



# ***Snowy 2.0 Exploratory Works (Mod 2)***

*State Significant  
Infrastructure  
Modification Assessment  
(SSI 9208 MOD 2)*



March 2020

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Talbingo Reservoir – Snowy Hydro Limited

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# Glossary

Abbreviation	Definition
AHD	Australian Height Datum
Approval	Infrastructure Approval
BCA	Building Code of Australia
BCD	Biodiversity and Conservation Division
CIV	Capital Investment Value
Councils	Snowy Monaro Council and Snowy Valleys Council
Department	Department of Planning, Industry and Environment
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
LEP	Local Environmental Plan
Minister	Minister for Planning and Public Spaces
SEARs	Secretary's Environmental Assessment Requirements
Secretary	Secretary of the Department of Planning, Industry and Environment
SEPP	State Environmental Planning Policy
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SSI	State Significant Infrastructure
TfNSW	Transport for NSW, including the Roads and Maritime Services



# Executive Summary

## Background

Snowy Hydro Limited (Snowy Hydro) is proposing to expand the existing Snowy Hydro-electric Scheme and build a new underground power station in the Kosciuszko National Park (KNP) and generate up to 2,000 MW of electricity for the National Electricity Market (NEM).

The Snowy 2.0 Project is essential for the NSW economy, and all components of the project have been classified as Critical State Significant Infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) and require the approval for the Minister for Planning and Public Spaces before they may proceed.

One of these components is the carrying out of exploratory works to gain a better understanding of the geology of the Snowy 2.0 site and inform the design of the proposed power station.

On 7 February 2019, the then Minister for Planning approved the carrying out of these Exploratory Works subject to strict conditions.

The approval, which was modified on 2 December 2019, allows Snowy Hydro to carry out geotechnical investigations within KNP, including drilling a 3.1 kilometre exploratory tunnel to the proposed location of the new power station.

## Proposed Modification

Snowy Hydro has requested further modifications to the approved Exploratory Works to reflect changes in the proposed location of the new power station and expedite the completion of these works.

The proposed modifications include:

- reducing the scale of the exploratory works by moving them closer to the Lobs Hole construction site;
- using a Tunnel Boring Machine (TBM) to speed up the completion of the exploratory tunnel by up to 5.5 months;
- trucking all heavy materials and plant directly to the site by road and removing all the approved barge infrastructure at the Talbingo Spillway; and
- establishing an alternate emergency access/egress to the site via Lobs Hole Ravine Road – North.

## Statutory Context

The proposed modifications require the Ministers approval under Section 5.25 of the EP&A Act but can be determined by the Department under delegation.

## Engagement

During the assessment, the Department has consulted with the community and key government agencies. This engagement included exhibiting the Modification Report from 6 to 21 November 2019.

During the exhibition, the Department received 27 submissions on the proposed modifications, including 6 from government agencies, 2 from special interest groups and 19 from the general public.

Only 7 of these submissions objected to the project, however over 16 of the public submissions were strongly opposed to Snowy Hydro's proposal to remove its obligation under the Exploratory Works approval to provide an alternative recreational area at Talbingo.

The remaining objections, including the objection from the National Parks Association of NSW, were fundamentally opposed to the Snowy 2.0 Project, saying it is "the single largest and most destructive development

ever proposed in a NSW National Park”, and objected to the traffic, biodiversity and greenhouse gas emissions of the proposed modifications.

### Assessment & Evaluation

The Department has considered all issues raised in submissions and assessed the impacts of the proposed modifications in detail in accordance with all the relevant NSW legislation, policies and guidelines.

Based on this assessment, the Department has found that the proposed modifications offer several benefits, including that they would:

- reduce the scale of the Exploratory Works by moving the proposed location of the power station closer to Lobs Hole, shortening the exploratory tunnel and producing up to 65,000 m<sup>3</sup> less spoil;
- speed up the completion of the Exploratory Works by up to 5.5 months by using a TBM;
- reduce the traffic impacts on Talbingo and the Snowy Mountains Highway west of the Link Road;
- consolidate all traffic associated with the project on a single route which can safely accommodate the traffic and reduce the double handling of plant and materials;
- reduce the impacts of the project on the Talbingo Reservoir through the removal of the barge infrastructure adjacent to the Talbingo Spillway, significant reduction in dredging and the removal of the road upgrades to Spillway Road.

It has also found that subject to the imposition of suitable conditions, the proposed modifications can be carried out without causing any significant impacts on the KNP or surrounding areas.

The Department has prepared conditions for the proposed modifications prohibiting the disposal of TBM spoil to the Talbingo Reservoir and requiring Snowy Hydro to:

- pay the NPWS \$304,990 to offset the residual biodiversity impacts of the proposed modification;
- carry out minor upgrades to the approved road network, including two roundabouts in the Cooma town centre, as well as Lobs Hole Ravine Road – North to provide an emergency access/egress route to the site; and
- revise the existing management plans to include the implementation of additional measures to reduce the potential impacts of the Exploratory Works as a whole.

On balance, the Department has concluded that the proposed modification is in the public interest and should be approved subject to the recommended conditions.



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# 1. Introduction

## 1.1 Snowy 2.0 Project

Snowy Hydro Limited (Snowy Hydro) is proposing to expand the existing Snowy Hydro-electric Scheme and build a new underground power station in the Kosciuszko National Park (KNP).

The Snowy 2.0 Project (see **Figure 1**) involves connecting the Talbingo and Tantangara Reservoirs to a new power station via a series of underground tunnels and generating up to 2,000 megawatts (MW) of electricity for the National Electricity Market (NEM).

The project is essential for the NSW economy as it would provide a reliable supply of electricity to the NEM as it transitions away from a long-standing reliance on coal fired power stations towards renewables (wind and solar).

Consequently, all components of the Snowy 2.0 Project have been classified as Critical State Significant (CSSI) under the *Environmental Planning & Assessment Act 1979* (EP&A Act) and require the approval of the Minister for Planning and Public Spaces before they may proceed.



**Figure 1** | Snowy 2.0 Project



## 1.2 Exploratory Works

On 7 February 2019, the then Minister for Planning approved an application from Snowy Hydro to carry out Exploratory Works for the Snowy 2.0 Project to gain a better understanding of the geology of the site and inform the design of the proposed power station.

On 2 December 2019, this approval was modified to allow Snowy Hydro to carry out further geotechnical investigations and develop additional infrastructure on site to support these investigations, including a new electricity sub-station adjacent to an existing 330kV transmission line within the KNP.

The approved Exploratory Works are summarised in **Table 1** and shown in **Figures 2** and **3** below.

Essentially, the approval allows Snowy Hydro to:

- carry out geotechnical investigations on site, including:
  - a 3.1 kilometre exploratory tunnel to the proposed location of the power station, which is 850 metres below the surface;
  - drilling and testing underground at the proposed location of the power station;
  - installing boreholes at key locations across the site - including at the Talbingo Reservoir, Lobs Hole, Marica and Tantangara Reservoir – to inform the design of the power station’s ancillary infrastructure, including underground tunnels, tunnel inlets and surge tank;
- develop a range of infrastructure to support the carrying out of the Exploratory Works, including:
  - road upgrades;
  - barge ramps to allow the delivery of heavy equipment and materials to the site via Talbingo and to provide an escape route from the site during emergencies;
  - construction compounds at the exploratory tunnel portal and Lobs Hole;
  - workers accommodation camp; and
  - communications, electricity, water and sewer infrastructure.

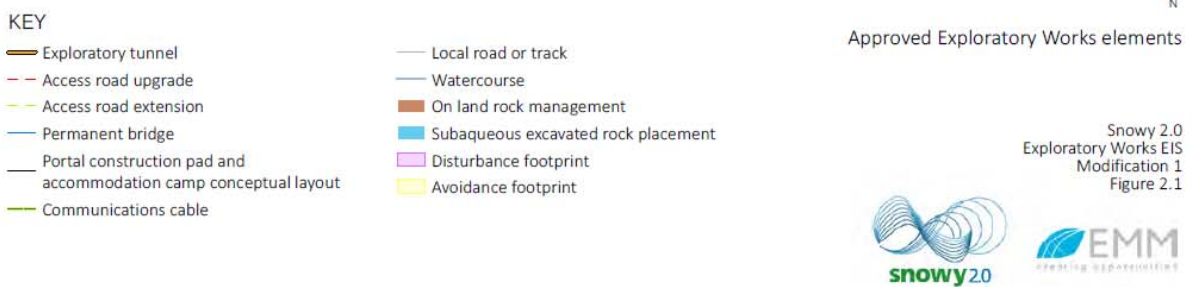
The approval also includes conditions requiring Snowy Hydro to:

- minimise the potential impacts of the Exploratory Works on the KNP;
- pay the National Parks and Wildlife Service (NPWS) \$13,150,696, which would go towards carrying out conservation works in the KNP to offset the biodiversity and recreational impacts of the Exploratory Works;
- reuse or dispose of all the spoil generated by the Exploratory Works, and remove any residual spoil from the KNP within 3 years of the completion of the Exploratory Works;
- provide a new recreational area at the northern end of the Talbingo Reservoir to replace the existing recreation area at the Talbingo Spillway, which would be shut due to the construction of the barge infrastructure for the Exploratory Works;
- comply with strict standards and performance measures;
- monitor and regularly report on its environmental performance during the Exploratory Works;
- commission and pay the full cost of regular independent environmental audits of the Exploratory Works; and
- completely rehabilitate the site to the satisfaction of the NPWS within 5 years of completing the Exploratory Works.

Snowy Hydro is now seeking approval for further modifications to the Exploratory Works approval.

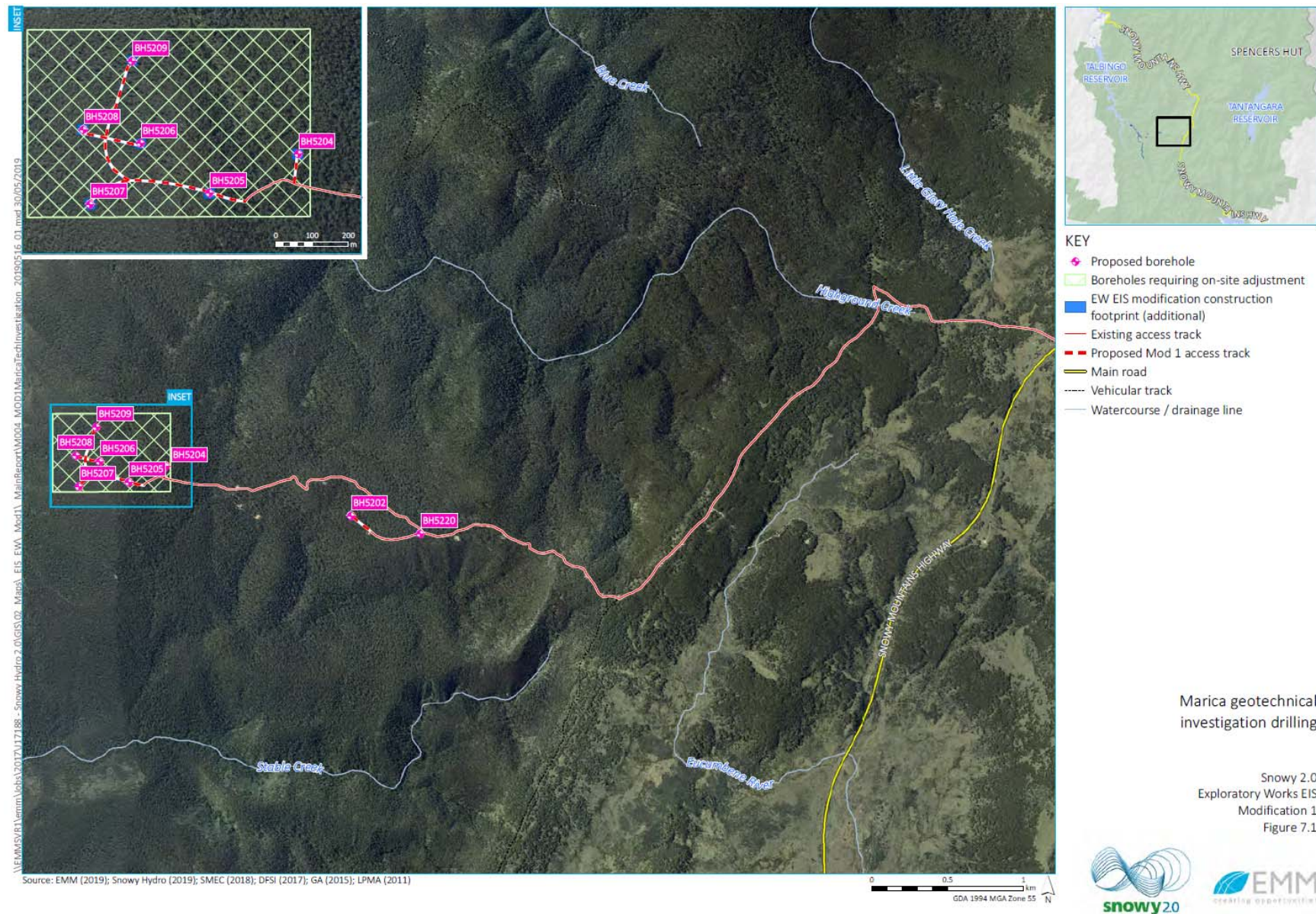
**Table 1** | Main components of the Exploratory Works

Aspect	Description
<b>Project Summary</b>	<ul style="list-style-type: none"> <li>• Exploratory tunnel (3.1 km) to the proposed location of the power station</li> <li>• Construction portal to the exploratory tunnel, including concrete batching plant, site offices, maintenance workshops, equipment storage areas, fuel storage facility, magazine (explosives), laydown and temporary stockpiling areas</li> <li>• Geotechnical investigations, including boreholes at Talbingo, Lobs Hole, Marica &amp; Tantangara</li> <li>• Construction compound at Lobs Hole, including an accommodation camp (152 people) and wastewater treatment plant</li> <li>• Road upgrades, new access roads and two watercourse crossings</li> <li>• Barge access infrastructure in Talbingo Reservoir at the Talbingo Spillway and Middle Bay</li> <li>• New recreational area adjacent to the Talbingo boat ramp to replace the existing recreational area at the Talbingo Spillway</li> <li>• Storage, handling and disposal of up to 750,000 m<sup>3</sup> of spoil material, including a trial to place up to 50,000 m<sup>3</sup> of spoil material in Talbingo Reservoir</li> <li>• Power, communications and water supply services for the exploratory works, including a new substation</li> </ul>
<b>Road works</b>	<ul style="list-style-type: none"> <li>• Lobs Hole Ravine Road &amp; Lobs Hole Road – 13.5 km upgrade and replace Camp Bridge</li> <li>• Mine Trail Road – 2.2 km upgrade</li> <li>• Spillway Road – 3 km upgrade to proposed Talbingo barge ramp;</li> <li>• Temporary construction road - Wallaces Creek and exploratory tunnel portal</li> <li>• Mine Trail Road extension – new road and new bridge at Wallace Creek</li> <li>• Middle Bay Road – new road</li> <li>• Wallaces Creek Bridge on Mine Trail Road – new bridge</li> <li>• Access tracks to borehole sites and other construction facilities</li> </ul>
<b>Navigation Channel</b>	<ul style="list-style-type: none"> <li>• Dredging in Talbingo Reservoir for the new barge infrastructure</li> </ul>
<b>Heavy vehicle transport</b>	<ul style="list-style-type: none"> <li>• Up to 24 barge movements a day between the Talbingo Spillway and Middle Bay</li> <li>• Up to 150 heavy vehicle movements a day on the Snowy Mountains Highway, Link Road and Lobs Hole Ravine route</li> </ul>
<b>Public access closures</b>	<ul style="list-style-type: none"> <li>• Lobs Hole Ravine Road from Link Road to the Blue Creek Road intersection</li> <li>• Talbingo Spillway and recreational area</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>• Approximately 34 months;</li> <li>• Exploratory tunnel (approximately 26 months) – 24 hours per day, 7 days per week</li> <li>• Roads and infrastructure – 12 hours per day, 5 days per week</li> <li>• Accommodation camp – 16 hours per day, 7 days per week</li> </ul>
<b>Employment</b>	<ul style="list-style-type: none"> <li>• Approximately 200 during peak periods</li> </ul>
<b>Capital Cost</b>	<ul style="list-style-type: none"> <li>• \$325 million</li> </ul>



**Figure 2 | Exploratory Works project**





**Figure 3** | Exploratory Works project



## 2. Proposed Modification

On 28 October 2019, Snowy Hydro requested further modifications to the Snowy 2.0 Exploratory Works approval under Section 5.25 of the EP&A Act.

### 2.1 Key Components of Proposed Modification

The proposed modifications are summarised below, shown in **Figures 4 to 8**, and explained in detail in the associated Modification Report (see **Appendix B**) and Submissions Report (see **Appendix D**).

#### Exploratory Works

Snowy Hydro is seeking to revise the location of some of the approved Exploratory Works, including:

- moving the proposed location of the power station closer to Lobs Hole, shortening the exploratory tunnel from 3.1 to 2.5 kilometres, and reducing the amount of spoil that would be extracted from the tunnel by approximately 65,000 m<sup>3</sup> (see **Figure 4**); and
- relocating one of the boreholes (BH5205) at Marica to an old drilling pad (see BH5203 in **Figure 5**) to obtain geological information above the revised location of the power station.

#### Tunnel Boring Machine

Snowy Hydro is proposing to use a Tunnel Boring Machine (TBM), instead of drill and blast techniques, to speed up the completion of the exploratory tunnel by up to 5.5 months and expedite the completion of the geotechnical investigations.

The introduction of the TBM requires:

- minor upgrades to two roundabouts in the Cooma town centre (see **Figure 6**) and along Lobs Hole Ravine Road (see **Figure 7**), including up to 0.4 hectares of tree trimming adjacent to the road, to accommodate the delivery of the TBM to the site;
- the construction of a TBM launching pad within the approved disturbance area at the construction portal adjacent to the exploratory tunnel;
- the use of diesel generators to provide power to the TBM for 2-3 months while the new electricity substation is being built at Lobs Hole;
- concrete segments to be imported to the site to line the exploratory tunnel; and
- an additional 100 workers on site.

#### Barge Infrastructure

Snowy Hydro is now proposing to bring all heavy materials and plant to the site via Lobs Hole Ravine Road instead of via the approved barge infrastructure at the Talbingo Reservoir.

This means the approved Talbingo Spillway barge infrastructure including the associated upgrades to sections of Spillway Road and the dredging to create a suitable navigation channel for the use of the barges is no longer required, and can be deleted from the approved Exploratory Works.

It also means the recreational area at the Talbingo Spillway does not need to be closed anymore for the barge infrastructure works. Consequently, Snowy Hydro is seeking to delete the condition in the Exploratory Works approval requiring it to establish an alternate recreational area adjacent to Talbingo boat ramp.

In lieu of the Talbingo Spillway barge infrastructure, Snowy is proposing to use the existing Talbingo boat ramp to launch any vessels required for the Exploratory Works. At this stage, this includes vessels to lay the communications cable between Lobs Hole and the Tumut 3 power station, and to build the new barge ramp at Middle Bay. The use of these vessels would require the temporary closure of the boat ramp for short periods during the Exploratory Works.

Following detailed design, Snowy Hydro is seeking approval for revisions to the design of the Middle Bay barge ramp. These revisions involve moving the barge ramp further to the west within the approved disturbance footprint for the Exploratory Works, and running it parallel to the shoreline instead of into the Talbingo Reservoir (see **Figure 8**). The revised design substantially reduces the area of dredging required to create a suitable navigation channel around the barge ramp from 2.9 ha to 0.85 ha.

#### **Lobs Hole Ravine Road - North**

With the removal of the Talbingo barge infrastructure from the Exploratory Works, there would be no suitable emergency access/egress into the site.

Consequently, Snowy Hydro is proposing to undertake some minor upgrades to Lobs Hole Ravine Road – North between the site and its intersection with the Snowy Mountains Highway (see **Figure 7**), and to use it as an emergency access/egress route.

To avoid potential collisions between light and heavy vehicles on Lobs Hole Ravine Road – South, Snowy Hydro is also seeking to use the road for limited light vehicle traffic, with 66 vehicle movements a day (33 each way) on average and up to 132 vehicle movements (66 each way) during peaks.

#### **Workers Accommodation**

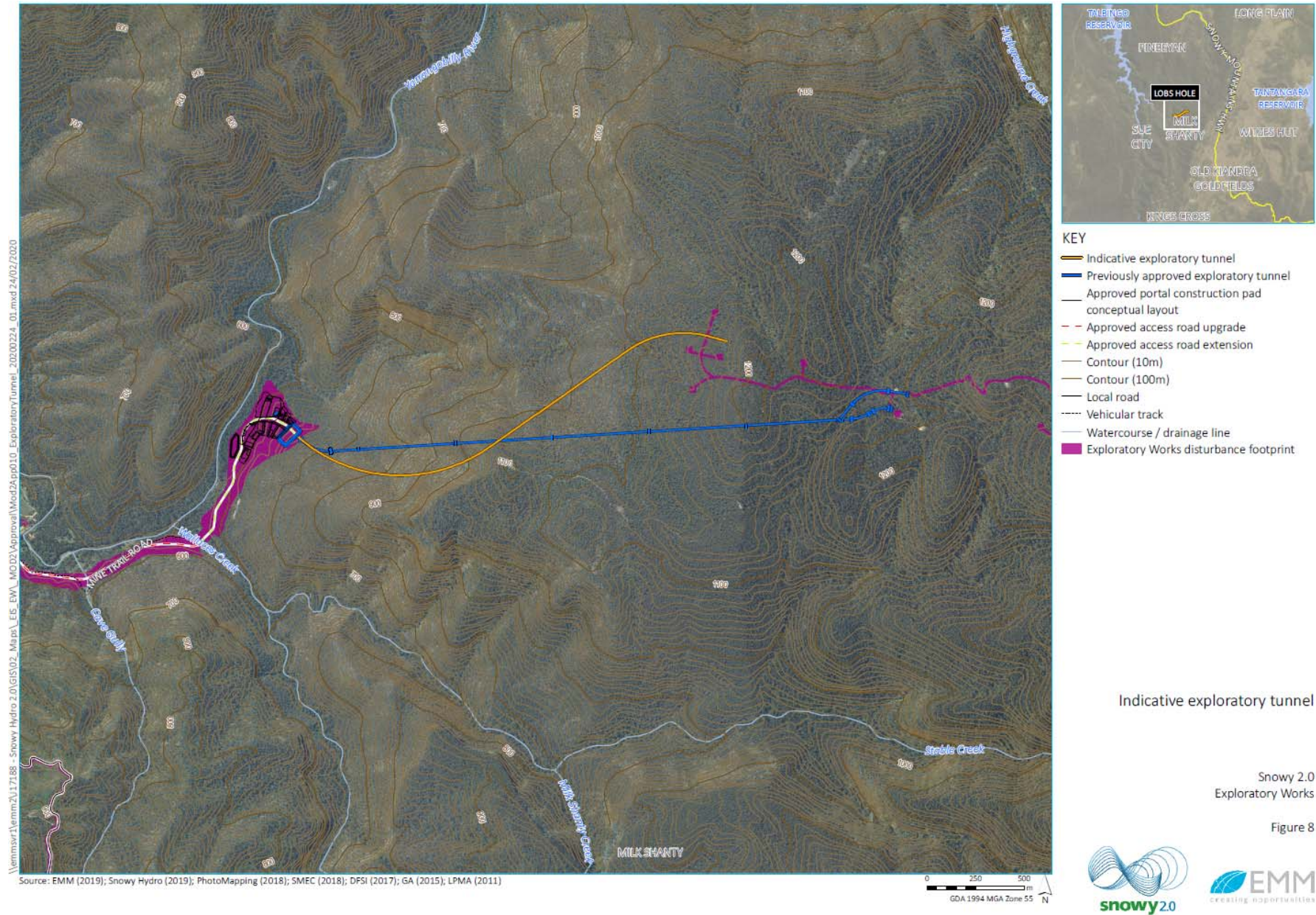
To accommodate the additional workers on site, Snowy Hydro is seeking to increase the capacity of the approved workers accommodation facility from 152 to 250 people.

This would be achieved by adding an additional storey to the existing modular units in the facility and upgrading the associated infrastructure of the facility all within the approved disturbance footprint.

#### **Vegetation Clearing Protocol**

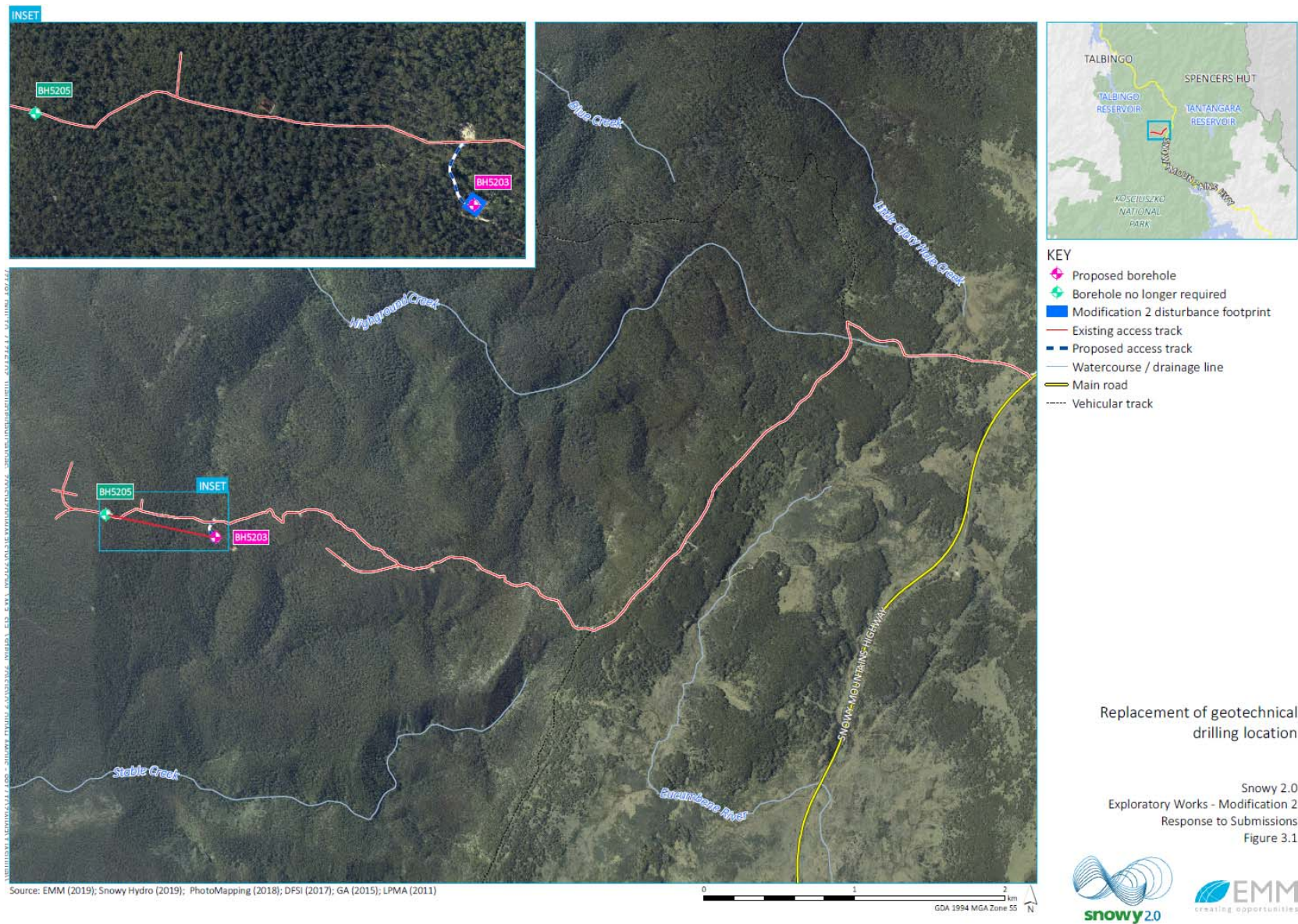
Finally, Snowy Hydro is proposing to include a Vegetation Clearing Protocol in the Exploratory Works approval. This protocol would allow dangerous trees and other vegetation to be removed in the vicinity of any works to create a safe working environment, subject to the provision of additional biodiversity offsets if necessary.





**Figure 4** | Revised exploratory tunnel alignment





**Figure 5** | Marica borehole relocation





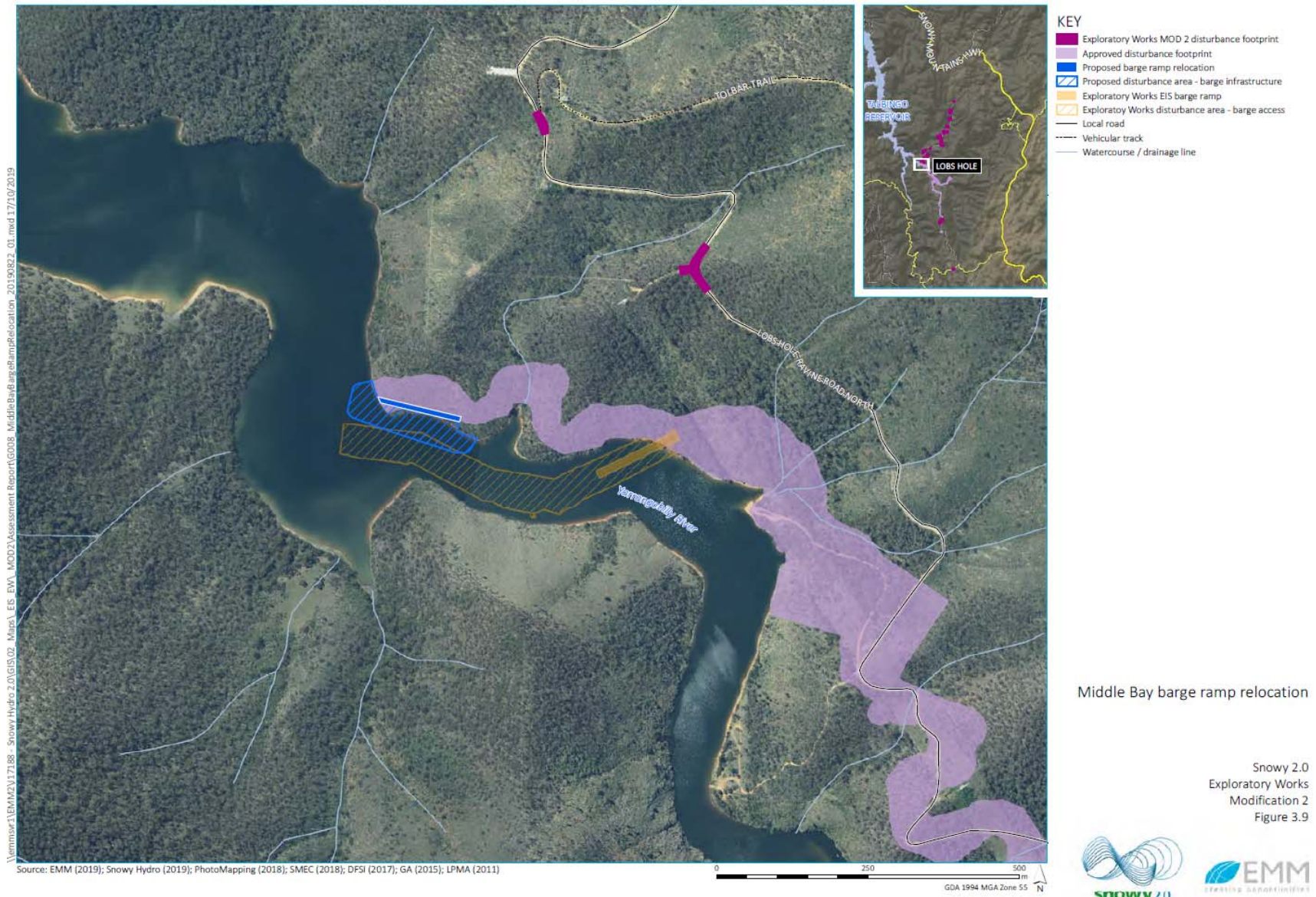
**Figure 6** | Sharp Street roundabout upgrades in Cooma





Snowy 2.0 Exploratory Works (Mod 2) | Modification Assessment Report





**Figure 8** | Middle Bay barge ramp relocation

## 2.2 Related Development

Snowy Hydro is currently seeking approval from the Minister for Planning & Public Spaces for two more applications associated with the Snowy 2.0 Project, both of which are related to the Exploratory Works approval.

### Segment Factory

Snowy Hydro is proposing to develop a Segment Factory and associated infrastructure in the Polo Flat industrial area in Cooma. This factory would operate for 3-4 years and produce the concrete segments required to line the underground tunnels at the Snowy 2.0 Project.

The application for the Segment Factory was exhibited from 10 October to 6 November 2019 and is currently under assessment.

If it is approved, Snowy Hydro would use the concrete segments produced at the Segment Factory to line the exploratory tunnel that forms part of the Exploratory Works.

The concrete segments would be transported to the site via the Snowy Mountains Highway, Link Road and Lobs Hole Ravine Road; and the traffic associated transporting these segments is already accounted for in the approved heavy vehicle movements for the Exploratory Works.

### Main Works

Snowy Hydro is proposing to develop the main components of the Snowy 2.0 Project, including the new power station and associated infrastructure.

The application for the Main Works was exhibited from 26 September to 6 November 2019 and is currently under assessment.

If it is approved, then all aspects of the Exploratory Works approval are likely to be incorporated into the Main Works approval, including the final rehabilitation of the site to the satisfaction of the NPWS.





## 3. Statutory Context

### 3.1 Modification Request under *Environmental Planning and Assessment Act 1979*

Snowy Hydro has made a request to the Minister under Section 5.25 of the EP&A Act to modify the Snowy 2.0 Exploratory Works approval.

Following a detailed review of the request, the Department is satisfied the proposed modifications are inconsistent with the existing approval and require the Minister's approval under Section 5.25(4) of the EP&A Act.

It is also satisfied that the request can be characterised as a modification of the existing Exploratory Works approval given it involves:

- minor changes to the layout of the approved Exploratory Works to reflect the revised location of the proposed power station;
- a change to the method of extracting spoil from the approved exploratory tunnel;
- reductions in the amount of spoil extraction and dredging;
- changes to the approved barge infrastructure, including the removal of most of the Talbingo Spillway barge infrastructure; and
- reductions in the traffic impacts on Talbingo.

### 3.2 Approval Under Delegation

Under the Minister's delegation of 11 October 2017, the modification request can be determined by the Executive Director, Special Projects as there were less than 25 public objections to the request during the exhibition period.

### 3.3 Application of the *Biodiversity Conservation Act 2016*

The *Biodiversity Conservation Act 2016* applies to the modification request.

In particular, under Section 7.17 of the Act:

- the Modification Report supporting the request must be accompanied by an updated biodiversity development assessment report (BDAR); and
- the Minister (or his delegate) must consider the likely impact of the development as modified on biodiversity values as assessed under the BDAR.

During the assessment of the request, Snowy Hydro provided a detailed update of the existing BDAR (see **Appendix C**), which concluded that the proposed modification would result in minor increases in the biodiversity impacts of the Exploratory Works and would not significantly affect the biodiversity values of any threatened species or ecological communities.

The recommended conditions to the proposed modification require Snowy Hydro to pay the NPWS an additional \$304,990 in lieu of the 54 ecosystem credits and 30 species credits required.

These funds would be used by the NPWS to enhance the KNP and offset any residual biodiversity impacts of the proposed modifications.

### 3.4 Variation to *National Park and Wildlife Act 1974* lease

Snowy Hydro has been granted a lease under the *National Park and Wildlife Act 1974* for the Exploratory Works within the KNP.

The proposed modifications would require a variation to this lease, principally to include the upgrade and use of Lobs Hole Ravine Road – North.

The NPWS has advised the Department that it has no objection to granting this variation.

### 3.5 Environment Protection Licence

Snowy Hydro has been granted an environment protection licence for the Exploratory Works by the Environment Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997*.

After reviewing the modification request, the EPA has advised the Department that the impacts of the proposed modification can be regulated under the conditions of the existing EPL.

### 3.6 Roads Act 1993 Approvals

The proposed modifications include upgrades to two intersections in the Cooma town centre to accommodate the delivery of the TBM to the site (see **Figure 6**).

These upgrades would occur on Sharp Street, which forms part of the State road network connecting the Monaro Highway with the Snowy Mountains Highway, and require the approval of Transport for NSW (TfNSW) under Section 138 of the *Roads Act 1993*.

They would also affect the operation of Bombala Street and Vale Street, which form part of the local road network controlled by Snowy Monaro Regional Council (SMRC).

Both TfNSW and SMRC have advised the Department that they support the proposed upgrades subject to conditions requiring Snowy Hydro to prepare detailed designs for the proposed upgrades for their approval, and to implement the proposed designs prior to delivering the TBM or any concrete segments to the site.

The Department has incorporated these conditions into the recommended conditions of approval.

### 3.7 Administrative and Procedural Requirements

Under Section 5.25 of the EP&A Act and Part 10 and Part 15 of the EP&A Regulation, there are several administrative and procedural requirements that must be satisfied before the modification request is determined.

These requirements include:

- lodging the modification request with the Department and notifying the relevant landowners;
- ensuring Snowy Hydro complies with the environmental assessment requirements that were issued for the modification request;
- paying the relevant fees; and
- making all the information associated with the modification request publicly available on the Department's website.

The Department has conducted a detailed review of the steps taken so far in the assessment of the modification request, and is satisfied that all relevant administrative and procedural requests have been met, and that the Minister (or his delegate) may now determine the application.

### 3.8 Matters for Consideration

When deciding whether or not to modify the approval under Section 5.25(4) of the Act, the Minister (or his delegate) is required to consider the report, advice and recommendations contained in this report, which includes the:

- Modification Report and updated BDAR;
- public submissions and Snowy Hydro's response to the issues raised in Submissions Report;
- advice provided by public authorities on the modification request;
- Department's whole-of-government assessment of the merits of the modification request; and
- recommended conditions of approval.



## 4. Engagement

### 4.1 Department's Engagement

During the assessment of the modification request, the Department has consulted with the community and key government agencies, including Snowy Monaro Regional Council. This engagement has included:

- making all the information on the modification request publicly available on the Department's website;
- exhibiting the Modification Report from 6 to 21 November 2019;
- publishing copies of all submissions online;
- requiring Snowy Hydro to provide a formal response to submissions;
- inspecting the site; and
- working closely with government agencies on the assessment of key issues.

### 4.2 Analysis of Submissions

#### Summary

During exhibition, the Department received 27 submissions on the modification request, including 6 from government agencies, 2 from special interest groups and 19 from the general public (see **Table 2**).

Only 7 of these submissions, including the submission from the National Parks Association, objected to the proposed modifications.

The remaining submissions either supported the modification or identified matters for further consideration.

**Table 2 |** Summary of government advice and public submissions

Submitters	Object	Support	Comments	Total
<b>Government Agencies</b>				
National Parks and Wildlife Service/Biodiversity Conservation Division				
Environment Protection Authority				
DPI Fisheries			6	6
Heritage Council NSW				
Transport for NSW				
Snowy Monaro Regional Council				
<b>Special Interest Groups</b>				
National Parks Association of NSW	1			2
Inland Rivers Network	1			
<b>Community</b>				
<100 km from site	1	2	1	
> 100 km from site	4	4	4	19
Outside NSW		2	1	
<b>Total</b>	<b>7</b>	<b>8</b>	<b>12</b>	<b>27</b>

Four of the 19 submissions from the general public were from residents of Talbingo; three were from outside NSW (ACT and Victoria); and the remaining submissions were from across the rest of NSW with a collection of these submissions coming from the region around Wagga Wagga.

### 4.3 Key Issues – Government Agencies

The government agencies raised three key issues:

#### Changes to composition of spoil

The use of the TBM to complete the exploratory tunnel would change the nature of the spoil extracted from the tunnel, reducing the particle size of the spoil from 20 mm – 1,000 mm to <75 mm.

Several agencies - including the EPA, NPWS and DPI Fisheries - were concerned about the limited assessment in the Modification Report of the implications of this change, particularly in relation to its suitability for disposal in Talbingo Reservoir.

Based on preliminary expert advice, the agencies had significant doubts about whether the TBM spoil would be suitable for disposal in the Talbingo Reservoir, given the tidal nature of the waterbody, and thought it could result in significant water quality impacts which would have adverse impacts on aquatic species and their habitat and the recreational use of the reservoir.

Consequently, the agencies were unwilling to support the disposal of TBM spoil in the Talbingo Reservoir unless Snowy Hydro could demonstrate that this could be carried out in accordance with the relevant Australian and New Zealand Guidelines (ANZG).

#### Biodiversity

Although the NPWS acknowledges Snowy Hydro's efforts to avoid and minimise the biodiversity impacts of the proposed modifications, it sought additional information on a range of biodiversity matters, including:

- further detail on the proposed trimming of trees along Lobs Hole Ravine Road to accommodate the delivery of the TBM;
- an assessment of the likely cumulative impacts of the Exploratory Works on the Smoky Mouse, particularly following the recent bushfires which burnt large parts of the Exploratory Works site;
- clarification on the measures that would be implemented to minimise any impacts of the Exploratory Works on the Regent Honeyeater, which was recently found on site; and
- an updated BDAR for the Exploratory Works, which included data from the recent surveys along Lobs Hole Ravine Road – North and revised biodiversity offset calculations.

#### Traffic

TfNSW sought additional assessment of the likely traffic impacts of the proposed modifications on the State road network, due to the shift away from using barges to transport heavy materials and plant to the site; and the use of a TBM, which would require concrete segments to be imported to the site and another 100 workers to be brought to the site.

Given the likely increases in heavy vehicle traffic associated with the Exploratory Works, TfNSW also asked for more information on what measures Snowy Hydro is proposing to implement to salvage any heavy vehicles along the heavy vehicle route, particularly during winter when accident rates tend to increase along the Snowy Mountains Highway.

Finally, both TfNSW and SMRC sought additional details on the design of the proposed upgrade of the two roundabouts in Cooma (see **Figure 6**) to demonstrate that they can comply with the requirements in the *Austrroads Guide to Road Design*.

#### 4.4 Key Issues – Community and Interest Groups

The community also raised three key issues, however only two of these relate to the proposed modifications; the other relates to the broader Snowy 2.0 project.

##### Talbingo Recreational Area

16 of the 19 submissions from the community were strongly opposed to any removal of the existing obligation in the Exploratory Works approval requiring Snowy Hydro to establish a new recreational area at the northern end of the Talbingo Reservoir to compensate for the closure of the existing recreational area at the Talbingo Spillway for the barge infrastructure works associated with the Exploratory Works.

They highlighted the importance of the recreational area to both the local and regional community and indicated that there would be significant economic and social impacts on this community if Snowy Hydro was allowed to close the recreational area without providing a suitable replacement.

##### Other Issues

The National Parks Association of NSW (NPA) objected to the traffic impacts of the proposed modifications, saying Snowy Hydro had failed to justify the shift away from maximising the use of barges to transport heavy equipment and materials into the KNP by road. They also argued that the shift would significantly increase the number of heavy vehicles travelling through the KNP, require damaging road upgrades and increase the safety risks of the Exploratory Works.

The NPA also objected to the use of diesel generators to provide a temporary power supply to the TBM, saying this would increase the greenhouse gas impacts of the Exploratory Works and should be assessed in more detail.

##### Snowy 2.0 Project

Three of the submissions from the community, including the submissions from the NPA and Inland Rivers Network, were fundamentally opposed to the Snowy 2.0 Project.

The NPA reiterated the matters it has raised in previous submissions on the Exploratory Works, saying the Snowy 2.0 Project is “the single largest and most destructive development ever proposed for a NSW National Park” and that there are “far better alternatives”.

The NPA objects to the staged assessment of the various components of the Snowy 2.0 Project, and believes it should be the subject of a single assessment that considers all feasible and reasonable alternatives.

#### 4.5 Response to Submissions

In January 2020, Snowy Hydro provided a response to the issues raised in submissions which was published on the Department’s website (see **Appendix D**).

This response:

- contained no further assessment of the suitability of the TBM spoil for disposal in the Talbingo Reservoir, and argued that any impacts associated with the changes to the characteristics of the spoil could be managed under the existing conditions of the Exploratory Works approval;
- included an updated BDAR addressing the matters raised by the NPWS;
- indicated that there would be no change to the approved number of heavy vehicle movements to the site during peak periods, and that previous assessments had shown the primary heavy vehicle route (Snowy Mountains Highway/Link Road/Lobs Hole Ravine Road) could safely accommodate the peak traffic movements of the Exploratory Works;
- provided further information on the proposed upgrade at the roundabouts in Cooma; and
- reiterated the arguments in the Modification Report that there was no basis for requiring Snowy Hydro to develop a new recreational area at Talbingo given it is no longer proposing to establish the barge infrastructure at the Talbingo Spillway.



## 5. Assessment

The Department has considered all the issues raised in submissions and assessed the impacts of the proposed modification in detail in accordance with all relevant NSW legislation, policies and guidelines.

Based on this assessment, the Department has concluded that the proposed modifications would not cause any significant impacts and could be suitably managed with some minor changes to the existing conditions of approval for the Exploratory Works.

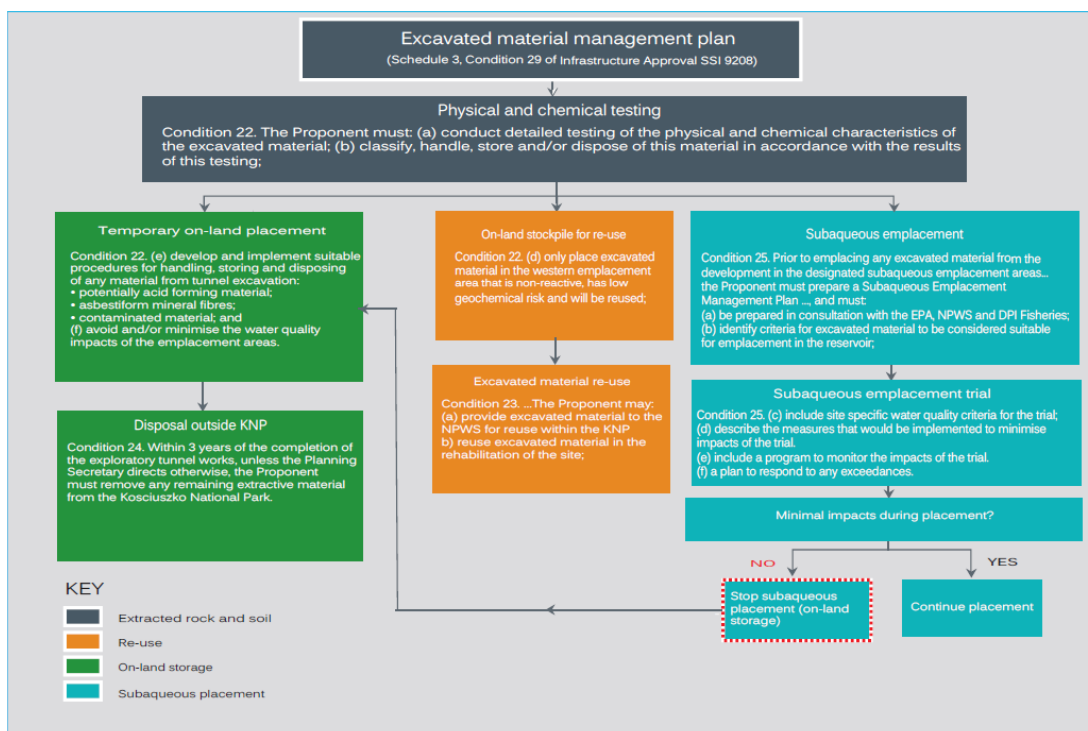
The key findings of the Department's assessment are summarised below.

### 5.1 Spoil Management

The proposed modifications would reduce the spoil generated by the Exploratory Works by around 65,000 m<sup>3</sup>. However, the use of the TBM would substantially change the characteristics of this spoil, producing spoil with much finer particles (< 75 mm compared to between 20 – 1,000 mm).

This change could have significant implications for the management of spoil on site and make it unsuitable for disposal to the Talbingo Reservoir.

Despite agency concerns about the potential implications of this change, Snowy Hydro has not provided any further assessment to demonstrate that spoil from the TBM would be suitable for disposal in the reservoir. Instead, it maintains the TBM spoil can be managed in accordance with the spoil management procedures in the existing conditions (see **Figure 9**).



**Figure 9** | Existing spoil management procedure

The Department does not accept this argument, and is not prepared to rely on the existing procedural framework in the absence of any information from Snowy Hydro to demonstrate that the TBM spoil is capable of being disposed of in the Talbingo Reservoir without causing significant water quality impacts.



This decision is reinforced by the Department's assessment of the Environmental Impact Statement for the Snowy 2.0 Main Works which shows that the disposal of TBM spoil is likely to have significant water quality impacts on the Talbingo Reservoir over long periods of time.

Consequently, the Department has recommended the inclusion of a condition in the Exploratory Works approval that prohibits Snowy Hydro from placing any TBM spoil in the Talbingo Reservoir.

This means that Snowy Hydro will need to find an alternate method to dispose of the TBM spoil.

In the Preferred Infrastructure Report for the Snowy 2.0 Main Works, Snowy Hydro is proposing to place TBM spoil from the project on land within the KNP, instead of into the reservoirs; and is also proposing to rehabilitate this land and incorporate it into the final landform of the Snowy 2.0 Project. If this is approved, then the TBM spoil from the Exploratory Works is likely to be included in these emplacement areas, and managed as part of the Snowy 2.0 Project.

However, in the absence of any certainty about this alternative, Snowy Hydro will need to manage the TBM spoil from the Exploratory Works in accordance with the existing conditions of approval.

This includes stockpiling the spoil on site; using it to rehabilitate the site or fill in the exploratory tunnel; and removing it from the site, if necessary, within 3 years of completing the Exploratory Works.

Snowy Hydro has shown that there is sufficient capacity in the approved stockpiles to accommodate all of the TBM spoil from the Exploratory Works, and that these stockpile areas can be managed to avoid any significant impacts on the environment.

## 5.2 Talbingo Recreational Area

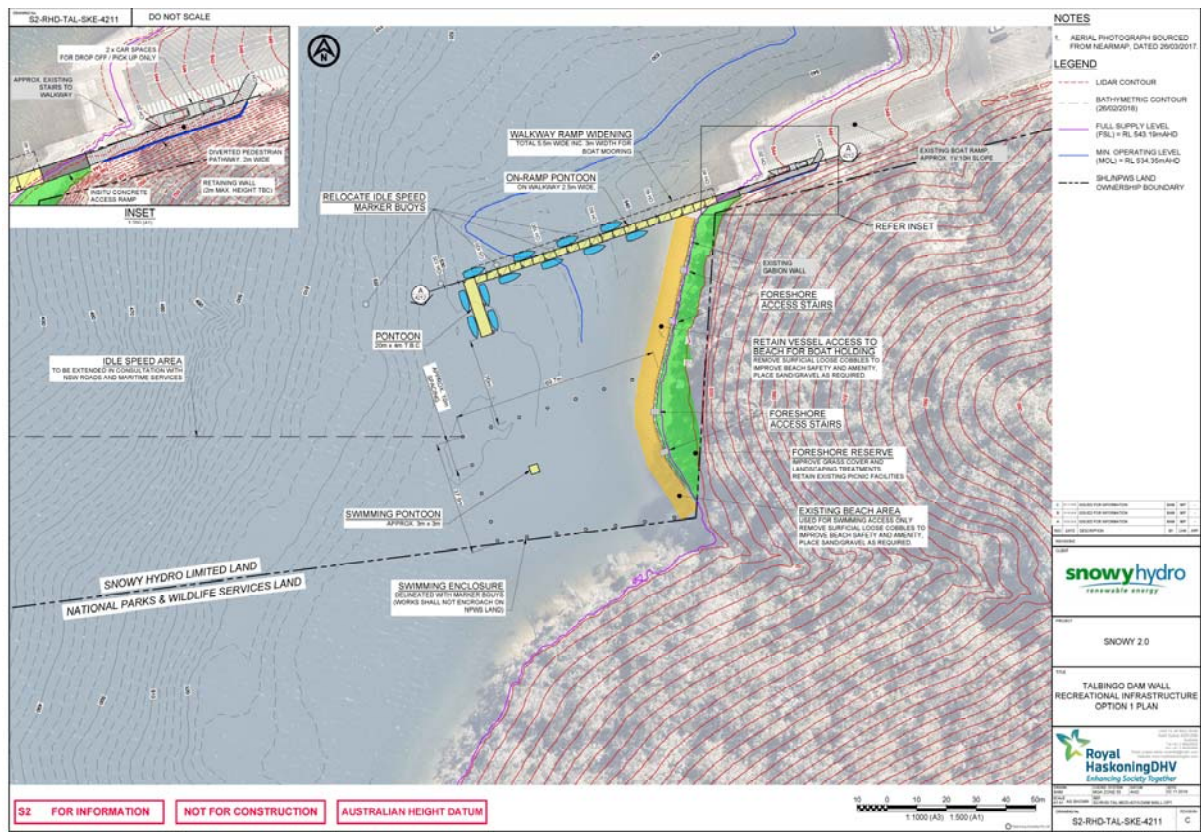
Although it is located on Snowy Hydro land, the Talbingo Spillway has been operating as a public recreational area for many years now. It is highly valued by the community and a significant tourist attraction, providing access to the Talbingo Reservoir for swimming, boating and fishing and also to the KNP.

For some time, Snowy Hydro has been proposing to close the Talbingo Spillway to the public for safety reasons, regardless of whether the Snowy 2.0 Project goes ahead or not.

The community is strongly opposed to this proposal unless a suitable alternative recreational area is provided.

The public debate on this issue has been complicated by the approval of the Exploratory Works, which required the closure of the Talbingo Spillway to the public so extensive barge infrastructure could be built at the spillway and used to facilitate the delivery of heavy materials and equipment to the Exploratory Works site.

Due to the direct impacts of these works on Talbingo Spillway which would make it unavailable for recreational use, the conditions of the Exploratory Works approval require Snowy Hydro to establish a new recreational area next to the Talbingo boat ramp (see **Figure 10**).



**Figure 10** | Concept design for alternative recreational area

However, now that Snowy Hydro is proposing to remove all the approved barge infrastructure at Talbingo, the impacts on the Exploratory Works on the Talbingo Spillway are likely to be minimal, and there is no reason why it couldn't be used for public recreation (apart from Snowy Hydro's safety concerns).

Consequently, despite the strong push from the community to keep the existing condition in the Exploratory Works approval requiring Snowy Hydro to build an alternative recreational area, the Department can see no legal basis for doing so.

To put it simply: with the removal of the Talbingo barge infrastructure, the Exploratory Works would not have any adverse impacts on the Talbingo Spillway and it would therefore be unreasonable for the Department to keep the condition.

Despite this conclusion, the Department notes that the impasse between Snowy Hydro and the community about the closure of the Talbingo Spillway seems to have been resolved by recent events.

Snowy Valleys Council has secured \$1.35 million from Snowy Hydro and the NSW Government to develop an alternative recreational area adjacent to the Talbingo boat ramp with a dedicated swimming area, improved boating facilities, picnic areas, car parking and foreshore access.

### 5.3 Traffic

The Department has weighed up the costs and benefits of removing the barge infrastructure and importing all material and plant to the Exploratory Works site by road and concluded that it is justified.

The key reasons for this conclusion are that:

- almost all the material and plant for the Exploratory Works is likely to come through Cooma now, and the designated heavy vehicle route for the project (Snowy Mountains Highway/Link Road/Lobs Hole Ravine Road) provides the quickest and safest route to the site;
- the designated heavy vehicle route can safely accommodate all of the Exploratory Works traffic with some minor upgrades to two roundabouts in the Cooma town centre and Lobs Hole Ravine Road to accommodate the delivery of the TBM and concrete segments to the site;
- the removal of the Talbingo barge infrastructure would reduce the traffic impacts of the project on Talbingo and the Snowy Mountains Highway to the west of Link Road, and also reduce the double or triple handling of heavy materials and equipment for the Exploratory Works;
- the increase in traffic along Lobs Hole Ravine Road is unlikely to have any significant impacts on the general public due to the closure of this part of the KNP, or any threatened species given the mitigation measures that must be implemented under the approved Biodiversity Management Plan; and
- with minor upgrades involving limited vegetation clearing, Lobs Hole Ravine Road – North can provide a better emergency access/egress for the Exploratory Works site and reduce traffic safety risks.

Consequently, the Department supports the proposed modifications subject to conditions requiring Snowy Hydro to:

- upgrade the two roundabouts in Cooma to the satisfaction of TfNSW and Snowy Monaro Regional Council prior to the delivery of the TBM or any concrete segments to the site;
- upgrade Lobs Hole Ravine Road – North to the satisfaction of the NPWS and TfNSW prior to its use as an emergency access/egress route;
- restrict the use of Lobs Hole Ravine Road – North to light vehicles unless there is an emergency and impose a daily limit on the number of light vehicles that may use the road;
- update the Traffic Management Plan for the Exploratory Works to include a heavy vehicle recovery strategy for the KNP and public road network and identify the measures that would be implemented to minimise the increased traffic impacts of the Exploratory Works.

### 5.4 Biodiversity

Following detailed assessment, the Department has concluded that the proposed modifications would not result in any significant biodiversity impacts, and that any residual biodiversity impacts can be offset.

This conclusion is based on the fact that the proposed modifications would only clear an additional 2.78 ha of native vegetation, taking the total amount of clearing for the Exploratory Works to around 114 ha; and remove another 1.15 ha of threatened species habitat, including 0.07 ha of Smoky Mouse habitat.

This clearing translates into the obligation for Snowy Hydro to retire another 54 ecosystem credits and 30 species credits, and the Department has recommended a condition requiring Snowy Hydro to pay the NPWS another \$304,990 to offset these impacts. The NPWS will use these funds to carry out conservation works in the KNP to address the biodiversity impacts of the proposed modifications.

While the proposed modifications involve trimming up to 0.4 ha of vegetation adjacent to Lobs Hole Ravine Road to facilitate the delivery of the TBM and concrete segments to the site, the impacts of this will be temporary and the trees are expected to naturally regenerate once all the oversized deliveries have been completed.

However, the Department has recommended changes to the condition requiring Snowy Hydro to minimise any trimming required for the Exploratory Works in consultation with the NPWS.

The Department does not support Snowy Hydro's proposal to include a Vegetation Clearing Protocol that would allow the removal of "critical vegetation" in proximity to the Exploratory Works for safety reasons subject to

providing suitable offsets. In the Department's view, this proposal is too open-ended and could result in further clearing outside the approved disturbance areas for the Exploratory Works without public scrutiny.

Consequently, the Department has not incorporated the proposal into the conditions.

Finally, the Department notes that the revised layout of the Middle Bay barge ramp would occur mainly within the existing disturbance area for the Exploratory Works, and that a significantly smaller area would now require dredging. The existing conditions require Snowy Hydro to minimise the impacts of these works on any aquatic habitat and offset any adverse impacts on the Murray Crayfish.

## **5.5 Other Issues**

The Department considers all the other impacts of the proposed modifications to be minor, including the greenhouse gas emissions associated with the use of diesel generators to supply power to the TBM for 2 – 3 months, and is satisfied that they can be managed under the existing conditions of approval.



## 6. Evaluation

The approved Exploratory Works are an important component of the Snowy 2.0 Project, which is essential for the NSW economy, and have been classified as CSSI.

Snowy Hydro has requested several modifications to the Exploratory Works approval to accommodate changes to the design of the proposed power station for the Snowy 2.0 Project and expedite the completion of the Exploratory Works.

The Department has considered all issues raised in submissions and assessed the impacts of the proposed modifications in detail in accordance with all the relevant NSW legislation, policies and guidelines.

Based on this assessment, the Department has found that the proposed modification offers several benefits, including that they would:

- reduce the scale of the Exploratory Works by moving the proposed location of the power station closer to Lobs Hole, shortening the exploratory tunnel and producing up to 65,000 m<sup>3</sup> less spoil;
- speed up the completion of the Exploratory Works by up to 5.5 months by using a TBM;
- reduce the traffic impacts on Talbingo and the Snowy Mountains Highway west of the Link Road;
- consolidate all traffic associated with the project on a single route which can safely accommodate the traffic and reduce the double handling of plant and materials;
- reduce the impacts of the project on the Talbingo Reservoir through the removal of the barge infrastructure adjacent to the Talbingo Spillway, significant reduction in dredging required and deletion of the approved road upgrades to Spillway Road.

It has also found that subject to the imposition of suitable conditions, the proposed modification can be carried out without causing any significant impacts on the KNP or surrounding areas.

The Department has prepared a recommended notice of modification that prohibits the disposal of TBM spoil to the Talbingo Reservoir and requires Snowy Hydro to:

- pay the NPWS \$304,990 to offset the residual biodiversity impacts of the proposed modification;
- carry out minor upgrades to the approved road network, including two roundabouts in the Cooma town centre, as well as Lobs Hole Ravine Road – North to provide an emergency access/egress route to the site; and
- revise the existing management plans to include the implementation of additional measures to reduce the potential impacts of the Exploratory Works as a whole.

On balance, the Department has concluded that the proposed modification is in the public interest and should be approved subject to the recommended conditions.



## 7. Recommendation

It is recommended that the Executive Director, Special Projects, as delegate for the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report; and
- **determines** that the request SSI 9208 MOD2 falls within the scope of section 5.25 of the EP&A Act
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the request;
- **agrees** with the key reasons for approval listed in the draft notice of decision;
- **modify** the approval (SSI 9208);
- **signs** the attached Notice of Modification (**Attachment E**).

Recommended by:

23.3.2020

**Anthony Ko**

Team Leader  
Energy Assessments

Recommended by:

23.3.2020

**Nicole Brewer**

Director  
Energy Assessments





## 8. *Determination*

The recommendation is: **Adopted** / ~~Not adopted~~ by:

27.3.2020

**David Kitto**

Executive Director

Special Projects



# Appendices

## Appendix A – List of Documents

*Modification Report* dated 17 October 2019

*Response to Submissions Report* dated 10 January 2020

## Appendix B – Environmental Assessment

See the Department's website at

<https://www.planningportal.nsw.gov.au/major-projects/project/25741>

## Appendix C – Submissions

See the Department's website at

<https://www.planningportal.nsw.gov.au/major-projects/project/25741>

## Appendix D – Submissions Report

See the Department's website at

<https://www.planningportal.nsw.gov.au/major-projects/project/25741>



## Appendix E – Consolidated Approval

See the Department's website at

<https://www.planningportal.nsw.gov.au/major-projects/project/25741>

## Appendix F – Notice of Modification

See the Department's website at

<https://www.planningportal.nsw.gov.au/major-projects/project/25741>