MOD1 - Main Access Tunnel to Marica Services Connection

Submissions Report

Prepared for Snowy Hydro Limited
December 2021

EMM Sydney
Ground floor, 20 Chandos Street
St Leonards NSW 2065

T 02 9493 9500
E info@emmconsulting.com.au

www.emmconsulting.com.au

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Submissions Report

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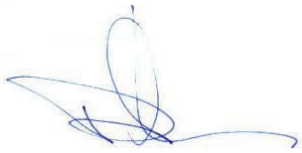
Prepared by

Paul Freeman
Associate Director
6 December 2021

Approved by



Duncan Peake
Director, Executive Leader / Division Leader
6 December 2021

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1 Introduction

1.1 Purpose

This report provides responses to issues raised in advice from NSW Government agencies and issues raised in community submissions in relation to Snowy 2.0 Main Works Modification 1 Main Access Tunnel to Marica Services Connection (CSSI 9687 Mod 1).

The report is prepared on behalf of Snowy Hydro Limited (Snowy Hydro) by EMM Consulting Pty Ltd (EMM) in response to the request for response to submissions (RTS) received from the NSW Department of Planning, Infrastructure and Environment (DPIE) on 10 November 2021. The report summarises the issues raised by government agencies and the community during the public exhibition of the modification and provides a commensurate response. The report has been prepared in accordance with *State significant infrastructure guidelines – preparing a submissions report* (DPIE 2021).

1.2 Summary of Mod 1 proposal

The proposed modification comprises the following activities:

- Horizontal directional drilling across an alignment of approximately 2,200 m between the main access tunnel (MAT) portal and Marica areas of the Project. This would involve establishing up to 7 temporary services comprising 4 holes of approximately 450 mm diameter for power, and three holes of approximately 350 mm diameter for water and communications.
- Development of two temporary drill pads of approximately 40 m x 100 m, within the approved indicative disturbance footprint and construction envelope.
- Installation of temporary construction water and power within the drill holes.
- Installation of permanent power and communications services within the drill holes.
- Management and disposal of excavated rock and water generated during the drilling.
- Decommissioning of temporary services at the completion of construction in accordance with the Main Works infrastructure approval requirements for decommissioning and rehabilitation.

The environmental impacts of the above activities have been comprehensively assessed and are detailed in full in *Snowy 2.0 Main Works – Modification 1, Main Access Tunnel to Marica Services Connection* (EMM 2021).

2 Submissions analysis

2.1 Exhibition details

The Modification Report was exhibited from 8 September to 21 September 2021, at the following locations:

- www.planningportal.nsw.gov.au/major-projects/projects/on-exhibition.
- DPIE Major Projects portal; and
- ServiceNSW locations.

2.2 Submissions received

During the exhibition period advice was received from eight NSW Government agencies, one submission from a service provider, one submission from a special interest group and four submissions from community members (two in support and two objections).

The advice and submissions received have been placed on the DPIE Major Projects Portal at:

https://www.planningportal.nsw.gov.au/major-projects/project/42911

2.3 Summary of submissions

2.3.1 NSW Government agency advice

None of the NSW Government agencies objected to the proposed modification. However, they variously made recommendations to manage and mitigate the potential environmental impacts associated with the proposal. The agencies' advice is summarised as follows.

i DPIE Water/Natural Resources Access Regulator

DPIE Water and Natural Resources Access Regulator (NRAR) provided joint advice on the modification application. DPIE Water/NRAR asked for clarification of the water access licence that would be relied on to account for water take from the unregulated surface water system to meet the drilling requirements.

The advice also asked for additional water take to be quantified from the proposed modification to clarify that the total take is within the water entitlement held by Snowy and aligns with the provisions of the *NSW Aquifer Interference Policy* (NSW Government, 2012).

DPIE Water/NRAR also asked for the Main Works site water balance, the Groundwater Management Plan and Surface Water Management Plan to all be updated to reflect the additional activities and necessary monitoring, metering and management measures to report on groundwater and surface water take and to manage potential impacts to water sources due to the activity.

ii Environment Protection Authority

Environment Protection Authority (EPA) was primarily concerned with two potential pollution issues.

First, they recommended that a frac-out contingency plan is developed for the works to manage the risk of inadvertent release of drilling fluids to the surface via fractured bedrock through a process referred to as frac-out.

The EPA also stated that the proponent is required to have robust spill management and incident response procedures for the treatment and transport of drilling fluids.

As drilling works are likely to intercept groundwater, it recommended that appropriate risk assessments are undertaken of all of additives that are proposed for the drilling, including consideration of their ecotoxicity in the receiving environment.

Second, EPA commented that the spoil generated during the proposed drilling would not increase the total volume of spoil generated by the Project and reminded SHL of its POEO Act obligations that the disposal or emplacement of spoil onsite must not pollute waters or land.

iii Heritage NSW

Heritage NSW commented that as one of the survey units within the proposed modification area, MSU9, was identified as un-surveyed during the original Main Works EIS, it recommended that the proponent is satisfied that no unnecessary impacts will occur to Aboriginal objects or cultural values because of the modification.

Heritage NSW supports the approved Heritage Management Plan continuing to apply to the proposed modification works, and asked for the plan to be reviewed and updated so that the new boundaries of works are consistent with the proposed modification changes. It also asked to be supplied with the results of salvage excavations for the project.

iv Crown Lands

Crown Lands did not offer any comment on the proposal, as it would not affect Crown land.

v DPI Agriculture

DPI Agriculture was satisfied that the proposal was unlikely to impact on any agricultural activity or resources.

vi National Parks and Wildlife Service/Biodiversity Conservation & Science Division

National Parks and Wildlife Service (NPWS) and the Department's Biodiversity Conservation and Science Division (BCS) provided joint advice. The advice asked for confirmation that Marica West Trail would continue to provide a primary access/egress route during emergency events.

NPWS/BCS recommended consultation with emergency services as to whether Lobs Hole Ravine Road North could be used for emergency egress if Lobs Hole Ravine Road South is impassable, and identify if any roads works are required.

NPWS/BCS also asked for a review of the Main Works Emergency Management Plan and the Biodiversity Management and associated monitoring plans.

2.3.2 Service provider submission

i Transgrid

Transgrid did not offer any comments on the proposed modification.

2.3.3 Special interest group submission

i National Parks Association

NPA conditionally supports the modification application given the reduction in impacts that would result from HDD. NPA also commented about the services connection between Marica and Tantangara Reservoir and requested that this should also be installed underground. It commented that HDD should also be used for transmission lines instead of the installation of overhead power lines.

2.3.4 Community submissions

i Supporting submissions

The two supporting community submissions included the following comments:

- the use of HDD avoids ground disturbance, soil erosion and vegetation clearing;
- direct drilling would result in less distance between the Marica and Lobs Hole; and
- if any towns are upgraded for the Snowy 2.0 project, there should be winter tourism opportunities as a result.

ii Objecting submissions

Comments made in the two objecting submissions are summarised as follows:

- overhead power lines for the Snowy 2.0 project should be placed underground;
- Snowy 2.0 would affect biodiversity and agricultural production; and
- the project would affect the scenic values of the Kosciuszko National Park.

3 Actions taken since exhibition

3.1 Proposal refinement

Refinements have been made to the proposed scope of works through detailed design. The refinements seek to optimise the operation of the HDD works and ensure that the drilling laydown area is sufficiently designed to ensure safe operations on site. Operational requirements for the HDD have also been clarified. The proposed refinements include:

- confirming that the length of drilling is now expected to be approximately 2,275 m instead of approximately 2,200 m;
- the drilling laydown area at Marica (top pad) will now be approximately 100 m x 100 m instead of 100 m x 40 m. It will remain entirely within the approved construction envelope; and
- no chemicals will be used in HDD, with only water-based substances to be used when drilling.

These changes do not affect the assessments undertaken for the work or the conclusions reached about the potential impacts.

3.2 Engagement

Following receipt of the submissions, Snowy Hydro carried out engagement activities with key NSW Government agencies to discuss the issues raised and this is summarised in Table 3.1 below.

Table 3.1 Summary of engagement undertaken

Agency	Issues raised and outcomes
National Parks and Wildlife Service	**Issues:** • Emergency access and egress to Lobs Hole; and • Use of Lobs Hole Ravine Road North. **Outcomes:** • Clarification provided that no change to emergency access/egress is proposed and that the modification does not involve removal of Marica West Road (refer to Section 4.4). • As approved through Exploratory Works Mod 2, Snowy Hydro will complete maintenance to Lobs Hole Ravine Road North in December 2021 to complete remaining works.
EPA	**Issues:** • Frac-out contingency plan development • Use of chemicals in the HDD process and the management of drilling water • Spoil management **Outcomes:** General agreement and minor feedback received on proposed approach to management of these issues (refer to Section 4).
DPIE Water/NRAR	**Issues:** • Water licencing • Construction water supply • Groundwater interaction

Table 3.1 Summary of engagement undertaken

Agency	Issues raised and outcomes
	Outcomes: Understanding of the scale and nature of the activity and the scope of existing licenses, approval conditions and approved management plans. (refer to Section 4)

3.3 Additional assessments

In order to respond to the water matters raised by DPIE Water and NRAR, EMM was engaged to provide advice on water licensing issues, construction water supply and groundwater interception. This advice is summarised in Section 5 of this report.

4 Submission responses

4.1 Water issues

4.1.1 Construction water supply

Construction water will initially be required for site establishment and to commence drilling. Once drilling has commenced, construction water will be sourced from recycled drilling fluids, groundwater intercepted from the HDD holes, and excess process water from Future Generation Joint Venture's (FGJV) (the contractor constructing Snowy 2.0) operations at the MAT Portal. If necessary, the construction water system will be topped up from the Talbingo water supply pipeline.

Further review of the construction water volumes needed for the proposed drilling have also been completed. It is estimated that 2 megalitres (ML) of water will be required to commence and complete the HDD works. This water may be sourced from the Talbingo water supply pipeline if there is insufficient excess process water at the MAT Portal at the commencement of the works. This volume is within the current water entitlements held for the Project (refer to Section 4.1.3 below).

No additional surface water extraction or discharge points would be required as a result of the works. Water extraction and water discharge metering will continue to be carried out in accordance with the approved Snowy 2.0 Main Works Water Management Plan, FGJV 2020 (Section 5) which states:

> "metering will comply with the Australian Standard AS 4747: 'Meters for non-urban supply'. Metering equipment will be installed at water source extraction points and prior to discharge points. Readings will be undertaken manually (the Project are investigating opportunities for electronic monitoring) on an ongoing basis throughout construction (ie weekly) and recorded in a project water usage register."

The existing approved groundwater monitoring program (Annexure A to the approved *Groundwater Management Plan* (FGJV, 2020)) and approved surface water monitoring program (Annexure A to the approved *Surface Water Management Plan* (FGJV, 2020) will continue to apply to the project and are considered suitable to monitor any potential impacts to water sources due to the proposed HDD works.

Snowy Hydro therefore considers that the existing licenses and approved *Surface Water Management Plan* (FGJV, 2020) and *Groundwater Management Plan* (FGJV, 2020) provide a robust framework within which to manage the HDD activities and no changes to these comprehensive plans is considered necessary for the proposed modification.

4.1.2 Groundwater interaction

Groundwater inflows to the service holes during construction were not quantified in the Mod 1 report. This was because the amount of water anticipated to be intercepted was considered to be negligible in the context of water used generally in the construction activities for the project (refer to Section 4.2.2).

It is estimated up to 14 ML of groundwater will be intercepted during construction of the service holes at a maximum inflow rate of 5 L/s. No groundwater inflows are anticipated during operation as each hole will be cased with steel or fibreglass and sealed at the bottom to prevent ongoing groundwater interception. This volume is within the current water entitlements held for the Project (refer to Section 3 below). Groundwater extraction will be metered, monitored and reported in accordance with the approved *Snowy 2.0 Main Works Water Management Plan*, FGJV 2020 (Section 5) as outlined in Section 4.1.1 above.

4.1.3 Water licensing

i Surface water

Snowy Hydro holds a specific purpose access licence (SPAL) (licence no. 42407) with an entitlement of 227 ML to extract water from Talbingo Reservoir (Upper Tumut Water Source) for the construction of Snowy 2.0. Water that is sourced from Talbingo Reservoir for the HDD works would be done so under Snowy Hydro's existing SPAL entitlement.

The construction water demand is estimated at 2 ML, which is less than 1% of Snowy Hydro's existing SPAL entitlement. Given the relatively small quantity of construction water required, impacts to the overall Project water supply/demand are not expected if this water is sourced from Talbingo Reservoir under Snow Hydro's existing entitlement.

The drilling water will seek to utilise runoff and intercepted groundwater from the approved project to the greatest extent available. Recent construction experience at Lobs Hole shows that has been excess water available from these sources which could be used to meet much of the water requirements of the proposed drilling. Therefore it is likely that less than the estimated 2 ML would need to be sourced from Talbingo Reservoir during the works. Surface water extraction will be metered, monitored and reported on in accordance with the approved Snowy 2.0 Main Works Water Management Plan, FGJV 2020 (Section 5).

ii Groundwater

The proposed works will intercept the Lachlan fold Belt (LFB) MDB Fractured Rock Groundwater Source. Snowy Hydro hold 3,729 ML unit shares (or ML) (licence no. 42960 and 43328) within the LFB MDB Fractured Rock Groundwater Source. The 3,729 ML is the maximum predicted annual water take from this groundwater source over the construction and operation of Snowy 2.0 as presented in *Snowy 2.0 Main Works EIS – Water Assessment* (EMM 2019).

The proposed HDD works are estimated to intercept up to 14 ML of groundwater over the 3-4 months construction period with no groundwater interception occurring post construction (refer to Section 4.1.2). The volume of groundwater intercepted during the HDD works is compared to the predicted groundwater take for the approved project in Table 4.1. It is anticipated the proposed works would take place in year 3 of the Main Works construction schedule.

The data presented in Table 4.1 shows the combined annual groundwater take of the HDD works and approved Main Works (EMM 2019) is 1,447 ML during construction year 3. Hence, Snowy Hydro's existing annual entitlement (3,729 ML) within the LFB MDB Fractured Rock Groundwater Source is sufficient to cover the additional groundwater volume intercepted during construction HDD works. Snowy Hydro's existing entitlement is sufficient to cover the additional groundwater intercepted by the HDD works in all years up to the start of operations. Groundwater extraction will be metered in accordance with the approved *Snowy 2.0 Main Works Water Management Plan*, FGJV 2020 (Section 5) as outlined in Section 2.1 above.

Table 4.1 Predicted groundwater interception and available licences

		Lachlan Fold Belt MDB Fractured Rock Groundwater Source				
Date year ending	Year	Available unit shares (ML)	EIS – predicted groundwater take[1] (ML)	Mod 1 – predicted groundwater take (ML)	Combined groundwater take ML	Remaining unit shares (ML)
1/06/2019	Exploratory Works	3,729	1	0	1	3,728
1/06/2020	Construction year 1	3,729	122	0	122	3,607
1/06/2021	Construction year 2	3,729	715	0	715	3,014
1/06/2022	Construction year 3	3,729	1,433	14	1,447	2,282
1/06/2023	Construction year 4	3,729	2,075	0	2,089	1,640
1/06/2024	Construction year 5	3,729	3,684	0	3684	45
1/06/2025	Operation year 0	3,729	3,729	0	1	0

Notes: Predicted groundwater take sourced from *Snowy 2.0 Main Works EIS – Water Assessment* (EMM 2019).

4.2 Management of drilling fluid and spoil

4.2.1 Management of drilling fluids and frac-outs

Detailed design for the proposed modification has found that the drilling is unlikely to require use of additives which reduces the risk of any potential drilling fluid releases to the environment. Further, there is extremely low chance of frac-outs as drilling will occur from the bottom pad only, the boreholes will never be full of fluid so there would be no pressure to cause frac-outs. A frac out contingency plan will be developed and incorporated in site specific operational plans for the HDD works. Detailed operational plans will also be in place for management and incident response for treatment and transportation of fluids.

4.2.2 Groundwater management

The EPA recommendation that appropriate risk assessments are carried out for all drilling additives including consideration of ecotoxicity is noted. Additives are now considered unlikely to be required during drilling. If any additives are used a risk assessment including consideration of ecotoxicity would be carried out.

4.2.3 Spoil management

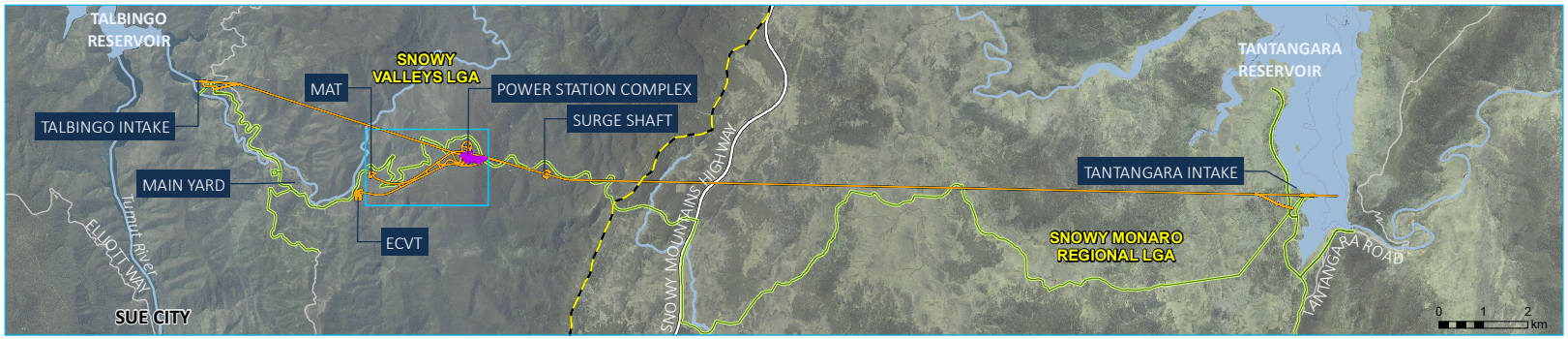
The EPA comment that the disposal or emplacement of spoil onsite must not pollute waters or land and that all activities must be carried out in a competent manner, including the processing, handling, movement and storage of materials and substances is noted. All spoil processing, handling, movement and storage would be completed in a competent manner and in accordance with the approved spoil management requirements.

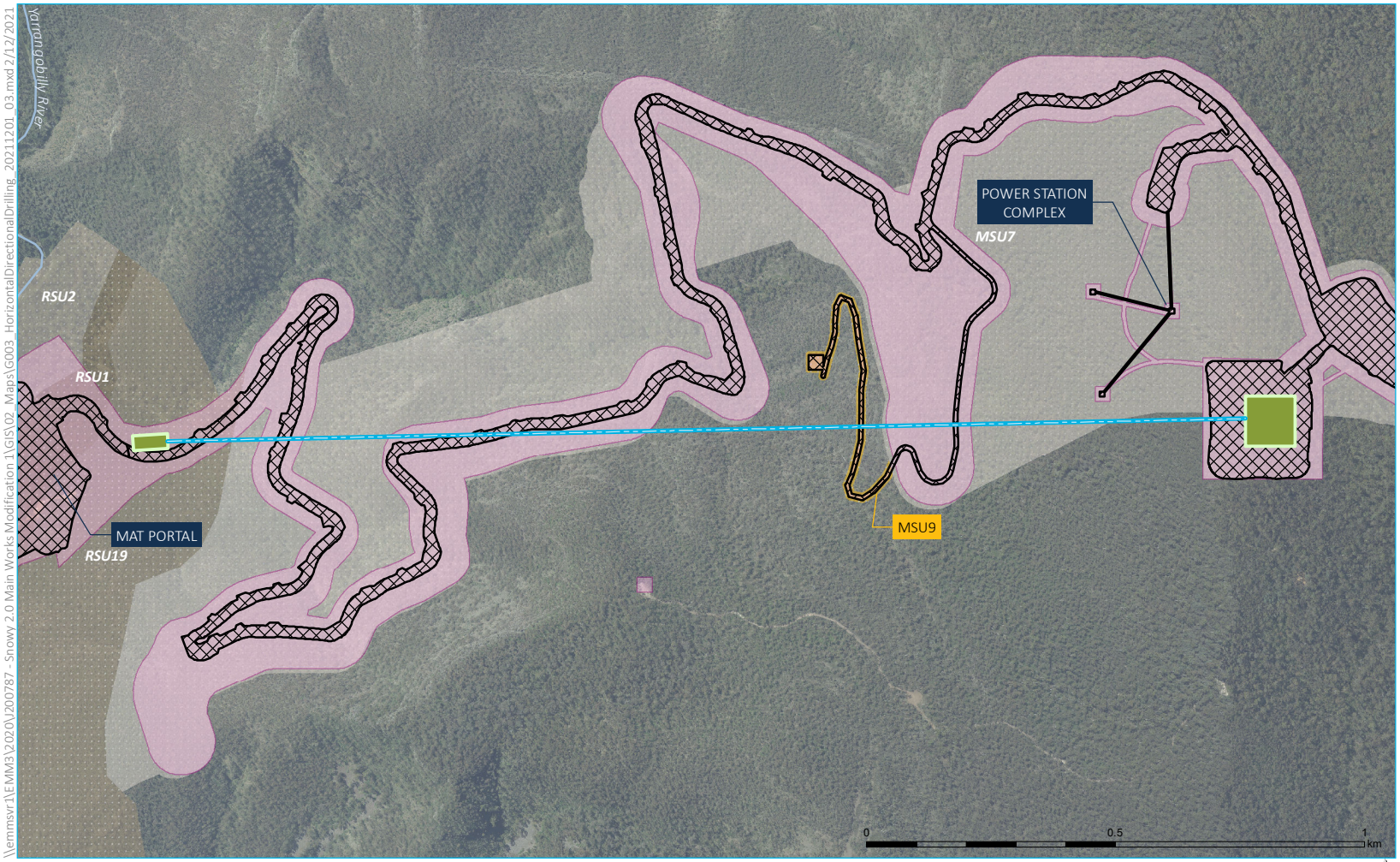
4.3 Heritage

The proposed modification is highly unlikely to affect cultural heritage sites. The heritage survey unit MSU9 has not been previously surveyed, for the fact that it would not be subject to ground disturbance. This will still be the case for the proposed modification, which will involve drilling up to 7 holes with diameter up to 450 mm at around 50-100 m below MSU9. The minor extent of the proposed drilling is highly unlikely to result in any effects at the surface and therefore MSU9 will continue to be protected from any impacts. All surface works proposed as part of the modification will occur within areas that have been assessed and approved for ground disturbance within the project construction envelope. The location of the works and heritage survey unit MSU9 are shown in Figure 4.1.

The proposed HDD works involve surface impacts only within areas that are within the approved project construction envelope where the potential for ground disturbance has already been considered and approved under the EIS and existing *Heritage Management Plan* (FGJV, 2020*)*.

The approved *Heritage Management Plan* (FGJV, 2020) contains a robust framework, including a contingency plan in the event that unforeseen impacts were to result from construction works at identified sites. This will continue to apply to the proposed HDD works at all locations.





KEY

Existing environment
- Major road
- Minor road
- Watercourse
- Waterbodies
- Local government area boundary

Snowy 2.0 Main Works operational elements
- Tunnels, portals, intakes, shafts
- Power station
- Utilities
- Approved disturbance area
- Approved construction envelope

Modification to Snowy 2.0 Main Works
- Proposed underground drilling alignment
- Proposed drilling pad

Heritage survey unit
- MSU7
- MSU9
- RSU1
- RSU2
- RSU19

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Source: EMM (2021); Snowy Hydro (2019); FGJV (2021); NSW Archaeology (2020); DFSI (2017, 2020); LPMA (2011)

GDA 1994 MGA Zone 55

N

Marica Services Connection – Heritage Survey Units

Snowy 2.0
Response to Submissions
Figure 5.1

snowy 2.0

EMM creating opportunities

4.4 Emergency egress route

The proposed modification does not seek to change the primary emergency egress from Lobs Hole using Lobs Hole Ravine Road South with Marica West Trail the preferred secondary egress once it is established.

It is acknowledged that Lobs Hole Ravine Road North which currently provides a temporary secondary egress, requires maintenance works to make it suitable for emergency vehicle access. Snowy Hydro intends to carry out these maintenance works in December 2021. No change in use of this road is proposed.

The emergency management plan will be reviewed and updated in consultation with NPWS in the event that any changes to the project emergency access and egress are identified.

4.5 Other issues

i Marica to Tantangara services connection

The services connection between Marica and Tantangara across the Plateau area of the project have commenced construction and are entirely underground.

ii Overhead transmission lines

Snowy Hydro notes the comments made in community submissions relating to the installation of transmission lines. The proposed modification deals only with HDD to install services between MAT portal and the Marica area as part of the Snowy 2.0 Main Works. No transmission lines are proposed as part of the modification. The Snowy 2.0 Transmission Connection project is subject to a separate planning application (CSSI-9717) with Transgrid as the proponent. The scope and scale of infrastructure required for the Transmission Connection project are significantly larger than the construction power connection proposed in this modification.

iii Biodiversity and agriculture

The proposed modification involves a small amount of vegetation disturbance to create the construction pads. However this clearing is less than that which has already been accounted for and offset in accordance with the conditions of approval and is entirely within the approved project construction envelope. Therefore the impacts associated with the proposed modification would be minimal. Impacts would be managed in accordance with existing management plans, and site clearing would be subject to strict site protocols.

iv Other issues

The proposed modification would result in a reduction in impacts to the scenic values of Kosciuszko National Park. This is because the HDD sites are located in areas which would not be accessible to the public and the proposed construction method would reduce the level of vegetation clearing required in that section of the project. It would therefore not affect the tourism opportunities currently afforded by the park or tourism opportunities in the future.

5 Evaluation

Snowy Hydro is proposing to modify the CSSI approval for the Snowy 2.0 Main Works under Section 5.25 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed modification relates to minor HDD works to optimise the delivery of services between the MAT Portal and Marica areas.

The application was exhibited, and DPIE received advice from eight NSW Government agencies, one submission from a service provider, one submission from a special interest group and four submissions from community members (two in support and two objections).

Government agencies did not object to the proposed modification. The agencies asked for further information about water issues.

The proposed modification involves minor works which will result in a number of benefits to the Snowy 2.0 Main Works.

In terms of impacts, the proposed works will avoid the need to cable trench almost 5 km of service cabling through challenging terrain on Marica West Road. It will realise efficiency in project delivery and reduce native vegetation clearing.

The HDD and drill pad works would not result in significant impacts and will be managed efficiently. the works would be able to be undertaken within the strict regulatory framework set out in the conditions of approval.

Water needed for the HDD operations would be supplied from existing approved construction water sources. Groundwater interception would be minimal and surface water impacts will be closely managed in accordance with the approved and comprehensive management plans for the project.

No additional vegetation clearing is necessary for the proposed modification. The necessary vegetation clearing for drill pad sites has already been considered, approved and compensated for under the existing conditions of approval. All other impacts would be negligible in the context of the existing project construction of the Main Works project and would be managed in accordance with the strict controls set out in the approved management plans.

Appendix A

Submissions register

Submitter	Location	Stakeholder type	View	No comment	HDD	Transmission lines	Emergency access	Aboriginal heritage	Biodiversity	Groundwater	Surface water	Agriculture	Tourism
Crown Lands	Wagga Wagga, NSW	Government	Comment	1									
Environment Protection Authority	Parramatta, NSW	Government	Comment							1	1		
DPI Agriculture	Orange, NSW	Government	Comment	1									
National Parks and Wildlife Service and Biodiversity and Conservation Section	Parramatta, NSW	Government	Comment				1						
Heritage NSW	Parramatta, NSW	Government	Comment					1					
DPIE - Water, Natural Resources Access Regulator	Parramatta, NSW	Government	Comment							1	1		
Transgrid	Wallgrove, NSW	Service provider	Comment	1									
National Parks Association	Pyrmont, NSW	Special interest group	Support		1								
Nancy Pallin	Milsons Point, NSW	Individual	Support		1				1				
Steven Broussos	Greenacre, NSW	Individual	Support										1
Robert Michie	Kentlyn, NSW	Individual	Object			1							
Name withheld	Lake Albert	Individual	Object						1			1	
Total													
Government agency	8												
Service provider	1												
Special interest group	1												
Individual	4												

Appendix B

Mitigation measures

There are no changes to the mitigation measures that were presented in the Modification Report for the proposal (see Table 4.1 of Section 4 of the report). The Modification Report is available from the DPIE Major Projects website at https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-9687-MOD-1%2120210927T001516.182%20GMT.

Based on the consideration of the EPA advice received on the modification application, the following additional management measures will be implemented.

- A frac out contingency plan will be developed and incorporated in site specific operational plans for the HDD works. Detailed operational plans will also be in place for management and incident response for treatment and transportation of fluids.

- If any drilling additives are used a risk assessment including consideration of ecotoxicity would be carried out.