S2-FGJV-ENV-PLN-0029

# ABORIGINAL HERITAGE MANAGEMENT PLAN

| Approval Record | | | |
|---|---|---|---|
| Document preparation, review and approval | | Name in print | Signature |
| Prepared by | Heritage Specialist<br>Environmental Consultant | J. Dibden<br>A. Costenoble | |
| Reviewed by | Environmental consultant | R. Walker-Edwards | |
| Verified by | Environmental Manager | L. Coetzee | |
| Approved by | Project Director | A. Betti | |

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# ABBREVIATIONS AND DEFINITIONS

| Acronym | Definition |
|---|---|
| AANP | Australian Alps National Parks and Reserves |
| ACHAR | Aboriginal Cultural Heritage Assessment Report |
| AFL | Agreement for Lease |
| AHIMS | Aboriginal Heritage Information Management System |
| AHMP | Aboriginal Heritage Management Plan |
| EMS | Environmental Management Strategy |
| BCD | Biodiversity and Conservation Division (part of Department of Planning, Industry and Environment) |
| CoA | Conditions of Approval |
| CSSI | Critical State significant infrastructure |
| DPIE or Department | NSW Department of Planning, Industry and Environment |
| EIS | Environmental Impact Statement |
| Exploratory Works EIS | *Environmental Impact Statement Exploratory Works for Snowy 2.0* |
| EMS | Environmental Management Strategy |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| EPBC Act | Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* |
| EPL | Environment Protection Licence |
| EWAR | Exploratory Works Access Roads |
| Future Generation | Future Generation Joint Venture |
| Future Generation-PMS | Project Management System |
| Heritage Item | An item as defined under the *Heritage Act 1977* and/or an Aboriginal object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974*. |
| Hydro-electric | Generation of electricity using flowing water (typically from a reservoir held behind a dam or barrage) to drive a turbine which powers a generator |
| Kosciuszko National Park | A National Park protected under the *National Parks and Wildlife Act 1974* (NSW) and managed by NSW National Parks and Wildlife Service. It covers an area of 673,543 hectares and forms part of Australia's only Alpine area |
| KNP | Kosciuszko National Park |
| Leed | Leed Engineering |
| Lobs Hole | A former settlement location within Kosciuszko National Park, and primary location of Exploratory Works. |
| *Lobs Hole* Spelling | In this document the contemporary spelling *Lobs Hole* is used except for when a specific older name is referred to, such as for example, *Lobbs Hole Copper Mine*, when the original spelling is used. |
| NPWS | National Parks and Wildlife Service |
| NPW Act | *National Parks and Wildlife Act 1974* |
| OEH | NSW Office of Environment and Heritage |
| OSOM | Oversize and Overmass |

| Acronym | Definition |
|---|---|
| PEP | Project Execution Plan |
| Project, the | Snowy 2.0 Exploratory Works |
| QMP | Quality Management Plan |
| RAPs | Registered Aboriginal Parties - Aboriginal stakeholders registered for cultural heritage consultation for the project |
| REMM | Revised environmental management measures |
| Submissions Report or RTS | *Response to Submissions Exploratory Works for Snowy 2.0* |
| Snowy Hydro | Snowy Hydro Limited |
| TBM | Tunnel Boring Machine |

# 1. INTRODUCTION

Salini Impregilo, Clough and Lane have formed the Future Generation Joint Venture (Future Generation) to provide the Civil Works Package for Snowy Hydro Limited (Snowy Hydro) on the Snowy 2.0 Project (the Project).

The Project is a pumped hydro project that will increase the generation capacity of the Snowy Mountains Scheme by up to 2,000mW and at full capacity will provide approximately 350,000MW/h of energy storage. The project includes all activities associated with the civil works requirements for the Snowy 2.0 Pumped Hydro-electric Scheme.

Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs, which are in the Kosciusko National Park (KNP) in southern NSW. Approximately 27km of concrete-lined tunnels will be constructed to link the two reservoirs and a further 20km of tunnels will be required to support the facility. The power station complex will be located almost one-kilometre underground.

The project will deliver one of the largest pumped hydro schemes in the world and underscores the importance of the Snowy Scheme's role in the National Electricity Market.

Future Generation was conceived to deliver an integrated engineering, procurement and construction management service for the project. The joint venture is backed by the combined experience of Salini Impregilo, Clough and Lane, through their experience in the infrastructure, mineral and oil and gas sectors throughout Australia and the world.

## 1.1. Purpose

This Aboriginal Heritage Management Plan (AHMP or Plan) forms part of the Environmental Management Strategy (EMS) for Snowy 2.0 – Exploratory Works – Stage 2 (Exploratory Works – Stage 2). The Exploratory Works is the first phase of Snowy 2.0, a pumped hydro-electric storage and generation project which will increase the hydro-electric capacity within the existing Snowy Mountains Hydro-electric Scheme. The Main Works or second phase, will be subject to a separate Environmental Impact Statement (EIS) in 2019.

This AHMP has been prepared to address the requirements of:

- the Infrastructure Approval (SSI 9208) (Approval) issued for Snowy 2.0 Exploratory Works on 7 February 2019 and modified on 2 December 2019 and 27 March 2020;
- the Environmental Impact Statement Exploratory Works for Snowy Hydro 2.0 (Exploratory Works EIS);
- the revised environmental management measures (REMMs) within the *Response to Submissions Exploratory Works for Snowy 2.0* (Submissions Report or RTS);
- the Modification 1 Assessment Report - Exploratory Works for Snowy 2.0 (Modification 1);
- the REMMs within the *Response to Submissions - Exploratory Works Modification 1* (Submissions Report for Modification 1);
- the *Modification 2 Assessment Report - Exploratory Works for Snowy 2.0* (Modification 2); and
- the REMMs within the *Response to Submissions - Exploratory Works Modification 2* (Submissions Report for Modification 2).

The Exploratory Works for Snowy 2.0 includes, but is not limited to:

- an exploratory tunnel to the site of the underground power station for Snowy 2.0;
- horizontal and test drilling;

- a portal construction pad;
- an accommodation camp;
- road works and upgrades providing access and haulage routes;
- barge access infrastructure and dredge works*;
- excavated rock management, including subaqueous placement* within Talbingo Reservoir;
- services infrastructure; and
- post-construction revegetation and rehabilitation.

***Note: these activities will not proceed unless the relevant management plans are approved by Department of Planning, Industry and Environment (DPIE).***

Exploratory Works will be delivered in three distinct stages. These stages will be delivered by two different contractors.

Leed Engineering (Leed) is the contractor who will be carrying out the Snowy 2.0 Stage 1 work on behalf of Snowy Hydro. Future Gen is the contractor who will be delivering the Snowy 2.0 Stage 2 works on behalf of Snowy Hydro.

Works to be completed by Leed on behalf of Snowy Hydro:

- **Stage 1a** – **Pre-construction Minor Works** - Stage 1a has been approved and commenced in the first quarter of 2019. The scope of pre-construction minor works includes dilapidation studies, survey work, borehole installation, site office establishment, minor access roads, installation of monitoring equipment, installation of erosion and sediment controls, and minor clearing.
- **Stage 1b - Exploratory Works Access Roads (EWAR)** - Stage 1b has been approved and commenced in the second quarter of 2019. The scope includes roadworks and upgrades to enable access and haulage routes during Exploratory Works. This includes upgrades to 26 km of existing roads and creating about 2 km of new roads, two new bridge crossings and two temporary waterway crossings.

  *Note: Test excavation, salvage and archival recording of all Aboriginal heritage objects likely to be impacted by Stage 2 works will be undertaken under the Stage 1 AHMP.*

Works to be completed by Future Generation on behalf of Snowy Hydro:

- Stage **2 – Exploratory Works –** Stage 2 has been approved and works commenced in October of 2019. The scope for Stage 2 Exploratory Works includes:
  - pre-construction minor activities including dilapidation studies, survey, investigations, access etc; and
  - construction works including exploratory tunnel, portal construction pad, accommodation camp, dredging, barge access infrastructure excavated rock management and additional geotechnical investigation. This includes subaqueous emplacement within Talbingo Reservoir.

Further detail on construction activities and staging is presented in Section 1.8 and Figure 1-1.

**This Plan identifies the project's environmental management measures in relation to the management of Aboriginal heritage for the Exploratory Works – Stage 2.**

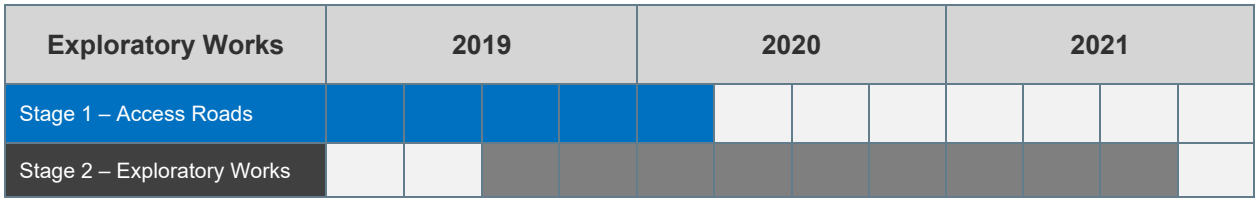


Figure 1-1: Timing of Exploratory Works - Stages 1 and 2

Stage 2 management plans have been revised from the corresponding Stage 1 management plan, as demonstrated in the document revision section of each Stage 2 plan. The intent of this arrangement is to ensure a consistent approach to managing environmental risk and regulatory requirements for the Exploratory Works project. In the event that both Exploratory Works Stages are undertaken concurrently, and / or in overlapping locations, the Stage 1 management plan will apply to the Stage 1 works, and the Stage 2 management plans will apply to the Stage 2 works. This arrangement would not affect management standards as all relevant measures from each management plan would continue to apply. As the proponent, Snowy Hydro will oversee both stages of the Exploratory Works project.

The timing of the preparation, consultation, submission and approval of this Plan, along with other management plans required by the Conditions of Approval (CoA), is shown within Table 4-4 and Figure 4-4 of the EMS.

Ongoing revisions to this Plan will occur in accordance with Section 1.6 of the EMS, and as required by condition 4 of schedule 4 of the Infrastructure Approval. Circumstances requiring a review, and if necessary, revision of this Plan include submission of incident reports or audit reports, approval of modifications to the CoA and directions of the Planning Secretary under condition 4 of schedule 2. Table 1-1 presents the relationship of heritage aspects with respect of this plan and other management plans prepared for the project.

Table 1-1: Relationship to other plans

| Activities | Relevant plan | Timing of plan[1] | |
|---|---|---|---|
| | | Stage 1 | Stage 2 |
| General environmental compliance including inspection, monitoring and auditing. | Environmental Management Strategy | P | R |
| Aboriginal heritage | This plan | P | R |
| Historic heritage | Historic and Natural Heritage Management Plan | P | R |
| Natural heritage - geodiversity | Historic and Natural Heritage Management Plan | P | R |
| Road construction – Aboriginal heritage management | This plan | P | R |
| Other earthworks including tunnelling – Aboriginal heritage management | This plan | P | R |
| Excavated rock and spoil management and temporary placement | Excavated Material Management Plan | P | R |

[1] *Note: P – prepare, R – revise*

Specific on-site management measures identified in this Plan will be incorporated into site documents. These site-specific documents will be prepared for construction activities and will detail the management measures which are to be implemented on the ground. Construction personnel

will be required to undertake works in accordance with the mitigation measures identified in the site-specific documents.

## 1.2. Background

Snowy Hydro is the proponent of the Project which is a pumped hydro-electric storage and generation project proposed to address increasing demands for renewable energy supplies. Snowy 2.0 involves linking Talbingo and Tantangara reservoirs within the existing Snowy Mountains Hydro-electric Scheme (Snowy Scheme) and building an underground power station between the two reservoirs.

Future Generation proposes to carry out the Exploratory Works – Stage 2 project prior to the main construction works for the Project, to inform the detailed design and to reduce project risk. Exploratory Works are required to obtain detailed geological data for the location of the underground power station. An exploratory tunnel is to be constructed to gain this information. The Exploratory Works – Stage 2 project will predominantly be in the Lobs Hole[1] area of KNP. If the Exploratory Works are not undertaken, risks to the design and construct elements of the power station cavern are significantly increased.

The Exploratory Works EIS was prepared to assess the impact of these works on the environment, including an assessment of Aboriginal heritage impacts within Chapter 5.5 and Appendix O[1].

The Exploratory Works EIS identified that the Exploratory Works would impact on Aboriginal heritage in the form of stone artefact distributions that are located across the majority of proposed impact areas. The presence of these do not pose a constraint to works, however, management and impact mitigation measures are required.

The Aboriginal heritage in the project area recorded during the Exploratory Works EIS, is documented in the *Aboriginal Cultural Heritage Assessment Report* (ACHAR) (Dibden, 2018). The ACHAR documents the initiatives built into the project design to avoid and minimise associated impacts and the mitigation and management measures proposed to address any residual impacts not able to be avoided.

This AHMP provides a framework for the management and mitigation of impacts to Aboriginal heritage in the project area. The test excavation, salvage and archival recording of all Aboriginal heritage objects likely to be impacted by Stage 2 works will be undertaken during the Stage 1 works under the Stage 1 AHMP. Therefore the intent of this document will be to provide guidance for the management of any unexpected Aboriginal heritage objects or values and human remains which, while considered to be unlikely, may be encountered during delivery of the Stage 2 works.

The *Response to Submissions Exploratory Works for Snowy 2.0* (Submissions Report or RTS) included revised environmental management measures (REMMs) within Chapter 8. The Submissions Report for Modification 1 included additional REMMs within Section 8. The management measures from both of these reports have been addressed within this AHMP. The location of all heritage Survey Units and Aboriginal object locales recorded during the Exploratory Works EIS and Modification 1 are shown in Appendix A.

[1] In this document, the contemporary spelling, *Lobs Hole*, is used except for when a specific older name is referred to, such as for example, *Lobbs Hole Copper Mine*, when the original spelling is used.

### 1.2.1. Modification 1

In accordance with section 5.25 of the EP&A Act, the Infrastructure Approval issued for Exploratory Works was modified to:

- provide additional geotechnical information for the detailed design of the Snowy 2.0 power station and power waterway;
- provide a reliable long term source of construction power for the duration of Exploratory Works and will reduce the reliance on diesel generation and associated on-site storage and emissions;
- improve the efficiency of the Exploratory Works construction power;
- optimise the detailed design of construction areas and access roads; and
- improve worker safety during construction.

The Modification 1 Assessment Report was submitted to Department of Planning, Industry and Environment (DPIE) in June 2019, and was publicly exhibited between 26 June 2019 and 9 July 2019. A total of nine submissions were received, and following consideration, approval was granted by the Minister for Planning and Public Spaces on 2 December 2019.

Though Modification 1 included several changes, only the geotechnical investigations are relevant to the Stage 2 works and Future Generation's activities for the Exploratory Works project. This AHMP has therefore been revised to address the Aboriginal heritage requirements and management measures from Modification 1 which are relevant to the geotechnical activities.

### 1.2.2. Modification 2

In accordance with section 5.25 of the EP&A Act, the Infrastructure Approval issued for Exploratory Works was modified to:

- revise the tunnelling method from drill and blast to predominantly tunnel boring machine (TBM);
- provide for road upgrades required to enable the transport and delivery of TBM equipment and materials required for tunnelling;
- include vegetation trimming, and selective tree lopping/removal on Lobs Hole Ravine Road (south) to provide adequate clearance for transport of the TBMs;
- improve access and egress to Lobs Hole via Lobs Hole Ravine Road (north);
- relocate the Middle Bay Barge ramp;
- increase the capacity of the Lobs Hole accommodation camp from 152 personnel to up to 250;
- provide for additional diesel storage capacity for the TBM until the Lobs Hole substation construction power is available;
- provide for the additional diesel generators required to provide power supply to the TBM prior to Lobs Hole substation commissioning; and
- revise the transport strategy to reduce the use of barging for delivery of materials to site.

The Modification 2 Assessment Report was submitted to DPIE in October 2019, and was publicly exhibited between 5 November 2019 and 21 November 2019. A total of twenty-seven submissions were received, and following consideration, approval was granted by the Minister for Planning and Public Spaces on 27 March 2020.

This AHMP has been revised to address the changes which have occurred as a result of Modification 2.

## 1.3. Environmental Management System

The overall environmental management system for the Project is described in the Future Generation EMS.

This AHMP forms part of Future Generation's environmental management framework for the Project as described in Section 4 of the EMS.

**This Plan aims to transfer the relevant requirements of the Approval documents into a management plan which can be practically applied on the Project site.**

## 1.4. Relationship to Project Management Systems and Other Project Plans

It is a requirement of Volume 4 Employer's Requirements – Project Execution to develop and implement a number of project plans for the project. These plans are defined as deliverables. The AHMP is required to support the deliverable plans.

The Environmental Management Strategy (EMS) will form part of the Project Management System (Future Generation-PMS) and will include any requirements specified in the contract documents, where appropriate. All Future Generation-PMS procedures will support, interface or directly relate to the development and execution of the plan.

The Project Execution Plan (PEP) is the overarching document that outlines the minimum requirements for project management on the project. The PEP is not a standalone document and has been prepared with consideration to other project plan requirements. The PEP will also detail the interfaces between other project plans and provide information on the responsibility and management of the interfaces and project works.

All project plans are reviewed by the Quality Manager and/or Systems Manager to ensure consistency with the Quality Management Plan (QMP) and Future Generation-PMS.

## 1.5. Purpose and Objectives

In this plan, Aboriginal heritage refers to the stone artefacts and archaeological deposits located on and in the ground in the heritage Survey Units as identified in the ACHAR and mapping in Appendix A.

The purpose of this Plan is to describe how the Project proposes to minimise and manage construction impacts on Aboriginal heritage during construction of the Project.

The key objective of the AHMP is to describe the management measures that are to be implemented to ensure that impacts to Aboriginal heritage are minimised and within the scope permitted by the CoA. To achieve this, Snowy Hydro and Future Generation will:

- ensure appropriate measures are implemented to address the relevant CoA and the REMMs listed within the Submissions Report, the Submissions Report for Modification 1 and the Submissions Report for Modification 2 as detailed within Table 3-1 and Table 3-2 of this Plan;
- ensure appropriate measures are implemented during construction to minimise impact to ground surfaces which are known or predicted to contain Aboriginal heritage, if feasible;
- ensure that it is clear where and when unmitigated impacts to Aboriginal heritage can occur;
- ensure that it is clear when and where further archaeological assessment and salvage excavations occur; and

- ensure that it provides useable guidance and protocols for the management of unexpected Aboriginal heritage objects or values and human burials.

Maps showing the location of the Survey Units which contain Aboriginal heritage provide the framework for management and are provided in Appendix A of this AHMP. This mapping is available as GIS layers and would be used for management of Aboriginal heritage prior to and during construction.

## 1.6. Plan Preparation

In accordance with condition 14 of Schedule 3 of the Approval, the AHMP has been prepared by a suitably qualified and experienced person in accordance with guidelines made or approved under the *National Parks and Wildlife Act 1974* (NPW Act). This plan was prepared by Dr Julie Dibden, NSW Archaeology Pty Ltd and Rebecca Parkes, from Lantern Heritage. Dr Julie Dibden was endorsed as a suitably qualified person by DPIE in a letter dated 31 May 2019. This plan was prepared and consulted on for both the Stage 1 and Stage 2 Exploratory Works and has been updated for the Stage 2 Exploratory Works.

## 1.7. Consultation

### 1.7.1. Aboriginal Consultation (Exploratory Works)

The Snowy Mountains is country to several groups and many Aboriginal people have cultural and spiritual associations that have long histories embodied in objects which can be seen on the ground and other intangible values related to the past and current concerns and aspirations. The project area itself is located within the lands of the Wolgalu people.

A formal process of Aboriginal community consultation has been conducted as a component of assessment of heritage impacts (as documented in the ACHAR) in accordance with the guidelines as set out in the NSW OEH's Aboriginal cultural heritage consultation requirements for proponents 2010 (NSW DECCW 2010b).

The Registered Aboriginal Parties (RAPs) for this project are:

- Iris White, on behalf of the Ngarigo people;
- Corroboree Aboriginal Corporation;
- Bega Local Aboriginal Land Council;
- Lindsay Connolly, Steve Connolly and Ramsey Freeman;
- Brungle-Tumut Local Aboriginal Land Council;
- Arnold Williams, on behalf of the Ngunnawal Elders Corporation;
- Ellen Mundy and Ngarigo people; and
- John Dixon and Ngarigo people.

In addition, Snowy Hydro has consulted independently with the Wagonga Local Aboriginal Land Council and the Northern and Southern Kosciuszko National Park Aboriginal Community Memorandum of Understanding Groups.

### 1.7.2. Aboriginal Consultation (Modification 1)

Snowy 2.0 RAPs have been involved in assessing all areas of the proposed modification (Modification 1) for its Aboriginal sociocultural and archaeological heritage values through involvement in the Aboriginal Cultural Heritage Assessment process. No cultural information

specific to the areas of the proposed modification have been identified by RAPs. The RAPs were provided with a copy of the Modification 1 assessment report.

### 1.7.3. Aboriginal Consultation (Modification 2)

The Modification 2 Assessment Report advised in Section 6.3 that 'Snowy 2.0 RAPs were involved in assessing all areas of the proposed Modification for its Aboriginal socio-cultural and archaeological heritage values through involvement in the Exploratory Works and Main Works ACHAs. No cultural information specific to the areas of the proposed modification has been identified by RAPs. RAPs will be provided with a copy of this assessment and any feedback affecting the management of Aboriginal objects will be resolved in an updated Exploratory Works project Aboriginal cultural heritage management plan'.

### 1.7.4. Consultation of the AHMP

In accordance with condition 14(b) of the Approval, the AHMP is to be prepared in consultation with the NPWS, the NSW Office of Environment and Heritage (OEH), RAPs and NPWS Tumut Brungle Gundagai Aboriginal Community Executive Advisory Committee.

On 4 October 2018, the draft AHMP was issued to stakeholders, seeking review of this Plan. The draft AHMP has been endorsed by one RAP group and constructive feedback has been provided by OEH.

This document is an updated version of the final version of the AHMP for the Exploratory Works – Stage 1, prepared following a review process with the RAPs, NPWS Tumut Brungle Gundagai Aboriginal Community Executive Advisory Committee, OEH and NPWS.

On 17 April 2019, the Plan was issued to stakeholder agencies for review and comment. Comments from consultation have been incorporated into this Plan where appropriate. Response to the comments have been provided back to the stakeholder agencies.

On 5 July 2019, the Plan was issued to DPIE and Snowy Hydro for review and comment. Comments from consultation have been incorporated into this Plan where appropriate. Response to the comments have been provided back to the Stakeholder Agencies. Comments are summarised in Table 1-2.

A separate document, titled Agency Consultation Evidence Report has been prepared detailing the consultation process. This document has been provided to DPIE.

**Table 1-2: Stage 2 consultation with stakeholder agencies summary**

| Date | Consultation | Outcomes |
|---|---|---|
| **Stage 2 Consultation** | | |
| 27 May 2019 | Plans issued to OEH for review. | - |
| 4 June 2019 | Agency briefing meeting on AHMP held with EPA, OEH, NPWS, DoI Fisheries & Snowy Hydro | - |
| 13 June 2019 | Comments received from OEH | Update management plan in response to comments. |
| 4 July 2019 | Incorporated agencies' comments and updated plan. Updated plan submitted to Snowy Hydro and to DPIE on 5 July 2019. | - |

Revision 1 of the AHMP (prepared in response to Modification 1 of the Infrastructure Approval), was issued to the following agencies for consultation:

- NPWS on 10 October 2019;
- Heritage unit (previously OEH) on 24 October 2019; and
- DPIE's Biodiversity & Conservation unit on 28 October 2019.

Comments have been incorporated into the Plan where appropriate. NPWS requested that Future Generation consult with the DPIE Biodiversity and Conservation Unit for the revision of this plan. This has occurred. The DPIE Biodiversity and Conservation Unit had no comments.

Revision 4 of the AHMP (prepared in response to Modification 2 consolidation approval conditions) was issued to NPWS for consultation on 06 April 2020. As there were no substantive changes as part of revision 4 of the AHMP, further stakeholders were not consulted on these changes. No comments specific to the AHMP were provided by NWPS.

### 1.7.5. Ongoing Consultation

Consultation with the RAPs would be ongoing during the life of the project. This would include, but not be limited to:

- consultation in regard to processes and strategies as outlined in this AHMP;
- ensuring that Aboriginal stakeholders are able to have reasonable access to cultural heritage sites on site. The process to obtain access will include Aboriginal stakeholders making the request for access to the Snowy Hydro project manager. Snowy Hydro will then facilitate access construction site with the contractor where it is safe to do so; and
- consultation in the event of any unexpected Aboriginal heritage values/objects or burials being found during the construction of the project.

In the event of an unexpected find of Aboriginal heritage the matter of care and control of Aboriginal objects retrieved during salvage excavations will be managed in accordance with the Unexpected Finds Procedure (Appendix B). The methodology will follow on from the approved method within Stage 1 AHMP in accordance with Appendix B Mitigated Impacts Salvage methodology. As per Stage 1, all salvaged items will be collected, sorted and stored by the archaeologist engaged to manage the heritage programs, who will consult with the RAPs in regards to the care and control of salvaged objects and return of items post salvage.

## 1.8. Construction Activities

This Plan relates to Stage 2 works. Stage 2 will include the following:

- pre-construction minor works (not construction activities) including:
  - building/road dilapidation studies;
  - survey works;
  - installing groundwater bores in the Ravine beds on site for water supply;
  - establishing a temporary site office;
  - minor access roads to facilitate the pre-construction minor works;
  - installation of environmental impact mitigation measures, including the installation of monitoring equipment, erosion and sediment controls, and fencing;
  - minor clearing or translocation of native vegetation within the approved disturbance footprint for the pre-construction minor works;

- the exploratory tunnel which is approximately 3.1 km long and will lead to the site of the underground power station. Excavation of the tunnel will occur through a method of both drill and blast and TBM;
- road upgrades for transport and delivery of the TBM and TBM equipment (undertaken by Snowy Hydro);
- a turnaround area on Link Road (undertaken by Snowy Hydro) for transportation of the TBM equipment and materials to the construction areas at Lobs Hole and to facilitate set down and turn-back of oversize and overmass (OSOM) deliveries;
- horizontal and other test drilling, investigations and analysis in situ at the proposed cavern location and associated areas, and around the portal construction pad, access roads and excavated rock management areas all within the disturbance footprint;
- borehole drilling and geophysical surveys for further geotechnical investigation of the Snowy 2.0 power station and power waterway at Marica, Talbingo and Tantangara;
- ongoing groundwater monitoring using existing boreholes and access tracks within KNP;
- ongoing maintenance and rehabilitation of existing access tracks required for groundwater monitoring and geotechnical investigations within KNP;
- additional geotechnical drilling is proposed to enable investigation and detailed design of critical bridge works (Nungar Creek bridge) on Tantangara Road;
- additional laydown areas at Talbingo north for the transfer of plant and materials are proposed within Modification 1 to improve constructability;
- a portal construction pad for the exploratory tunnel. This will provide the entrance structure to the tunnel and an area for infrastructure and equipment needed to support tunnelling activities;
- an accommodation camp for the Exploratory Works construction workforce;
- barge access infrastructure, including one new barge ramp at Middle Bay near Lobs Hole at the southern part of Talbingo Reservoir;
- excavated rock management, including subaqueous placement within Talbingo Reservoir*. Up to 750,000 m3 of excavated rock will need to be tested for its geochemical properties (i.e. whether the rock is reactive or non-reactive) before being managed by a combination of the following options:
    - re-use – suitable material can be used as construction materials for roads or similar. Some materials will be provided to NPWS for use in road maintenance and upgrades in other areas of KNP;
    - on land placement – material will be placed in one of two on land emplacement areas. The eastern emplacement area has been designed to safely treat reactive material during temporary storage. The western emplacement area will be used for temporary storage of materials for re-use or offsite disposal (Note: no material is to remain at any emplacement area and must be either sub-aqueously placed at Talbingo Reservoir or removed to a suitable place outside of KNP within three years of completion of the exploratory works (should Snowy 2.0 main Works not proceed));
    - subaqueous placement within Talbingo Reservoir* – suitable material will be placed at a suitable location within Talbingo Reservoir, subject to a number of water quality controls and monitoring; and
- services infrastructure such as diesel-generated power, water and communication;

- post-construction revegetation and rehabilitation, management and monitoring.

***Note: these activities will not proceed unless the relevant management plans are approved by DPIE.***

### 1.8.1. Works approved through Modification 1

The Exploratory Works - Modification 1 works scope is included in Table 1-3. For clarity this has been divided between Stage 1 and Stage 2 works.

The revised project boundary (disturbance footprint) for the project, as approved through Modification 1 of the Infrastructure Approval, has been included in Appendix D of this plan

**Table 1-3: Exploratory Works - Modification 1 works scope (Stage 1 and Stage 2)**

| Modification 1 – Stage 1 | |
|---|---|
| **Activity** | **Description** |
| Lobs Hole Substation | Additional disturbance area required for the construction power connection to an existing transmission line (Line 2) at Lobs Hole for power supply to the Exploratory Works accommodation camp and construction areas. This will provide a reliable and long-term source of construction power and will reduce the reliance on diesel generation and associated on-site storage requirements and emissions. Works in this area will include establishing a substation, connection infrastructure, access roads and ancillary construction areas. Works in this area will include establishing a substation, connection infrastructure, access roads and ancillary construction areas.<br>This will include:<br>• construction of a 330/33 kV substation within Kosciuszko National Park and adjacent to Line 2, which forms a 330-kV connection between Upper Tumut Switching Station and Yass Substation;<br>• geotechnical investigation works to inform the detailed design of the construction power substation;<br>• replacement of one transmission support structure (Structure 54) within the existing transmission easement. This will involve removal of the existing structure and establishment of one new steel lattice tower, approximately 50 m in height;<br>• short overhead 330 kV transmission line connections (approximately 100 m in length) between the substation and the new Structure 54;<br>• 33 kV feeder connection between the substation and the Exploratory Works construction power network. This will be either overhead lines or underground cables;<br>• establishment and upgrade of access tracks and roads to the new substation and transmission line structures;<br>• installation of a fibre optic communication link into the new substation from the approved communication network; and<br>• ancillary activities, including brake and winch sites, crane pads, site compounds and equipment laydown areas.<br>(Illustrated in Appendix D, Figure 1i). |
| Camps Bridge and Wallaces Creek | Additional disturbance area around Camp Bridge and Wallaces Creek Bridge required for improved constructability of the crossings. Works within these areas will include vegetation clearing, levelling earthwork, erection of falsework, sediment controls, laydown, parking and movement of equipment.<br>(Illustrated in Appendix D, Figures 1h and 1i). |
| Lobs Hill Ravine Road and Construction Boundary Changes | Minor changes to the project boundary identified through detailed design including:<br>• revised road upgrade for Lobs Hole/Ravine Road to improve access, drainage and safety;<br>• minor additions to construction areas for design optimisation.<br>• removal of dangerous trees on Lobs Hole Ravine Road. This will involve either complete or partial removal of up to 91 trees that have been identified to pose a safety risk to road users on Lobs Hole Ravine Road and Mine Trail Road; |

| | |
|---|---|
| | • (Illustrated in Appendix D, Figures 1b to 1f and Figure 1i). |
| Operating Hours | Modify operating hours from existing 7 am to 6pm to 6 am to 8 pm in November to March. |
| Miscellaneous | Continued use of existing communications towers within KNP that were previously approved by the NPWS under a separate review of environmental factors (REF R – Wallaces Creek Geotechnical drilling) environmental impact assessment carried out under the NSW National Parks and Wildlife Act 1974 (NPW Act) and its regulation for the geotechnical investigation program; and<br>Increase in peak traffic volumes. Additional vehicles will be required to access the site to facilitate construction of Exploratory Works, however no change in impacts to the road network are expected.<br>(The location of the communications towers illustrated in Appendix D Figures 1a, 1f,1l). |
| **Modification 1 - Stage 2** | |
| **Activity** | **Description** |
| Borehole drilling and geophysical surveys | This includes:<br>• borehole drilling and geophysical surveys for further geotechnical investigation of the Snowy 2.0 power station and power waterway at Marica, Talbingo and Tantangara;<br>• clearing of up to 2.79 hectares (ha) of additional vegetation for access tracks and drilling pads. About 1.33 ha within Smokey Mouse potential habitat;<br>• trimming of overhanging dangerous branches on adjacent trees (these trees will not require removal);<br>• mulching of trees and vegetation;<br>• establishment of an additional 1 km of access tracks (4 m wide), including minor earthworks;<br>• placement of geofabric (as required) and import of stabilised material;<br>• establishment of eight drilling pads and boreholes at top of the cavern area, with an area of 900 m2 per pad, including minor earthworks, placement of geofabric (as required) and import of stabilised material (as required);<br>• undertaking geophysical surveys near Talbingo and Tantangara reservoirs;<br>• establishment of two drilling pads and boreholes at both Tantangara and Talbingo with an area of 900 m2 per pad, including approximately 400 m of additional access tracks and minor earthworks (as required);<br>• establishment of in-reservoir boreholes including one in Talbingo Reservoir and two in Tantangara Reservoir;<br>• drilling of additional nested vertical boreholes at each of the drilling pads up to a depth of 1,100 m;<br>• conversion of the investigation boreholes into monitoring bores;<br>• undertaking geophysical surveys;<br>• rehabilitation of the drilling pads and access tracks following completion of works;<br>• ongoing maintenance of existing access tracks required for geotechnical investigations within KNP.<br>(Illustrated in Appendix D Figure 1j, 1k, 1l, 1m and 1n). |
| Talbingo Laydown | Outside of KNP, Snowy Hydro is proposing to add four laydown locations to facilitate the construction of the communications cable linking Lobs Hole with the Tumut 3 Power Station.<br>These are proposed on existing hardstand areas along the northern foreshore of Talbingo Reservoir within Snowy Hydro owned land. Additional widening of Spillway Road for accessibility is required.<br>(Illustrated in Appendix D, Figure 1o). |
| Tantangara Access | Two additional geotechnical boreholes are required to facilitate the detailed design of cuttings, bridge foundations, retaining wall foundations, and drainage structures near Nungar Creek.<br>(Illustrated in Appendix D, Figure 1m and 1n). |
| Operating Hours | Modify operating hours for the use of Upper Lobs Hole Ravine Road from 7 am to 6pm to sunrise to sunset. |

### 1.8.2. Works approved through Modification 2

The Exploratory Works - Modification 2 works scope is included in Table 1-4.

The revised project boundary (disturbance footprint) for the project, as approved through Modification 2 of the Infrastructure Approval, has been included in Appendix D.

**Table 1-4: Exploratory Works - Modification 2 works scope (Stage 2)**

| Modification 2 - Stage 2 works | |
|---|---|
| **Activity** | **Description** |
| Tunnelling | The tunnelling methodology has been revised and include the following:<br>• TBM method will used to excavate the exploratory tunnel. The TBMs will be fully equipped to perform the excavation, ventilation, lining, and removal of excavated material;<br>• the TBMs will be engineered to facilitate dismantling operations. This will avoid the need to excavate a preliminary dismantling chamber and allow the TBMs to be retrieved from the tunnel, thereby reducing the amount of excavated rock material;<br>• the TBM will be equipped with devices to perform the following surveys:<br>• geophysical seismic reflection surveys;<br>• geoelectrical surveys; and<br>• systematic probe core retrieval ahead of the advancing tunnel face;<br>• the probing results will also be used to determine the presence of potentially acid forming (PAF) and naturally occurring asbestos (NOA) material;<br>• the TBMs will be equipped with drilling machines to drill drainage holes with pipes to relieve groundwater pressures. If required, pre-excavation grouting will also be used to seal-off groundwater inflow and to improve the stability of the excavation face;<br>• post-excavation grouting from the segmental lining may also be used to further consolidate the surrounding rock and/or prevent water ingress if required.<br>(Illustrated in Appendix D) |
| Design | Detailed design and geotechnical investigations have been optimised. The project optimisation is expected to reduce the exploratory tunnel length by approximately 600 m and reduce the volume of excavated material by approximately 65,000 $m^3$.<br>(Illustrated in Appendix D) |
| Road upgrades (undertaken by Future Generation and Snowy Hydro or their contractors) | Minor road upgrade works will be undertaken to enable transport of TBM equipment and materials required for tunnelling.<br>The road upgrades have been designed to avoid additionally impacting any areas of geodiversity significance including the boulder streams, karst and fossil features on Lobs Hole Ravine Road.<br>(Illustrated in Appendix D) |
| Vegetation Clearing (undertaken by Future Generation and Snowy Hydro or their contractors) | The additional clearing will include approximately 2.78 ha of vegetation to establish road upgrades on Lobs Hole Ravine Road (south), Lobs Hole Ravine Road (north) and Link Road.<br>(Illustrated in Appendix D) |
| Transport Strategy | Modification 2 proposes to revise the transport strategy so that materials and equipment required for Exploratory Works will be delivered using Lobs Hole Ravine Road (south) as the primary access road.<br>(Illustrated in Appendix D) |
| Link Road Turnaround Area (undertaken by Snowy Hydro or their contractors) | A turnaround area will be established on Link Road for safe transportation of the TBM equipment and materials to the construction areas at Lobs Hole. The turnaround area will facilitate set down and turn-back of oversize and overmass deliveries.<br>(Illustrated in Appendix D) |

| Modification 2 - Stage 2 works | |
|---|---|
| **Activity** | **Description** |
| Lobs Hole Ravine Road (south) (undertaken by Snowy Hydro or their contractors) | Minor upgrade works will be undertaken on sections Lobs Hole Ravine Road (south) to enable the transport of the TBM equipment.<br>(Illustrated in Appendix D) |
| Lobs Hole Ravine Road (north) | Roadworks will be conducted at Lobs Hole Ravine Road (North) to provide improved access and egress to Lobs Hole. Road works will include road upgrade and widening in several sections suitable for passing bays as well as regular maintenance of the existing roadway.<br>(Illustrated in Appendix D) |
| Middle Bay Barge Ramp | The location of the Middle Bay barge ramp was revised as part of further refinement to the construction methodology. An alternative location for the Middle Bay barge ramp was identified to the west of the approved barge ramp location.<br>A key benefit of the new barge ramp location is that it minimises the requirement for dredging as part of the barge ramp construction.<br>(Illustrated in Appendix D) |
| Accommodation Camp | Lobs Hole accommodation camp will increase capacity to provide beds for up to 250 personnel. The additional accommodation will be created through an additional storey to the Lobs Hole accommodation camp using modular and stackable accommodation units that will allow the expansion to be entirely within the existing disturbance footprint. |
| Power Supply | Additional power supply capacity is required to enable TBM tunnelling for Exploratory Works. The Lobs Hole substation proposed under Modification 1 is scheduled to be online from approximately October 2020 and will provide the power supply required for operation of the TBM. It is currently planned to commence tunnelling with the TBM from August 2020.<br>In the period prior to the Lobs Hole substation commissioning the additional power supply required for TBM tunnelling will be provided by additional diesel generator sets. Diesel generator sets with a total capacity of 20 MVa as well as an additional three 65 kL diesel storage tanks will be installed at the portal construction pad.<br>(Illustrated in Appendix D) |

# 2. ENVIRONMENTAL REQUIREMENTS

## 2.1. Legislation

Legislation relevant to Aboriginal heritage management includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act);
- *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act);
- *Native Title Act 1993* (note there are no native title claims relevant to this area); and
- *National Parks and Wildlife Act 1974* (NSW) (NPW Act).

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the EMS.

## 2.2. Conditions of Approval

Project approval was granted by the Department of Planning, Industry and Environment (DPIE) on 7 February 2019 with the following Aboriginal heritage management conditions included in the Infrastructure Approval. The relevant conditions are presented in Table 2-1.

**Table 2-1: Conditions of approval relevant to Aboriginal heritage management**

| Condition | Requirement | Where addressed |
|---|---|---|
| Sch 3, Cond 11 | The Proponent must ensure that the development does not affect any Aboriginal heritage items outside the approved disturbance area (see Appendix 3). | Sections 4.2 and 5.1. |
| Sch 3, Cond 12 | The Proponent must undertake archival recording, test excavation and/or salvage of the items listed in Table 3-1 in Appendix 3, in accordance with the approved program under the Aboriginal Heritage Management Plan. | AHMP Stage 1 Exploratory Works |
| Sch 3, Cond 13 | The Proponent may damage the Aboriginal heritage items listed in Table 3-2 of Appendix 3 without carrying out any further management or mitigation measures. | AHMP Stage 1 Exploratory Works & - Section 5.1 of this Plan |
| Sch 3, Cond 14 | Prior to carrying out any development that could affect the Aboriginal heritage items listed in Table 3-1 in Appendix 3, unless the Planning Secretary agrees otherwise, the Proponent must prepare an Aboriginal Heritage Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:<br>(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary; | This Plan<br>Section 1.6<br>Appendix C |
| | (b) be prepared in consultation with the NPWS, BCD, RAPs, NPWS Tumut Brungle Gundagai Aboriginal Community Executive Advisory Committee; | Section 1.7 |
| | (c) include a description of the measures that would be implemented to mitigate the impacts of the development on the Aboriginal heritage items listed in Table 3-1, including:<br>• test excavation and salvage of certain sites; and<br>• archival recording of cultural features within the approved disturbance area shown in Appendix 3; | AHMP Stage 1 Exploratory Works (Note: All archival recording, test excavation and/or salvage of the items listed in Table 3-1 in Appendix 3 were undertaken in Stage 1 AHMP) |
| | (d) include a description of the measures that would be implemented to | |
| | • maintain reasonable access for Aboriginal stakeholders to cultural heritage sites on site; | Section 1.7 |
| | • consult the RAPs on the conservation and management of Aboriginal cultural heritage onsite; | Section 1.7 |
| | • protect and monitor the Aboriginal heritage sites outside the approved disturbance area; | Section 6.1 |
| | • manage the discovery of human remains or previously unidentified Aboriginal artefacts; | Appendix B |
| | • store and manage any salvaged Aboriginal heritage items; and | AHMP Stage 1 Exploratory Works (Appendix B) and Appendix B of this Plan |
| | • ensure workers on site receive adequate training and inductions on Aboriginal heritage management. | Section 6.2 |
| Sch 3, Cond 15 | The Proponent must implement the approved Aboriginal Heritage Management Plan for the development. | This Plan |

## 2.3. Revised Environmental Management Measures

Environmental safeguards and management measures are included in the Exploratory Works EIS in Section 6.3. During preparation of the Submissions Report, REMMs were developed and are included in Section 8 of the Submissions Report.

REMMs relevant to Modification 1 are included in Section 8 of the Submissions Report for Modification 1. REMMs relevant to Modification 2 are included in Section 7.2 of the Submissions Report for Modification 2.

The environmental management measures relevant to this Plan are listed in Table 2-2 below. If additional measures are cross-referenced from another section of the Exploratory Works EIS or Submissions Report, these measures are also included. The revised environmental management measures from Modification 1 and Modification 2 have also been incorporated into Table 3-2.

**Table 2-2: Revised environmental management measures relevant to Aboriginal heritage**

| Impact | Ref # | Environmental management measure | Where addressed |
|---|---|---|---|
| Aboriginal heritage | HER01 | An Aboriginal Heritage Management Plan (AHMP) will be prepared and implemented to guide the process for management and mitigation of impacts to Aboriginal cultural and heritage. The AHMP will: | This Plan |
| | | • be prepared in consultation with RAPs, NPWS Tumut Brungle Gundagai Aboriginal Community Executive Advisory Committee and OEH; | Section 1.7 |
| | | • set out guidelines for ongoing consultation and opportunities for cultural values assessment; | Section 0 |
| | | • include procedures relating to the conduct of additional archaeological assessment, including monitoring and salvage excavations after clearance, if required. Should the additional archaeological assessment be required to occur prior to finalisation of the AHMP, the archaeological assessment will be prepared as a separate document, with any recommendations for monitoring incorporated into the AHMP; | AHMP Stage 1 Exploratory Works<br>Section 5<br>Appendix B |
| | | • set out a protocol for unexpected Aboriginal heritage values and human skeletal material | Appendix B |
| | | A 50 m buffer zone from the bank of the Yarrangobilly River will be established to protect the likely presence of Aboriginal cultural items, except for those areas required for creek or river crossings and road construction. | Section 6 and Table 5-1 |
| Loss of Aboriginal cultural heritage | HER02 | Specific management and mitigation measures are listed for specific heritage item below: | Table 4-3<br>Table 4-4 |
| | | • monitoring after vegetation clearance and salvage excavation will occur for heritage sites – SU2, SU6, SU7<br>• salvage excavation will occur for heritage sites – SU10, SU12, SU25 | AHMP Stage 1 Exploratory Works<br>Section 5 and Table 5-1<br>Appendix B |
| | | Aboriginal cultural heritage management measures to be included in the AHMP and implemented during construction include: | Section 5 and Table 5-1 |
| | | • impacts to ground surfaces should be kept to an absolute minimum; | Section 5 and Table 5-1 |

| Impact | Ref # | Environmental management measure | Where addressed |
|---|---|---|---|
| | | • for Survey Units which are assessed to be of higher significance values, mitigated impacts in the form of partial impacts only (i.e. conservation of part of an Aboriginal site or Survey Unit) and/or salvage in the form of further research and archaeological analysis will occur prior to impacts. Should the additional archaeological analysis be required to occur prior to finalisation of the AHMP, the archaeological analysis will be prepared as a separate document, with any recommendations for monitoring incorporated into the AHMP; | AHMP Stage 1 Exploratory Works<br>Section 5 and Table 5-1<br>Appendix B |
| | | • salvage excavations in the Survey Units in order to mitigate impacts to the archaeological resource in the project area; and | AHMP Stage 1 Exploratory Works<br>Section 5 and Table 5-1 |
| | | • the AHMP is to include management measures of any further Aboriginal cultural heritage values which may be identified during construction. | Appendix B |
| Aboriginal heritage | M1.4 | The Aboriginal heritage management plan (AHMP) will be updated to account for the additional areas assessed for the proposed modification. | Table 5-1<br>Table 3-2<br>Table 4-4<br>This Plan |
| Impacts to Aboriginal and historic heritage | MOD2 - 002 | The Exploratory Works Aboriginal heritage management plan (AHMP) and historical heritage management plan (HHMP) will be updated to account for the additional areas assessed for the proposed modification. | Table 1-4<br>Appendix D |

## 2.4. Permits and Licences

No permits are required in respect of the current project.

Environment Protection Licence (EPL) 21266 has been issued for the Project for the scheduled activity of extractive activities. The EPL details conditions which must be complied with when undertaking the extractive activities works. This plan is written in accordance with all requirements in the EPL.

Works Access Licence No. 2 – Stage 1 Exploratory Works, Main Roads and Survey Works, has been issued to the proponent (Snowy Hydro) by NPWS to permit works to be undertaken in the KNP for Stage 1 Exploratory Works. A Works Access Licence will be required for Stage 2 Exploratory Works.

## 2.5. Guidelines

The guidelines, policies and standards relevant to this Plan include:

- Office of Environment and Heritage 2011, Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW, OEH NSW, Sydney;
- Department of Environment, Climate Change and Water 2010, Code of practice for archaeological investigation of Aboriginal objects in New South Wales, DECCW NSW, Sydney;
- Department of Environment, Climate Change and Water 2010, *Aboriginal cultural heritage consultation requirements for proponents*, DECCW NSW, Sydney;

- National Parks and Wildlife Service 1997, *Aboriginal cultural heritage standards and guidelines kit*, NPWS, Sydney.

# 3. EXISTING ENVIRONMENT

## 3.1. Aboriginal Heritage

The Snowy Mountains is country to several groups and many Aboriginal people have cultural and spiritual associations that have long histories embodied in objects and intangible values related to the past and current concerns. Recent archaeological research has indicated an Aboriginal presence in the Snowy Mountains since the early Holocene period (from around 9,000 years ago) (Theden-Ringl 2016). The project itself is within the country of the Wolgalu people.

The Aboriginal heritage in the project area was recorded during the Exploratory Works EIS, as documented in the ACHAR.

The Aboriginal heritage Survey Units (inclusive of all Aboriginal stone artefacts and archaeological deposits) recorded within the project corridor during the Exploratory Works EIS are listed in Table 3-1.

The Aboriginal heritage Survey Units (inclusive of all Aboriginal stone artefacts and archaeological deposits) recorded within the project corridor during the Modification 1 assessment are listed in Table 3-2.

The Modification 2 Assessment Report included an assessment of Aboriginal heritage impacts in section 6.3. The assessment concluded that no Aboriginal objects or historical heritage items are likely to be impacted by the proposed modification. There were no changes to the existing management measures nor additional management measures recommended.

The location of all the Survey Units and Aboriginal object locales are shown in Appendix A. The following sections summarise Aboriginal heritage within the project area based on the information provided within the Exploratory Works EIS and Modification 1 Assessment.

Table 3-1: Summary description of Survey Units - including the AHIMS sites, Aboriginal object locales recorded during survey and test excavation (Test Transects)

| ID | Start | Finish | Description | Disturbance | Predicted/known artefact density | Aboriginal objects |
|---|---|---|---|---|---|---|
| SU1 | 628044. 6037763 | 628223. 6039044 | Lower simple slope landform. Dry sclerophyll forest with a thick shrubby understory. Shale bedrock; occasional cobbles and shatter. Erosional context. | Previous timber extraction for domestic and mining use. Natural erosional processes. Water race race/road. | Very low/ negligible | Nil recorded |
| SU2 | 627823. 6038005 | 628089. 6039134 | Flat landform. Dry sclerophyll forest with a thick shrubby understory. Thickets of blackberry. Depositional context. | Previous timber extraction for domestic and mining use. Construction of water race/road. | Moderate | Nil recorded |
| SU3 | 626834. 6037907 | 628280. 6037746 | Flat landform. Dry sclerophyll forest with occasional grassy glades. Depositional context. | Previous timber extraction for domestic and mining use. Historic gardens. Construction of water race and road. Recreational use. | Low/Moderate | AHIMS 56-6-0009<br>SU3/L1<br>SU3/L2<br>SU3/L3<br>Test Transect 1<br>Test Transect 2<br>Test Transect 3<br>Test Transect 4 |
| SU4 | 626834. 6037911 | 626705. 6038354 | Crest/knoll landform. Cleared with some regrowth saplings. Scattered shrubs and blackberry. Shale bedrock. Negligible topsoil. Highly eroded with no or limited soil. | Previous clearance, original homestead site. Mining. | Low | AHIMS 56-6-0045<br>SU4/L1<br>SU4/L2 |
| SU5 | 626765. 6038102 | 626577. 6038570 | Flat landform. Patches of regenerating dry sclerophyll forest and open grassland. Depositional context. | Previous clearance, cultivation and gardening. Mining. Recreation. | Moderate | SU5/L1<br>SU5/L2<br>Test Transect 1<br>Test Transect 2<br>Test Transect 3<br>Test Transect 4<br>Test Transect 5 |

| ID | Start | Finish | Description | Disturbance | Predicted/known artefact density | Aboriginal objects |
|---|---|---|---|---|---|---|
| SU6 | 626563. 6038141 | 626520. 6038637 | Crest landform. Regenerating dry sclerophyll forest and open grassland. Shale bedrock. Generally negligible topsoil. Highly eroded to bedrock. | Previous clearance, historic occupation. Mining. Recreation. | Moderate/high | SU6/L1<br>SU6/L2<br>SU6/L3<br>SU6/L4<br>Test Transect 1<br>Test Transect 2 |
| SU7 | 625939. 6038408 | 626381. 6038621 | Crest landform. Regenerating dry sclerophyll forest. Shale bedrock. Erosional context. | Previous clearance, historic occupation including 1920 school. | Moderate | Nil recorded |
| SU8 | 626550. 6038617 | 626173. 6038961 | Flat landform. Patches of regenerating dry sclerophyll forest and open grassland. Depositional context. | Previous clearance, cultivation and gardening. Mining. Recreation. | Low | AHIMS 56-6-0043<br>Test Transect 1<br>Test Transect 2<br>Test Transect 3<br>Test Transect 4 |
| SU9 | 626223. 6038599 | 626124. 6038885 | Steep simple slope. Patches of regenerating dry sclerophyll forest. Erosional context. | Previous timber extraction for domestic and mining use. | Negligible | Nil recorded |
| SU10 | 626142. 6038654 | 626025. 6039021 | Crest landform. Regenerating native shrubs; mostly grassland. Shale bedrock. Erosional context. | Previous clearance, historic occupation including police station. | Moderate/high | SU10/L1<br>SU10/L2<br>SU10/L3<br>Test Transect 1<br>Test Transect 2 |
| SU11 | 625700. 6038734 | 626110. 6039080 | Flat landform. Patches of regenerating dry sclerophyll forest and open grassland. Depositional context. | Previous clearance, historic occupation including Washington Hotel, cultivation and gardening. Recreation. | Low | AHIMS 56-6-0041<br>AHIMS 56-6-0047<br>SU11/L1<br>SU11/L2<br>SU11/L3<br>Test Transect 1<br>Test Transect 2<br>Test Transect 3 |

| ID | Start | Finish | Description | Disturbance | Predicted/known artefact density | Aboriginal objects |
|---|---|---|---|---|---|---|
| SU12 | 625700. 6038734 | 626110. 6039080 | Flat landform. Patches of regenerating dry sclerophyll forest and open grassland. Depositional context. | Previous clearance, cultivation and gardening. Recreation. | Moderate/high | AHIMS 56-6-0042<br>AHIMS 56-6-0046<br>SU12/L1<br>Test Transect 1<br>Test Transect 2<br>Test Transect 3<br>Test Transect 4<br>Test Transect 5<br>Test Transect 6<br>Test Transect 7<br>Test Transect 8 |
| SU13 | 625526. 6039474 | 625463. 6039162 | Crest landform. Regenerating dry sclerophyll forest and open grassland. Shale bedrock. Erosional context | Previous clearance, timber extraction for domestic and mining use. | Low | SU13/L1<br>SU13/L2 |
| SU14 | 625680. 6039417 | 626438. 6039390 | Steep simple slope. Regenerating dry sclerophyll forest. Erosional context. | Previous timber extraction for domestic and mining use. | Negligible | Nil recorded |
| SU15 | 625934. 6039145 | 626558. 6039131 | Crest landform. Regenerating dry sclerophyll forest. Shale bedrock. Erosional context. | Previous clearance, timber extraction for domestic and mining use. | Low | Nil recorded |
| SU16 | 625871. 6039011 | 626571. 6039160 | Gentle simple slope. Regenerating dry sclerophyll forest. Erosional context. | Previous timber extraction for domestic and mining use. | Low | SU16/L1<br>SU16/L2<br>SU16/L3<br>SU16/L4 |
| SU17 | 626658. 6038178 | 626644. 6037763 | Crest landform. Regenerating dry sclerophyll forest. Shale bedrock. Erosional context. | Previous clearance, timber extraction for domestic and mining use. Dwellings etc. of ‘Struggle Street’. | Low | SU17/L1 |
| SU18 | 626255. 6037617 | 627342. 6037529 | Gentle simple slope. Regenerating dry sclerophyll forest with some grassland. Thickets of blackberry. Erosional context. | Previous timber extraction for domestic and mining use. | Low | SU18/L1 |

| ID | Start | Finish | Description | Disturbance | Predicted/known artefact density | Aboriginal objects |
|---|---|---|---|---|---|---|
| SU19 | 628321. 6037830 | 628289. 6039033 | Steep simple slope. Dry sclerophyll forest. Erosional context. | Previous timber extraction for domestic and mining use. | Negligible | Nil recorded |
| SU20 | 628712. 6027495 | 627141. 6031868 | Generally, gently undulating crest landform. Dry sclerophyll forest. Erosional context. | Previous timber extraction. | Low | SU20/L1<br>SU20/L2<br>SU20/L3<br>SU20/L4<br>SU20/L5<br>SU20/L6<br>SU20/L7<br>SU20/L8<br>SU20/L9<br>SU20/L10<br>SU20/L12<br>SU20/L12 |
| SU21 | 629075. 6027804 | 626360. 6038292 | Gently undulating crest landform at south end, becoming steep to north. Dry sclerophyll forest. Erosional context. | Previous timber extraction. | Low | Nil recorded |
| SU22 | 625213. 6039987 | 624901. 6039838 | Crest landform. Regenerating dry sclerophyll forest. Shale bedrock. Erosional context | Previous clearance, timber extraction for domestic and mining use. | Low | SU22/L1<br>SU22/L2<br>SU22/L3 |
| SU23 | 625132. 6040059 | 624350. 6040552 | Gentle simple slope. Regenerating dry sclerophyll forest. Thickets of blackberry. Erosional context. | Previous timber extraction for domestic and mining use. | Low | SU23/L1<br>SU23/L2<br>SU23/L3 |
| SU24 | 625535. 6039474 | 625163. 6040069 | Gently undulating crest landform at south end, becoming steep to north. Dry sclerophyll forest. Erosional context. | Previous timber extraction. | Low | SU24/L1 |
| SU25 | 627154. 6031875 | 627038. 6032150 | Gently undulating crest landform. Dry sclerophyll forest. Erosional context. | Cleared electricity easement. | Low | AHIMS 56-6-0038<br>AHIMS 56-6-0039<br>AHIMS 56-6-0040 |

| ID | Start | Finish | Description | Disturbance | Predicted/known artefact density | Aboriginal objects |
|---|---|---|---|---|---|---|
| SU26 | 617274. 6056791 | 616718. 6059014 | Generally steep simple slopes. | SMA infrastructure. | Negligible | Nil recorded |
| SU27 | 618303. 6056461 | 616989. 6058557 | Generally steep simple slopes. | SMA infrastructure. | Negligible | Nil recorded |

**Table 3-2: Summary of survey units that intersect with the proposed modification (Modification 1) footprint**

| Survey unit | Modification 1 element within survey unit | Landscape context | Predicted/known artefact density in SU | AHIMS sites within survey unit |
|---|---|---|---|---|
| **Talbingo Reservoir, Lobs Hole and Ravine Road** | | | | |
| RSU2 | Additional EW EIS boundary | Flat landform. Dry sclerophyll forest with a thick shrubby understory. Thickets of blackberry. Depositional context. | Moderate | None within survey unit. |
| RSU3 | Additional EW EIS boundary | Flat landform. Dry sclerophyll forest with occasional grassy glades. Depositional context. | Low/Moderate | 56-6-0009 (Ravine; Lob's Hole; KNP91-59)<br>56-6-0495 (RSU3/L1)<br>56-6-0496 (RSU3/L2)<br>56-6-0497 (RSU3/L3)<br>Test Transect 1<br>Test Transect 2<br>Test Transect 3<br>Test Transect 4 |
| RSU4 | Additional EW EIS boundary | Crest/knoll landform. Cleared with some regrowth saplings. Scattered shrubs and blackberry. Shale bedrock. Negligible topsoil. Highly eroded with no or limited soil. | Low | 56-6-0045 (KNP91-60)<br>56-6-0498 (RSU4/L1)<br>56-6-0499 (RSU4/L2) |
| RSU11 | Additional EW EIS boundary | Flat landform. Patches of regenerating dry sclerophyll forest and open grassland. Depositional context. | Low | 56-6-0041 (KNP91-21; Ravine)<br>56-6-0047 (RSU11/L1)<br>56-6-0487 (RSU11/L1)<br>56-6-0488 (RSU11/L2) |

| Survey unit | Modification 1 element within survey unit | Landscape context | Predicted/known artefact density in SU | AHIMS sites within survey unit |
|---|---|---|---|---|
| RSU12 | Additional EW EIS boundary | Crest/knoll landform. Cleared with some regrowth saplings. Scattered shrubs and blackberry. Shale bedrock. Negligible topsoil. Highly eroded with no or limited soil. | Low | 56-6-0042 (KNP91-22)<br>56-6-0046 (KNP91-61)<br>56-6-0478 (RSU13/L2)<br>56-6-0537 (RSU12/L1)<br>Test Transect 1<br>Test Transect 2<br>Test Transect 3<br>Test Transect 4<br>Test Transect 5<br>Test Transect 6<br>Test Transect 7<br>Test Transect 8 |
| RSU13 | Additional EW EIS boundary | A crest landform of low elevation with a south westerly aspect. Vegetation in regenerating dry sclerophyll forest and open grassland. Geology is shale presenting as outcropping, cobbles, shatter and gravels. Soils are skeletal and very gravelly. The landform is eroding. | Low | 56-6-0478 (RSU13/L2)<br>56-6-0483 (RSU13/L1) |
| RSU17 | Reduced footprint | A crest landform overlooking major water course to the east. The aspect is northerly. Vegetation regenerating dry sclerophyll forest with areas of blackberry thicket. Geology is shale and sandstone conglomerate. Shale presenting as outcropping, shatter, cobbles and gravels. Soils are a shallow skeletal gravelly loam. Erosional context. | Low | 56-6-0477 (RSU17/L1) |
| RSU18 | Reduced footprint | A series of gentle simple slopes of gentle to steep gradients with a northerly aspect. Vegetation is regenerating dry sclerophyll forest, wattle regrowth with some grassland. Numerous thickets of blackberry. Erosional context. | Low | 56-6-0476 (RSU18/L1) |
| RSU21 | Additional EW EIS boundary<br>Proposed TBM load extent (Lobs Ravine Road upgrade) | Gently undulating crest landform at south end, becoming steep to north. The aspect is mostly northerly. Vegetation is a dry sclerophyll forest. Geology is meta-sedimentary shale presenting as outcrops, shatter, cobbles and gravels. The SU is slightly rocky. Soils are a shallow skeletal gravelly loam. Erosional context. | Low | None within survey unit. |
| RSU22 | Additional EW EIS boundary | Crest landform. Regenerating dry sclerophyll forest. Shale bedrock. Erosional context | Low | 56-6-0504 (RSU22/L3)<br>56-6-0505 (RSU22/L2)<br>56-6-0507 (RSU22/L1) |

| Survey unit | Modification 1 element within survey unit | Landscape context | Predicted/known artefact density in SU | AHIMS sites within survey unit |
|---|---|---|---|---|
| RSU23 | Borehole BH 7012 and Borehole BH7201 and associated access track<br>MOD 1 disturbance boundary | Gentle simple slope. Regenerating dry sclerophyll forest. Thickets of blackberry. Erosional context. | Low | 56-6-0502 (RSU23/L3)<br>56-6-0503 (RSU23/L2)<br>56-6-0506 (RSU23/L1) |
| RSU24 | Additional EW EIS boundary | Gently undulating crest landform at south end, becoming steep to north. Dry sclerophyll forest. Erosional context | Low | 56-6-0536 (RSU24/L1) |
| RSU26 | Additional EW EIS boundary | A series of narrow [c.10-20m wide] spur crests of gentle to moderate gradient with a west north westerly aspect. Vegetation is Eucalypt and wattle regrowth woodland with an understorey of grasses with areas of impenetrable infestations of blackberry and briar rose. Geology is shale presenting as outcrops, shatter, cobbles and gravels. The SU is very slightly rocky. Soil is a skeletal shallow light brown gravelly loam. The SU is comprised of large amorphous landforms situated well away from water. | Negligible | None within survey unit |
| RSU28 | Lobs Hole substation disturbance area | A series of short moderate to steep simple slopes with gradients ranging from 20° to 32°. The aspect is mainly northerly. SU dissected by minor drainage lines. Vegetation is scattered shrubs with occasional small Eucalypt becoming very dense in areas. Heavy infestations of blackberry throughout SU. Geology is a mix of conglomerate and meta-sedimentary shales presenting as outcrops, cobble, gravels and very high levels of shatter. The SU is very rocky. Tuff and chert occurring naturally as rounded and angular pebbles. Traces of low-quality quartz was observed in the background stone profile, none of which is likely to be artefactual. Soils are skeletal and very gravelly. The landform is eroding. | Negligible | None within survey unit |
| RSU29 | Lobs Hole substation disturbance area | A very gently to gently undulating crest landform with a south-westerly aspect. Vegetation is an open mixed age Eucalypt forest with an understorey of banksias and heath. Geology is metasedimentary presenting as outcrops, shatter, cobbles and gravels. Large area of smooth conglomerate boulder outcropping along break of slope along western boundary of SU. Outcrops are greater than 2 metres wide. Soils are a shallow brown gravelly silty loam. Landform is eroding. | Negligible | 56-6-0048 (KNP91-63)<br>56-6-0540 (RSU29/L1) |

| Survey unit | Modification 1 element within survey unit | Landscape context | Predicted/known artefact density in SU | AHIMS sites within survey unit |
|---|---|---|---|---|
| RSU31 | Borehole BH 7001 and associated access track | A very narrow [c.20-30m wide] spur crest of gentle to moderate gradient with a south westerly aspect. Very steep slopes off the crest. Vegetation on upper slope is an open scrub with grasses becoming an open Eucalypt forest with an understorey of heath and banksia on the lower slope. Geology is a metasedimentary presenting as shatter, cobbles and gravels. Occasional small discrete bedrock outcropping. SU becomes very rocky at higher elevations. Soil is a gravelly loose loam. | Negligible | None within survey unit. |
| RSU32 | Borehole BH 7012 and Borehole BH7212 and associated access track<br>MOD 1 disturbance boundary | Moderate to steep simple slopes with gradients ranging from 20° to 32°. The aspect is mainly south westerly. SU dissected by minor drainage lines. Vegetation is scattered shrubs with occasional small Eucalypt becoming very dense in areas. Heavy infestations of blackberry throughout SU. Geology is a mix of conglomerate and meta-sedimentary shales presenting as outcrops, cobble, gravels and high levels of shatter. The SU is very rocky. Tuff and chert occurring naturally as rounded and angular pebbles. Traces of low-quality quartz was observed in the background stone profile, none of which is likely to be artefactual. Soils are skeletal and very gravelly. Erosional context. | Negligible | None within survey unit |
| RSU35 | Additional EW EIS boundary | A simple slope landform of moderate gradient with a southerly aspect. Vegetation is a dense forest of Eucalypt, blackberry, wattles and grasses. Forest floor has a thick cover of litterfall. Geology is metasedimentary presenting as gravels. Soil is rich brown slightly gravelly loam. The landform is aggrading. | Negligible | None within survey unit |
| **Marica** | | | | |
| MSU6 | Borehole No.8 and access track | Forested ridge crests and simple slopes; undulating; heavily wooded; conglomerate geology with an abundance of water worn cobbles and pebbles. | Negligible | None within survey unit |
| MSU7 | Boreholes No. 10-15 and associated access tracks | Forested ridge crests and simple slopes; steep valley sides; heavily wooded; conglomerate geology with an abundance of water worn cobbles and pebbles. | Negligible | None within survey unit |

| Survey unit | Modification 1 element within survey unit | Landscape context | Predicted/known artefact density in SU | AHIMS sites within survey unit |
|---|---|---|---|---|
| **Tantangara Reservoir** | | | | |
| TSU1 | Proposed geophysics line | A low relief, gently undulating crest of an east facing spur. The aspect is easterly. The landform overlooks a major watercourse, the former Murrumbidgee River, now Tantangara Dam. Geology is volcanic presenting as outcropping, cobbles and gravels. The area has occasional low outcrops of volcanic rock and is thickly vegetated with native grasses and Hakea shrubs. Increased outcropping exposures on the higher points across the SU. Soils area a slightly gravelly brown silty loam. Soil depths are variable from shallow to c.25cm maximum. Short drainage lines which flow from springs run easterly along the length of crest on the northern and southern boundaries. | Very Low | 57-4-0127 (Quarry Rd 1)<br>57-4-0287 (TSU1/L4)<br>57-4-0288 (TSU1/L7)<br>57-4-0289 (TSU1/L6)<br>57-4-0290 (TSU1/L5)<br>57-4-0310 (TSU1/L2)<br>57-4-0311 (TSU1/L3) |
| TSU2 | Borehole No.3 & 4 and associated tracks | A gently undulating crest of a north east facing spur. The aspect is north easterly. The SU overlooks the former Murrumbidgee River. The area is covered with dense patches of Hakea; small heath shrubs and native grasses. Geology is volcanic presenting as outcropping, cobbles and gravels. Occasional low outcropping of highly eroded volcanic bedrock. Soils area a dark brown sandy loam. Soil depths are variable from shallow to c. 30cm maximum. Short drainage lines which flow from springs run easterly along the length of crest on the northern and southern boundaries. | Very Low | 57-4-0125 (Quarry Road 5)<br>57-4-0126 (Quarry Road 3)<br>57-4-0224 (Quarry Road 4)<br>57-4-0255 (TSU2/L9)<br>57-4-0263 (TSU2/L6)<br>57-4-0264 (TSU2/L8)<br>57-4-0265 (TSU2/L2)<br>57-4-0266 (TSU2/L3)<br>57-4-0267 (TSU2/L5) |
| TSU4 | Existing access tracks | A very gently sloping east facing low relief crest landform. The area is vegetated with Hakea shrubs; occasional trees and an understorey of native grasses and scattered heath. Geology is volcanic presenting as outcropping, cobbles and gravels. Soil is a fine sandy loam up to a maximum depth of c.40cm. Short drainage lines which flow from springs run easterly along the length of crest on the northern and southern boundaries. | Low | 57-4-0123 (Quarry Road 2)<br>57-4-0124 (Quarry Road 6)<br>57-4-0252 (TSU4/L1)<br>57-4-0257 (TSU4/L3)<br>57-4-0258 (TSU4/L4)<br>57-4-0260 (TSU4/L2)<br>57-4-0261 (TSU4/L6) |

| Survey unit | Modification 1 element within survey unit | Landscape context | Predicted/known artefact density in SU | AHIMS sites within survey unit |
|---|---|---|---|---|
| TSU5 | Existing access tracks | A very gently sloping broad terminal spur crest directly above a valley floor and creek. The aspect is easterly. A deeply incised east-west drainage line traverses the southern boundary. Vegetation is low Hakea shrub and low heath groundcover. Occasional mature snow gums located along the edge of crest. Geology is volcanic presenting as outcropping, cobbles and gravels. Numerous low outcropping of highly eroded volcanic rock on crest proper and only skeletal soils remain. Soil is a shallow fine sandy loam up to a maximum depth of c.20cm. | Very low to low | 57-4-121 (Quarry Road 8)<br>57-4-122 (Quarry Road 7)<br>57-4-0251 (TSU5/L5)<br>57-4-0259 (TSU5/L3)<br>57-4-0294 (TSU5/L4) |

# 4. ENVIRONMENTAL ASPECTS, IMPACTS AND RISKS

## 4.1. Environmental Aspects

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental management systems). The relationship of aspects and impacts is one of cause and effect.

Key aspects of the Project that could result in Aboriginal heritage impacts are identified in Table 4-1. The extent of these impacts will depend on the nature, extent and magnitude of construction activities and their interaction with the natural environment (Column 2). This is further exacerbated by environmental factors (Column 3). This identification process has considered the proposed project activities and the types of potential impacts to Aboriginal heritage.

**Table 4-1: Project aspects and impacts relevant to Aboriginal heritage items**

| **Aspects** (Construction and human activities likely to cause damage to Aboriginal heritage items) | **Impacts to Aboriginal Heritage items** | **Environmental Factors** (Conditions) |
|---|---|---|
| **Direct**<br>• Vegetation clearing<br>• Topsoil stripping<br>• Bulk earthworks<br>• Soil movement and transfer<br>**Indirect**<br>• Off-road human and vehicular activity during and after construction<br>• Increased visitation by Exploratory workforce at Lobs Hole<br>• Increased recreational visitation to Lobs Hole after Exploratory Works<br>• Soil erosion | **Direct**<br>• Physical disturbance and damage to heritage items<br>**Indirect**<br>• Inadvertent or deliberate damage to Aboriginal items<br>• The removal of Aboriginal items via inadvertent damage/theft<br>• Soil disturbance through excessive erosion from surface water runoff | • Presence of unknown Aboriginal heritage items |

## 4.2. Impacts to Aboriginal Heritage

### 4.2.1. Exploratory Works EIS

The assessment of harm is conducted within an analytical framework based on Survey Units (Table 4-3). An impact assessment is outlined in the table below. It is noted that not all areas within Survey Units would be impacted during the activity, and accordingly, impacts will be partial rather than comprehensive. A riparian exclusion zone of 50 m in width adjacent to the Yarrangobilly River has been established to protect the likely presence of Aboriginal cultural items, except for those areas required for creek or river crossings and road construction.

Anticipated impacts to Aboriginal heritage are set out in the tables below. Not all heritage Survey Units and Aboriginal artefact locales located during the Exploratory Works EIS would be impacted during construction of the development. The location of all Survey Units and Aboriginal object locales recorded at the Project Site is shown in Appendix A.

### 4.2.2. Exploratory Works – Modification 1

The assessment of harm is conducted within an analytical framework based on Survey Units (Table 4-4). An impact assessment is outlined in the table below.

Modification 1 will involve areas of additional ground disturbance not previously included in the Exploratory Works EIS. The Modification 1 construction footprint will result in additional impacts to Aboriginal objects within RSU3 and RSU12. The Aboriginal objects within RSU3 were previously approved for unmitigated impacts as part of the Exploratory Works project and therefore additional management measures are not required. The additional level of ground disturbance within RSU12 is likely to require salvage excavation as a mitigation strategy within affected areas of archaeological sensitivity. Salvage excavation within RSU12 was previously approved for the Exploratory Works project.

The proposed modification includes the use of existing vehicle access tracks. Five Aboriginal sites have been identified on or within 5 m of existing access tracks (refer Table 4-4); however, will not be impacted as ground disturbance is not proposed in these areas.

The proposed modification footprint at Tantangara will include ground disturbance within three survey units (TSU1, TSU2 and TSU3) with low to moderate predicted artefact densities and is within 20 m of recorded Aboriginal object locales. It is acknowledged that construction activities may impact Aboriginal objects and will constitute partial impacts to these survey units. The relatively discrete nature of the impacts from these activities do not require impact mitigation given the low to moderate predicted artefact densities. Notwithstanding, more extensive future impacts from the Main Works construction footprint (subject to approval) are likely to trigger salvage excavation for these survey units and it will be more appropriate to design a salvage strategy in response to future broad-scale impact areas.

### 4.2.3. Exploratory Works – Modification 2

The assessment of harm to Aboriginal objects was conducted within an analytical framework for Modification 2.

Modification 2 involves areas of additional ground disturbance not previously included in the Exploratory Works EIS and Modification 1. Modification 2 comprises the following ground disturbance activities relevant to the heritage assessment:

- road upgrades including road easement widening for access via Lobs Hole Ravine Road (North) to provide improved access to Lobs Hole; and
- a laydown area establishment near the intersection of Link Road and Ravine Road.

The other activities considered for heritage impacts assessed included vegetation trimming, and selective tree lopping and removal of vegetation on Lobs Hole Ravine Road (South) to provide adequate clearance for transport of TBMs loads. Vegetation removal has potential to removal Aboriginal modified trees, however none were identified in the area.

The Modification 2 Assessment Report determined that no Aboriginal objects nor AHIMS site would be impacted by Modification 2 works. There were no changes to the existing management measures nor additional management measures recommended. No changes have therefore been made to Table 4-2 or Table 4-3 in response to Modification 2.

Table 4-2: Summary description of Survey Units including the AHIMS sites, Aboriginal object locales recorded during survey and test excavation (Test Transects) located in impact zones (Exploratory Works EIS).

| SU ID | ID | Impact |
|---|---|---|
| SU3 | SU3/L2 | Mine Trail Road Upgrade |
| SU3 | SU3/L3 | Mine Trail Road Upgrade |
| SU4 | 56-6-0045 | Mine Trail Road Upgrade |
| SU4 | SU4/L2 | Excavated Material Stockpile |
| SU4 | SU4/L1 | Excavated Material Stockpile |
| SU6 | SU6/L3 | Excavated Material Stockpile |
| SU6 | SU6/L4 | Excavated Material Stockpile |
| SU6 | SU6/L1 | Excavated Material Stockpile |
| SU6 | SU6/L2 | Other - Between Stockpiles |
| SU10 | SU10/L3 | Lower Lobs Hole Ravine Road Upgrade |
| SU10 | SU10/L2 | Lower Lobs Hole Ravine Road Upgrade |
| SU10 | SU10/L1 | Lower Lobs Hole Ravine Road Upgrade |
| SU16 | SU16/L1 | Accommodation Camp |
| SU16 | SU16/L4 | Accommodation Camp |
| SU16 | SU16/L2 | Accommodation Camp |
| SU16 | SU16/L3 | Accommodation Camp |
| SU13 | SU13/L2 | Lower Lobs Hole Ravine Road Upgrade |
| SU24 | SU24/L1 | Lower Lobs Hole Ravine Road Upgrade |
| SU23 | SU23/L1 | Middle Bay Wharf Access |
| SU23 | SU23/L3 | Middle Bay Wharf Access |
| SU25 | 56-6-0039 | Upper Lobs Hole Ravine Road |

Table 4-3: Aboriginal heritage management measures for each heritage Survey unit (Exploratory Works EIS)

| ID | Aboriginal Objects | Significance | Type of harm | Degree of harm | Management measure |
|---|---|---|---|---|---|
| SU1 | Nil recorded | - | Direct<br>Construction Pad<br>Mine Trail Road Extension | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU2 | Nil recorded | Potentially moderate local significance | Direct<br>Construction Pad<br>Mine Trail Road Extension | Partial<br>Not all of SU would be impacted | Monitoring after vegetation clearance and salvage excavation, if required<br>Note – the Stage 1 AHMP has been updated to 'Unmitigated impact: Avoidance or salvage not required'. All salvage works are managed by Snowy Hydro through the Stage 1 AHMP. Approval of this change would result in salvage or avoidance not being required for SU2. |
| SU3 | AHIMS 56-6-0009, SU3/L1, SU3/L2, SU3/L3, Test Transect 1, Test Transect 2, Test Transect 3, Test Transect 4 | Low/moderate local significance | Direct<br>Mine Trail Road Upgrade | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU4 | AHIMS 56-6-0045, SU4/L1, SU4/L2 | Low local significance | Direct<br>Mine Trail Road Upgrade<br>Excavated material stockpile | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU5 | SU5/L1, SU5/L2, Test Transect 1, Test Transect 2, Test Transect 3, Test Transect 4, Test Transect 5 | Moderate local significance | Direct<br>Excavated material stockpile | Partial<br>Not all of SU would be impacted | Nil required; Impacts minimal |
| SU6 | SU6/L1, SU6/L2, SU6/L3, SU6/L4, Test Transect 1, Test Transect 2 | Moderate local significance | Direct<br>Excavated material stockpile | Partial<br>Not all of SU would be impacted | Monitoring after vegetation clearance and salvage excavation |
| SU7 | Nil recorded | Potentially moderate local significance | Direct<br>Excavated material stockpile, Other | Partial<br>Not all of SU would be impacted | Monitoring after vegetation clearance and salvage excavation |
| SU8 | AHIMS 56-6-0043, Test Transect 1, Test Transect 2, Test Transect 3, Test Transect 4 | Low local significance | Direct<br>Excavated material stockpile | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |

| ID | Aboriginal Objects | Significance | Type of harm | Degree of harm | Management measure |
|---|---|---|---|---|---|
| SU9 | Nil recorded | Low local significance | Direct<br>Excavated material stockpile | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU10 | SU10/L1, SU10/L2, SU10/L3, Test Transect 1, Test Transect 2 | Moderate local significance | Direct<br>Lobs Hole Ravine Road Upgrade, Other | Partial<br>Not all of SU would be impacted | Salvage excavation |
| SU11 | AHIMS 56-6-0041, AHIMS 56-6-0047, SU11/L1, SU11/L2, SU11/L3, Test Transect 1, Test Transect 2, Test Transect 3 | Low local significance | Direct<br>Lobs Hole Ravine Road Upgrade, Other | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU12 | AHIMS 56-6-0042, AHIMS 56-6-0046, Test Transect 1, Test Transect 2, Test Transect 3, Test Transect 4, Test Transect 5, Test Transect 6, Test Transect 7, Test Transect 8 | Moderate local significance | Direct<br>Lobs Hole Ravine Road Upgrade | Partial<br>Not all of SU would be impacted | Depending on the extent of impacts, salvage excavations may be appropriate<br>Note – the Stage 1 AHMP has been updated to 'Unmitigated impact: Avoidance or salvage not required' following further investigations at this site. All salvage works are managed by Snowy Hydro through the Stage 1 AHMP. Approval of this change would result in salvage or avoidance not being required for SU12. |
| SU13 | SU13/L1, SU13/L2 | Low local significance | Direct<br>Lower Lobs Hole Ravine Road Upgrade | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU14 | Nil recorded | Low local significance | Nil | Nil | N/A |
| SU15 | Nil recorded | Low local significance | Direct<br>Accommodation camp | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU16 | SU16/L1, SU16/L2, SU16/L3, SU16/L4 | Low local significance | Direct<br>Accommodation camp | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU17 | SU17/L1 | Low local significance | nil | nil | N/A |

| ID | Aboriginal Objects | Significance | Type of harm | Degree of harm | Management measure |
|---|---|---|---|---|---|
| SU18 | SU18/L1 | Low local significance | Direct<br>Mine Trail Road Upgrade<br>Rock emplacement Area | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU19 | Nil recorded | Low local significance | Direct<br>Construction Pad | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU20 | SU20/L1, SU20/L2, SU20/L3, SU20/L4, SU20/L5, SU20/L6, SU20/L7, SU20/L8, SU20/L9, SU20/L10, SU20/L12, SU20/L12 | Low local significance | Nil | Nil | N/A |
| SU21 | Nil recorded | Low local significance | Direct<br>Lobs Hole Ravine Road upgrade | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU22 | SU22/L1, SU22/L2, SU22/L3 | Low local significance | Direct<br>Lower Lobs Hole Ravine Road Upgrade | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU23 | SU23/L1, SU23/L2, SU23/L3 | Low local significance | Direct<br>Middle Bay Wharf Access<br>Wharf laydown | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU24 | SU24/L1 | Low local significance | Direct<br>Lower Lobs Hole Ravine Road Upgrade | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU25 | AHIMS 56-6-0038<br>AHIMS 56-6-0039<br>AHIMS 56-6-0040 | Low local significance | Direct<br>Lobs Hole Ravine Road Upgrade<br>Laydown | Partial<br>Not all of SU would be impacted | Salvage excavation in the area of the three AHIMS sites in this Survey Unit for the purposes of providing a comparative analysis with the archaeology in Lobs Hole (regardless of low significance) |
| SU26 | Nil recorded | Low local significance | Direct<br>Talbingo access | Partial<br>Not all of SU would be impacted | Unmitigated impact: Avoidance or salvage not required |
| SU27 | Nil recorded | Low local significance | nil | nil | N/A |

*Note: All test excavation, salvage, archival recording and protection will be undertaken under the approved AHMP – Stage 1 Exploratory Works

Table 4-4: Modification 1 Aboriginal heritage impact assessment and management measures

| ID | Aboriginal sites relevant to Modification 1 | Significance | Additional impact type for the survey unit | Degree of harm | Management measures in the Exploratory Works EIS | Changes to management or additional management required from Modification 1 |
|---|---|---|---|---|---|---|
| **Talbingo Reservoir, Lobs Hole and Ravine Road** | | | | | | |
| RSU3 | 56-6-0495 (RSU3/L1) is within modification footprint<br>56-6-0009 (Ravine; Lob's Hole; KNP91-59) is within 5 m of modification footprint | Low to moderate local significance | Direct<br>Modification construction footprint | Partial<br>Not all of SU will be impacted | Unmitigated impact: Avoidance or salvage not required | None |
| RSU12 | 56-6-0537 (RSU12/L1) is Adjacent to river crossing where modification footprint represents wider construction corridor | Moderate local significance | Modification construction footprint | Partial<br>Not all of SU will be impacted | Direct impact:<br>Depending on the extent of impacts, salvage excavation may be appropriate | Increased impacts have determined that salvage excavation is required within RSU12 |
| RSU24 | 56-6-0536 (RSU24/L1) was previously within Exploratory Works footprint but is now outside modified footprint | Low local significance | 56-6-0536 (RSU24/L1) is no longer within Exploratory Works construction footprint | No additional impacts anticipated | Unmitigated impact: avoidance or salvage not required | None |
| RSU29 | 56-6-0048 (KNP91-63) is within modification footprint | Generally of negligible significance with the exception of certain micro topographies which may potentially be of low/moderate local significance | Direct<br>Modification construction footprint | Partial<br>Not all of SU will be impacted | No impact is currently approved for this survey unit. | Unmitigated impact:<br>Avoidance or salvage not required.<br>Note: site 56-6-0540 (Ravine SU29/L1) is 30 m west of the proposed modification footprint and features a hatchet head. This site will be avoided.<br>Establish no-go zone to ensure no inadvertent impacts |

| ID | Aboriginal sites relevant to Modification 1 | Significance | Additional impact type for the survey unit | Degree of harm | Management measures in the Exploratory Works EIS | Changes to management or additional management required from Modification 1 |
|---|---|---|---|---|---|---|
| **Marica** | | | | | | |
| N/A | Site 57-6-0323 (Kiandra Plain) is on existing track | Low local significance | None<br>On existing track that will not be upgraded | Not applicable | No management previously prescribed | None |
| **Tantangara Reservoir** | | | | | | |
| TSU1 | 57-4-0310 (TSU1/L2) is within 20 m of proposed geophysics line | Very low significance | Direct<br>Geophysics line will introduce new impacts to TSU1 | Partial<br>Not all of SU will be impacted | No impact is currently approved for this survey unit. Note: future impacts from Main Works are likely to apply to this survey unit. | None: unmitigated impacts<br>Unmitigated impact is suitable based on low archaeological significance |
| TSU2 | 57-4-0265 (TSU2/L2) and 57-4-0266 (TSU2/L3) is within 20 m of geophysics line and close to Borehole No.3 & 4 and associated tracks | Generally of low to moderate significance | Direct<br>Boreholes and associated pads, associated tracks in geophysics line will introduce new impacts to TSU2 | Partial<br>Not all of SU will be impacted | No impact is currently approved for this survey unit.<br>Note: future impacts from Main Works are likely to apply to this survey unit. | None: unmitigated impacts<br>This survey unit will warrant salvage excavation if greater impacts are proposed. |
| TSU4 | Sites 57-4-0123 (Quarry Road 2) and 57-4-0261 (TSU4/L6) occur on existing access tracks | Generally of low to moderate significance | None:<br>On existing track that will not be upgraded | None | No impact is currently approved for this survey unit.<br>Note: future impacts from Main Works are likely to apply to this survey unit. | None: no ground disturbance is proposed and no impacts are anticipated. |
| TSU5 | Sites 57-4-121 (Quarry Road 8) and 57-4-122 (Quarry Road 7) occur within 5 m of existing access tracks | Generally of low to moderate significance | None:<br>On existing track that will not be upgraded | None | No impact is currently approved for this survey unit.<br>Note: future impacts from Main Works are likely to apply to this survey unit. | None: unmitigated impacts<br>Unmitigated impact is suitable based on low archaeological significance |

*Note: All test excavation, salvage, archival recording and protection will be undertaken under the approved AHMP – Stage 1 Exploratory Works

### 4.3. Environmental Risk Assessment

The environmental aspects and impacts for soil are further considered within Appendix A3 of the EMS. This includes a risk assessment process. The risk assessment is based on (1) the likelihood of an impact occurring as a result of the aspect; and (2) the consequences of the impact if the event occurred.

# 5. ENVIRONMENTAL MANAGEMENT MEASURES

## 5.1. Management Measures

A range of environmental requirements and control measures are identified in the Exploratory Works EIS, Submissions Report and CoA. Safeguards and management measures will be implemented to avoid, minimise or manage impacts to Aboriginal heritage across the site.

Specific safeguards and management measures to address the impacts to Aboriginal heritage are outlined in Table 5-1.

This section of the plan provides the management measures that will be used to manage and mitigate potential impacts of the project on Aboriginal heritage. This section aims to outline the appropriate actions that will be undertaken for the purposes of managing impacts to Aboriginal heritage and to comply with the conditions of Infrastructure Approval.

In this section the following matters are addressed:

- the procedures for the management of known and predicted Aboriginal objects within the Project area;
- the procedures to be followed if any unexpected Aboriginal heritage values and/or human remains are found during the development works;
- the impact mitigation procedures to be followed (salvage excavations);
- the process for how the AHMP procedures will be managed and adhered to during the construction and operation of the project; and
- the process that will be followed for continuing consultation with the Aboriginal stakeholders, NPWS Tumut Brungle Gundagai Aboriginal Community Executive Advisory Committee and the NSW OEH, where required.

For the purposes of this AHMP, the activity is inclusive of all ground disturbing impacts relating to the Exploratory works. Aboriginal objects in the form of stone artefacts were recorded in a number of heritage Survey Units across the project area. The majority of Survey Units in which Aboriginal stone artefacts have been recorded are predicted to contain additional items which, because of ground cover (grasses etc.), were undetectable during field survey. The construction of the project may therefore result in impacts to known stone artefact locales and undetected artefact distributions as described in respect of each Survey Unit.

Due to the cultural significance of the Aboriginal heritage in the development area, a strategy of impact mitigation is required. Where feasible the Project will avoid and minimise impacts to ground surfaces containing heritage items, to ensure as little impact as possible to Aboriginal objects in the Project area. It is also appropriate to salvage artefacts from certain Survey Units (via archaeological excavation) prior to commencing construction works on the site as a form of impact mitigation.

In summary, it is appropriate to implement practical measures that may be taken to protect, conserve or salvage Aboriginal objects in the Project area. (*Note: Timing and completion of the*

*management measures described in this document have been incorporated into the project program as some activities will require substantial time-frames to complete before construction commence*s).

The following management and mitigation measures are proposed.

### 5.1.1. Further Investigation

All test excavation, salvage, archiving and reporting will be completed under the approved Stage 1 AHMP.

### 5.1.2. Conservation

The development of a conservation strategy is not relevant or warranted in respect of the Aboriginal heritage in the Project area. However, impacts to ground surfaces should be kept to an absolute minimum where possible.

As noted previously, a riparian exclusion zone adjacent to the Yarrangobilly River measuring 50 m wide (except for nominated river and creek crossings and road construction) will result in a conservation outcome in these areas.

The management of the riparian exclusion zone adjacent to the Yarrangobilly River would entail appropriate identification of the area on sensitive area plans and the installation of temporary barriers and signage denoting the no-go areas.

### 5.1.3. Mitigated Impacts

All test excavation, salvage, archiving and reporting will be completed under the approved Stage 1 AHMP.

The mitigation measures in Table 5-1 are applicable to Stage 2 scope of works.

Table 5-1: Aboriginal heritage management measures

| ID | Measure / Requirement | Stage | When to implement | Responsibility | Source document |
|---|---|---|---|---|---|
| **General** | | | | | |
| AH01 | Training will be provided to all project personnel, including relevant sub-contractors on Aboriginal heritage requirements from this plan through inductions, toolboxes and targeted training. Training would include details or heritage values of the project site and the procedure in the event of discovery of unexpected heritage values or bones (potential human remains). | All | Pre-construction and construction | Contractor | Schedule 3 Condition 11 and 14 |
| AH02 | For areas avoided by construction, exclusion zones would be put in place to ensure archaeological deposits are not incidentally damaged. These would be fenced with parawebbing or some other similar fencing that would exclude entry by people or plant to avoid incidental impacts on the site. | All | Pre-construction and construction | Contractor | Schedule 3 Condition 11 and 14 |
| AH03 | Impacts to ground surfaces will be kept to an absolute minimum where practicable. | All | Construction | Contractor | Schedule 3 Condition 11 and 14 |
| AH04 | A 50m buffer zone adjacent to the Yarrangobilly River measuring 50 m wide (except for nominated river and creek crossings and sections of Mine Trail Road) will be established and appropriately demarcated prior to construction. The exclusion zone will be:<br>• designated as an exclusion zone and identified on the Sensitive Area Plans; and<br>• marked in the field with temporary barriers and signage denoting a “no-go” area. | All | Pre-construction and construction | Contractor | Schedule 3 Condition 11 and 14 |
| AH05 | If any part of the project (such as an ancillary facility) is located in an area which has not been subject to Aboriginal heritage field survey and assessment, an assessment by a suitably qualified archaeologist will be undertaken before that part of the project proceeds. | All | Pre-construction and construction | Contractor | Schedule 3 Conditions 11, 13 and 14 |
| AH06 | If the project design changes and further impacts are proposed to any Aboriginal object, sites which are currently outside of the identified impacted area the changes will be referred to a suitably qualified archaeologist for review. This may warrant the implementation of additional impact mitigation strategies. | All | Pre-construction and construction | Contractor | Schedule 3 Conditions 11, 13 and 14 |
| **Unexpected finds** | | | | | |
| AH07 | The unexpected finds procedure included within Appendix B will be followed in the unlikely event that unexpected Aboriginal heritage objects or values are identified during construction. | All | Pre-construction and construction | Contractor | Schedule 3 Condition 11 and 14 |
| AH08 | In the unlikely event that human remains are found during construction, the protocol outlined in Appendix B would need to be followed. | All | Construction | Contractor | Schedule 3 Condition 11 and 14 |

Note: All test excavation, salvage, archival recording and protection will be undertaken during Stage 1 Exploratory Works.

# 6. COMPLIANCE MANAGEMENT

## 6.1. Monitoring and Inspection

Weekly environmental inspections of the Aboriginal heritage in the Project area will occur in accordance with Section 8 of the EMS. The inspections will review the heritage located in each area in which works are scheduled to occur, are occurring and have occurred, in order to ensure that appropriate management and mitigation strategies are implemented, in accordance with this AHMP.

Once Aboriginal heritage salvage works are completed, weekly environmental inspections would focus on the protection of items retained and protected in situ. A suitably qualified archaeologist would then be required only in the instance of an unexpected find on site.

## 6.2. Training

All site personnel will undergo site induction training relating to Aboriginal heritage management issues prior to commencement on site.

In order for site workers and contractors to be able to know what processes to follow in regard to this AHMP, they would be provided training on heritage matters through the Project induction.

Ongoing environmental training will be provided to site personnel in the form of toolbox talks, daily pre-start meetings, construction methodology briefings and environmental awareness training.

Further details regarding the staff induction and training are outlined in Section 5 of the EMS.

## 6.3. Protocol for Continued Aboriginal Community Consultation

Consultation with the Registered Aboriginal Parties will be on-going throughout the construction. Consultation will include but not be limited to:

- ensuring that Aboriginal stakeholders are able to have reasonable access to cultural heritage sites on site. The process to obtain access will entail Aboriginal stakeholders making the request for access to the Snowy Hydro project manager. Snowy Hydro will then facilitate access to the construction site with Future Generation. Future Generation will arrange access where it is safe and reasonable to do so; and
- notification in the event of an unexpected find.

## 6.4. Incidents and Auditing

In the event of the occurrence of an incident, the Future Generation Environment Manager will immediately inform Snowy Hydro who will contact Department of Planning, Industry and Environment in accordance with the requirements of condition 5 of Schedule 4 of the Infrastructure Approval.

In the event that a non-compliance is identified, Department of Planning, Industry and Environment will be notified in accordance with the requirements of condition 6 of Schedule 4 of the Infrastructure Approval. Details of incident and non-compliance reporting can be found in Section 7 and Section 8 of the EMS.

In the event that any unexpected Aboriginal objects and/or Aboriginal skeletal remains are found, the steps within the Unexpected Finds Procedure in Appendix B will be followed.

Audits will be undertaken to assess the effectiveness of the management measures, compliance with this AHMP, Exploratory Works EIS, Submissions Reports and other relevant approvals,

licences and guidelines. Audits include the Independent Audit in accordance with Schedule 4 Condition 9 of the Infrastructure Approval.

Audit requirements are detailed in Section 8 of the EMS.

## 6.5. Reporting

Reporting will include monthly internal project reports and six-monthly compliance reports as required by the Infrastructure Approval. The six-monthly reports will track compliance against the CoA and the REMMs. Compliance reporting will be undertaken in accordance with Schedule 4, Condition 7 and 8 of the Infrastructure Approval. Reporting requirements and responsibilities are documented in the Section 8 of the EMS.

# APPENDIX A – LOCATION MAPPING OF KNOWN ABORIGINAL HERITAGE ITEMS

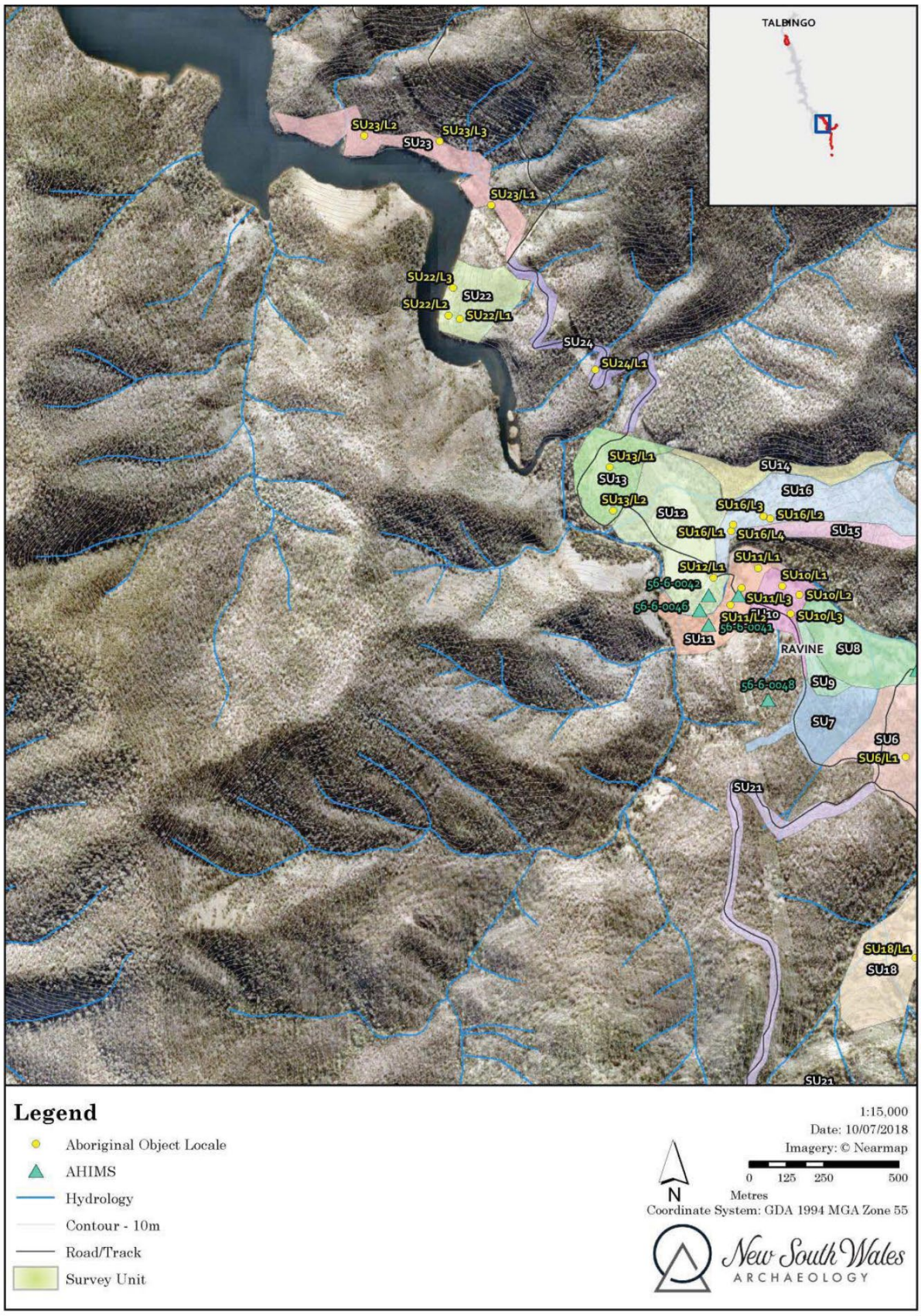


Figure A.1: Location of Aboriginal items Lobs Hole west

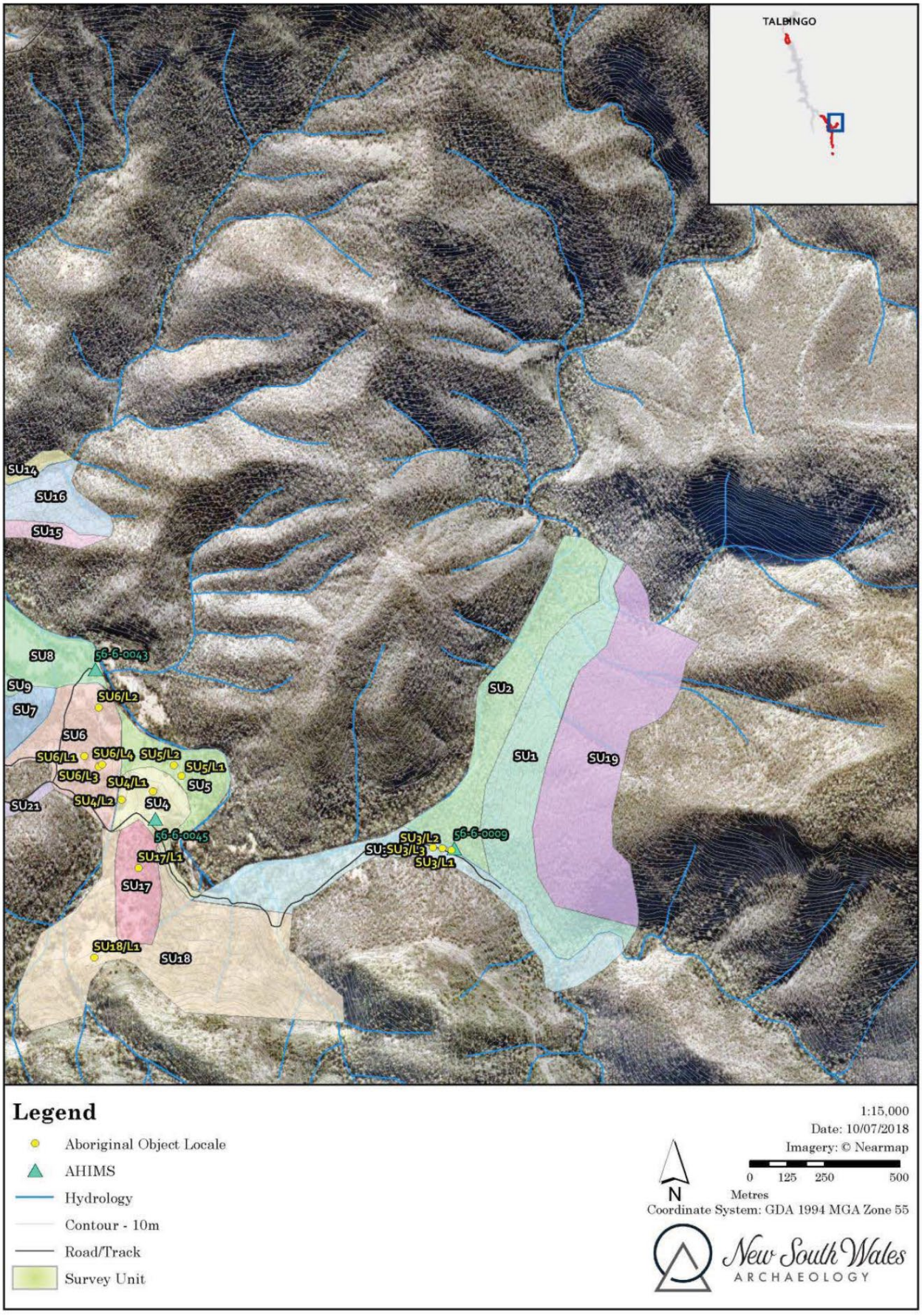


Figure A.2: Location of Aboriginal items Lobs Hole east

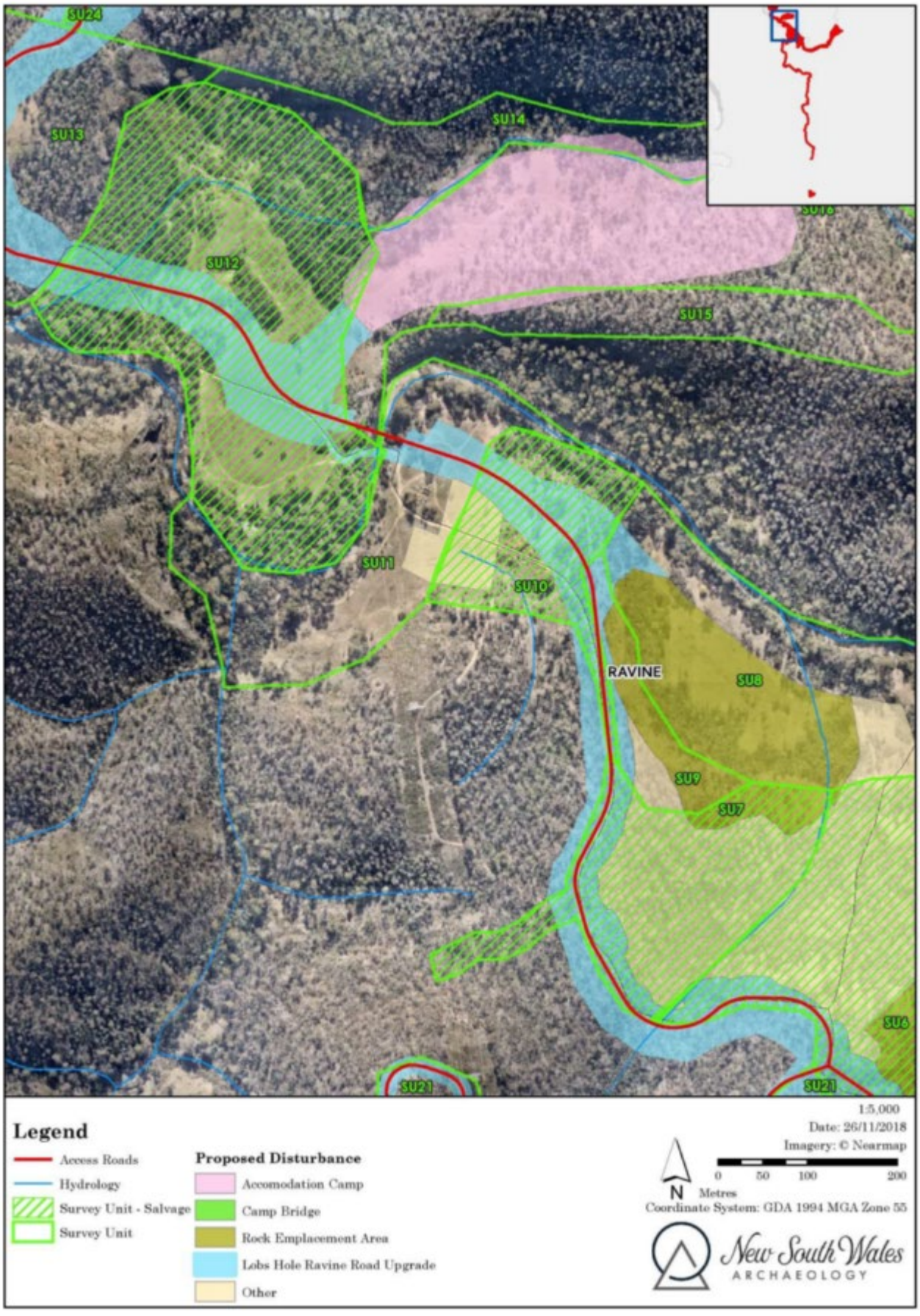


Figure A.3: Survey units at Lobs Hole (note location of SU7)

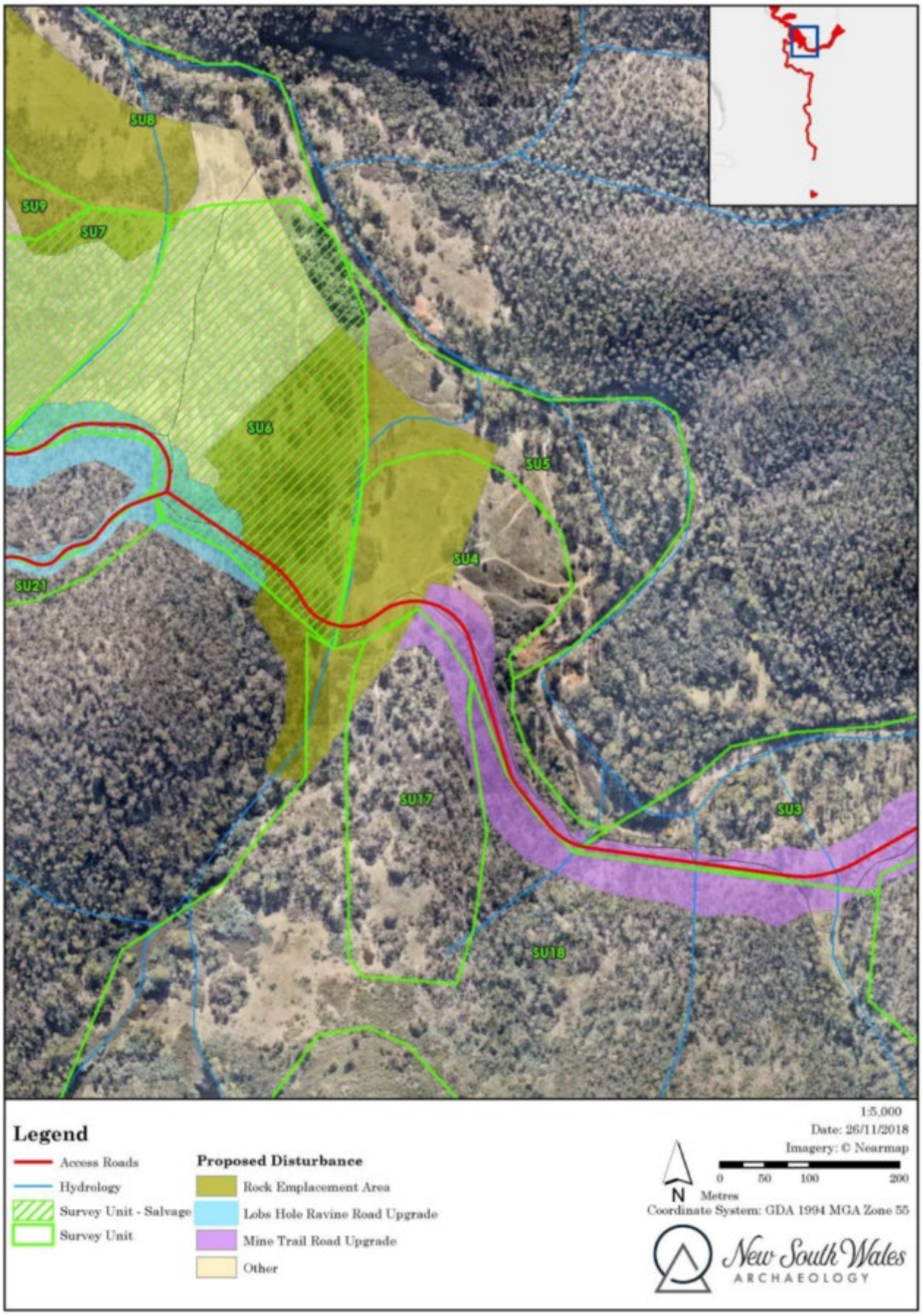


Figure A.4: Survey units at Lobs Hole (note location of SU6)

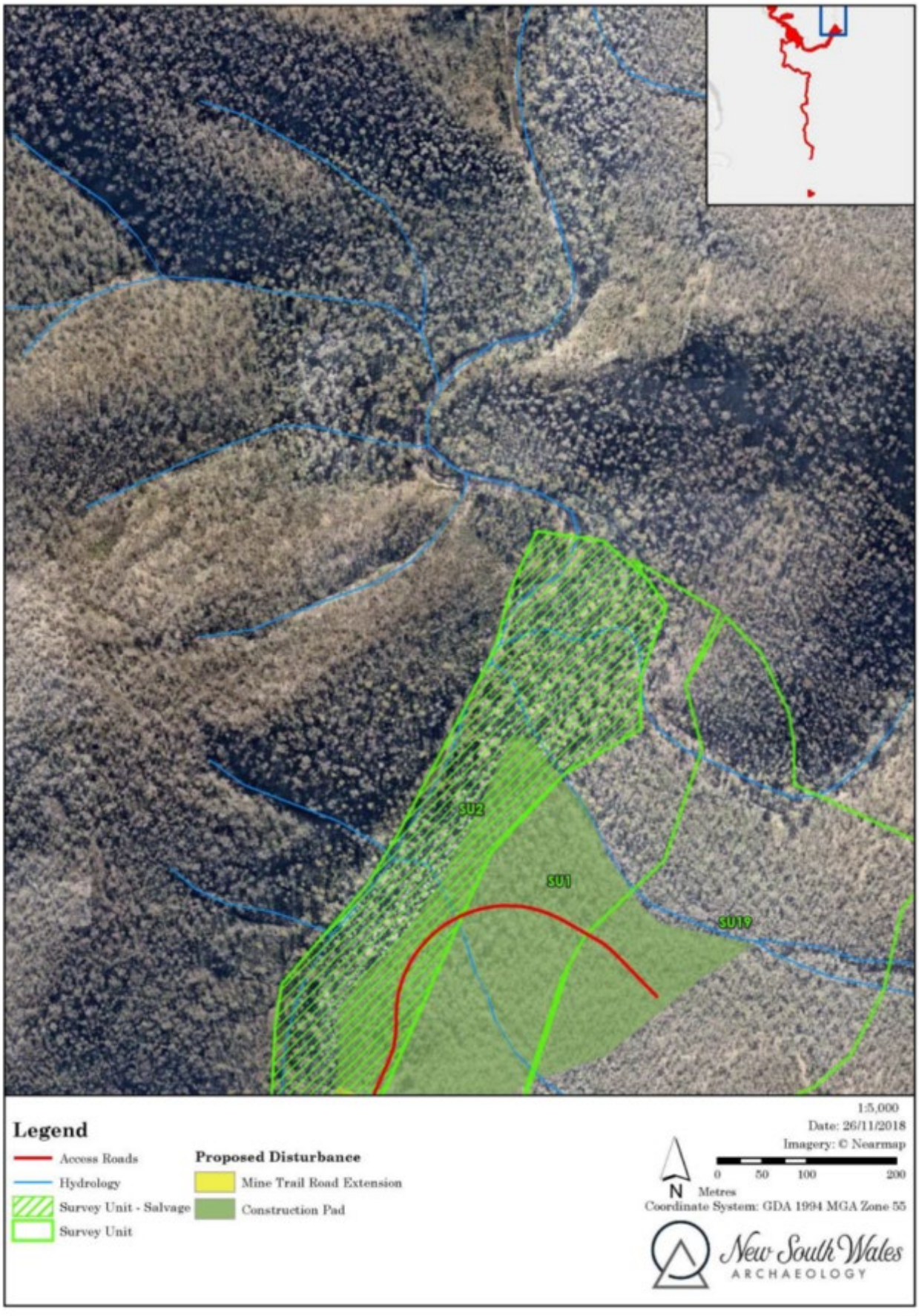


Figure A.5: Survey units at Lobs Hole. Note SU2 near end of Mines Trail

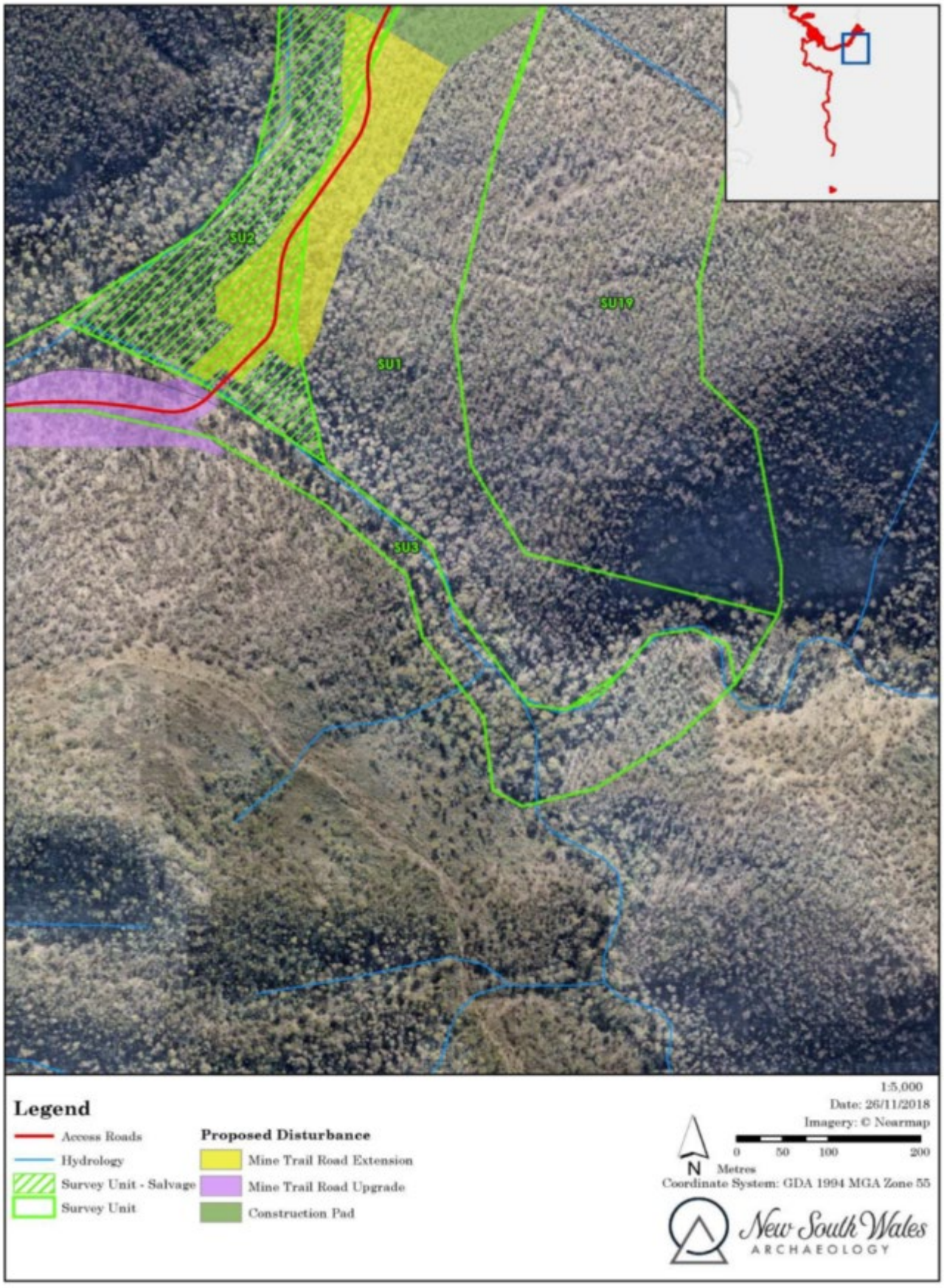


Figure A.6: Survey Unit 2 at Lobs Hole. Note SU2 near end of Mines Trail

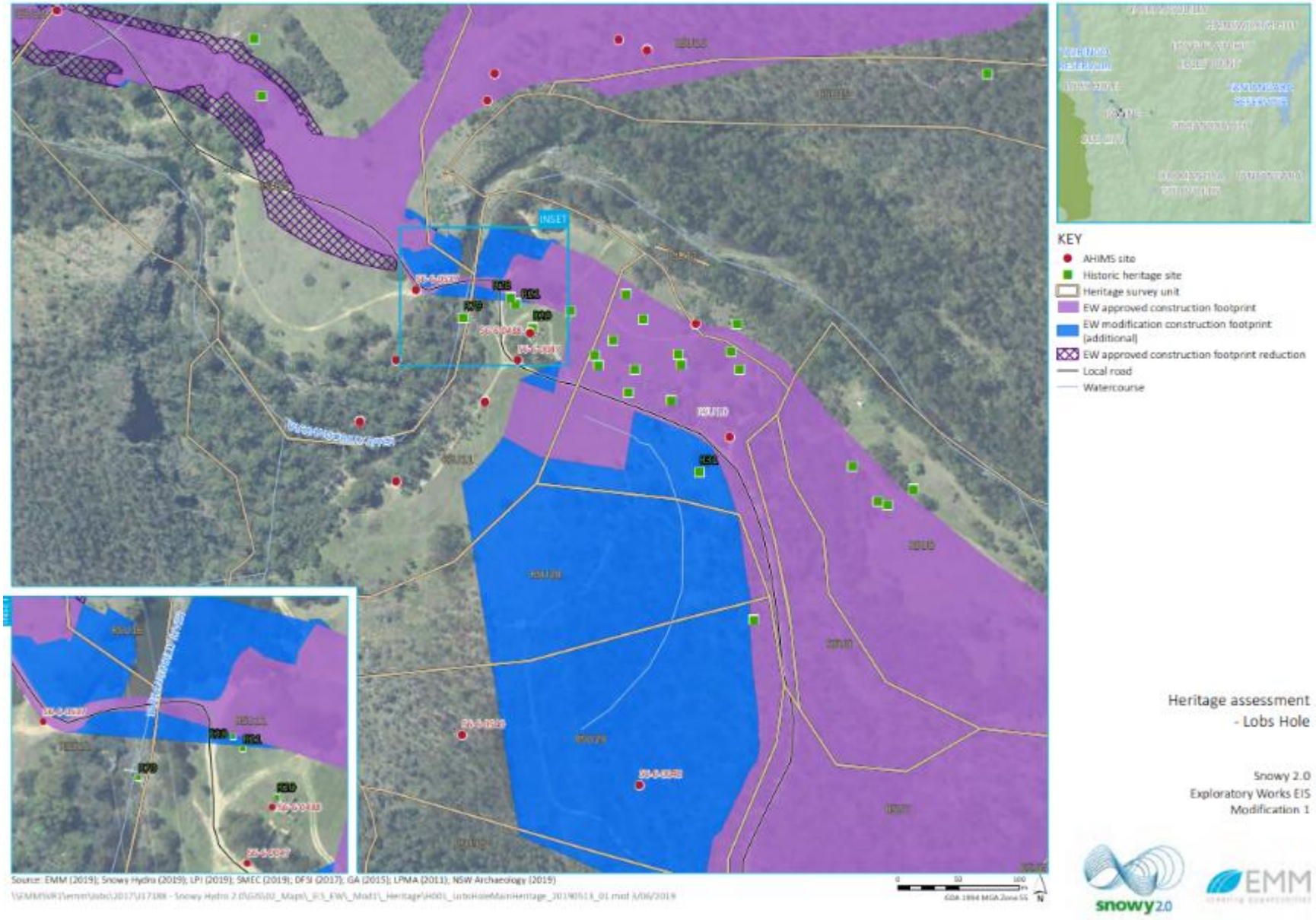


Figure A.7: Heritage assessment - Lobs Hole (Modification 1)

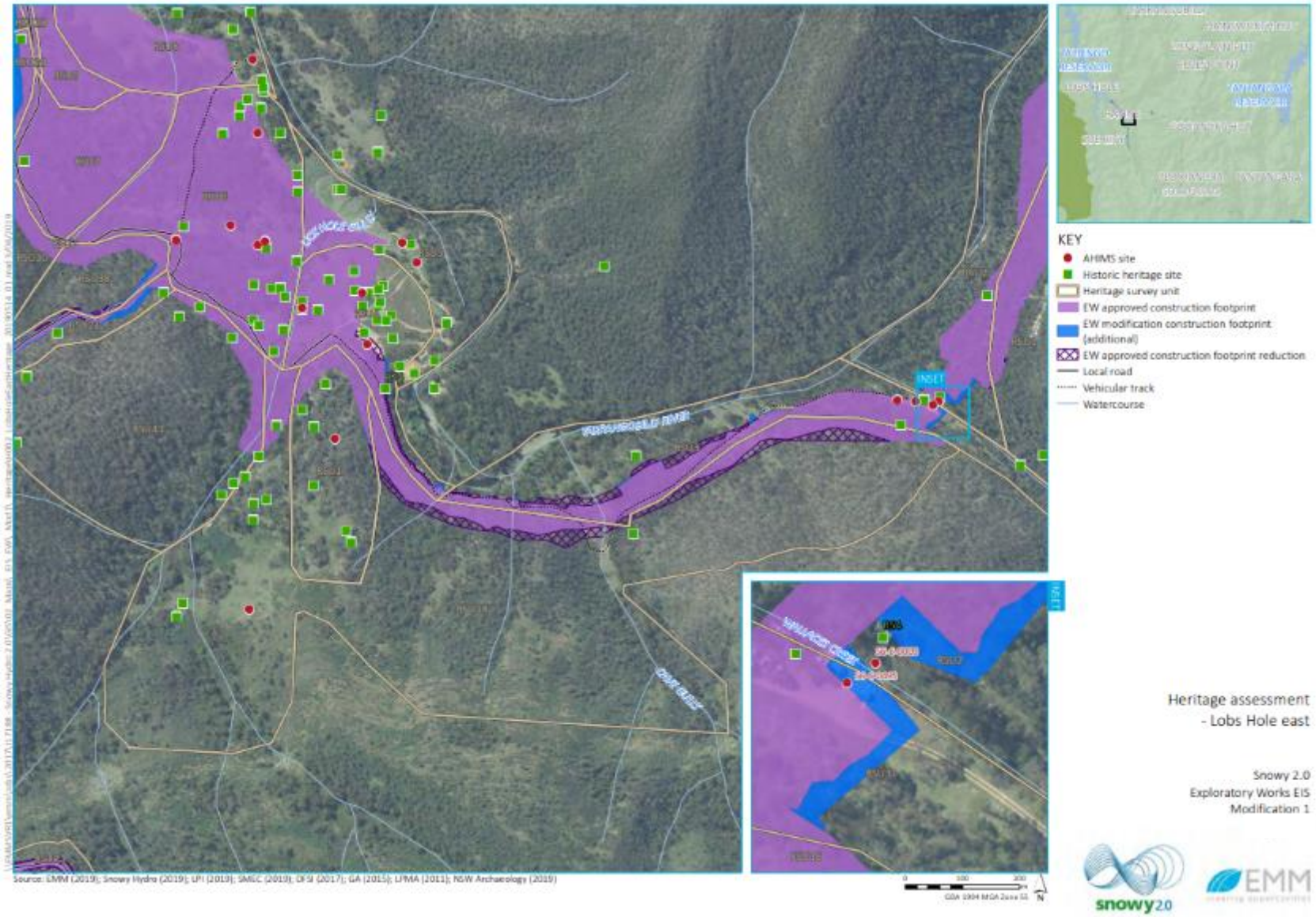


Figure A.8: Heritage assessment - Lobs Hole east (Modification 1)

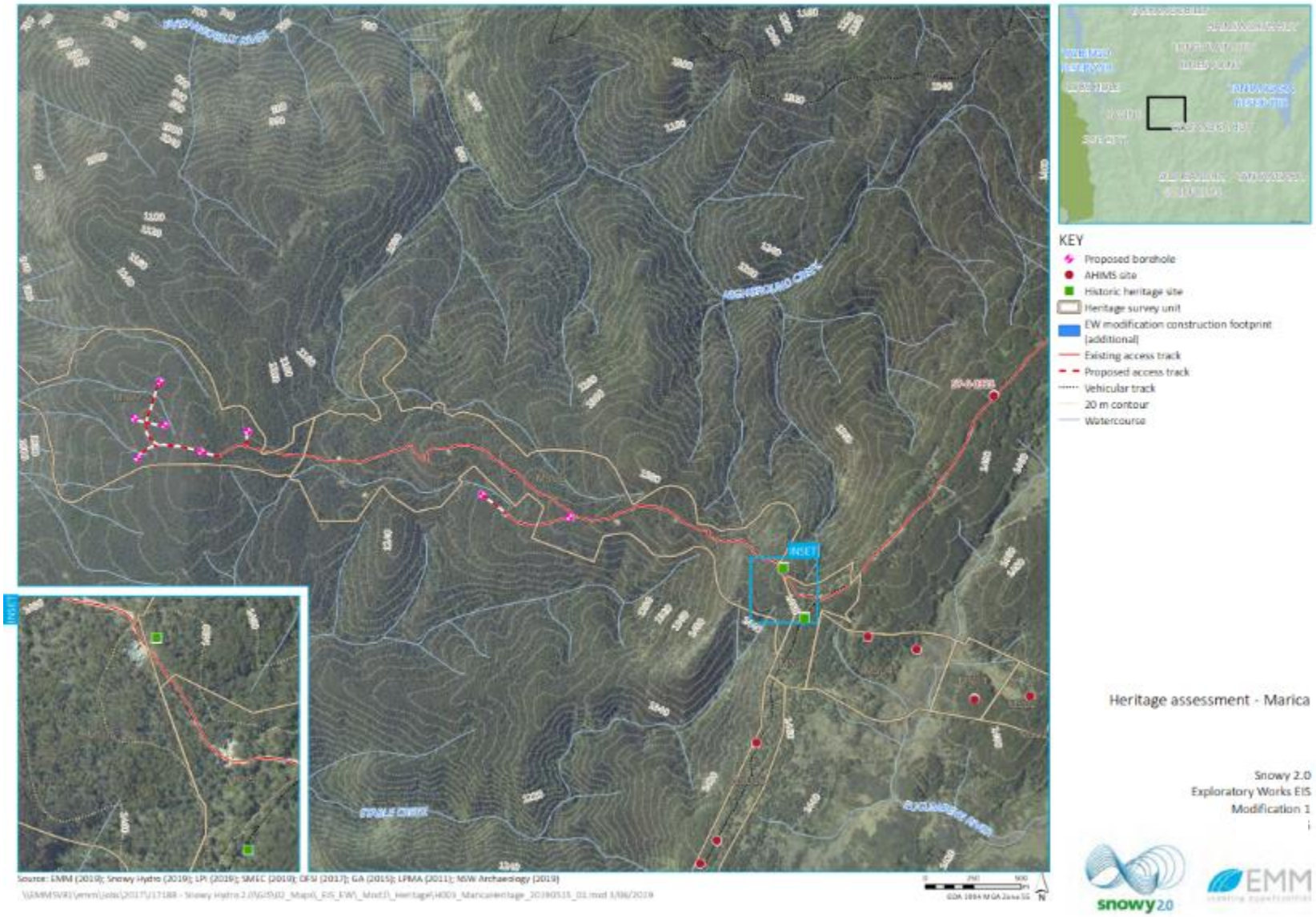


Figure A.9: Heritage assessment - Marica (Modification 1)

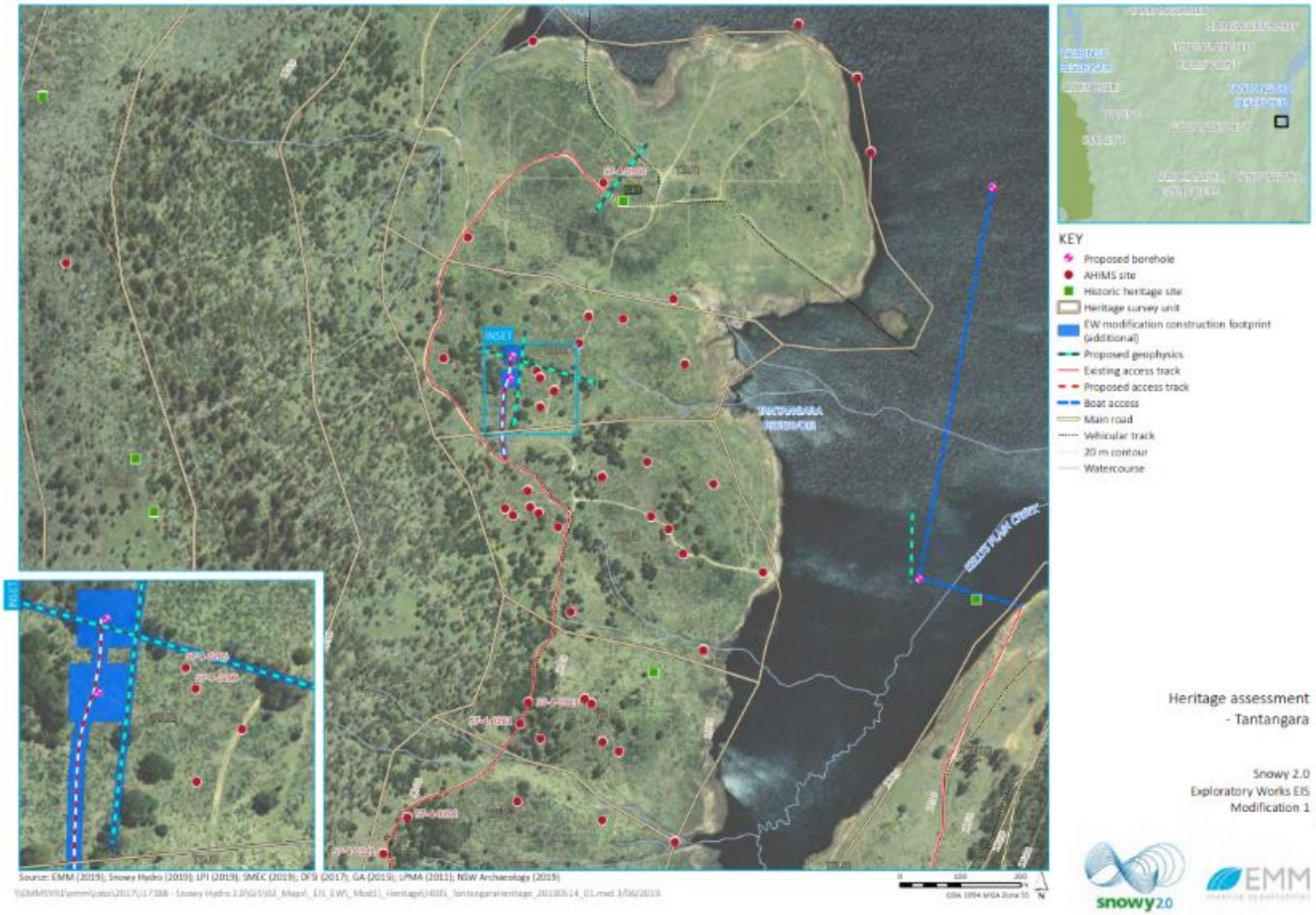


Figure A.10: Heritage assessment – Tantangara (Modification 1)

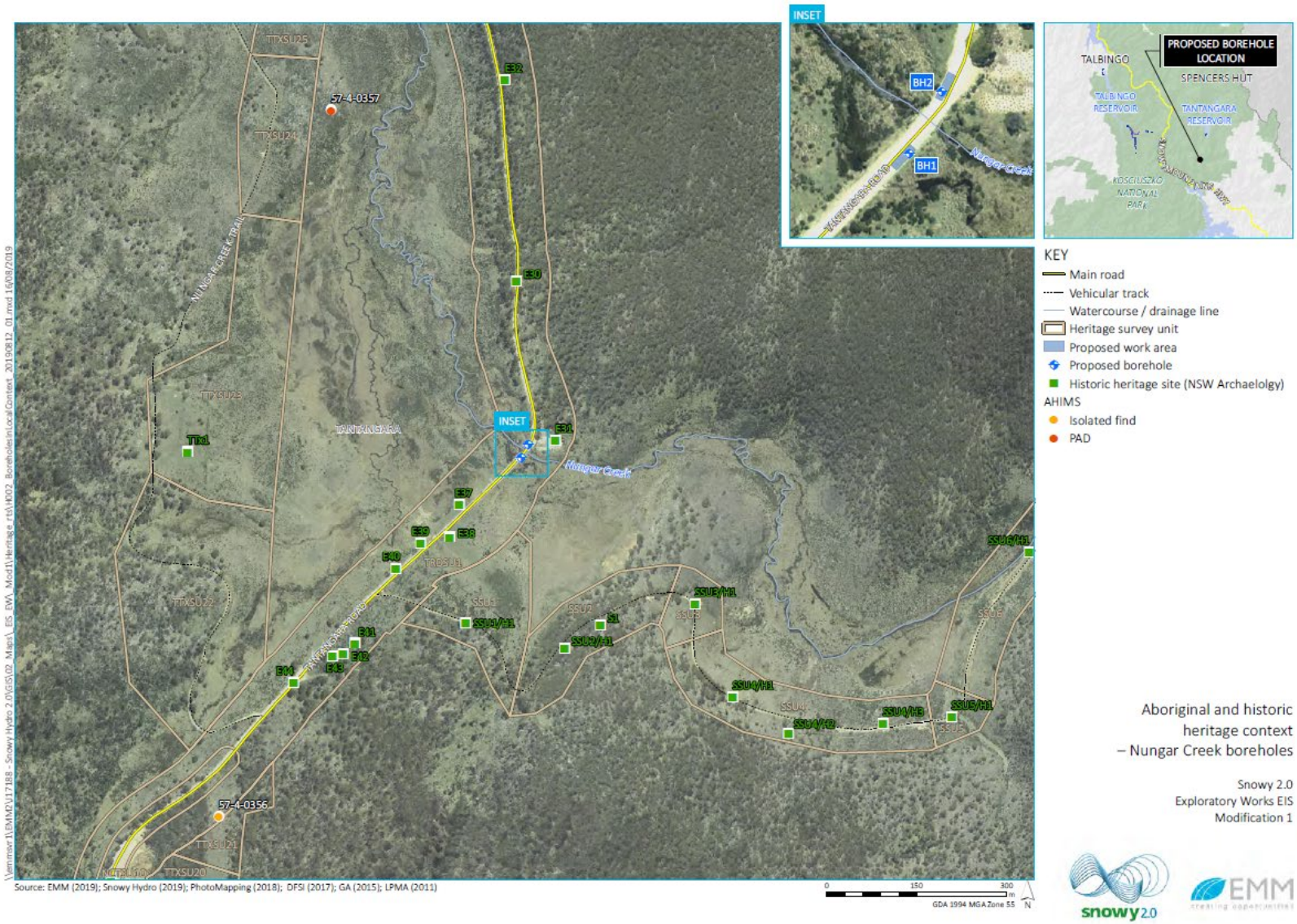


Figure A 11: Aboriginal heritage context - Nungar Creek boreholes

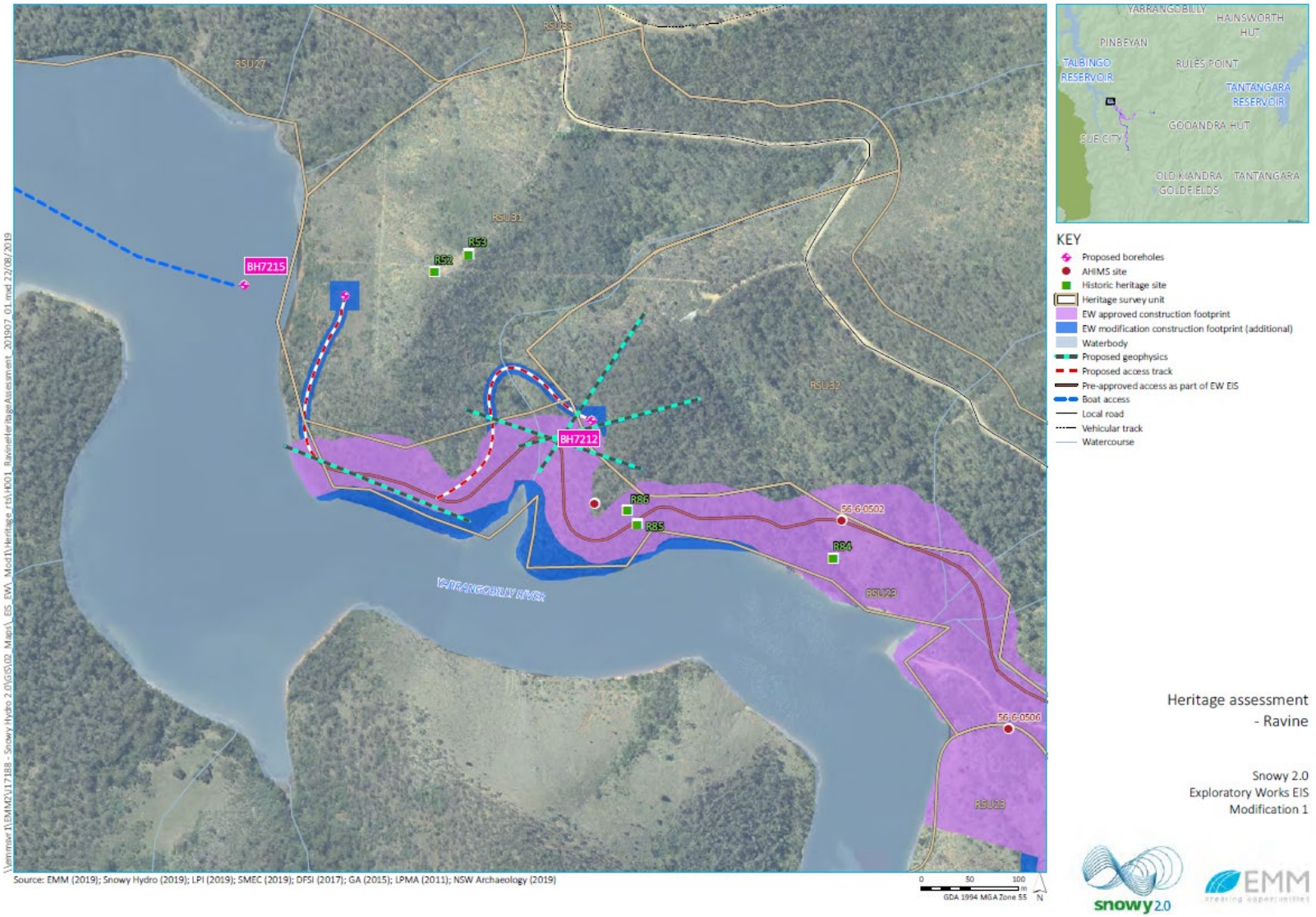


**Figure A 12: Heritage assessment Ravine (Talbingo Reservoir)**

# APPENDIX B – UNEXPECTED FINDS PROCEDURE

In the unlikely event that unexpected objects or values are encountered during construction (such as very high artefact distributions in areas previously assessed to contain low densities), the following steps should be followed:

1. All construction that could potentially harm the objects or values must cease. Only construction that is required to comply with occupational and environmental health and safety standards and/or to protect the cultural heritage should occur.
2. The person who identified the objects or values must immediately notify the person in charge of the activity. The Project Superintendent or Supervisor and the Future Generation Environmental Manager is to be notified.
3. The item is to be protected be the establishment of a no-go zone.
4. The Future Generation Environmental Manager is to notify Snowy Hydro.
5. If the item is likely to be a human bone, follow the ancestral human remains process below and notify the Police.
6. Works may continue outside of the minimum 20 m barrier.
7. A suitably qualified archaeologist is to be notified within 24 hours of the discovery.
8. The archaeologist is to attend site where required and conduct a preliminary assessment and recording of the item. The location and context of the object or value is to be recorded.
9. Within five (5) days of the objects or values being discovered, if Aboriginal, the archaeologist is to facilitate the involvement of any relevant RAPs and, in consultation, recommend the most appropriate course of action.
10. Where the item is an object, the discovery must be reported to the NSW OEH as soon as practicable.
11. The archaeologist must assess the scientific significance of the objects or values. If the objects or values are assessed as being of:
    a. **Low scientific significance** (e.g. isolated artefacts or disperse/small artefact scatters less than three artefacts, eroding earth features) and where avoidance is impossible, no further work is required once the steps outlined above have been completed.
    b. **Moderate or higher scientific significance**, it is preferable to avoid impact if possible. If avoidance is not possible, a salvage excavation should be undertaken, if relevant. The aims of the salvage excavation will be to obtain as much information as possible from the material and/or deposit.
        i. Salvage must occur within 30 working days unless constraints (e.g. weather) occur. The archaeologist must facilitate the involvement of any relevant RAPs and develop a suitable methodology for salvage excavation in consultation with the RAPs. The location and context of the cultural heritage material must be recorded in detail and an Aboriginal Site Impact Recording Form completed and submitted to NSW OEH within four (4) months from the end of salvage excavations. A report detailing the excavation, analysis and results must be provided to NSW OEH within twelve (12) months of completion of the salvage.
        ii. In the event that objects are salvaged, regardless of significance, they must be curated in accordance with conventional archaeological practice, that is, the material must be identified, packaged, labelled with reference to provenance, appropriately catalogued and packed securely. The proponent must arrange for the secure storage of Aboriginal cultural material in a specified location until it can be transferred to the relevant RAPs or buried in country. A report must be produced to accompany the curated material.
        iii. Curated Aboriginal objects together with the aforementioned report must be provided to the relevant RAPs within three (3) months of the salvage being completed.

iv. If reburial of any cultural material is to take place, it must be in accordance with the relevant RAPs requirements or to the satisfaction of the archaeologist. The archaeologist must complete and submit any related Aboriginal Site forms to NSW OEH within 30 days of the reburial taking place.

12. Within 60 days of being notified, complete and submit relevant recording forms to NSW OEH.
13. Work may commence within the area of exclusion when:
    a. the appropriate protective measures have been undertaken;
    b. where the relevant cultural heritage records have been updated and/or completed; and
    c. there is no other prudent or feasible course of action.

## Ancestral human remains

Should suspected ancestral human remains be encountered, the following process will be adhered to:

1. Do not further disturb or move the remains.
2. Immediately cease work in the vicinity and cordon area off (with buffer of 2m).
3. Notify the NSW Police.
4. Notify a suitably qualified archaeologist and the NSW OEH Environment Line on 131 555 as soon as practicable and provide available details of the remains and their location.
5. In the event that the bones are not human, works may recommence.
6. If the bones are human, and are archaeological in nature (i.e. likely to be Aboriginal remains), the relevant Aboriginal communities must be notified.
7. If the bones are required to be subject to Police investigation, then direction from the Police shall be followed.
8. If the bones are considered to have historic heritage value, the Historic and Natural Heritage Management Plan shall be followed.
9. For bones that are considered to be Aboriginal remains, an Archaeological Management Plan will be prepared. An assessment will also occur to determine whether the impact is consistent with the Infrastructure Approval, or if modification is required.

# APPENDIX C – ENDORSEMENT OF PERSONS TO PREPARE MANAGEMENT PLANS


**Planning Services**
**Resource & Energy Assessments**
Contact: Paul Freeman
Tel: 9274 6587
Email: paul.freeman@planning.nsw.gov.au

Mr Antonio Betti
Project Director
Future Generation JV
Level 4, 77 Berry Street
NORTH SYDNEY NSW 2060

Dear Mr Betti

**Snowy 2.0 Exploratory Works (SSI 9208)**
**Endorsement of Persons to Prepare Management Plans**

I refer to your letter dated 29 May 2019, requesting the Secretary's endorsement of persons to prepare Stage 2 management plans for the Snowy 2.0 Exploratory Works in accordance with Infrastructure Approval SSI 9208.

The Department has carefully considered the information you provided on the nominated experts and considers that they are suitably qualified and experienced to prepare the plans.

Accordingly, the Secretary has endorsed the following persons to prepare the management plans:

- Dr Julie Dibden - Aboriginal Heritage Management Plan;
- Dr Julie Dibden, Dr Rebecca Parkes and Dr Ian Percival - Historic and Natural Heritage Management Plan; and
- Ms Roisin Batch, Mr Derek Low, Ms Hilary Chapman and Mr John Wright – Water Management Plan.

If you wish to discuss this matter further, please contact Paul Freeman on 9274 6587.

Yours sincerely

31/5/19

Nicole Brewer
**A/Director**
**Resource and Energy Assessments**
as nominee of the Secretary

320 Pitt Street Sydney NSW 2000 GPO Box 39 Sydney NSW 2001
www.planning.nsw.gov.au

# APPENDIX D – EXPLORATORY WORKS – PROJECT BOUNDARY FIGURES

## APPENDIX 2 – SITE LAYOUT

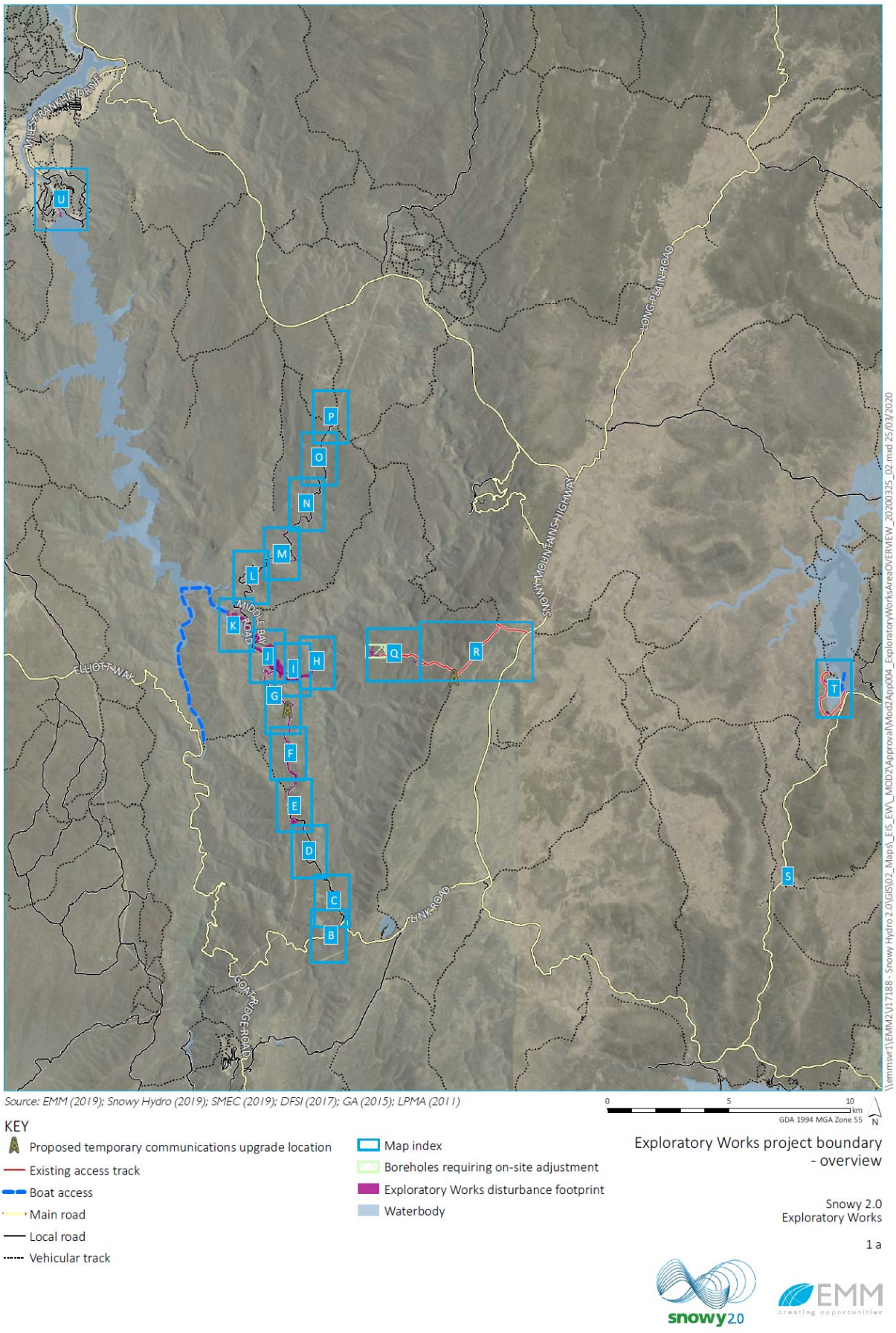


***Figure 2-1:*** Project *Boundary – Overview*

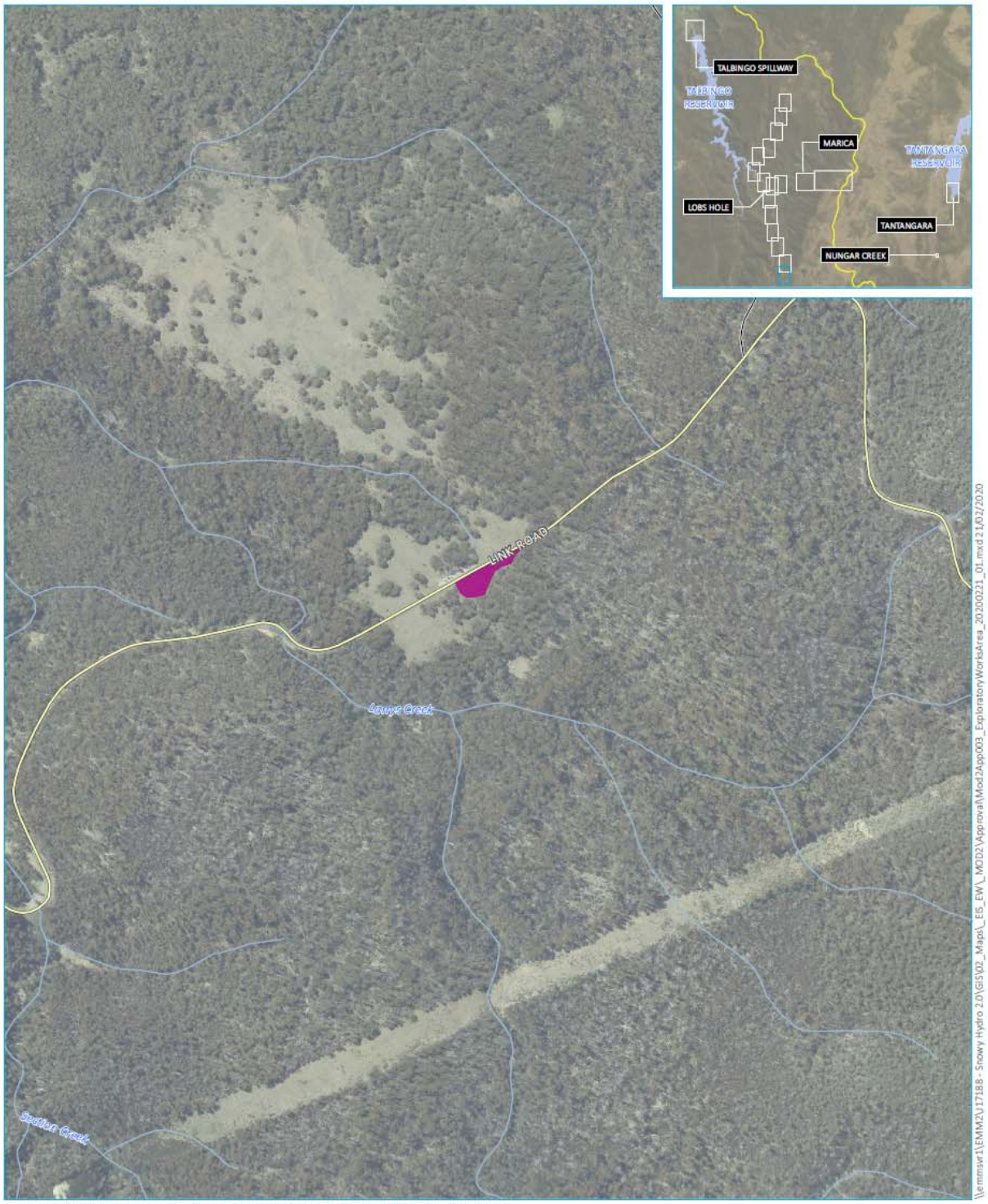


***Figure 2-2:*** *Project Boundary – Link Road turnaround area*


***Figure 2-3:*** *Project Boundary – Lobs Hole Ravine Road (Upper) 1*


***Figure 2-4:*** *Project Boundary – Lobs Hole Ravine Road (Upper) 2*

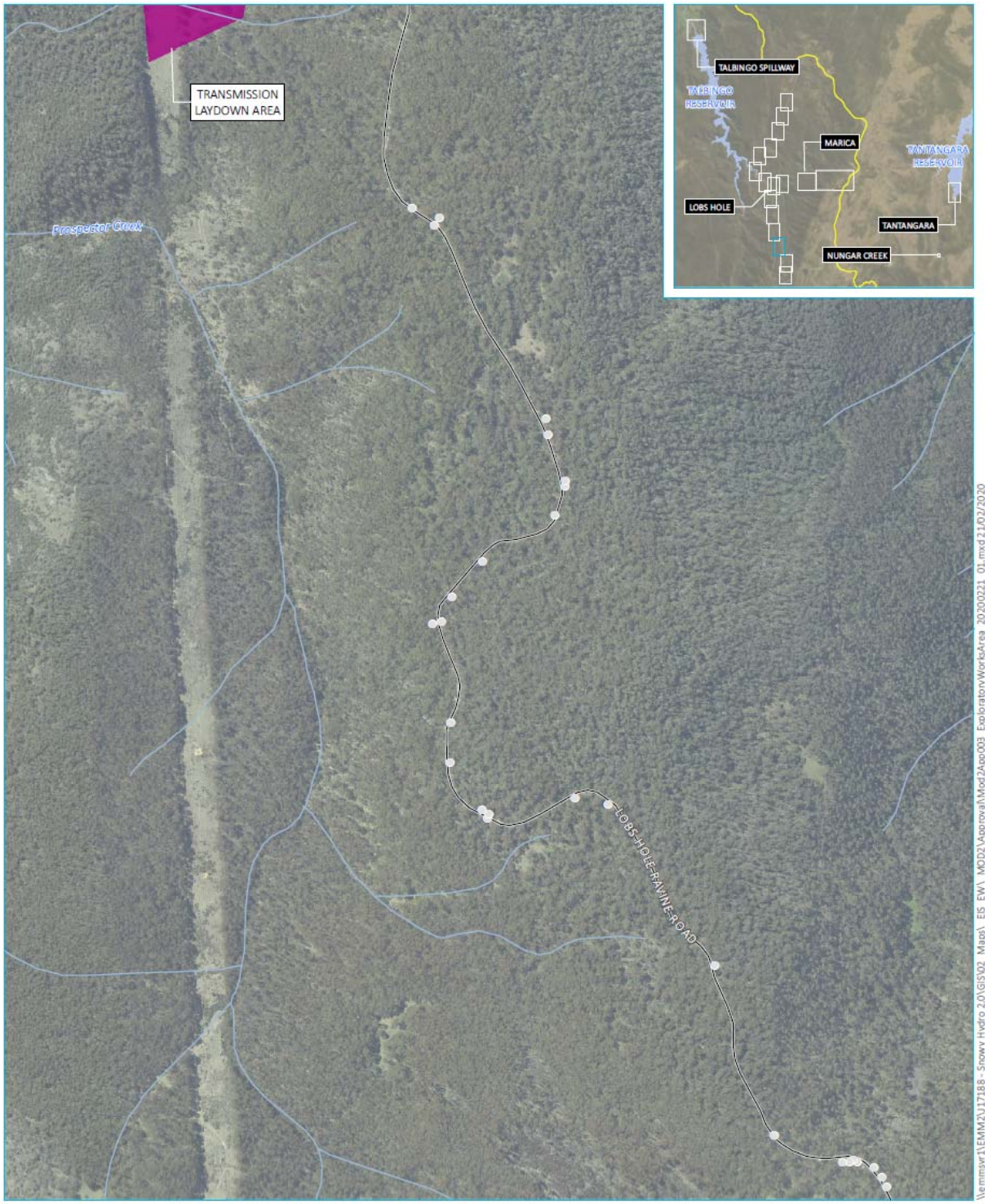


***Figure 2-5:*** *Project Boundary – Lobs Hole Ravine Road (Upper) 3*

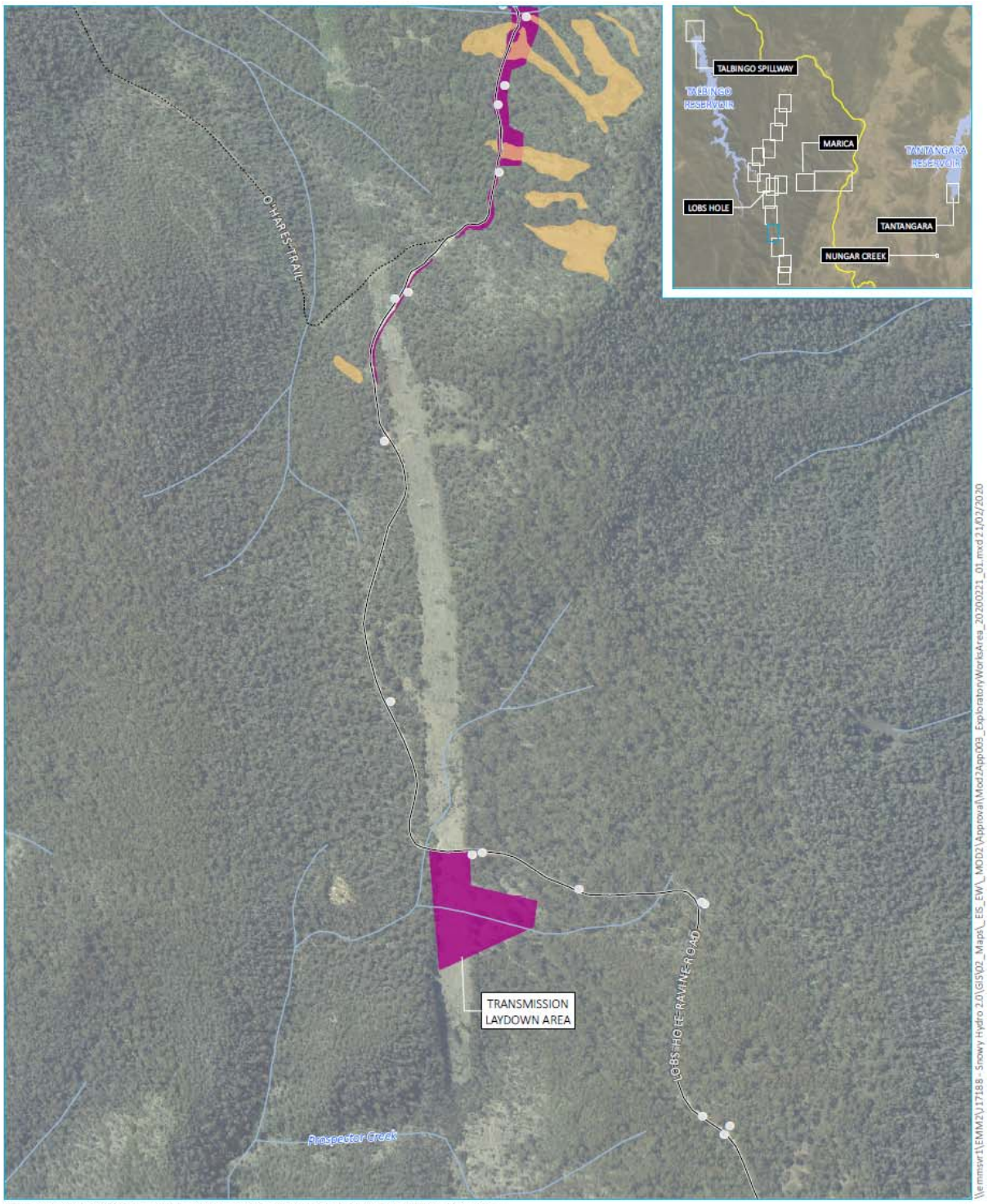


***Figure 2-6:*** *Project Boundary – Lobs Hole Ravine Road (Upper) 3*

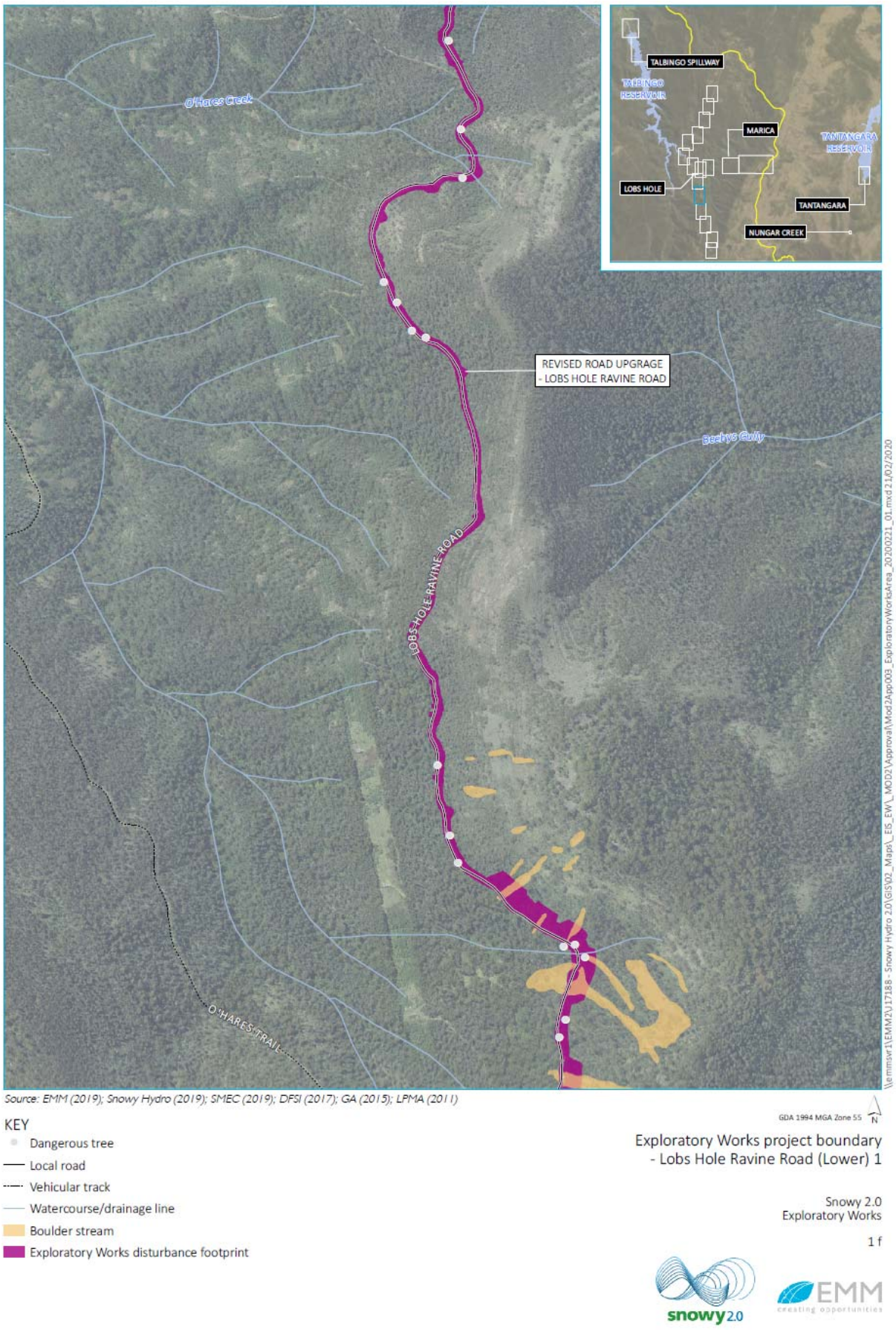


***Figure 2-7:*** *Project Boundary – Lobs Hole Ravine Road (Lower) 1*

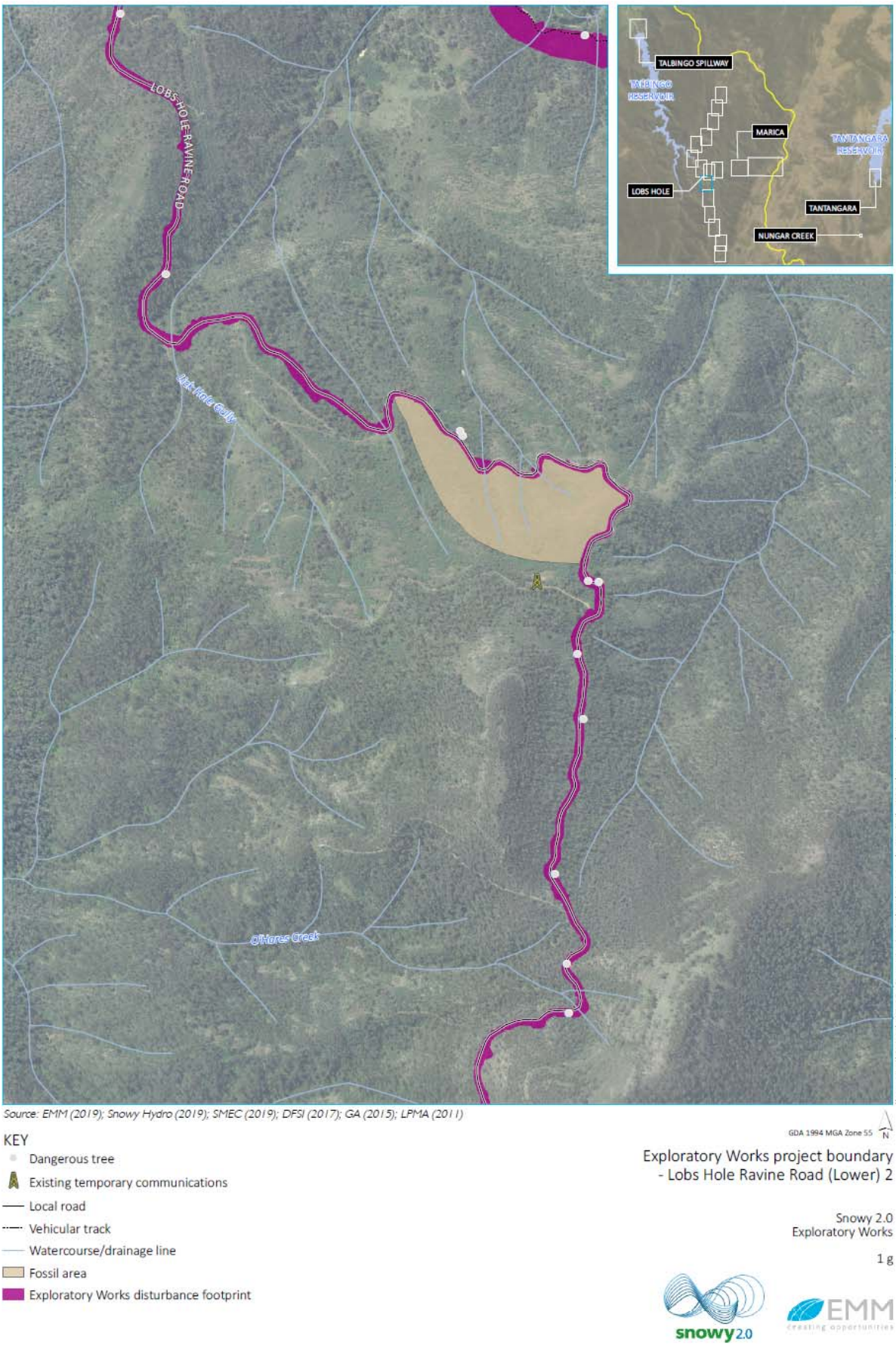


***Figure 2-8:*** *Project Boundary – Lobs Hole Ravine Road (Lower) 2*

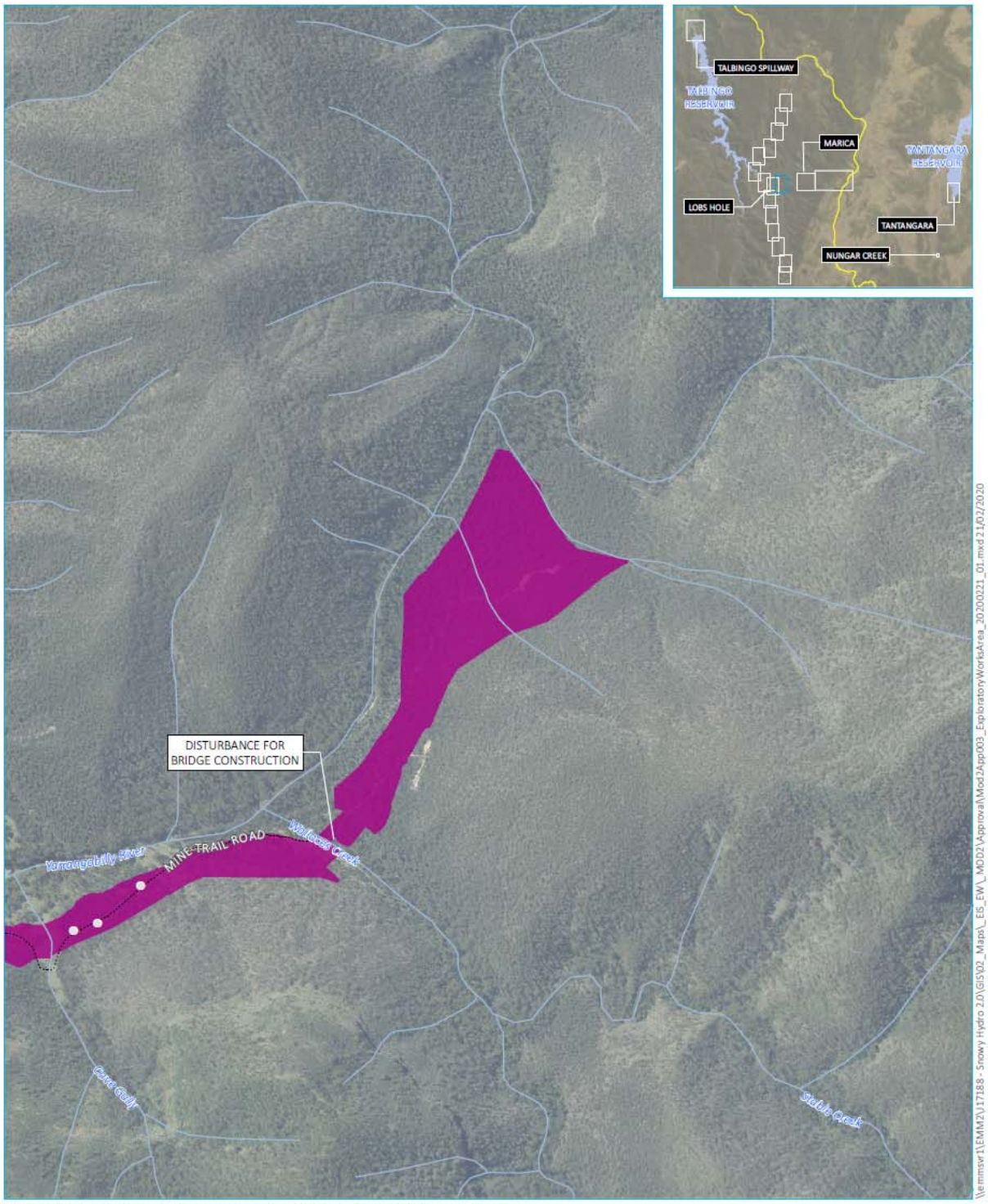


***Figure 2-9:*** *Project Boundary – Mine Trail Road 1*

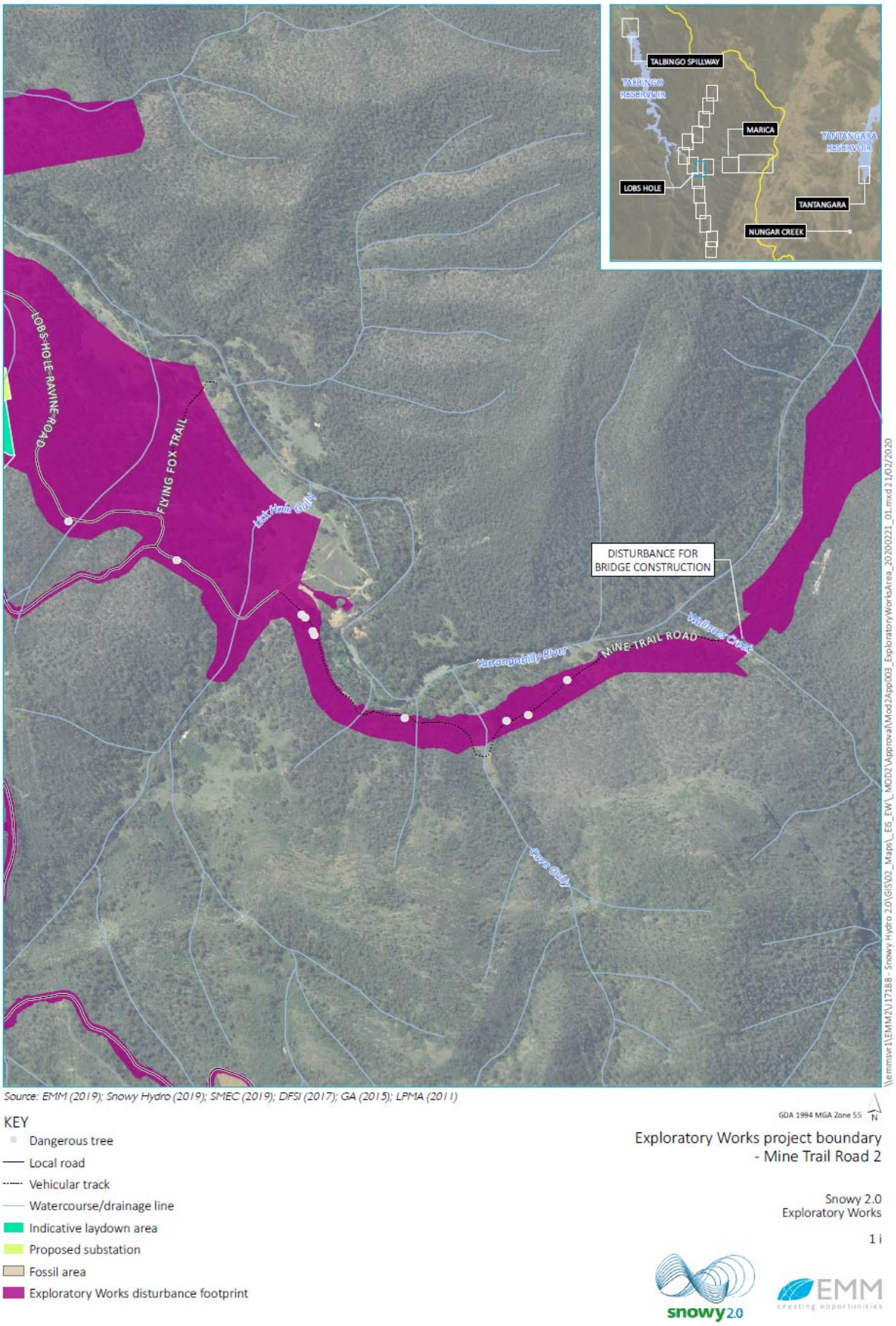


***Figure 2-10:*** *Project Boundary – Mine Trail Road 2*

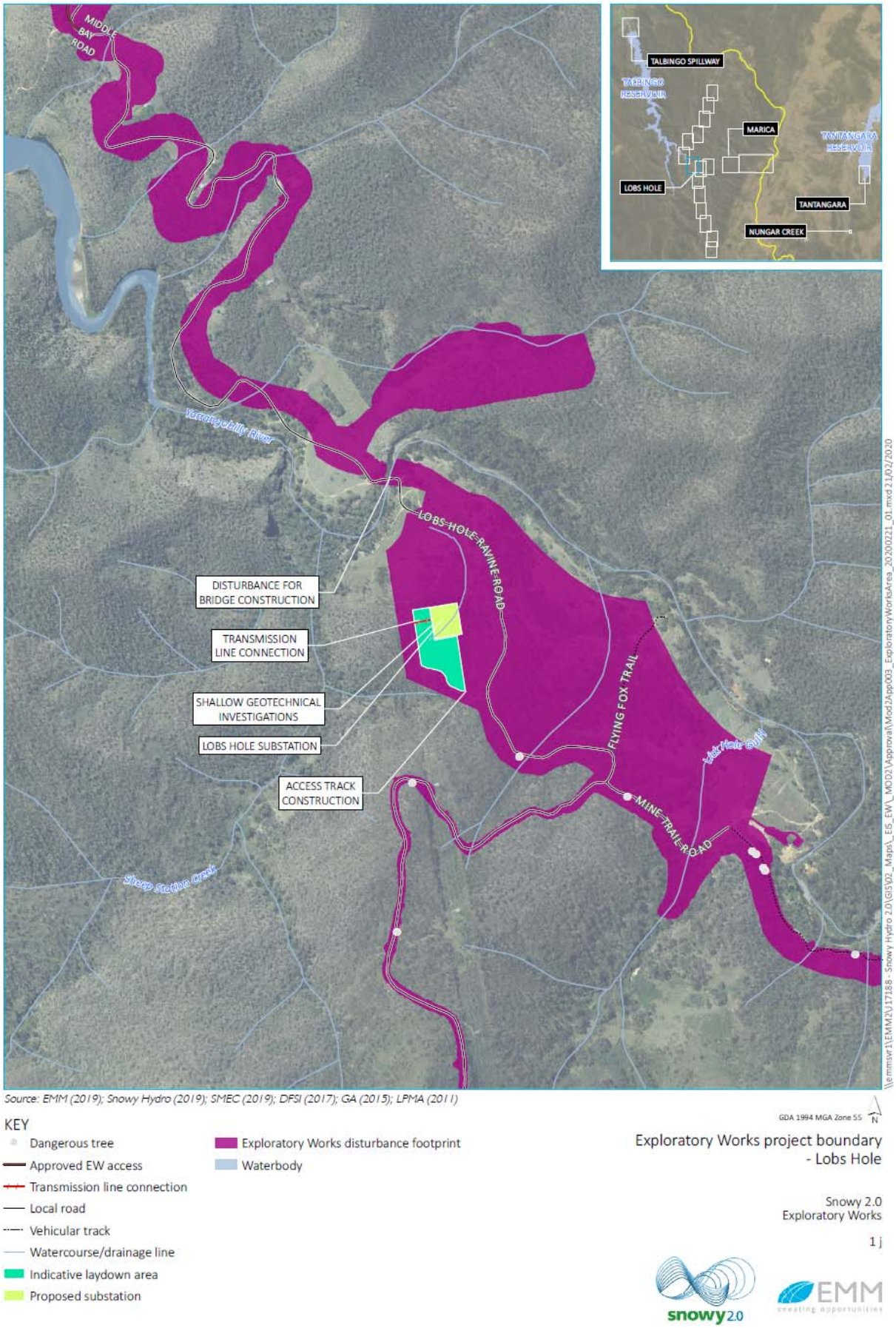


***Figure 2-11:*** *Project Boundary – Lobs Hole*

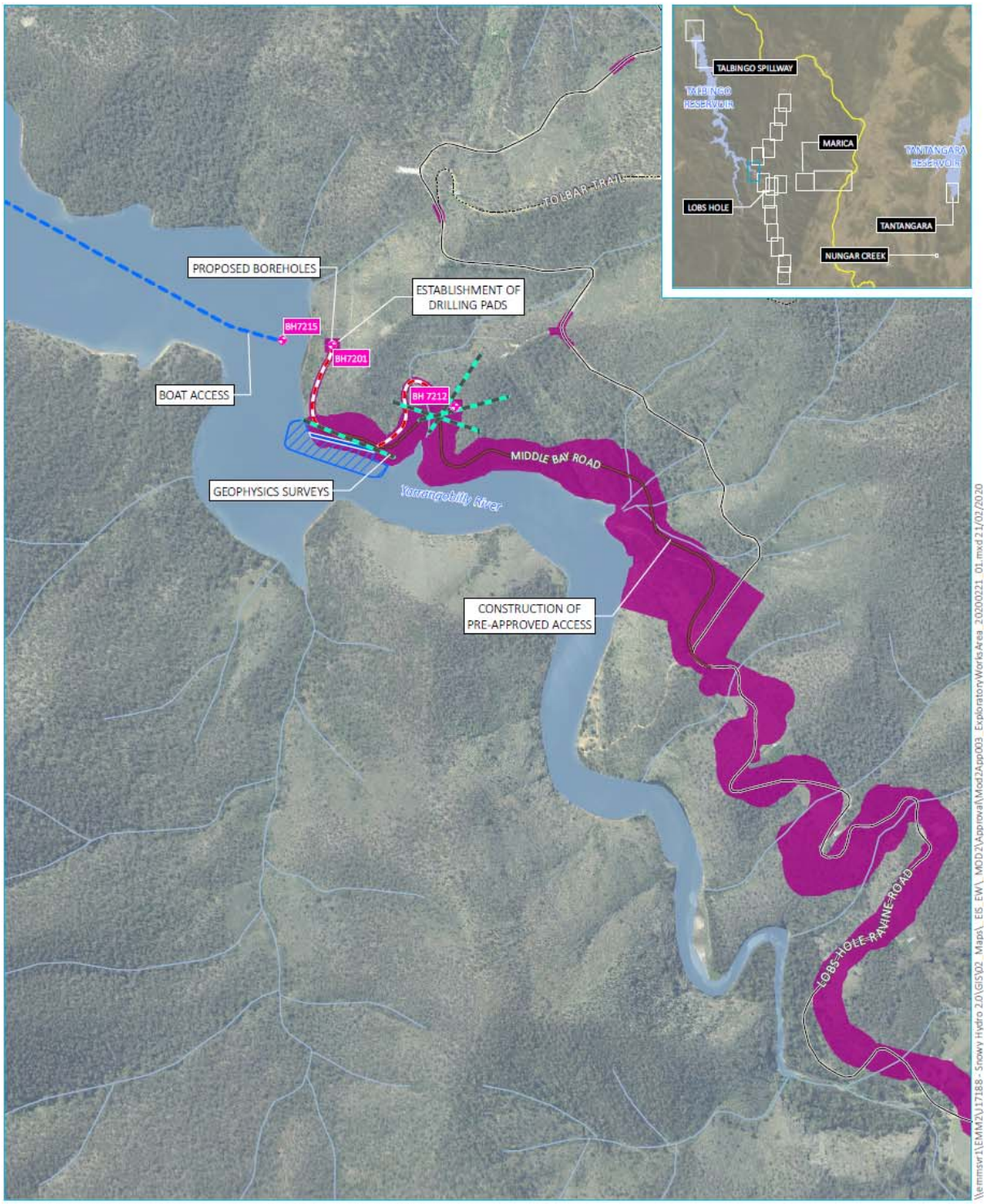


***Figure 2-12:*** *Project boundary – Lobs Hole Ravine Road*

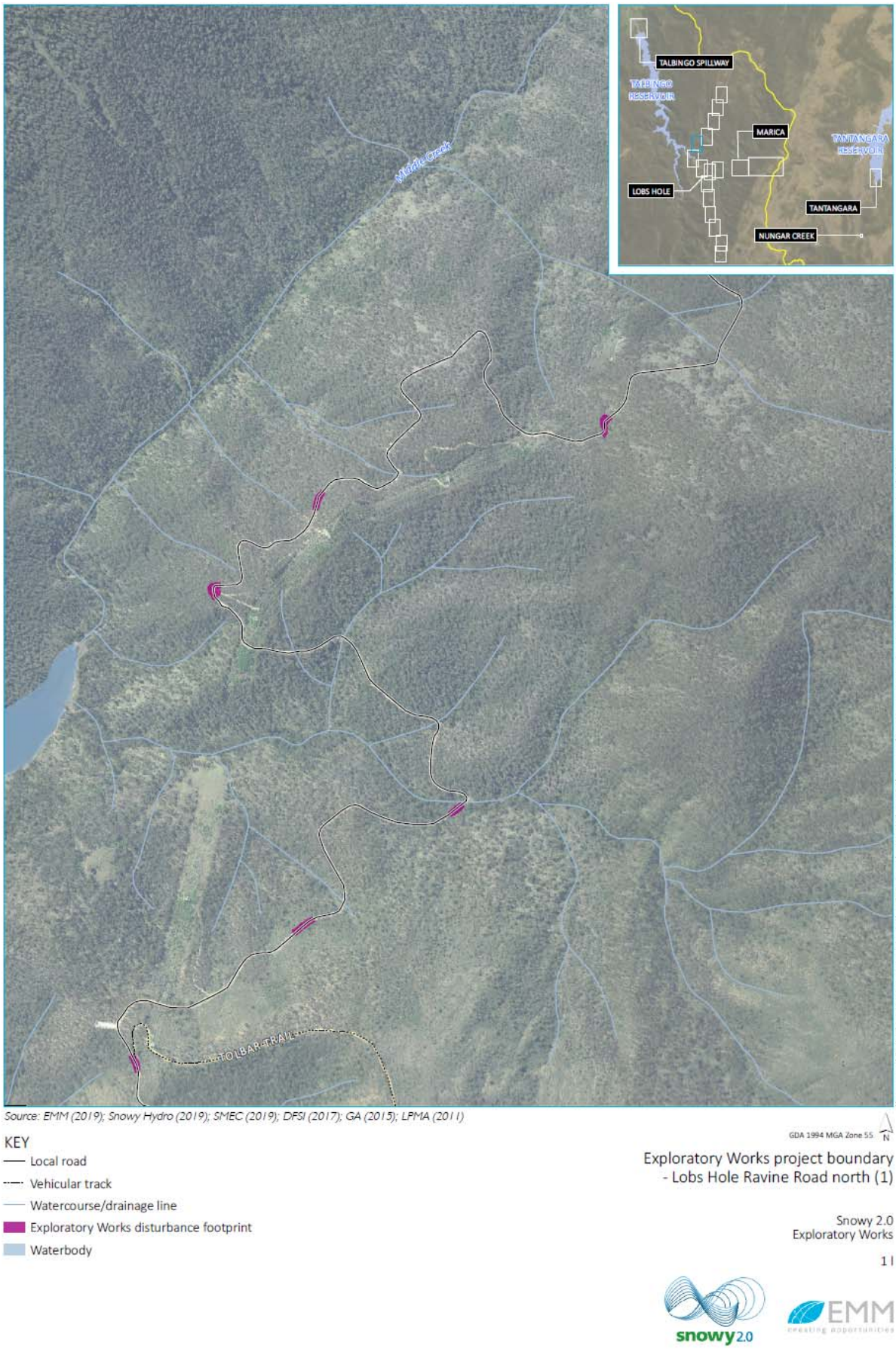


***Figure 2-13:*** *Project boundary – Lobs Hole Ravine Road north (1)*


***Figure 2-14:*** *Project boundary – Lobs Hole Ravine Road north (2)*


***Figure 2-15:*** *Project boundary – Lobs Hole Ravine Road north (3)*

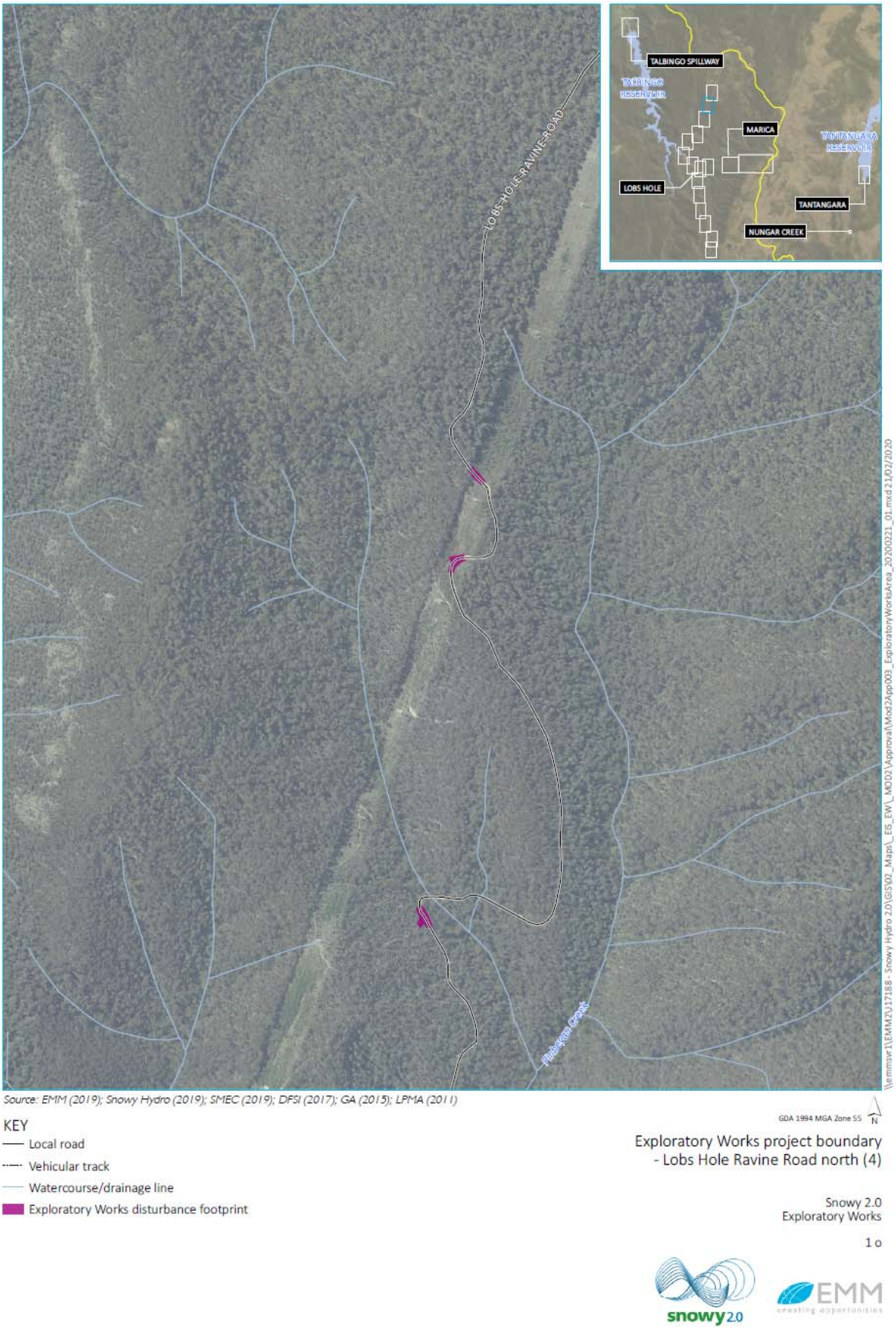


***Figure 2-16:*** *Project boundary – Lobs Hole Ravine Road north (4)*

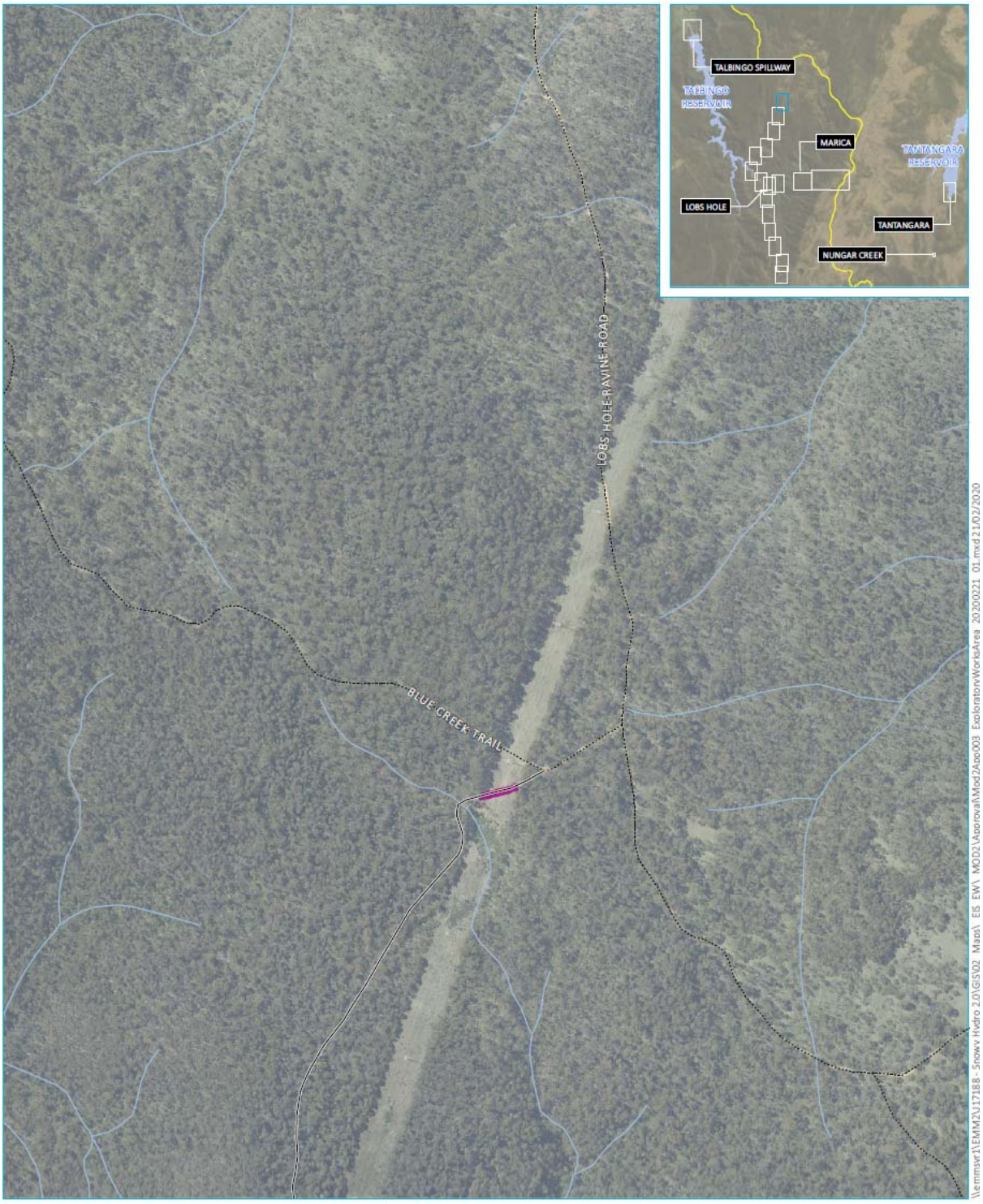


***Figure 2-17:*** *Project boundary – Lobs Hole Ravine Road north (5)*

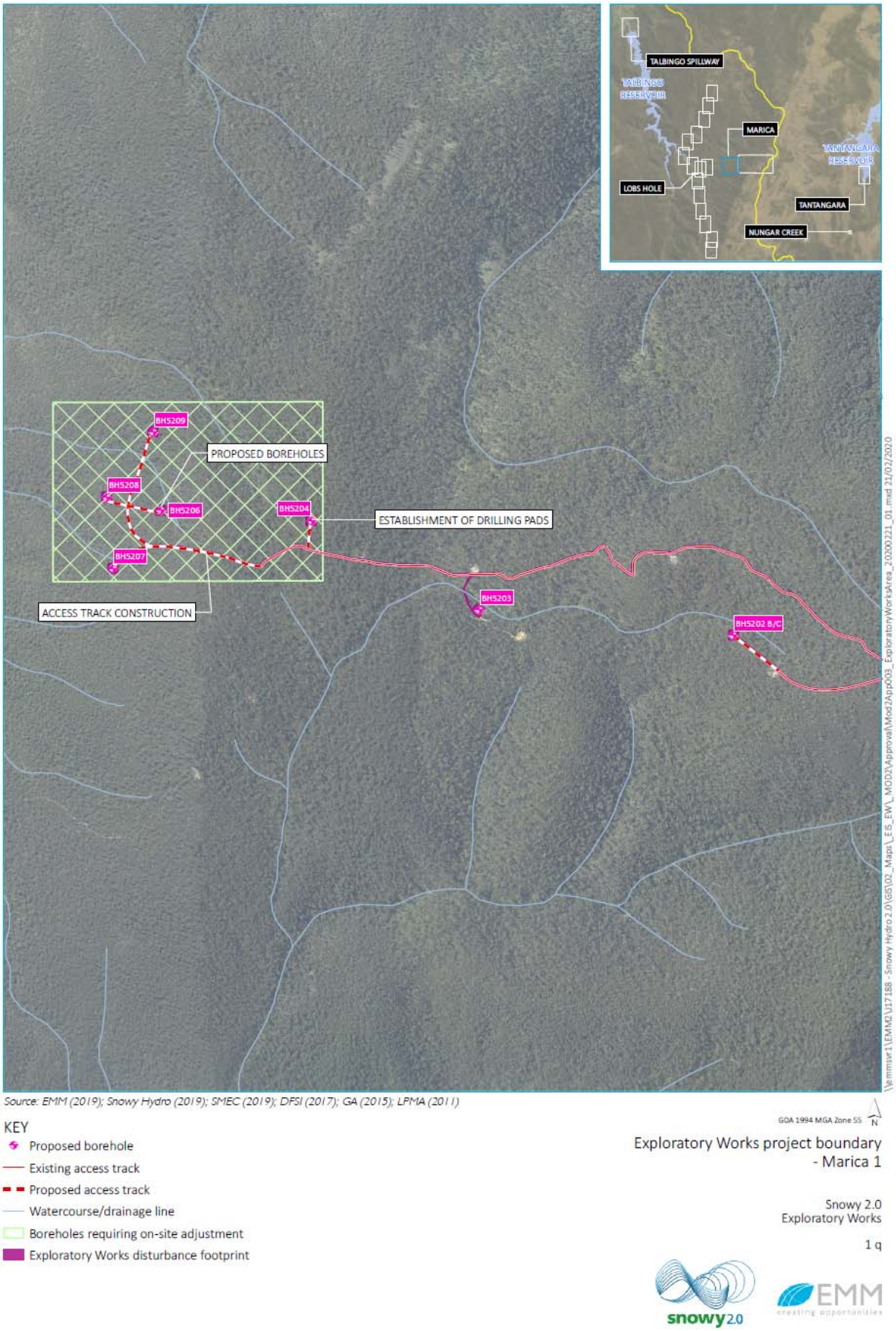


***Figure 2-18:*** *Project boundary – Marica 1*

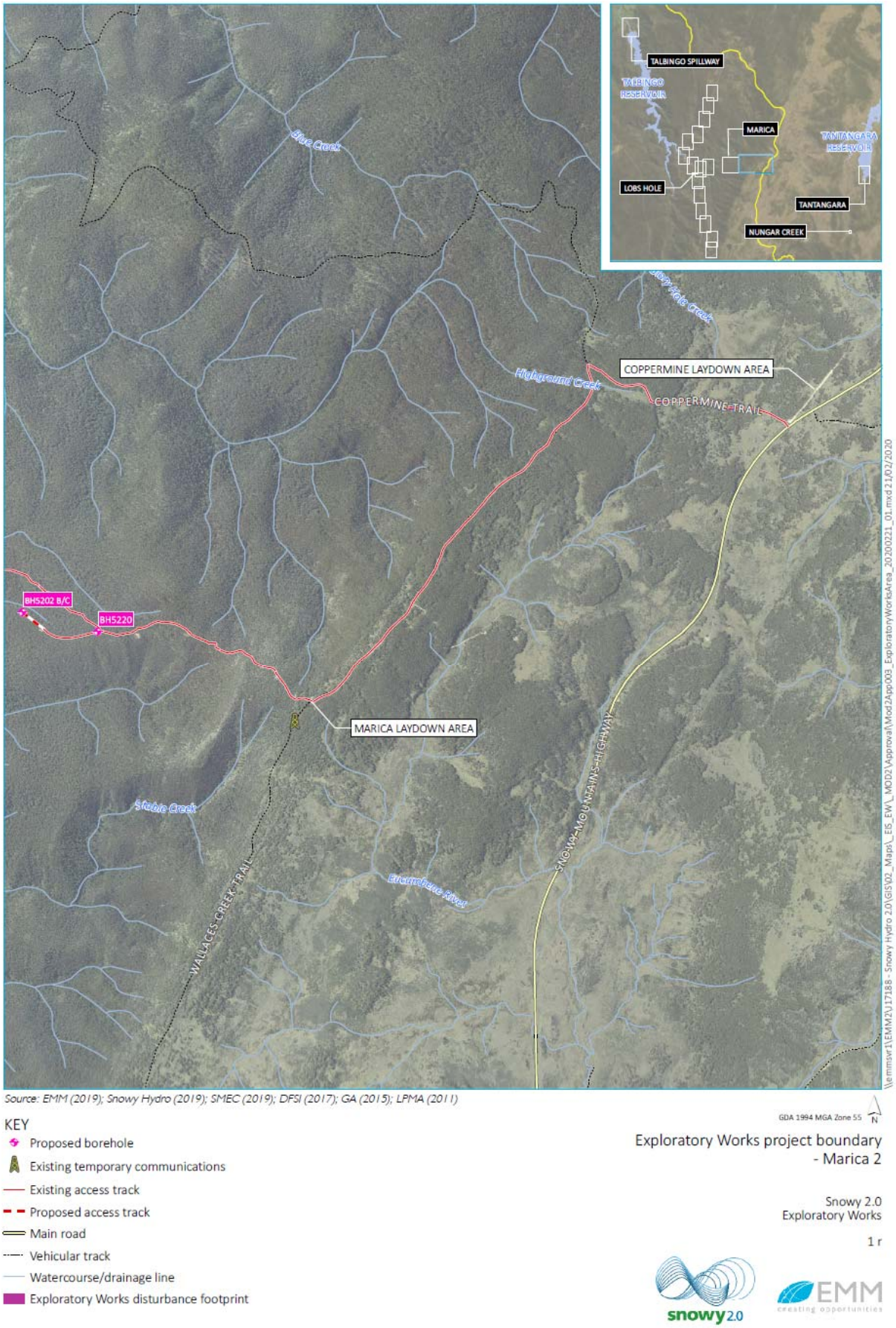


***Figure 2-19:*** *Project boundary – Marica 2*


***Figure 2-20:*** *Project boundary – Nungar Creek*

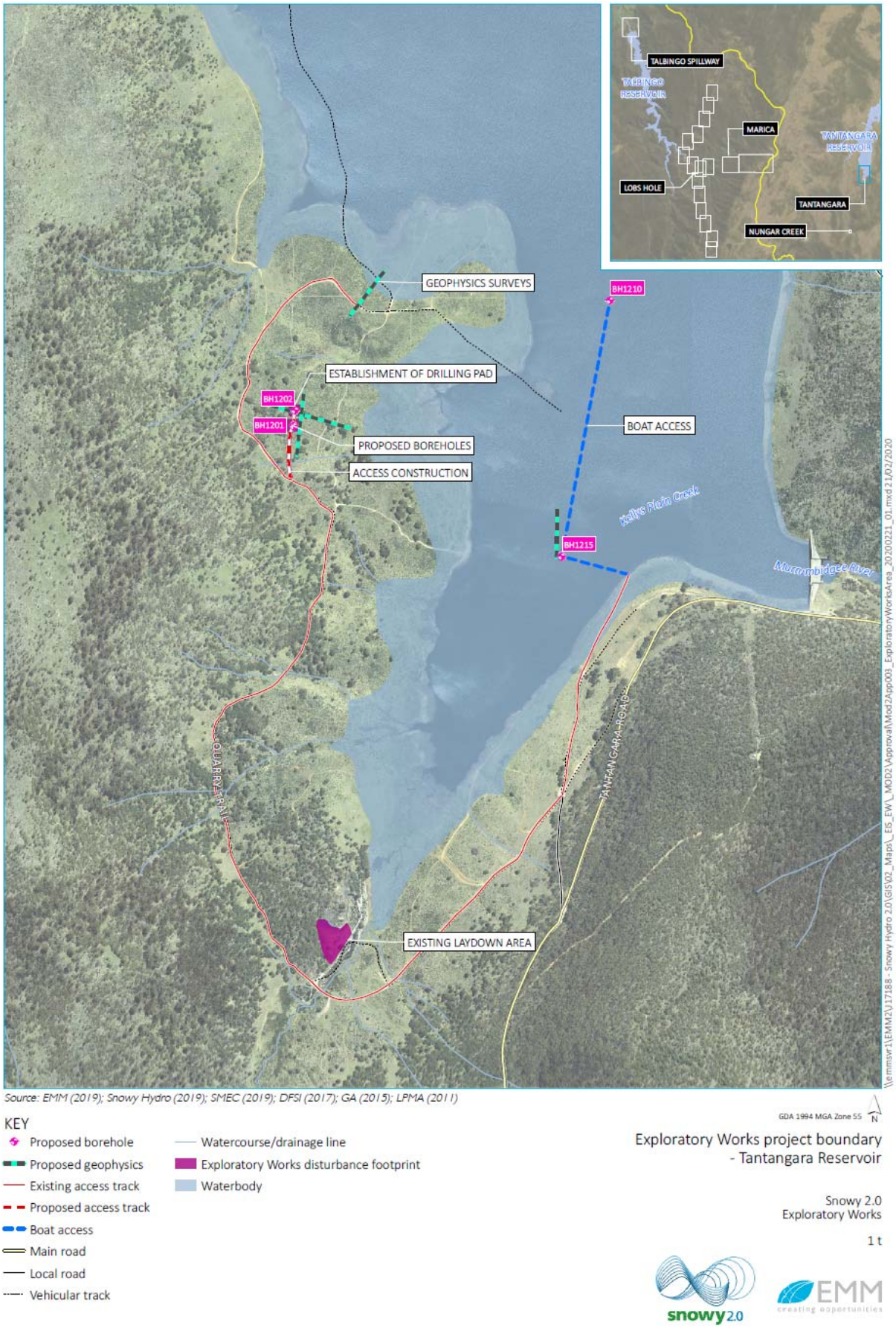


***Figure 2-21:*** *Project boundary – Tantangara Reservoir*

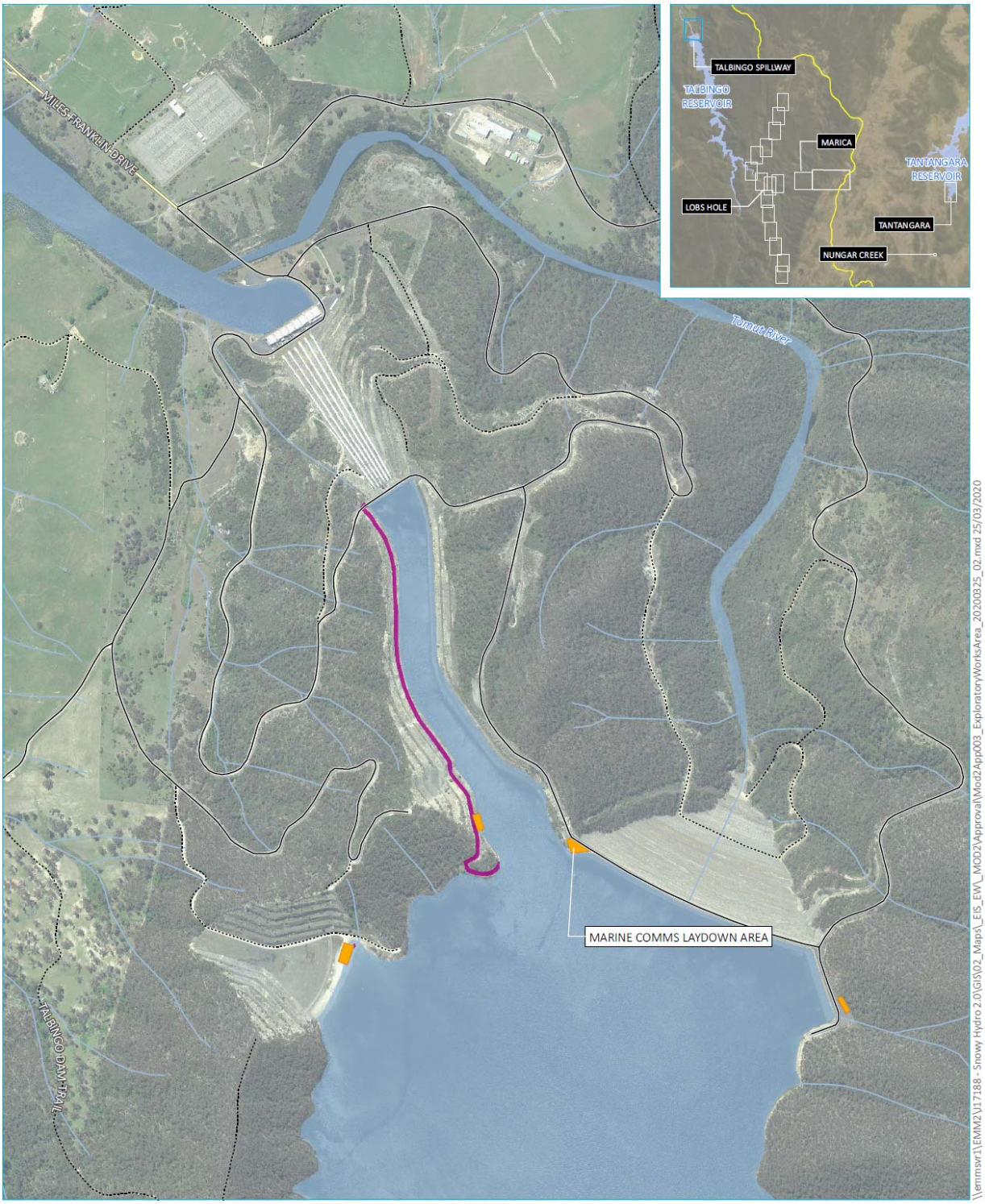


***Figure 2-22:*** *Project boundary – Talbingo spillway*


*2-24: Road Upgrades Sharp Street/Bombala Street and Sharp Street/Vale Street Roundabouts*