Aboriginal Heritage Due Diligence Assessment

Thredbo Lot 768 DA

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Acronyms and abbreviations

AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
BP	Before Present
DA	Development Application
DECCW	(Former) Department of Environment, Climate Change and Water (formerly responsible for heritage, now superseded by Heritage NSW)
DP	Development Plan
Due Diligence Code	*Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
Heritage Act	*Heritage Act 1977* (NSW)
Heritage NSW	Heritage NSW, within the Department of Premier and Cabinet (formerly part of OEH)
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NPW Regulation	National Parks and Wildlife Regulation 2019 (NSW)
NPWS	National Parks and Wildlife Service (NSW)
NSW	New South Wales
OEH	(Former) Office of Environment and Heritage (NSW)
PAD(s)	Potential Archaeological Deposit(s)

Executive summary

NGH was commissioned by Le Hunte Properties Pty Ltd (the Proponent) to undertake an Aboriginal Heritage Due Diligence assessment in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW, 2010) (Due Diligence Code) for the proposed construction of tourist accommodation within Lot 768 DP 1119757 at 5 Diggings Terrace, Thredbo NSW and clearing in portions of the adjoining parcel of Lot 876, DP 1243112.

The proposal involves the submission of a Development Application (DA) for the proposed construction of tourist accommodation and the provision of services, utilities, and vehicle access. The project would involve various construction works, including significant ground disturbing works in the form of excavations, landscaping works, and construction of accommodation facilities. The Due Diligence assessment is undertaken to evaluate whether Aboriginal objects are present, or likely to be present, within the proposed impact area of the development activity, and if those objects would be harmed by the activity.

Background and desktop assessment

The assessment process is a desktop exercise, using available information such as the AHIMS search results and relevant archaeological reports to develop or refine a model of Aboriginal site prediction based on the type of activity proposed and the level of disturbance of the area. This assessment was further supplemented by a visual inspection of the Proposal Area.

The Proposal Area is located within the archaeologically sensitive Thredbo valley landscape. However, the Proposal Area is primarily comprised of steep landforms, for which previous archaeological investigations in the area indicate has a reduced archaeological potential. While the landforms within the Proposal Area are primarily steep, their proximity to Thredbo River – a major regional waterway – and their location within the Thredbo valley landscape, warranted the necessity for a visual inspection.

Field results

A visual inspection of the Proposal Area was undertaken on the 22nd March 2022 by qualified archaeologist Kirsten Bradley. The Proposal Area was confirmed to be comprised of several steep to very steep landforms (~ 20° - 45° in slope), which are generally steeper upslope towards the Alpine Way in the southern portion of the Proposal Area. The area was mostly clear, with a few areas of remnant vegetation that contained no culturally modified trees. Overall, ground surface visibility was approximately 5 – 10% due to grass cover and trees. Some large exposures were present throughout the Proposal Area and are likely to be the results of fallen/burnt out trees, animal tracks/disturbances, or natural erosion. A humic, loamy topsoil was observed in the majority of these exposures with some shallow yellowish-brown clays also noted.

While the mapped waterway was not visible on the surface, it was noted that drainage infrastructure on the eastern side of the Proposal Area indicates that the waterway has been redirected to flow underground directly to Thredbo River. This would also serve to explain the linear nature of the waterway when viewed topographically and suggests that some earthworks or disturbances occurred during its installation.

The visual inspection identified no Aboriginal objects or PADs within the Proposal Area.

Impact assessment conclusion

The observations made during the visual inspection suggest that there is a negligible potential for Aboriginal objects or archaeological deposits to be present within the assessed Proposal Area. This is due to the shallow soils and steep landforms observed within the Proposal Area, both of which have been shown by previous archaeological investigations in the local area to contain little potential for archaeological deposits. This is further supported by the fact that no surface Aboriginal objects (i.e. scarred trees, isolated artefacts, or artefact scatters) were recorded within the Proposal Area during the visual inspection under as part of this assessment. As a result, it is highly unlikely that Aboriginal objects or archaeological deposits will be impacted by the proposed works.

Recommendations

Based on an assessment of the project, the location and previous level of disturbance, the proposed work can proceed with caution with the following recommendations:

1. All works must be constrained to the area assessed by this document and any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment.
2. All access to the site and laydown areas must be within the assessed Proposal Area otherwise visual inspection of the sites by a qualified archaeologist may be required.
3. If any items suspected of being Aboriginal in origin are discovered during the work, all work in the immediate vicinity must stop and the NSW Environment Line (1300 361 967) notified. The find will need to be assessed and, if found to be an Aboriginal object, an Aboriginal Heritage Impact Permit (AHIP) may be required.

Le Hunte Properties Pty Ltd is reminded that it is an offence under the *National Parks and Wildlife Act 1974* to disturb, damage or destroy an Aboriginal object without a valid AHIP.

1. Introduction

NGH was commissioned by Le Hunte Properties Pty Ltd (the Proponent) to undertake an Aboriginal Heritage Due Diligence assessment in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW, 2010) (Due Diligence Code) for the proposed construction of tourist accommodation within Lot 768 DP 1119757 at 5 Diggings Terrace, Thredbo in NSW and clearing in portions of the adjoining parcel of Lot 876, DP 1243112 (see Figure 1-1 to Figure 1-3).

The proposal involves the submission of a Development Application (DA) for the proposed construction of tourist accommodation and the provision of services, utilities, and vehicle access. The project would involve various construction works, including ground penetration works and clearing in portions of the adjoining land. The Due Diligence assessment is undertaken to evaluate whether Aboriginal objects are present, or likely to be present, within the proposed impact area of the development activity, and if those objects would be harmed by the activity.

1.1 Subject site

The Proposal Area is located entirely within Lot 768 DP 1119757 at 5 Diggings Terrace, Thredbo NSW and clearing is required within portions of the adjoining parcel of land within Lot 876, DP1243112 (see Figure 1-1 to Figure 1-3). The land falls within the boundary of the Snowy Monaro Regional Council. The Proposal Area currently has no known land use and the area proposed for the construction of tourist accommodation is largely cleared of native vegetation except for a few areas. However, the adjoining parcel of land within Lot 876, DP 1243112 which is proposed for clearing to meet bushfire hazard reduction and asset protection zones is noted to be vegetated. The Proposal Area forms part of the greater Thredbo Resort Area.

1.2 Project personnel

The Due Diligence assessment was carried out by qualified archaeologist Jorge Fuenzalida Miralles and Kirsten Bradley of NGH. This included background research, field inspection and the completion of this report. Qualified archaeologist Tony Miscamble and Dr Rhiannon Stammers reviewed the report for quality assurance.

1.3 Aboriginal consultation

The Due Diligence process does not formally require consultation with Aboriginal community groups. No Aboriginal groups were contacted for this Due Diligence level assessment. The Proposal Area is within the boundaries of the Eden Local Aboriginal Land Council (LALC).

1.4 Approach and format of this report

This report has been drafted in keeping with the sequence of steps identified in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (Due Diligence Code) (DECCW, 2010). The Due Diligence Code outlines a five-step approach to determine if an activity is likely to cause harm to an Aboriginal object, as defined by the NSW *National Parks and Wildlife Act 1974* (NPW Act). The steps follow a logical sequence of questions, and the answer to each question determines the need for the next step in the process in order to:

- Identify whether Aboriginal objects are, or are likely to be, present in the study area/proposal site etc;
- Determine whether or not the proposed activities are likely to harm Aboriginal objects (if present) in the study area; and
- Determine whether an Aboriginal Heritage Impact Permit (AHIP) application is required.

Table 1-1 Due Diligence steps.

	Due Diligence steps
Step 1.	Will the activity disturb the ground surface?
Step 2a.	Search the AHIMS database and use any other sources of information of which you are already aware.
Step 2b.	Are activities proposed in areas where landscape features indicate the presence of Aboriginal objects?
Step 3.	Can you avoid harm to the object or disturbance of the landscape feature?
Step 4.	Undertake a desktop assessment and visual inspection. Is it likely that Aboriginal objects will be impacted by the proposed works?
Step 5.	Further investigations and impact assessment.

If the proposed activities are not 'low impact activities' (a defence for which is provided under the NPW Regulation), the considerations result in a determination of whether or not:

- Further approval under the NPW Act is required, in the form of an AHIP; or
- Due Diligence obligations for the protection of Aboriginal objects are discharged by the process under the Code.

For the purposes of the Due Diligence assessment, disturbed land is defined in the Due Diligence Code. Land is disturbed if it has been the subject of a human activity that has changed the land's surface, with the changes remaining clear and observable.

The defence against prosecution offered by following the Due Diligence Code process does not apply to situations where it is known there is an Aboriginal object present. The defence does not authorise harm to Aboriginal objects.

Each section within this report follows the relevant step outlined in the Due Diligence Code (DECCW, 2010). Reference is also made, where relevant, to the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011) and the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010).

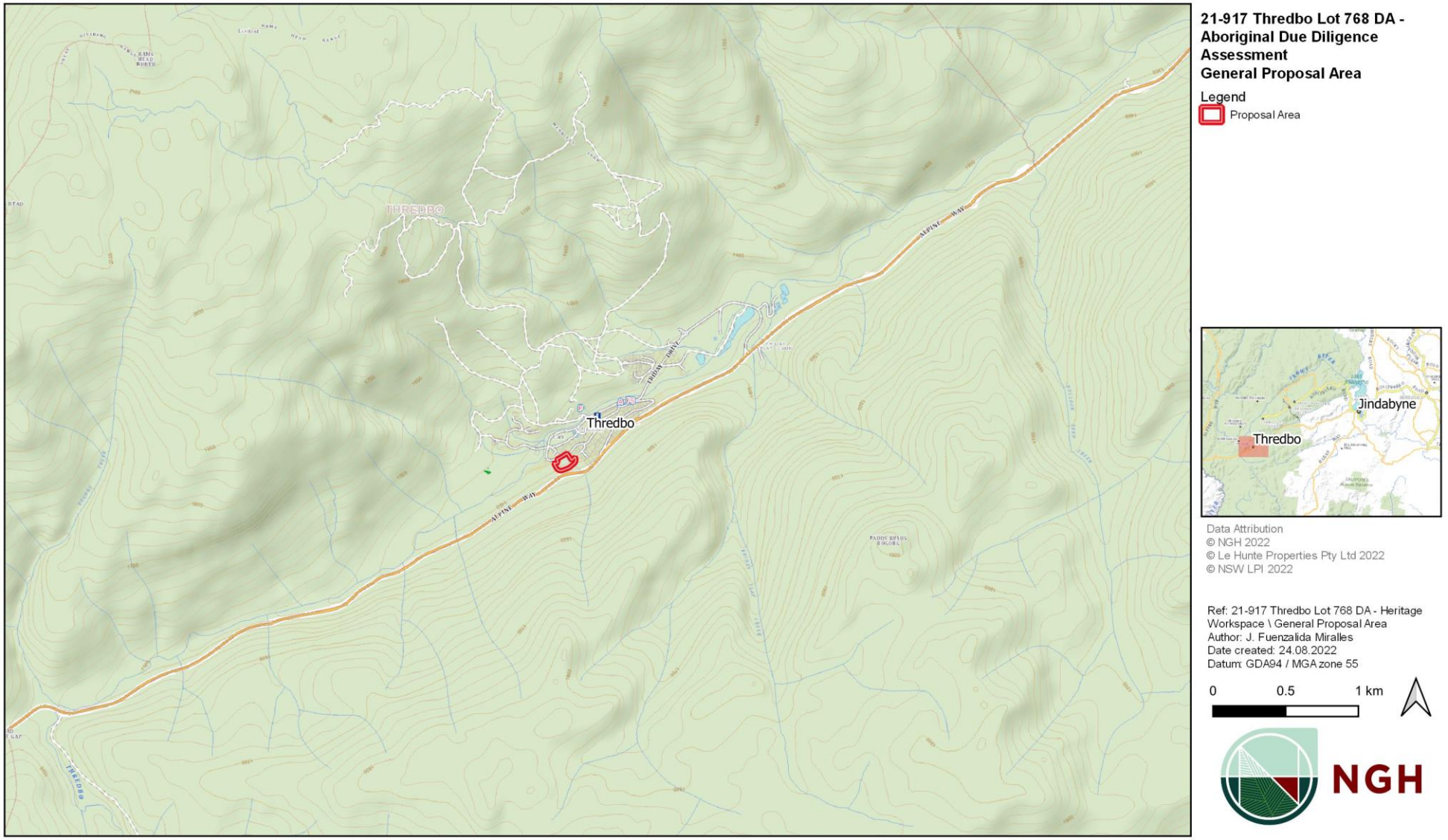

Figure 1-1 General location of the Proposal Area.

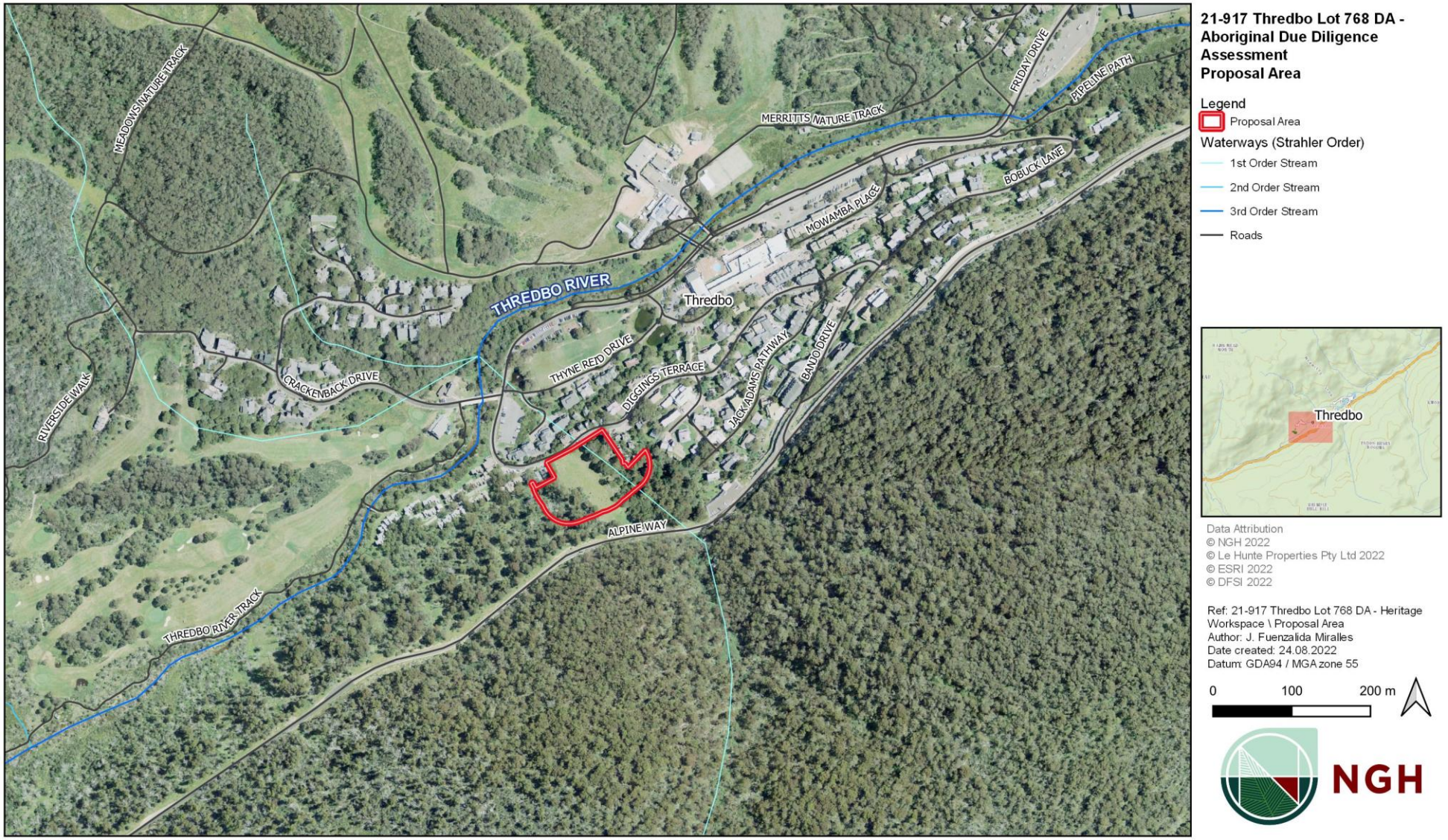

Figure 1-2 Proposal Area.

Figure 1-3 Proposal Area with indicative development footprint

2. Legislation

In NSW, Aboriginal heritage is principally protected by two legislative acts:

- *National Parks and Wildlife Act 1974* (NSW) (NPW Act) and its subordinate legislation, the National Parks and Wildlife Regulation 2019; and
- *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

2.1 National Parks and Wildlife Act 1974

Part 6 of the NPW Act concerns Aboriginal objects and places and various sections describe the offences, defences and requirements to harm an Aboriginal object or place. All Aboriginal material receives blanket protection under the NPW Act. The main offences under section 86 of the NPW Act are:

- A person must not harm or desecrate an object that the person knows is an Aboriginal object.
- A person must not harm an Aboriginal object.
- For the purposes of this section, "circumstances of aggravation" are:
    - that the offence was committed in the course of carrying out a commercial activity; or
    - that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.
- A person must not harm or desecrate an Aboriginal place.

An Aboriginal object is defined as:

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

Section 87 sets out defences that are available to a person who is prosecuted for a particular harm offence under section 86. For example, it will be a defence in certain circumstances if the person who is being prosecuted can show that:

- the harm or desecration was authorised through an Aboriginal Heritage Impact Permit (AHIP) and conditions of the AHIP were not contravened;
- the person exercised due diligence to determine whether the act/omission constituted the offence would harm an Aboriginal object and reasonably determined no harm would occur;
- the person complied with requirements or a code of practice, as prescribed in in the National Parks and Wildlife Regulation (2019); or
- was a low impact act or omission.

Section 89A of the NPW Act also requires that a person who is aware of an Aboriginal object, must notify the Director-General in a prescribed manner. In effect, this section requires the completion of AHIMS site cards for all sites located during heritage surveys.

2.2 Environmental Planning and Assessment Act 1979

The EP&A Act regulates development in NSW. It sets up a planning structure that requires developers (individuals or companies) to consider impact of the project on the environment and to promote the sustainable manage of built and cultural heritage (which includes Aboriginal cultural heritage). The EP&A Act requires that Aboriginal cultural heritage, and the possible impacts that development may have to Aboriginal heritage be considered, as part of the environmental impact assessment process under the EP&A Act. For most projects requiring assessment under Part 4 and 5 of the EP&A Act, the NPW Act will apply and an AHIP may be required. However, where the project is a "State Significant" project approved under Part 3A of the EP&A Act, the operation of the NPW Act is excluded the Part 3A assessment will involve consideration of impact to Aboriginal cultural heritage.

It also provides for the identification, protection, and management of heritage items through inclusion of these items into schedules off planning instruments, such as Local Environmental Plans (LEPs).

3. Ground disturbance

Step 1. Will the activity disturb the ground surface or any culturally modified trees?

The proposal involves the submission of a Development Application (DA) for the proposed construction of tourist accommodation and the provision of services, utilities, and vehicle access within Lot 768 DP 1119757 at 5 Diggings Terrace, Thredbo. The project would involve various construction works, including excavations for the carpark and housing structures as well as footings for the boardwalks amongst other ground disturbing works. An indicative view of this works is shown in Figure 3-1.

The adjoining portions of land within Lot 876 DP 1243112 are proposed for clearing to meet bushfire hazard reduction and asset protection zones.

These activities are likely to require significant ground disturbance, the use of heavy machinery, and laydown areas. Any Aboriginal sites within the disturbance footprint could therefore be subject to harm. As the project will include ground disturbance, the next step in the due diligence process will be completed.

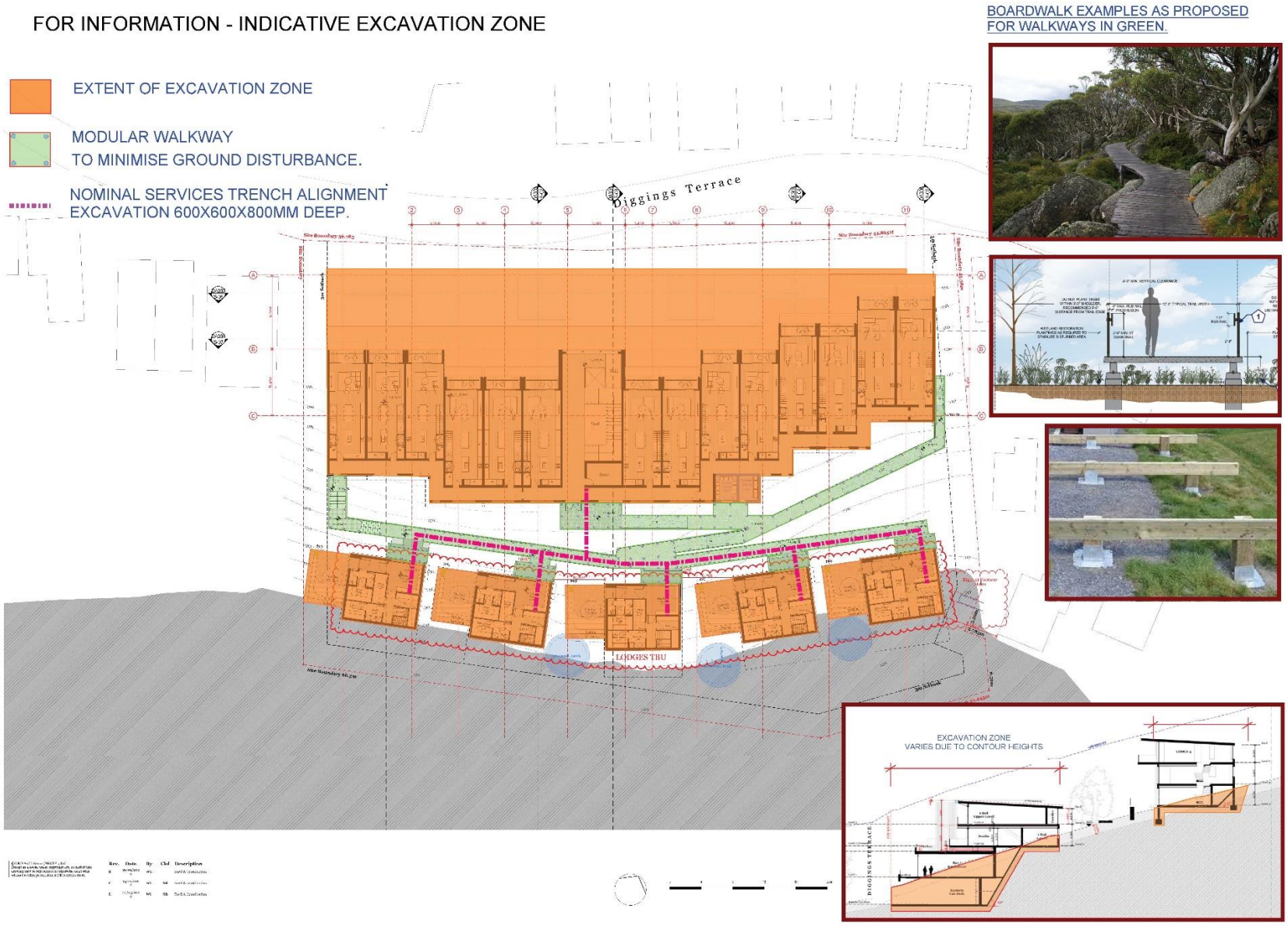

Figure 3-1 Indicative plans of the proposed works within Lot 768 DP1119757 at Thredbo (Image provided by Le Hunte Properties Pty Ltd).

4. Register search and landscape assessment

Step 2a. Search the AHIMS Database and other information sources

A search of relevant heritage registers for Aboriginal sites and places provides an indication of the presence of previously recorded sites. A register search is not conclusive, however, as it requires that an area has been subject to archaeological survey, and information about any sites identified has been submitted for registration. However, as a starting point, the search will indicate whether any sites are known within or adjacent to the Proposal Area and provide oversight regarding the site types most commonly recorded within the locality. The Aboriginal Heritage Information Management System (AHIMS) provides a database of previously recorded Aboriginal heritage sites. A search provides basic information about any sites previously identified within a search area. The results of the search are valid for 12 months for the purposes of a due diligence level assessment.

On 04/03/2022 a search of the AHIMS database was undertaken over a large area centred on the study area, as follows:

Client Service ID: 664666

MGA Zone 55

Latitude: From -36.5731, To -36.4352

Longitude: From 148.1906, To 148.4378

There were 69 Aboriginal sites recorded within this search area and no declared Aboriginal Places. Table 4-1 below shows the breakdown of site types and Figure 4-1 and Figure 4-2 show the location of the AHIMS sites in relation to the Proposal Area. It should be noted the only artefact sites are recorded within a 6 km radius of the Proposal Area.

Table 4-1 Breakdown of previously recorded Aboriginal sites in the region.

Site type	Number
Artefact	66
Burial, Stone Arrangement	1
Stone Quarry	1
Grinding Groove	1
Total	**69**

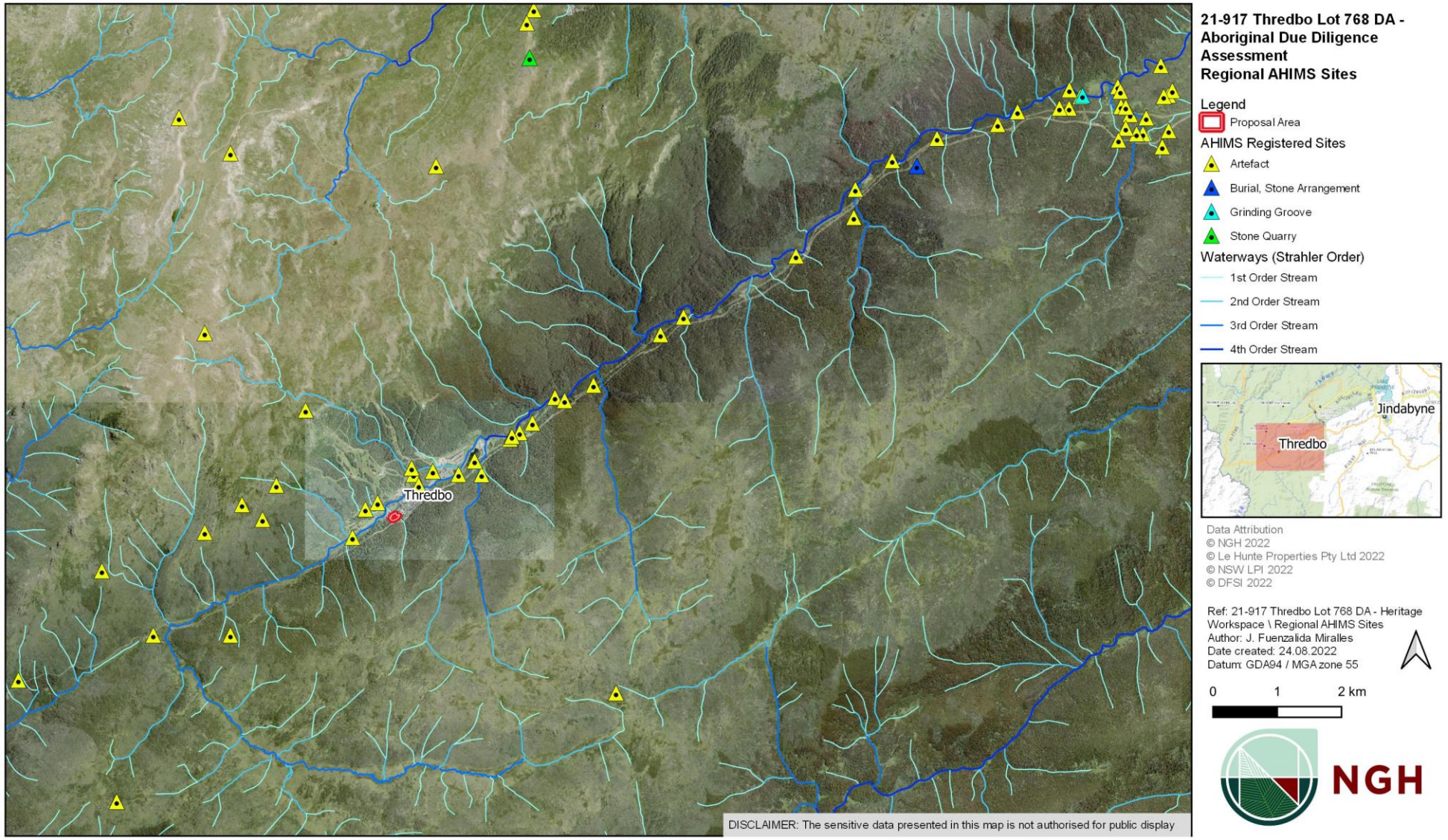

Figure 4-1 AHIMS sites.

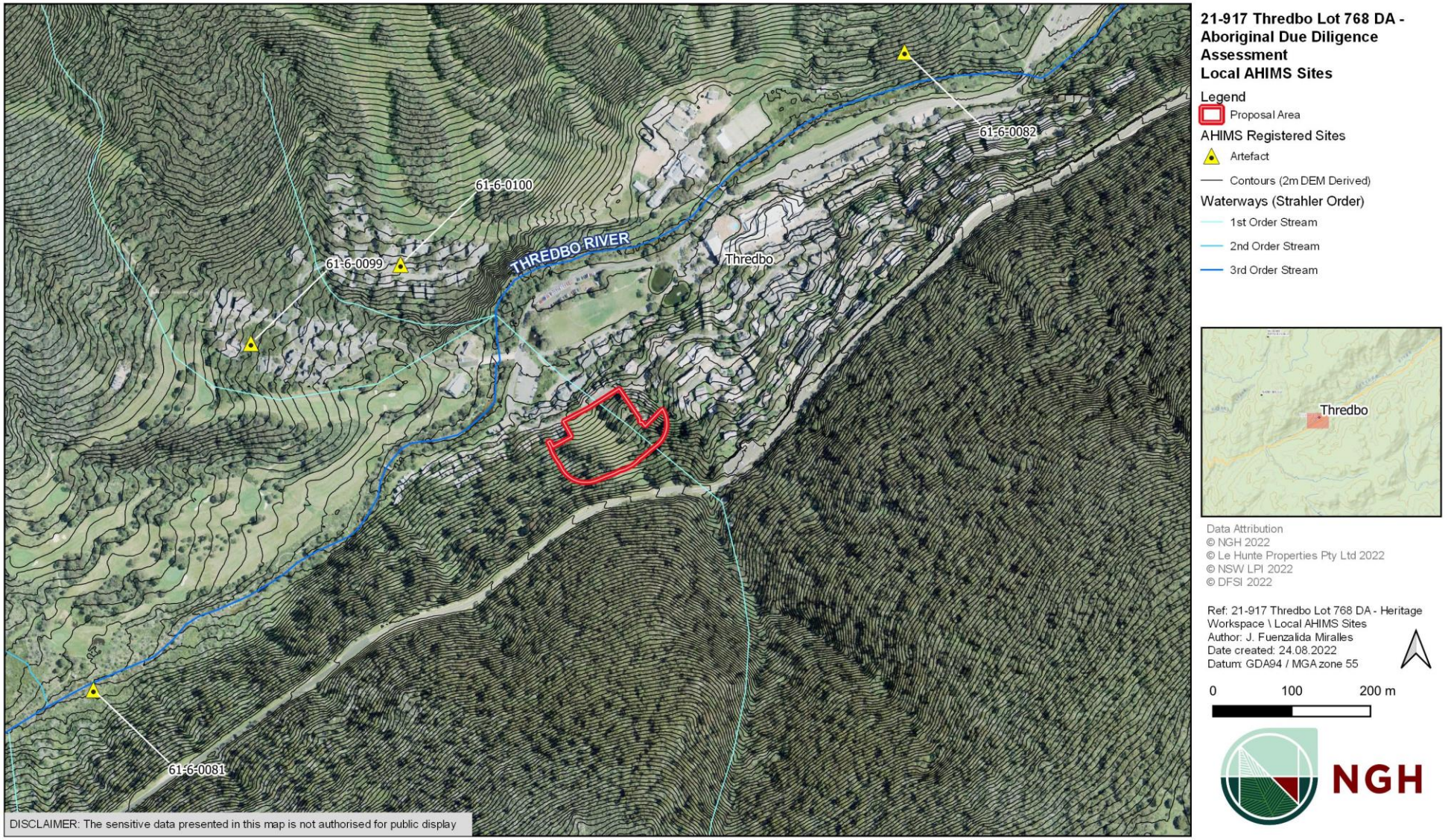

Figure 4-2 AHIMS sites within proximity to the Proposal Area.

None of the archaeological sites currently recorded on AHIMS are located within or directly adjacent to the Proposal Area. However, two sites occur within 500 m. These sites are summarised in Table 4-2 below and shown in Figure 4-2.

Table 4-2 Sites within 500 m of the Proposal Area.

Site number	Site name	Site type	Distance to project (m)	Site status on AHIMS
61-6-0100	Ramshead Creek 2	Artefact	Approximately 287 m north-west of the Proposal Area	Valid
61-6-0099	Ramshead Creek 1	Artefact	Approximately 409 m north-west of the Proposal Area	Valid

4.1 Archaeological context

4.1.1 Regional context

Aboriginal people have occupied what we now know as the Australian continent for at least 40,000 years and perhaps 60,000 years and beyond (Bowler et al. 2003; Mulvaney & Kamminga 1999; Hiscock 2007). All major environmental zones in Australia are known to have been occupied for the last 35,000 years (Mulvaney and Kamminga 1999:114). The earliest archaeological dates for occupation in the Australian Alps bioregion dates back to 21,000 years ago from a rock shelter at Birrigai, near Canberra. However, there is physical evidence of Aboriginal use across the region in the form of surface artefacts, scarred trees, stone quarries, ceremonial grounds, stone arrangements, rock art, and rock shelters with cultural deposits (Flood 1980; Grinbergs 1993; Freslov et al. 2004).

In the south eastern Australian highlands there has been limited evidence of Pleistocene occupation with most sites dating to approximately 4,000 before present (BP), which is well within the Holocene (Flood et al. 1987). Only three Pleistocene sites have been recorded and excavated in the region. The oldest of these sites, Birrigai rock shelter near Canberra, has been dated to 21,000 BP and was thought to have been above the tree line during this period (Flood et al. 1987). Another regional site is New Guinea II on the Snowy River, which was recorded by Ossa et al. (1995) with a similar basal date of approximately 21,000 BP. The third site, Cloggs Cave, located in the lead up to the Victorian highlands was dated to approximately 18,000 BP (Flood 1973). The archaeological evidence from these sites – mostly faunal remains and lithics – suggests limited non-intensive use of the sites during the Pleistocene before a more intensive Holocene occupation. This model of occupation contrasts strongly with previously recorded sites in Southwest Tasmania – which is climatically and temporally similar – where it appears that Pleistocene highland occupation was intensive and evidence of subsistence specialisation is recorded (Ossa et al. 1995; Cosgrove 1999).

While there are not enough sites currently identified in this region to clearly inform upon patterns of Pleistocene highland usage it is suggested by Ossa et al. (1995) that the drivers of highland

occupation in south eastern Australia were very different between the Pleistocene and Holocene. Holocene occupation of these areas has been strongly associated with ethnographic evidence of Bogong moth hunting as part of feasts and ceremonies (Flood 1973, 1980). It is important to note however, that bogong moths could not have been a highland resource prior to the present climatic conditions of the Holocene. Consequently, present models of site identification proposed by Flood (1980) are only appropriate for Holocene Aboriginal cultural sites.

Through her work, Flood (1973, 1980) proposed that five archaeological site types typify the region:

- Large lowland base camps – open artefact scatters containing over 1,500 artefacts that may extend over several kilometers;
- Medium sized lowland camps;
- Valley camps at altitudes between 745 m – 1,160 m;
- High summer camps at elevations of 1,160 m – 1,525 m; and
- Camp sites above 1,525 m (the snow line).

This model revolved around both seasonal resource availability (e.g. Bogong moths) and seasonal movement through the landscape, with lowland areas occupied during the winter months and the alpine areas occupied during summer (Flood 1980). Flood recognised that three main resource zones were exploited by Aboriginal communities. These resource areas were:

1. The riverine plains on the tablelands, where the great variety of riverine foods would have been easily exploited.
2. The mountain slopes and wet sclerophyll forests where mammals and vegetable foods were obtained.
3. Sub-alpine and alpine areas with the Bogong moths and daisy yams (Flood 1980:159).

Flood (1980) also suggested that camp sites would be located:

- Within access to water (all sites within one kilometer of a water source and most sites within 100 m);
- Not directly along water courses, with Flood (1980) suggesting that poor drainage, risk of flash flooding and mosquitoes would have deterred long term camps immediately adjacent to rivers and creeks;
- With an aspect that allows people to sight game and/or the approach of strangers;
- In close proximity to shelter or materials from which to construct shelters; and
- In close proximity to food and other resources.

More recent research by Theden-Ringl (2016, 2017), Freslov et al. (2004), Chapman (1997), and Grinbergs (1993) have found evidence of high-altitude human occupation that does not fit well within Flood's original model. Grinbergs (1992) identified a significant number of stone artefact scatters at intermediate altitudes between 300 and 2000 metres that had not previously been included in archaeological research. His research proposed a broad-spectrum model of highland occupation based on seasonally scheduled movement throughout a range of economically exploitable environments (Grinbergs 1992). The identification of a much broader range of sites when combined with the large occupation sites identified by Flood (1973) led Grinbergs (1992) to suggest that the "numerically and spatially large artefact scatters found at lower elevations along

the Lower Snowy River Valley such as those at the confluence of the Jacobs and Snowy Rivers, Sandy Creek and at the Pinch River site were interpreted as sites of extensive raw material exploitation rather than being indicative of large scale human occupation" (Grinbergs 2008:12). Grinbergs (1992) further suggested that these areas were raw material procurement sites and areas where people sheltered during the coldest months of winter.

Theden-Ringl conducted excavations of several rock shelters in the Namadgi Ranges (ACT) with cultural deposits dating to the early to mid-Holocene. Theden-Ringl's research provided the first substantial evidence that people were active in the high country during the Holocene Optimum (ca 9,000–6,000 years BP). In combination with previously dated Namadgi sites, the new data also confirmed an increase in activity at around 2,000 years BP (Theden-Ringl 2016).

In addition, other studies have shown that there are large numbers of sites within areas above 600 m in the Alps and this leads to the suggestion that Aboriginal communities were living in the high country all year round (Chapman 1977, Geering 1981, Grinbergs 1992). It should be noted that this does not necessarily mean that people were living in the higher elevations during winter, as there would not have been the shelter and resources available to sustain a population during the winter months when snow blankets the high alpine areas.

Within closer proximity to the current Proposal Area, Geering (1983) and Paton (1984) performed surveys of the Bullocks Flat area for the proposed Skitube development; approximately 14 km north-west by west of the current Proposal Area. As a result of this assessment, Geering recorded a total of 12 isolated artefacts and three artefact scatters within the development area. The following year Paton conducted surface survey and subsurface testing, targeting areas of low (i.e. sloping ground and low elevation areas) and high archaeological sensitivity (i.e. elevated level ground). The results of Paton's assessment were that an additional two isolated finds and a single artefact scatter were recorded. One of Geering's artefact scatters was also extended to over 1.5 km in length. However, no subsurface artefacts were recorded as a result of the testing programme (1984:6). The results of the two assessments concluded that the site patterning for the Skitube development site support Flood's model that the high numbers of isolated finds and artefact scatters within the Thredbo valley indicated that the areas below 1200 m elevation were frequently occupied by Aboriginal people in the past.

In 1988 Paton and Macfarlane (1988a, 1988b) conducted preliminary salvage excavations for the proposed resort complex at the Little Thredbo Homestead near the Thredbo Skitube terminal; located approximately 14.8 km north-west of the current Proposal Area. During this assessment, Paton and Macfarlane classified the landforms between one of four categories: alluvial flats (low lying, generally shaded, and poorly drained), moderate slopes (3° - 5° slopes, generally well drained), steep slopes (greater than 6° slope, well drained), and elevated flats (less than 3° slope and at least 20 m above alluvial flats on well drained shoulders, crests, or knolls); all landforms were noted to contain varying aspects. The results of this salvage work – which included excavation of test pits and controlled bulldozer scrapes – were that a total of 246 subsurface stone artefacts were recorded:

- Within the alluvial flats, 16 test pits were excavated but only two artefacts were recorded.
- Within the moderate slopes, 10 test pits were excavated with 62 artefacts recorded (from only two pits).
- Within the steep slopes, nine test pits were excavated but no artefacts were recorded.
- Within the elevated flats, 15 test pits were excavated with 181 artefacts recorded. Only a single bulldozer scrape contained an artefact.

A total of 224 of the recorded artefacts were quartz, the majority of which were 'small chips' (flaked pieces) at 54.4%, while flakes represented 37%. The remainder of the quartz assemblage comprised of multiplatform and bipolar cores. The remaining 22 artefacts were identified as grey silcrete (n=21, 8.5%) and a volcanic pebble (n=1, 0.4%). Silcrete geometric microliths and broken backed blades were identified while the single volcanic pebble was recorded as a ground-edged axe with pitting on one of its surfaces indicating its potential use as a hammerstone. Paton and Macfarlane argued that the quartz assemblage recorded during the salvage was consistent with the results of other excavations on the Far South Coast (Hiscock 1982 as cited in Paton and Macfarlane 1988) and the Southern Tablelands (Flood 1980). They also noted that Flood (1980:217 as cited in Paton and Macfarlane 1988:5) argued that geometric microliths were more common within assemblages in the region while backed blades were rare. Paton and Macfarlane argued that the presence of these typologies suggested that the site could be dated between 2000 and 5000 years BP, however this was solely based on the stone artefacts present as no dateable material was recovered. More generally, the results of the assessment by Paton and Macfarlane conform to the predictive models developed by Flood (1980) for montane valley camps. Elevated flats were clearly the focus of previous human activity in this area while moderate slopes were targeted to a lesser degree (especially when elevated 20 m above alluvial flats and with an easterly or north-easterly aspect). The results of these excavations also suggest that steep slopes and alluvial flat landforms were not utilised for activities that left an archaeological record. Despite largely conforming to previous predictive models, Paton and Macfarlane argue that the size of the recorded assemblage suggests that the Aboriginal occupation of the Thredbo valley was more intensive that had been previously understood.

4.1.2 Local context

While no archaeological studies are understood to have taken place within the current Proposal Area, several have been conducted within the Thredbo Village area. While they are not based on the Proposal Area, they still provide insight into the landforms that were targeted and the site types that may be encountered in the area.

In 1985, Paton conducted surveys between the Ranger Station and Dead Horse Gap for the proposed Alpine Way upgrade; partially located within 50 m of the current Proposal Area. Walkington (1987) also surveyed a similar corridor for a proposed 33kV powerline from Bullocks Flat to Thredbo and Paton (1988) did the same for a fibre optic cable. Each of the three surveys crossed over a variety of landforms within the region, all of which were inspected. Paton (1985) identified a single site along the Alpine Way while Walkington (1987) identified 11 artefact scatters and two isolated finds. Paton (1988) identified a further two sites. Almost all of the sites recorded during the three assessments were recorded on gently sloping landforms such as spurs or terraces elevated above the river.

In 1987 ANUTECH Pty Ltd conducted an archaeological survey of a planned ski slope development at Thredbo; approximately 850 m north-west of the current Proposal Area. The area had previously been surveyed by NPWS in 1986 for a proposed construction of artificial snowmaking facilities. ANUTECH noted that the bedrock in the area was mainly granitic, with some quartz derived from veins in the granites. It was also noted that aside from the Thredbo River, a small watercourse flowed through the ski slope development area. While ground surface visibility was around 10% (at most 20%) two of the sites previously identified by NPWS were relocated within the existing track under the Merritts Chairlift. The sites were low-density scatters of stone artefacts and it was argued that they formed a small portion of the general background scatter of artefacts on the gentle slopes of the Thredbo landscape. Another previously identified site was

relocated on the gentle slopes overlooking the Thredbo River, adjacent to a pipeline route associated with snowmaking facilities. The site – Thredbo Site 1 – comprised of 43 stone artefacts in a scatter measuring 60 x 30 m. The raw materials present within the scatter were predominantly quartz, with four silcrete flakes also being identified. ANUTECH observed that the artefacts were also associated with naturally outcropping quartz in the area, stating that the ratio of 'natural' quartz to stone artefacts was 5:1. A handful of typologies were identified within this scatter and included cores (multi-platform and bipolar), a single backed blade, flakes, and flaked pieces, with retouch also observed on some artefacts. Several large flaked river-worn cobbles within the scatter suggests that some of the raw materials were sourced from the bed of Thredbo River. The artefact density within the scatter was approximately 1 artefact per 40 m^2.

In 1997 Navin Officer performed a cultural heritage survey for the proposed 'Easy Does It' ski run improvement works at Thredbo; located approximately 800 m north-west of the current Proposal Area. The area assessed by Navin Officer was located on a southeast facing spur above the Thredbo River valley and rises to a major ridge which terminates between Rams Head and Merritts Spur. Despite the poor ground surface visibility due to snow cover, a single low density artefact scatter consisting of five artefacts was recorded. The site – EDI 1 – was comprised of two clusters 10 m apart from each other. The artefacts were located close to the centreline for the proposed ski run development and were identified within wombat paths and holes. All five artefacts recorded were made from quartz with four flakes and a single core fragment being identified. Navin Officer argued that the site contained low archaeological significance as it was typical of the known sites in the region.

In 1998 Archaeological Heritage Surveys (AHS) conducted a salvage of surface and subsurface Aboriginal artefacts at the site of the AIS carpark extension within the Thredbo Alpine Village; located approximately 900 m north-west by west of the current Proposal Area. As part of the programme of works, a single previously recorded surface artefact – Friday Flat IF1 (#61-3-0065) – was collected; it should be noted that this site is still incorrectly recorded as active on AHIMS. The collected artefact was described as a broken silcrete flake with possible use wear along one margin. A total of two further artefacts were located during the subsurface salvage works, both within the south-west portion of the assessment area near an undisturbed clump of trees. AHS argued that it was possible for additional artefacts to be within the trees. The artefacts were described as a grey chert flake and a quartz flake, located at 10 cm and 20 cm depths respectively and within 7 m of each other. AHS argued that the very low artefact recovery rate from subsurface monitoring was consistent with the results of – what was at the time – the only other subsurface salvage programme carried out in the region (Navin and Officer 1995). AHS also argued that the results were consistent with the site location model that had been developed for the Thredbo Valley by Paton and Macfarlane (1988:6-7), which determined that the preferred site location within the valley flow were sheltered, elevated flats at least 20 m from poorly drained alluvial flats. Moderate slopes with an easterly or northerly aspect at a similar elevation above alluvial flats were also noted for their archaeological potential. AHS concluded that due to the location of the AIS carpark extension site within the low-lying alluvial flat associated with the Thredbo River, that the area was not archaeologically sensitive.

4.2 Landscape assessment

Step 2b. Are there landscape features present likely to contain Aboriginal objects?

The Due Diligence Code outlines a range of general landscape features that are more likely to contain Aboriginal objects. These include land that is:

- Within 200 m of water;
- Located within a sand dune system;
- Located on a ridge top, ridge line or headland;
- Located within 200 m below or above a cliff face; or
- Within 20 m of a cave, rock shelter or cave mouth.

It is also necessary to consider whether any sensitive landscape features present have been disturbed or modified which would reduce the potential for Aboriginal objects to occur.

The Proposal Area is comprised of steep slopes, a steep gentle gully, a steep spur, and an unnamed waterway. As all of these landforms are in proximity to an unnamed drainage line and within relative proximity to the Thredbo River, they have potential to be sensitive landforms. As a result, a site visit was undertaken in order to determine if any surface or subsurface archaeological potential exists throughout the Proposal Area.

4.2.1 Geology

Understanding the geological character of the local area can assist with understanding what, if any, raw stone materials may have been available for the manufacture and maintenance of stone tools or for use as shelter. The geology underlying the Proposal Area is described as the Mowambah Granodiorite unit (described in Table 4-3 below). The presence of quartz within this geological landscape suggests that raw material suitable for stone tool production was available in the area. However, this would have been confined to areas where rock outcrops with the suitable material is present. It should also be noted that raw materials used for stone tool production were often traded long distances between communities and may be represented by exotic materials that are not characteristic of the region.

Table 4-3 Description of NSW 1500K Simplified Surface Geology within the Proposal Area.

Surface Geology	Description
Mowambah Granodiorite (with Lachlan Orogen surface geology)	Medium-grained mafic biotite-rich granodiorite; strong foliation defined by quartz and biotite crystals plus aligned xenoliths, muscovite flakes accentuate foliation; metasedimentary xenoliths include banded cordierite gneiss.

4.2.2 Topography

The Proposal Area is located within the Main Range Montane Mitchell Landscape (DECC 2002) as described in Table 4-4 below. The Proposal Area is characterised by moderate to steep slopes and a gentle gully within the western and central sections and a single gentle spur within the eastern section. While it has been noted in previous archaeological studies that moderate to steep slopes

were not conducive to Aboriginal occupation in the region this does not mean that smaller sites do not occur on these landforms, especially in proximity to waterways. The presence of a steep spur landform within the Proposal Area also suggests that the area may have been frequented by Aboriginal people as spur landforms were generally used as 'highways' due to the comparative ease in which they could be traversed in comparison to adjacent landforms.

Table 4-4 Mitchell Landscape description for the Main Range Montane (DECC 2002:8).

Mitchell Landscape	Description
Main Range Montane (Mam)	Well-drained steep slopes on Silurian-Devonian gneissic granite, granite and granodiorite and Ordovician slate, chert, quartzite and phyllite. General elevation 1000 m to 1500m but ecosystem boundaries vary with aspect. Soils are intermediate in character between low elevation texture-contrast profiles and higher elevation organic uniform profiles. Their properties vary with bedrock; gritty clay loams on granites and pedal red to yellow clay subsoils on meta-sediments.

4.2.3 Hydrology

A single first-order unnamed ephemeral waterway flows through the area, feeding into Thredbo River approximately 170 m north-east of the Proposal Area. All waterways are understood to have been significant landscape features that were targeted by Aboriginal communities. While the waterway present within the Proposal Area is a first-order ephemeral stream, its presence suggests that a portion of the area may have been seasonally visited as a direct result of the water source. However, it should be noted that the waterway is located within moderate to steep slopes, suggesting the occupation within the Proposal Area is unlikely to have occurred due to the unsuitable landforms present.

The presence of the Thredbo River within close proximity to the Proposal Area is significant due to its regional importance as it was one of the main waterways that was used by Aboriginal people in the past. Due to its proximity, Aboriginal artefacts may be present in reduced quantities that are associated with activities that took place closer to the river.

4.2.4 Soils

The formation and nature of soils within the Proposal Area can provide insight into the types of sites which may be present, in addition to the likelihood for intact archaeological deposits to be present. The Proposal Area is located within an area that is noted to contain alluvial rudosols. It should be noted that it is also located within 50 m of areas mapped as containing rudosols and tenosols. While rudosols and tenosols are generally known to be shallow, stony soils located on steep slopes, alluvial rudosols are often comprised of deep and recent alluvial deposits of sand and silt. Mitchell (DECC 2002:8) also describes the soils within Table 4-4 above. Furthermore, while no eSpade soil landscape descriptions are currently available for the Proposal Area, a soil profile report is available for a location 1 km south-west of Thredbo along the Alpine Way. This soil profile report is not indicative of the Proposal Area but may provide some insight into the soils that are encountered on the slopes above the Thredbo River and valley landscape; as described in Table 4-5 below. Due to the fact that no specific data for the soils within the Proposal Area are available it is likely that it will be one of the soils described in this section, deeper alluvial soils or

shallow stony soils. The former will contain potential for subsurface archaeological deposits while the latter will have very low potential. The soil types were further examined during the field visit.

Table 4-5 Soil landscape descriptions for an area approximately 1 km south-west of the Proposal Area.

Soil Layer	Soil Description
Layer 1 (A11 Horizon)	Identified between 0 m and 0.07 m depth. Characterised by a very dark grey/brownish black (10YR 3/1) loam with a weak pedality and very few pieces of fine or weakly weathered gravels (2-6 mm). Roots are abundant. The field pH level observed was pH 6.5 (neutral).
Layer 2 (A12 Horizon)	Identified between 0.07 m and 0.18 m depth. Characterised by a very dark grey/brownish black (10YR 3/1) loam with a moderate pedality and very few fine gravels (2-6 mm). Roots are common. The field pH level observed was pH 6.5 (neutral).
Layer 3 (A2 Horizon)	Identified between 0.18 m and 0.32 m depth. Characterised by a very dark greyish brown/brownish black (10YR 3/2) loam with a moderate pedality. No gravels or roots were identified. The field pH level observed was pH 7.0 (neutral).
Layer 4 (AC Horizon)	Identified between 0.32 m and 0.43 m depth. Characterised by a brown/dull yellowish brown (10YR 4/3) light clay loam with 'massive' structure. No gravels or roots were identified. The field pH level observed was pH 6.0 (slightly acidic).

4.2.5 Floral and faunal resources

While the majority of the proposed works is located within a cleared zone of land, it is bordered by two vegetation classes, the Subalpine Woodlands to the south and Alpine Heaths to the north. These two vegetation classes are likely to have covered the Proposal Area prior to its partial clearing. Both communities are described in Table 4-6 below.

Table 4-6 Indicative species of the Alpine Heath and Subalpine vegetation classes (Keith 2004).

Vegetation Community	Description
Alpine Heaths	Characterised by scattered individuals of snow gums below 1800 m elevation with coral heath, alpine grevillea, alpine orites, common shaggy pea, alpine everlasting, cascade everlasting, mountain plum pine, alpine shaggy pea, alpine mint bush, alpine pepper and yellow kunzea shrubs. Mountain woodruff, silver snow daisy, and prickly starwort are herbs often found in the community along with grasses such as robust wallaby grass and soft snowgrass.
Subalpine Woodlands	Characterised by white sally, mountain gum, candlebark, black sally, and snow gum (above 1500 m) with shrubs such as silver wattle, daphne heath, gorse bitter pea, digger's speedwell, prickly broom-heat, silky daisy bush, and alpine shaggy

Vegetation Community	Description
	pea. Vines such as old man's beard are present along with herbs such as prickly woodruff, native geranium, button everlasting, blue bottle daisy, spiny headed mat rush, prickly starwort, grass trigger plant, mountain violet, and tall bluebell. Grasses like common wheatgrass, tussock, snowgrass, and kangaroo grass are also present

These zones would have provided valuable resources to Aboriginal people in the form of bark, foods, and medicines. Furthermore, these areas would have supported a variety of fauna that were vital food resources such as kangaroos, wallabies, possums, and famously Bogong moths. The proximity of these areas to local and major waterways further suggests their importance as an area where resources would have been plentiful. However, the harsh winter conditions that characterise the Thredbo landscape during the majority of the year, and due to the potential lack of floral and faunal resources at certain altitudes/times of the year, the Thredbo valley cannot be expected to yield similar densities of Aboriginal/archaeological objects as other regions of Australia (e.g., coastal, semi-arid) where year-long occupation of the landscape was possible.

4.2.6 Historic land use

The Proposal Area is located within the Thredbo Ski Resort area, which has been operated continuously since the 1950s. Historical imagery from 1964 shows that the Proposal Area has remained undeveloped since at least 1964. It should be noted that the area of cleared land within the centre of the Proposal Area has remained consistently cleared for the last 60 years, the particular reason for this is unknown. A number of roads have also been built within proximity to the Proposal Area, including Diggings Terrace and the Alpine Way. Residential/resort facilities have also been constructed in adjacent lots.

While no direct historical disturbances have been observed from a desktop level within the Proposal Area it is likely that the works and historical land use of adjacent areas caused some secondary impacts to the area. These activities may have potentially impacted on Aboriginal objects within the Proposal Area. The extent of historical disturbances was assessed during the visual inspection.

4.3 Aboriginal Site Prediction

The initial desktop assessment, using satellite imagery and topographic data, suggested a low potential for Aboriginal objects to occur within the Proposal Area as the entire area is characterised by moderate to steep slopes. Previous archaeological research within the region clearly suggests that most Aboriginal sites are focussed on the relatively flat to slightly sloping flats above the alluvial flats associated with the Thredbo River. However, due to the proximity of the Proposal Area to a major waterway and the presence of a spur, there remains some potential for surface isolated finds to be present within the area. Furthermore, due to remnant vegetation within the Proposal Area, there is potential for scarred trees to be present, even if no such sites have been identified on AHIMS in the region. Finally, as the soil deposits within the Proposal Area cannot be definitively characterised it is difficult to predict whether PADs may be present. Where deeper alluvial soils are present there is a higher potential for PADs while in areas of shallow soils there is a lower potential for PADs.

Based upon the currently recorded AHIMS sites in the area there is potential for artefact scatters and isolated artefacts to occur within the Proposal Area. Site types such as burials, stone quarries, grinding grooves, and stone arrangements are present in the region but are unlikely to occur due to their rarity and the unsuitable landforms present within the Proposal Area.

The desktop assessment indicated that there are landforms present within the Proposal Area that have the potential to contain Aboriginal objects. The nature of the works being undertaken at this site will involve significant ground disturbance and it is possible that it would impact on Aboriginal heritage objects.

An outline of predicted Aboriginal objects within the Proposal Area is provided in Table 4-7.

Table 4-7 Aboriginal site prediction statements.

Site type	Site description	Potential
Stone artefacts scatters and isolated artefacts	Artefact scatter sites can range from high-density concentrations through to isolated finds	Low potential to occur in low to moderate densities within the Proposal Area.
Potential Archaeological Deposits (PADs)	Potential subsurface deposits of archaeological material	Very low potential to occur within the Proposal Area where deeper soil deposits on gently sloping ground elevated above the alluvial flats are present.
Modified trees	Trees that have undergone cultural modification	Low potential to occur within the Proposal Area however they may be present in areas where there are remnant mature native trees.

5. Impact avoidance

Step 3. Can any AHIMS listed objects, or landscape features be avoided?

The proposed location of the development works is in an area which contains a low potential for Aboriginal objects or archaeological deposits based on the nature of the landscape. While the Proposal Area is located in proximity to the Thredbo River – a major regional waterway – it is located on moderate to steep slopes, both of which are less likely to contain Aboriginal objects in comparison to the relatively flat elevated landforms above the alluvial flats that are located closer to the river.

However, the project activity will involve significant ground disturbance (i.e. excavation and landscaping works) and is not able to be amended to avoid landforms with potential to contain Aboriginal objects. The nature of the DA application and the proposed works means that the landforms within the Proposal Area cannot be avoided.

The desktop assessment alone is not sufficient to conclusively define the archaeological potential of the landscape or identify the location of any Aboriginal objects. Therefore, the next step in the process, a visual inspection is required to be conducted to determine the presence of Aboriginal objects or potential archaeological deposits within the Proposal Area.

6. Desktop assessment and visual inspection

Step 4. Does the desktop assessment confirm that there are likely to be Aboriginal objects present or below the ground surface?

The assessment process is primarily a desktop exercise, using available information such as the AHIMS search results and relevant archaeological reports to develop or refine a model of Aboriginal site prediction based on the type of activity proposed and the level of disturbance of the area. A visual inspection is also required where landscape features are present that may contain Aboriginal objects that cannot be avoided by the activity.

A visual inspection of the Proposal Area was undertaken on the 22nd March 2022 by qualified archaeologist Kirsten Bradley focusing on the proposed development areas within Lot 768 DP 1119757 .

The majority of the Proposal Area is to be located on a very steep slope at an approximate 35° - 45° angle, including the very gently sided gully landform. The spur landform within the eastern portion of the area, while less steep in comparison to the remainder of the Proposal Area, was also steep at an approximate 20° angle. The Proposal Area generally becomes steeper upslope towards the Alpine Way in the southern and southwestern portion of the area.

The central portion of the Proposal Area was cleared, with remnant vegetation within the western and eastern portions of the Proposal Area. No culturally modified trees were recorded within the Proposal Area. Overall, ground surface visibility was approximately 5 – 10% due to grass cover and trees. Some large exposures were present throughout the Proposal Area and are likely to be the results of fallen/burnt out trees, animal tracks/disturbances, or natural erosion. While no Aboriginal objects were identified within these exposures, it was noted that non-artefactual quartz pieces and granites were eroding from subsurface deposits. Furthermore, a humic, loamy topsoil was observed in the majority of these exposures, with some shallow yellowish-brown clays also noted. These observations suggest that the soils present within the Proposal Area are consistent with the shallow stony soils described in Section 4.2.4 above and therefore there is little to no potential for PADs within the Proposal Area. While the mapped waterway was not visible on the surface, it was noted that drainage infrastructure on the eastern side of the Proposal Area indicates that the waterway has been redirected to flow underground directly to Thredbo River. This would also serve to explain the linear nature of the waterway when viewed topographically and would suggest that some earthworks or disturbances occurred during its installation.

The visual inspection resulted in no Aboriginal objects or PADs being identified within the Proposal Area.

Site photographs taken during field work are shown below in Plate 1 to Plate 10.

6.1 Summary

The Proposal Area is located in the archaeologically sensitive Thredbo valley landscape. However, the steep landforms and shallow soils reduce the archaeological potential of the Proposal Area to a negligible level. This is further supported by the absence of surface Aboriginal objects (i.e. scarred trees, isolated artefacts, or artefact scatters) observed within the Proposal Area during this assessment. As a result, it was determined that the Proposal Area has negligible potential for Aboriginal objects or archaeological deposits.

	
Plate 1 View south over the Proposal Area at Thredbo.	Plate 2 View east over the steep slopes towards the steep spur.
	
Plate 3 View west over the steep slopes towards a patch of native vegetation.	Plate 4 View north over an exposed section of the Proposal Area.
	
Plate 5 View west over the steep slopes within the Proposal Area.	Plate 6 View north over the gentle gully landform within the Proposal Area.

	
Plate 7 View north over the steep spur landform.	Plate 8 View south towards the steep spur landform from Diggings Terrace.
	
Plate 9 Example of a section of exposed ground within the Proposal Area.	Plate 10 Example of a section of exposed ground within the Proposal Area.

7. Further assessment

Step 5. Is further investigation or impact assessment required?

The Due Diligence Code states that if, after the desktop research and visual inspection is completed, it is evident that harm will occur to Aboriginal objects or heritage places then further and more detailed assessment is required. However, if the research and inspection conclude that the proposed activity is unlikely to harm Aboriginal objects then the activity can proceed with caution.

The field assessment concludes that the Proposal Area does not require further investigation and assessment. This is due to the landforms observed during the visual inspection showing negligible potential for subsurface archaeological deposits and due to no Aboriginal objects being identified on the surface. As a result, the Proposal Area is assessed as containing negligible potential for Aboriginal objects and the works may proceed with caution.

8. Recommendations

The following recommendations are based on a number of considerations including:

- Background Aboriginal heritage research into the area;
- Assessment of Landscape ;
- Land use and disturbance assessment;
- Visual inspection;
- Consideration of the impact of the proposed works; and
- Legislative context for the development proposal.

Based on an assessment of the project, the location and previous level of disturbance, the proposed work can proceed with caution with the following recommendations:

1. All works must be constrained to the area assessed by this document and any activity proposed outside of the current assessment area should also be subject to an Aboriginal heritage assessment.
2. All access to the site and laydown areas must be within the assessed Proposal Area otherwise visual inspection of the sites by a qualified archaeologist is required.
3. If any items suspected of being Aboriginal in origin are discovered during the work, all work in the immediate vicinity must stop and the NSW Environment Line (1300 361 967) notified. The find will need to be assessed and, if found to be an Aboriginal object, an Aboriginal Heritage Impact Permit (AHIP) may be required.

Le Hunte Properties Pty Ltd is reminded that it is an offence under the *National Parks and Wildlife Act 1974* to disturb, damage or destroy an Aboriginal object without a valid AHIP.

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