some ground exposure where GSV was better. No artefacts or workable material were identified there. The soil matrix visible in the exposed areas included a silty sand and mixed conglomerate gravels, which are most likely the result of water runoff.

The location of TP6 was inaccessible due to dense vegetation. There were stands of sticky hop bush approximately 2m in height. In areas of ground surface exposure, medium sub-angular cobbles were visible at times through the ground cover. No artefacts were identified.

The track between TP6 and TP7 had large conglomerate outcrops along it. They displayed no visible signs of working, or art, and the shallow ledges had no visible signs of charcoal or smoke staining. The rest of the track was inaccessible and had poor GSV, with the dense scrub making the rest of the track and BH11 and TP7 inaccessible.





Figure 13. Location of the Boreholes and Test Pits (TP) in the study area; BH11, TP6, and TP7 were not surveyed, being inaccessible.





Figure 14. Track between TP1 and TP2 with low GSV.



Figure 15. Dense vegetation around TP1 with low GŠV.



Figure 16. Area around TP1 and BH12 that has moderate GSV with various sized conglomerate and sandstone cobbles.



Figure 17. Ground surface around TP2 with moderate GSV; a single piece of red silcrete was identified in the area (not an artefact but indicating that suitable materials for their manufacture are in the study area).





Figure 18. Area around TP2 located in previously disturbed area with transmission power lines, and vehicle tracks nearby.



Figure 19. Vehicle track near TP2; either side of the track is overgrown and has poor GSV.



Figure 20. View across the study area, with a human-made dam in the background.



Figure 21. General location of TP3 set into hilly landscape; GSV in the area is poor.





Figure 22. Patch of ground surface at TP3 with moderate GSV; the area contained natural conglomerate rock and no identified artefacts.



Figure 23. The general location of TP4, with poor GSV. Note conglomerate outcropping.



Figure 24. Conglomerate outcrop in vicinity of TP4. Outcrop was investigated.



Figure 25. The general location of TP5, that was inaccessible due to fallen tree covered in wild passionfruit.





Figure 26. Area around TP5 is completely overgrown with no GSV.



Figure 27. Track between TP5 and TP6 the area is overgrown with dense vegetation and no GSV.



Figure 28. Conglomerate rock exposures on track between TP5 and TP6; no artefacts identified.



Figure 29. Dense vegetation around TP6, with stands of hot sticky bush surrounding the area, making it completely inaccessible.



8. Conclusions

8.1 The study area generally

A sampling strategy was adopted for the field survey in the lower reservoir area. One hundred percent coverage of the wider study area was not achieved. In those areas that were accessible and surveyed, GSV was poor (with occasional exceptions).

Even in good conditions, it is likely that GSV in the study area will remain fairly poor. Later survey in drier conditions may improve the survey results to a degree but it is unlikely that survey will ever be able to achieve highly accurate results.

Poor GSV was a significant limitation on the effectiveness of the survey and thus the conclusions of this report. However, the results of this survey have been combined with the previous survey conducted by Extent Heritage 2020 to increase its reliability.

No Aboriginal objects were identified in the surveyed parts of the study area.

The study area has sites registered on AHIMS located in its general vicinity. Also, the area is in the vicinity of watercourses and has formerly been characterised by abundant flora and fauna, which is likely to have made it attractive for Aboriginal occupation. There are stone resources that were suitable for the manufacture of stone implements by Aboriginal people.

Notwithstanding levels of ground disturbance caused by tree clearing, and pastoral, agricultural and mining activities, there remains potential for Aboriginal archaeology (surface and subsurface) to exist within the study area generally.

If such archaeology were to exist, it would be likely to comprise isolated artefacts and surface scatters in disturbed contexts, of low scientific significance. If sub-surface artefacts were identified, in undisturbed contexts, these would be likely to be of higher scientific significance. However, the potential for such sites to exist is relatively low.

The trees in the study area could not all be fully assessed. There were a number of mature specimens observed. There is some potential for culturally scarred trees to exist in discreet locations of the study area. These are the areas which have not undergone significant ground disturbance or vegetation clearance on the slopes of Bells Mountain between TP5 and TP6.

Rocky overhangs in and near the study area could not be accessed during the survey. Rock shelters were favoured locations for Aboriginal people and where they were utilised for shelter there is high potential for scientifically significant archaeology to be present.



8.2 Test pits, boreholes and access tracks

In relation to the specific proposed test pits and borehole locations, six of the nine locations were surveyed.

The eastern end of the study area (from roughly TP5 through to BH11 and TP7) was difficult to access. It is this part of the study area that historical aerial images establish has never been subjected to intensive tree clearing.

Conditions entirely prevented survey of TP7 and BH11 and made effective survey of TP5 and TP6 difficult.

In relation to the proposed access tracks, all *existing* track locations were surveyed and demonstrated to be disturbed and to contain no surface artefacts. However, the survey of proposed new tracks from roughly TP4 through to BH11 was hampered due to no GSV and poor access due to dense vegetation. Effective survey of those tracks north of TP5 eastwards toward BH11 was largely impossible.

Subject to the qualifications noted above (regarding poor GSV, access difficulties etc), there is low potential for Aboriginal objects to exist at the proposed borehole locations and their immediate surrounds, which might be impacted during the boring process.

Similarly, there is low potential for Aboriginal objects to exist on the access tracks, which might be impacted during the proposed works. If any were to exist, they would be likely to be isolated surface artefacts of low scientific significance.

This report confines itself to scientific observations that can be made without Aboriginal community consultation. To ascertain any other forms of Aboriginal cultural heritage that may exist in the study area (e.g., places of spiritual significance or bush medicine resources), engagement with the relevant Aboriginal party would be necessary.

Geotechnical location	Cultural heritage survey
BH12	Location was fully surveyed and has been subject to significant ground disturbance and vegetation clearance in the past.
TP1	Location was fully surveyed and has been subject to significant ground disturbance and vegetation clearance in the past.
TP2	Location was fully surveyed and has been subject to significant ground disturbance and vegetation clearance in the past.
TP3	Location was fully surveyed and has been subject to significant ground disturbance and vegetation clearance in the past.

Table 3. Details of the cultural heritage survey over geotechnical locations.



Geotechnical location	Cultural heritage survey
TP4	Location was fully surveyed and has been subject to significant ground disturbance and vegetation clearance in the past.
TP5	Only partially surveyed due to poor access, GSV, and dense vegetation.
TP6	Only partially surveyed due to poor access, GSV, and dense vegetation.
TP7	Unable to be accessed and surveyed due to dense vegetation.
BH11	Unable to be accessed and surveyed due to dense vegetation.

9. Recommendations

Given the above, this report recommends a cautious approach.

Figure 30, below, illustrates those parts of the study area that could be most effectively surveyed (and where it is appropriate for the works to proceed) and those parts where survey was hampered by poor conditions (and where a cautious approach requires additional heritage management requirements).

It is appropriate for the works to proceed in the study area from the access track at Sandy Creek Road to TP4 and roughly 145m south of TP5 (see Figure 30 for the precise area). There is low potential for those works to impact Aboriginal objects. Nevertheless, it would be desirable for an archaeologist to monitor the works in that part of the study area. This would provide an opportunity for the archaeologist to characterise the surface and subsurface deposits (e.g., in terms of depth, levels of past disturbance, potential for subsurface deposits). These data would be useful for informing future development applications that may involve more widespread ground disturbance. Should Aboriginal objects be identified in the surface or subsurface deposits, works are to be halted at that specific location until such time a heritage professional can perform an onsite inspection. If the site cannot be avoided the heritage professional will organise consultation with the local Aboriginal representatives and the relevant State government agencies such as DPIE.

To the east of the more effectively surveyed part of the study area, a different approach is recommended (see Figure 30, below). This area (which includes TP5, TP6, TP7 and BH11) is assessed as having an elevated potential for Aboriginal objects. These areas have historically undergone minimal ground disturbance with much of the area never being cleared. It is due to this factor that there is a higher potential for Aboriginal cultural heritage to still exist *in situ*. It is recommended that before works commence in this area a local Registered Aboriginal Party (RAP) be consulted (i.e., Local Aboringinal Land Council), or the statutorily defined processes of RAP engagement be commenced as per the NPW Act.

It is appropriate for activities to proceed along all *existing* access tracks (e.g., regrading, movement of heavy vehicles). There is low potential for such activities to impact Aboriginal



objects. However, if artefacts are identified during project works on any access tracks, an AHIP may be required to proceed with the works.

As future programs of development are refined, it should be noted that on the basis of this report the lower reservoir area has some potential for Aboriginal objects to exist there. This due diligence assessment should be refined through further surface survey by archaeologists when better conditions (especially better GSV) exist.

This documentation may be summarised within and/or appended to a Development Application, Statement of Environmental Effects (SEE) or Review of Environment Factors (REF) for the Geotechnical investigations works. If any Aboriginal objects are later identified within the proposed activity area, this report cannot however be used to support an application for an Aboriginal Heritage Impact Permit (AHIP). Such an application would require a more detailed investigation involving a formal process of Aboriginal community consultation and the preparation of an Aboriginal Cultural Heritage Assessment (ACHA).

If human skeletal material less than 100 years old is discovered, the *Coroners Act 2009* requires that all works should cease, and the NSW Police and the NSW Coroner's Office should be contacted. Traditional Aboriginal burials (older than 100 years) are protected under the *National Parks and Wildlife Act 1974* and should not be disturbed. Interpreting the age and nature of skeletal remains is a specialist field and an appropriately skilled archaeologist or physical anthropologist should therefore be contacted to analyse the find and recommend an appropriate course of action. Should the skeletal material prove to be archaeological Aboriginal remains, notification of OEH and the Local Aboriginal Land Council will be required.





Figure 30. Map illustrating where it would be appropriate for the proposed works to proceed immediately and those areas where additional steps are recommended (the RAP consultation process).





Figure 31 Map illustrating where it would be appropriate for the proposed works to proceed immediately and those areas where additional steps are recommended (the RAP consultation process).



10. References

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OEH. 2015c. 'YP-rx Roxburgh Soil Landscape.' New South Wales Government. PDF File.<u>https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/SI5601rx.pdf</u>.



Appendix A. Due Diligence Flow Charts



Figure 32. the generic due diligence process (DECCW 2010).



Figure 33. Process for the protection of Aboriginal Cultural heritage for the NSW Mineral Industry (NSW Minerals Council 2010).



Appendix B. AHIMS search



AHIMS Web Services (AWS)

Extensive search - Site list report

Client Service ID : 730144

<u>SiteID</u>	<u>SiteName</u>		<u>Datum</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>	<u>Context</u>	<u>Site Status **</u>	<u>SiteFeatures</u>	<u>SiteTypes</u>	<u>Reports</u>
37-2-1841	MW0S3		AGD	56	306850	6431320	Open site	Valid	Artefact : -	Open Camp Site	
	<u>Contact</u>		<u>Recorders</u>	Unkı	nown Autho	r			Permits		
37-2-1842	MW-IF-2		AGD	56	305550	6434850	Open site	Valid	Artefact : -	Open Camp Site	
	<u>Contact</u>		Recorders	Mr.N	leville Baker	,Gavin Martin			Permits		
37-2-1845	MW-IF-1		AGD	56	306500	6428820	Open site	Valid	Artefact : -	Open Camp Site	
	<u>Contact</u>		<u>Recorders</u>	Unkı	nown Author	r			Permits		
37-2-0104	Muswellbrook	k;Bimbadeen;	AGD	56	305182	6430193	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	<u>Contact</u>		<u>Recorders</u>	Hele	n Brayshaw				<u>Permits</u>		
37-2-1982	M-1		AGD	56	304327	6429316	Open site	Valid	Artefact : -		
	<u>Contact</u>		<u>Recorders</u>	Ms.M	leaghan Rus	sell,Ms.Vaness	a Hardy		<u>Permits</u>	2132	
37-2-1983	M-2		AGD	56	304546	6429286	Open site	Valid	Artefact : -		
	<u>Contact</u>		<u>Recorders</u>	Ms.M	leaghan Rus	sell,Ms.Vaness	a Hardy		Permits	2132	
37-2-1984	M-3		AGD	56	305006	6429742	Open site	Valid	Artefact : -		
	<u>Contact</u>		Recorders	Ms.M	leaghan Rus	sell,Ms.Vaness	a Hardy		<u>Permits</u>	2132	
37-2-1985	M-4		AGD	56	305091	6429633	Open site	Valid	Art (Pigment or		
	Contact		Recorders	McN	leaghan Rus	sell Ms Vaness	a Hardy		Permits	2132	
37-2-0105	Bells Mountai	n	AGD	56	306063	6432039	Open site	Valid	Modified Tree	Scarred Tree	635
							- p		(Carved or Scarred) :		
	a								-		
27 2 1007	Contact		<u>Recorders</u>	Ms.B	etty Ross	(420/54	0	17-1: -1	Autofact 45		
37-2-1997	INIMI		AGD	50	302421	6430654	Open site	vand	Arteract : 45		
05 0 4000	Contact		Recorders	MCH	- McCardle	Cultural Herita	ge Pty Ltd	TT 1: 1	<u>Permits</u>		
37-2-1998	NMZ		AGD	56	302470	6430564	Open site	Valid	Artefact : 7		
	<u>Contact</u>		Recorders	MCH	- McCardle	Cultural Herita	ge Pty Ltd	** 1. 1	<u>Permits</u>		
37-2-2030	CB 2		AGD	56	306760	6431477	Open site	Valid	Artefact : 3		100152
	<u>Contact</u>	S Scanlon	<u>Recorders</u>	Insit	e Heritage P	ty Ltd			Permits	2277	
37-2-2031	CB 1		AGD	56	306767	6431360	Open site	Valid	Artefact : 1		100152
	<u>Contact</u>	S Scanlon	<u>Recorders</u>	Insit	e Heritage P	ty Ltd			<u>Permits</u>	2277	
37-2-2038	NM5		AGD	56	302812	6430467	Open site	Valid	Artefact : 5		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Ms.P	enny Mccaro	dle			<u>Permits</u>		
37-2-2039	NM4		AGD	56	302700	6430542	Open site	Valid	Artefact : 2		
	<u>Contact</u>	T Russell	<u>Recorders</u>	Ms.P	enny Mccaro	dle			<u>Permits</u>		
37-2-2040	NM16		AGD	56	302553	6430437	Open site	Valid	Artefact : 1		
	Contact	T Russell	Recorders	Ms.P	enny Mccaro	dle			Permits		
37-2-2041	NM3		AGD	56	302641	6430524	Open site	Valid	Artefact : 1		

Report generated by AHIMS Web Service on 07/11/2022 for Lisa Flemwell for the following area at Lat, Long From : -32.2697, 150.9038 - Lat, Long To : -32.1971, 151.0274. Number of Aboriginal sites and Aboriginal objects found is 35

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AHIMS Web Services (AWS)

Extensive search - Site list report

Client Service ID : 730144

<u>SiteID</u>	<u>SiteName</u>	Datum	<u>Zone</u>	Easting	<u>Northing</u>	<u>Context</u>	Site Status **	<u>SiteFeatur</u>	es	<u>SiteTypes</u>	<u>Reports</u>
	Contact T Russell	<u>Recorders</u>	Ms.I	Penny Mccard	le				<u>Permits</u>		
37-2-2049	NM14	AGD	56	302745	6429937	Open site	Valid	Artefact : 2			100052,10005 3
	<u>Contact</u> T Russell	<u>Recorders</u>	Ms.I	Penny Mccard	le				Permits		
37-2-2050	NM15	AGD	56	302537	6430640	Open site	Valid	Artefact : 1			
	Contact T Russell	Recorders	Ms.I	Penny Mccard	le				Permits		
37-2-2585	Muswellbrook Common 21	GDA	56	303125	6427814	Open site	Valid	Artefact : -			
	Contact T Russell	Recorders	Gler	n Morris					Permits		
37-2-2586	Muswellbrook Common 22	GDA	56	302894	6427990	Open site	Valid	Artefact : -			
	Contact T Russell	Recorders	Gler	n Morris					Permits		
37-2-2587	Muswellbrook common 23	GDA	56	302877	6427999	Open site	Valid	Artefact : -			
	Contact T Russell	Recorders	Gler	n Morris					Permits		
37-2-2588	Muswellbrook Common 24	AGD	56	302869	6427979	Open site	Valid	Artefact : -			
	Contact T Russell	Recorders	Gler	n Morris					Permits		
37-2-2592	SANDY CREEK ROAD ISO1	AGD	56	304200	6431780	Open site	Valid	Artefact : 1			100738
	<u>Contact</u> Searle	Recorders	Mr.J	ohn Appleton					Permits		
37-2-2593	McCullys Gap OS1	AGD	56	310350	6434550	Open site	Valid	Artefact : 9			100738
	<u>Contact</u> Searle	Recorders	Mr.J	ohn Appleton					Permits		
37-2-2594	McCullys Gap ISO1	AGD	56	309650	6435050	Open site	Valid	Artefact : 1			100738
	<u>Contact</u> Searle	Recorders	Mr.J	ohn Appleton					Permits		
37-2-2804	MSFL01	GDA	56	302605	6427814	Open site	Valid	Artefact : 1			
	<u>Contact</u>	Recorders	Mrs	.Georgia Robe	erts				Permits		
37-2-2807	MFLD03	GDA	56	303246	6429335	Open site	Valid	Artefact : 1			102371
	<u>Contact</u>	Recorders	Mrs	.Georgia Robe	erts				Permits		
37-2-5052	TR/1	GDA	56	305916	6433179	Open site	Valid	Artefact : -			
	<u>Contact</u>	Recorders	Mr.I	Balazs Hansel					Permits		
37-2-5952	Muswellbrook Bypass AFT 1	GDA	56	302698	6431043	Open site	Valid	Artefact : -			
	<u>Contact</u>	Recorders	Mr.I	Matthew Kelle	her,Kelleher N	lightingale Consultii	ng Pty Ltd (Generic	users)	Permits		
37-2-5953	Muswellbrook Bypass AFT 2	GDA	56	303146	6430640	Open site	Valid	Artefact : -			
	<u>Contact</u>	Recorders	OzA	rk Environme	ental and Herit	age Management - I	ubbo,Mr.Matthew	Kelleher,Mr.	Permits		
37-2-5954	Muswellbrook Bypass AFT 3	GDA	56	303333	6429759	Open site	Valid	Artefact : -			
	<u>Contact</u>	Recorders	Mr.I	Matthew Kelle	her,Kelleher N	lightingale Consultii	ng Pty Ltd (Generic	users)	<u>Permits</u>		
37-2-5955	Muswellbrook Bypass AFT 4	GDA	56	304248	6429144	Open site	Valid	Artefact : -			
	<u>Contact</u>	<u>Recorders</u>	Mr.I	Matthew Kelle	her,Kelleher N	lightingale Consultii	ng Pty Ltd (Generic	users)	<u>Permits</u>		
37-2-5956	Muswellbrook Bypass AFT 6	GDA	56	305365	6428157	Open site	Valid	Artefact : -			
	Contact	Recorders	Mr.I	Matthew Kelle	her,Kelleher N	lightingale Consulti	ng Pty Ltd (Generic	users)	Permits		
37-2-5957	Muswellbrook Bypass AFT 5	GDA	56	304942	6428912	Open site	Valid	Artefact : -			

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Client Service ID: 730144

Extensive search - Site list report

SiteID SiteName Contact
 Datum
 Zone
 Easting
 Northing
 Context
 Site Status **
 SiteFeatures
 SiteTypes
 Reports

 Recorders
 Mr.Matthew Kelleher,Kelleher Nightingale Consulting Pty Ltd (Generic users)
 Permits
 Permits

** Site Status

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution. Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

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