Title of Proposal - Proposed segment factory for Snowy 2.0

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Commonwealth

1.2 Provide a detailed description of the proposed action, including all proposed activities.

Snowy Hydro Limited (Snowy Hydro), the operator of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), is proposing to build and operate Snowy 2.0. Snowy 2.0 is a project that would increase the pumped hydro-electric capacity within the existing Snowy Scheme by linking the Tantangara and Talbingo reservoirs with tunnels feeding a new underground power station. The project would involve tunnelling and excavation works between the two reservoirs to depths of up to 1 kilometre (km).

Snowy 2.0 would provide large-scale storage of energy that will be available as quick-start electricity generation at critical times of peak demand. Pumping water at times of low electricity demand means that Snowy 2.0 would have water ready to use for energy generation at times when consumers need it most. Snowy 2.0 would make efficient use of water resources to generate electricity without impacting on the supply of irrigation and town water supplies for the Murray-Darling Basin.

When operational, Snowy 2.0 would function primarily as an energy storage facility; pumping water out of Talbingo Reservoir (the lower reservoir) to Tantangara Reservoir (the upper reservoir) in the storage mode and allowing the water to flow from Tantangara Reservoir into Talbingo Reservoir in the generating mode. Decisions concerning the operational mode, flow rates and flow duration would be made remotely by Snowy Hydro on the basis of the state of the national electricity market (NEM) with due regard given to operational and licensing constraints, including the need to maintain downstream supply and environmental flows.

Snowy 2.0 has been declared Critical State Significant Infrastructure (CSSI) in accordance with the provisions of the New South Wales (NSW) Environmental Planning and Assessment Act 1979 (EP&A Act) with the declaration coming into effect on 9 March 2018. As a result, Snowy 2.0 may be carried out without obtaining development consent under Part 4 of the EP&A Act. However, Snowy 2.0 is subject to Division 5.2 of the EP&A Act, which requires the preparation of an environmental impact statement (EIS) or EISs and the approval of the NSW Minister for Planning.

Snowy 2.0 would be developed in two phases. The first phase, the Exploratory Works, includes an exploratory tunnel and portal and other exploratory and construction activities primarily in the Lobs Hole area of the Kosciuszko National Park (KNP).

The second phase, the Main Works, covers the major construction elements of Snowy 2.0,

including permanent infrastructure (such as the underground power station, power waterways, access tunnels, chambers and shafts), temporary construction infrastructure (such as construction adits, construction compounds and accommodation), management and storage of extracted rock material and establishing supporting infrastructure (such as road upgrades and extensions, water and sewage treatment infrastructure, and the provision of construction power). Snowy 2.0 Main Works also includes the operation of Snowy 2.0.

Exploratory Works was approved by the NSW Minister for Planning on 7 February 2019 and preliminary works have already commenced. The EIS for Main Works is expected to be lodged with the NSW Department of Planning and Environment in late August 2019.

The tunnels for Snowy 2.0, including the exploratory tunnel for Exploratory Works, would be excavated, in part, using tunnel boring machines (TBMs) and would be lined using precast concrete tunnel segments. These segments are proposed to be constructed at a factory (the proposed segment factory) to be located on the eastern side of Polo Flat (the site), which is an industrial area located to the east of Cooma.

The proposed segment factory would contain a covered area for the manufacture of the tunnel segmental linings (the precast yard), uncovered storage areas, vehicle parking areas and associated office and workshops.

Primary inputs for the proposed segment factory include aggregate, sand, and cement and rebar steel. The aggregate and sand would be sourced from local quarries. The cement would be sourced from the Southern Highlands of NSW. The primary outputs are the tunnel segments which would be transported to the construction sites within KNP.

The construction phase of the proposed segment factory would last about five months utilising a workforce of about 30 people. Construction would start in March 2020. Construction would occur six days a week (Monday to Saturday) generally between 7 am and 6 pm.

Once operational, the proposed segment factory would operate over a period of about 3.5 years utilising a workforce of about 125 people. During this time it would be operational 24 hours a day, seven days a week.

Approximately 130,500 segments would be manufactured over the 3.5-year operational period. These segments would make up about 14,500 tunnel rings.

The proposed segment factory would be constructed and operated by FGJV which has been contracted by Snowy Hydro to construct Snowy 2.0.

At the completion of the construction of Snowy 2.0, the proposed segment factory would be decommissioned.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude

Site boundary	1	-36.232588117427	149.1477237638
Site boundary	2	-36.233128999274	149.15232107005
Site boundary	3	-36.237261213091	149.15247663817
Site boundary	4	-36.237174676821	149.15163978896
Site boundary	5	-36.239052492371	149.15209040007
Site boundary	6	-36.239190947032	149.15205821357
Site boundary	7	-36.238126570525	149.14450511298
Site boundary	8	-36.2380140746	149.14452657065
Site boundary	9	-36.238247719801	149.14627537093
Site boundary	10	-36.236542959146	149.14689764342
Site boundary	11	-36.232588117427	149.1477237638

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The site of the proposed segment factory is located on the south eastern side of the Polo Flat industrial area, predominantly on the southern part of the land owned by Snowy Hydro. The site is located to the west of Polo Flat Road and to the north of Carlaminda Road.

The site contains the following land parcels:

* southern part of Lot 14 in Deposited Plan (DP) 250029 – also known as 9 Polo Flat Road, Polo Flat;

* Lot 3 in DP 238762 – also known as 33 Carlaminda Road, Polo Flat; and

* and unmade road corridor, directly south of 9 Polo Flat Road, Polo Flat and 33 Carlaminda Road, Polo Flat.

Except for a few buildings located on Lot 3 in DP 238762, the site is vacant and dominated by grassland. A drainage line, or dry creek, flows in a north east direction through the middle of the site.

Lot 14 in DP 250029 is a large parcel of land (about 57 hectares (ha)) which contains a private airfield predominantly located in the middle and northern part of the land. This airfield was originally established in 1921 and further developed in the late 1950s and 1960s to service the Snowy Scheme. It became the base for the Snowy Mountains Hydro-electric Authority’s (the predecessor to Snowy Hydro) flying unit and aircraft. The land was sold by Snowy Hydro in 2001 where it continued use as a private airfield. Snowy Hydro purchased the land again in early 2019.

The site is surrounded by industrial development to the west and predominantly vacant land to

the south and east. To the north of the site is the remainder of Lot 14 in DP 250029 which contains the private airfield, and other industrial development. Snowy Hydro's private airfield contains a main north-south aligned runway, hangers and offices. It also contains an above ground fuel tank for the refuelling of planes and helicopters.

Lot 3 in DP 238762 contains a communications tower which is being decommissioned in August 2019.

There is an isolated industrial operation located about 150 metres (m) to the south east, and an abattoir located about 350 m to the east of the site.

The nearest rural residence is located about 450 m to the south south-east of the site. The nearest residences within Cooma are located about 1 km to the west of the site.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

31.6 ha

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Described above

1.8 Primary Jurisdiction.

New South Wales

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 03/2020

End date 12/2023

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

The EP&A Act and the NSW *Environmental Planning and Assessment Regulation 2000* (EP&A

Regulation) form the statutory framework for planning approval and environmental assessment in NSW.

Section 5.12 of the EP&A Act provides for the declaration of State significant infrastructure (SSI), and Section 5.13 enables the Minister for Planning to declare SSI to be CSSI if 'it is of a category that, in the opinion of the Minister, is essential for the State for economic, environmental or social reasons'.

Snowy 2.0, and development that is ancillary to Snowy 2.0, is listed in Schedule 5, clause 9, subclause (3) of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) and, when declared to be SSI and CSSI, may be carried out without development consent under Part 4 of the Act.

Snowy 2.0, and development that is ancillary to Snowy 2.0, has been declared CSSI in accordance with the provisions of Division 5.2 of the EP&A Act with the declaration coming into effect on 9 March 2018. As a result, the proposed segment factory may be carried out without development consent under Part 4 of the EP&A Act, subject to the provisions at Division 5.2 of the Act that require preparation of an EIS and approval from the NSW Minister for Planning.

In respect of potential impacts to the environment generally, for the avoidance of doubt it is noted that:

1. the objects of the EP&A Act include:

* to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats; and

* to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.

2. the impacts of the proposed segment factory to the environment will be adequately addressed in an EIS that will be managed through the assessment process under the EP&A Act.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Stakeholder engagement and consultation for Snowy 2.0 commenced in mid-to-late 2017 and have been ongoing. Stakeholder activities have been led by Snowy Hydro with the support of EMM, FGJV and technical specialists as required.To ensure its objectives are addressed, Snowy Hydro developed an end-to-end framework for stakeholder engagement based on the International Association for Public Participation (IAP2) *Public Participation Spectrum* (2014). The key phases and how they have been implemented for Snowy 2.0 to date are:

* identify - identification of stakeholders and impacts;design and prepare - definition of desired level of engagement (to inform, consult, involve, or collaborate), and the development of corresponding stakeholder engagement tools and methods;

* engage - commence stakeholder engagement in line with the level identified in the previous phase, and implement relevant methods;

* provide feedback - create mechanisms for timely two-way feedback on stakeholder needs and concerns; and

* review - implement a continuous improvement loop to assess the adequacy and effectiveness of engagement, and where required, change the nature of engagement.

This framework has and will be applied during development of the EIS for the proposed segment factory and throughout the lifespan of Snowy 2.0, with the ability to adapt as Snowy 2.0 progresses from Exploratory Works to the construction and operational phases of the proposed segment factory and Main Works.

Identified stakeholder groups with an interest in the proposed segment factory include:

* Cooma and nearby townships and communities;

* State and Commonwealth government agencies that have an interest in and regulate the factory, particularly DPE and the Commonwealth Department of the Environment and Energy (DoEE), the NSW Environment Protection Authority (EPA), NSW Office of Environment and Heritage (OEH), NSW Roads and Maritime Services (RMS);

* Snowy Monaro Regional Council (SMRC) and Snowy Valleys Council (SVC);

* Aboriginal groups;chambers of commerce and community groups;

* the general public; and

* media.

The NSW National Parks and Wildlife Service (NPWS) as owner and manager of KNP where Snowy 2.0 is being constructed would also have an interest in the proposed segment factory.

Stakeholder engagement for Snowy 2.0 has been comprehensive to date and reflects the importance Snowy Hydro places on this aspect of its business.

Stakeholder engagement commenced with the introduction of Snowy 2.0 to all stakeholders in mid-to-late 2017, including provision of information on Snowy Hydro's website, publication of newsletters and booklets, a round of community drop-in sessions held in Adaminaby, Cooma, Talbingo and Tumut in November 2017, briefing sessions and meetings. These engagement activities have continued throughout the development of Snowy 2.0.

Further details of the engagement activities undertaken to date are contained in the EIS for Exploratory Works (EMM 2018).

Snowy Hydro is committed to continuing to engage with stakeholders during the approval processes for Snowy 2.0, including the proposed segment factory.

Engagement targeted specifically for the proposed segment factory will comprise several initiatives, as follows:

* community consultation sessions to be held in key local communities – these sessions will provide an update on Snowy 2.0 as a whole, including information on the proposed segment factory;

* Chamber of Commerce-led engagement with businesses around impacts and opportunities associated with the proposed segment factory;

* engagement with Indigenous leaders, groups, and organisations around mobilisation for opportunities associated with the proposed segment factory;

* engagement such as meetings with State and Commonwealth government agencies, and SMRC and SVC; and

* engagement with businesses within the Polo Flat industrial area.

In addition to the direct stakeholder and community engagement initiatives outlined above, project information will also be provided to the local community and targeted stakeholders via the following:

* project information booklets and video;
* Snowy 2.0 pages on the Snowy Hydro website (www.snowyhydro.com.au);

* emails to key groups including groups registered on the Snowy 2.0 Business Directory;

* Snowy 2.0 display in the Snowy Hydro Discovery Centre, Cooma;

* Snowy Hydro quarterly newsletter will contain project updates;

* a project phone number (1800 Snowy2 or 1800 766 992 to answer any direct queries; and

* a project email address (snowy2.0@snowyhydro.com.au) to directly respond to concerns and enquiries.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

Exploratory Works

An EIS for the Exploratory Works was prepared in accordance with Part 3 of Schedule 2 of the EP&A Regulation (as per Section 5.16 of the EP&A Act). The Exploratory Works EIS was submitted to DPE and placed on public exhibition from 23 July to 20 August 2018. The Exploratory Works EIS is available at the following link - http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9208#.

The Exploratory Works action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (referral 2018/8217) was determined to be 'not a controlled action' under the EPBC Act on 10 July 2018, and DoEE also issued a declaration on 10 July 2018 that Exploratory Works is a class of actions to which section 28 of the EPBC Act does not apply.

The Exploratory Works were approved by the NSW Minister for Planning in February 2019.

Main Works

Snowy Hydro Limited became a 'Commonwealth agency' for the purposes of the EPBC Act on 2 July 2018 following the acquisition of all shares of Snowy Hydro Limited by the Commonwealth.

An approval under the EPBC Act is required for Main Works if:

* it will have or is likely to have a significant impact on matters of national environmental significance (MNES); or

* it will have or is likely to have a significant impact on the environment in general inside or outside the Australian jurisdiction.

A Referral of the Proposed Action was submitted to DoEE on 30 October 2018 (Ref 2018/8322). A decision on the referral was made by the Assistant Secretary, Assessments and Waste Branch (as delegate) on 5 December 2018 which stated that Snowy 2.0 is a controlled action that will require assessment and approval under the EPBC Act due to its potential impacts on MNES and the environment. The decision also determined that Snowy 2.0 will be assessed by accredited assessment under Part 5, Division 5.2 of the EP&A Act, also known as a bilateral approval process where a single assessment process is undertaken for determining State and Commonwealth approvals.

An EIS is being prepared for Main Works under Division 5.2 of the EP&A Act, as the applicable accredited assessment process determined under section 87(4) of the EPBC Act. It is expected that the EIS will be lodged with DPE in late August 2019.

Preliminary environmental investigations were carried out to identify the relevant matters to be addressed in the EIS for Snowy 2.0 Main Works, and the required level of assessment. This process was guided by the draft guidelines for scoping an environmental impact statement as prepared by the DPE (2017) and informed by the series of workshops undertaken between Snowy Hydro and the Project Team. The results of the preliminary assessment is available at the following link - https://www.planningportal.nsw.gov.au/major-projects/project/12891.

Proposed segment factory

Similar to Main Works, an approval under the EPBC Act is considered to be required for the proposed segment factory if:

* it will have or is likely to have a significant impact on MNES; or

* it will have or is likely to have a significant impact on the environment in general inside or

outside the Australian jurisdiction.

While some survey work has been carried out to date, additional surveys and impact assessments are needed to determine whether the proposed segment factory wiould have a potential impact on MNES and the environment generally. Accordingly, Snowy Hydro, has resolved to take a precautionary approach and nominate that the proposed segment factory has the potential to have a significant impact on MNES and the environment generally. This will allow potential impacts to relevant MNES and the environment generally to be considered in the EIS being prepared for the project.

The approval process under the EPBC Act has yet to be determined and will be discussed with DoEE. Proposed actions can be assessed using different methods, depending on a range of considerations. Actions can be assessed using one of the following assessment approaches:

* accredited assessment (as is the case for Main Works);

* assessment on referral information;

* assessment on preliminary documentation;

* assessment by EIS or public environment report; or

* assessment by public inquiry.

Notwithstanding the above, it is Snowy Hydro’s preference that the proposed segment factory be assessed using preliminary documentation which would include the EIS being prepared under the NSW approval process. This EIS will consider impacts to relevant MNES and the environment generally.

1.15 Is this action part of a staged development (or a component of a larger project)?

No

1.16 Is the proposed action related to other actions or proposals in the region?

Yes

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation).

The related action is Main Works (as previously described) and a separate application by TransGrid for the Snowy 2.0 Transmission Connection Project.

TransGrid will be submitting a separate application and EIS for the Snowy 2.0 Transmission Connection Project under the EP&A Act. In addition, a separate referral for the project was lodged by TransGrid on 28 February 2019 (Ref 2018/8363).

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Alpine Sphagnum Bogs and Associated Fens	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping =

Species	Impact
	Negligible The Alpine Sphagnum Bogs and Associated Fens community is found in permanently wet areas, such as along streams, drainage lines, valley edges and valley floors in alpine, sub-alpine and montane areas, on general to moderate slopes. The characteristic floristics, of which Sphagnum is a major component, are maintained by summer groundwater seepage. The community was not identified at the site during surveys to undertake detailed vegetation mapping.
Natural Temperate Grassland of the South Eastern Highlands	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Recorded Natural Temperate Grasslands of the South Eastern Highlands occurs at elevations of 250-1,200 m, on a wide range of topographic positions and on soils derived from a variety of substrates. It occurs as a naturally treeless or sparsely treed community. The Polo Flat airfield supports areas of Natural Temperate Grassland. The proposed segment factory has been microsited in areas of lower quality grassland in the southern part of the airfield. While these areas meet condition threshold B in the conservation advice (Threatened Species Scientific Committee 2016) they are not considered to be in high to very high condition as plot data indicates they lack the required number of non-grass and key indicator species. The areas of Natural Temperate Grassland where the proposed segment factory will be sited have been subject to grazing in the past and are subject to ongoing degradation due to invasion by African Lovegrass (Eragrostic curvula), with significant infestations to the east and south. These patches are also isolated from other larger patches to the north. Without significant intervention these areas are likely to degrade further and are considered unviable in the longer term. Based on existing plans of the proposed segment factory, the likely maximum impact of low quality Natural Temperate Grassland is about 0.7 ha.
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Upland Wetlands of the New

Species	Impact
	England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion) ranges from closed to mid-dense sedgeland and grasslands occurring on the shores of open water, or extend across shallow or dry wetlands. There are no shrub or tree species that occur naturally within this ecological community. Majority of this ecological community occurs on basalt-derived soils, with some occurring on soils derived from granite or silcrete. The community was not identified at the site during surveys to undertake detailed vegetation mapping.
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible White Box-Yellow Box-Blakely’s Red Gum Grassy Woodlands occurs from Queensland to South Australia. The community occurs as a grassy woodland or derived grassland community dominated by White Box (Eucalyptus albens), Yellow Box (E.melliodora) or Blakely’s Red Gum (E.blakelyi) in the east of the community’s range, or Grey Box (E. microcarpa or E. moluccana) in the Nandewar bioregion. The community was not identified at the site during surveys to undertake detailed vegetation mapping.
Mauve Burr-daisy	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Moderate Sprawling, branched herb confined to the Monaro and Kosciuszko regions. Colonizes bare patches and along roadsides at higher altitudes in Temperate Montane Grasslands, Subalpine Woodlands, Tableland Clay Grassy Woodlands and Southern Tableland Wet Sclerophyll Forests. There are 32 records of the species within 10 km of the site. The species is considered to have potential to occur within the site, with suitable grassland habitat present.
Trailing Hop-bush	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Low Low, spreading shrub occurring in the dry areas of Monaro between Michelago and Dalgety. Grows on near vertically tilted shale outcrops and in bare, open patches in a variety of

Species	Impact
	communities including Natural Temperate Grassland, Snow Gum Eucalyptus pauciflora Woodland, Montane Lakes and Freshwater Wetlands. Grows on sandy-clay soils. There are 15 records of the species within 10 km of the site. However, the site does not contain suitable tilted shale outcrops.
Silver-leaved Mountain Gum	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Mallee or small tree found in two separate locations in the Lithgow to Bathurst area and the Monaro area from Bredbo to Bombala. Grows as an understorey plant in a variety of communities including Upper Riverina Dry Sclerophyll Forests, Southern Tableland Dry Sclerophyll Forests, Southern Tableland Grassy Woodlands and Tableland Clay Grassy Woodlands. Grows in shallow, infertile soils. The species has not been recorded within 10 km of the site. No tree species have been recorded during surveys undertaken at the site.
Hoary Sunray	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = High The Hoary Sunray is a small, perennial paper daisy endemic to south-eastern Australia, where it occurs in NSW, the ACT Victoria and Tasmania. In NSW the species occurs in an area roughly bounded by Albury, Bega and Goulburn, occupying grasslands, grassy areas in woodlands and dry open forests, and modified habitats, on a variety of soil types. There are 22 records of the species within 10 km of the site. The species was recorded immediately south of the site during vegetation mapping. The species is considered to have potential to occur within the site, with suitable grassland habitat present.
Pale Pomaderris	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Small compact shrub recorded from near Kydra Trig north-west of Nimmitabel, Tinderry Nature Reserve, the Queanbeyan, Shoalhaven and Murrumbidgee Rivers and the Byadbo area in Kosciuszko National Park. Found growing in association with Brittle Gum

Species	Impact
	(Eucalyptus mannifera) and Red Stringybark (E. macrorhyncha) or Callitris spp. woodland in Southern Tableland Dry Sclerophyll Forests and Eastern Riverine Forests. The species has not been recorded within 10 km of the site. The site does not contain suitable woodland habitat associated with this species.
Tarengo Leek Orchid	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Tarengo Leek-orchid is a slender herb to 30 cm, its cylindrical leaf reaching 25 cm. A narrow flowering spike is produced in October to November, with five to 18 flowers. The species is found at four sites in NSW at Captains Flat, Ilford, near Delegate and near Boorowa (north of the site) where it occurs on relatively fertile soils in grassy woodland or natural grassland. The species has not been recorded within 10 km of the site. The site is outside the known distribution of the species.
Monaro Golden Daisy	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Low The Monaro Golden Daisy, is a low, tufted perennial with dark green leaves, with a woolly under surface, to about 10 cm. The solitary, slightly domed flower-heads are about 15 mm across and occur on erect woolly stems to about 25 cm tall. The species is known from 21 locations in KNP on high (sub-alpine) treeless plains, mainly above an altitude of 1,200 m. There are 26 records of the species within 10 km of the site. The species is considered to have potential to occur within the site, with suitable grassland habitat present.
Button Wrinklewort	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Low Low, multi-stemmed perennial herb with a scattered distribution of localised populations at Goulburn, Canberra-Queanbeyan and Michelago. Found growing in the ecotone between woodland and grassland as well as disturbed sites in Box-Gum Woodlands, Natural Temperate Grasslands, Temperate Montane Grasslands, Southern Tableland Grassy Woodlands, Subalpine Woodlands and Western

Species	Impact
	Slopes Grassy Woodlands. Grows in shallow, stony red-brown clay loam soils. Around the Canberra-Queanbeyan region the Button Wrinkelwort primary occurs in the ecotone between treeless dominated grasslands and open grassy woodlands. The species has not been recorded within 10 km of the site. The site does not contain suitable habitat with an ecotone between grassland and grassy woodland.
Austral Toadflax	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Moderate Austral Toadflax is a hairless, yellow-green perennial herb with slender wiry stems to 40 cm high and tiny white flowers. The species occurs in NSW, the ACT, Queensland and Victoria and has a sporadic and widespread distribution within this range. The species occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast and is often found in association with Kangaroo Grass (Themeda australis). The species has not been recorded within 10 km of the site. The site contains suitable grassland habitat, but surveys have confirmed that Kangaroo Grass is not present.
Curlew Sandpiper	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Curlew Sandpiper is a small, slim sandpiper. Inland, the species mainly occur around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They forage at the edges of shallow pools and drains of intertidal mudflats and sandy shores. The species has not been recorded within 10 km of the site. The site is outside of the known distribution of the species and does not provide suitable habitat.
Painted Honeyeater	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Painted Honeyeater has black upperparts, white underparts, black spots on its flanks and yellow edges to the flight and tail feathers. The bill is a deep pink and the eye red. The species is sparsely distributed from

Species	Impact
	south-eastern Australia to north-western Queensland and eastern Northern Territory, with inland slopes of the Great Dividing Range seeing greatest concentrations and almost all records of breeding. The species has a specialist diet mainly consisting of mistletoe fruits, but also includes nectar. The species inhabits mistletoes in a variety of vegetation types, including eucalypt forests/woodlands, riparian woodlands, box-ironbark-yellow gum woodlands, acacia-dominated woodlands, paperbarks, casuarinas, callitris, and trees on farmland or gardens. The species has not been recorded within 10 km of the site. The site is outside of the known distribution of the species and does not support key habitat or feed tree species.
Swift Parrot	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Swift Parrot is a small fast-flying, nectarivorous parrot which occurs in eucalypt forests in south eastern Australia. The species breeds in Tasmania and migrate to mainland Australia in autumn. During winter the parrots disperse across a broad landscape, foraging on nectar and lerps in eucalypt forests, particularly inland box-ironbark and grassy woodlands, and Coastal Swamp Mahogany (E. robusta) and Spotted Gum (Corymbia maculata) woodland when in flower. The species has not been recorded within 10 km of the sit The site does not support key habitat or feed tree species.
Eastern Curlew	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Eastern Curlew is the largest migratory shorebird in the world, migrating to Australia during the northern hemisphere winter. In Australia, the species has a primarily coastal distribution, inhabiting sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. The species has not been recorded within 10 km of the site. The site is outside of the known distribution of the species and does not provide suitable habitat.

Species	Impact
Australian Painted Snipe	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Australian Painted Snipe is a stocky wading bird, endemic to Australia and has been recorded at wetlands in all states and territories. The species inhabits shallow ephemeral and permanent freshwater (occasionally brackish) wetlands. The species has not been recorded within 10 km of the site. The site does not provide suitable wetland habitat for this species.
Spotted-tailed Quoll	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Spotted-tailed Quoll is one of Australia’s largest extant marsupial carnivores and has a distinctive spotted appearance. The species is primarily forest-dependent , and occupies a wide range of habitat types, including rainforest, wet and dry sclerophyll forest, coastal heathland, scrub and dunes, woodland, heathy woodland, swamp forest, mangroves, on beaches and sometimes in grassland or pastoral areas adjacent to forested areas. The species has home ranges of several hundred to several thousand hectares in size and will use multiple dens. moving between den sites every one to four days. The species occurs at low densities. The species has not been recorded within 10 km of the site. The site does not contain suitable habitat for this species.
Greater Glider	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Greater Glider is the largest gliding possum in Australia. The species is distributed across eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest), with an elevational range from sea level to 1,200 m above sea level. The species is restricted to eucalypt forests and woodlands, typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows. The species distribution may

Species	Impact
	be patchy even in suitable habitat. The species has not been recorded within 10 km of the site. The site does not contain suitable eucalypt forests or woodlands.
Koala	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Koala is a tree-dwelling, medium-sized marsupial, distributed from Cairns to South Australia, however, the listed population does not include Victoria or South Australia. Koalas inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by species from the genus Eucalyptus. The distribution of Koalas is also affected by altitude, with the species limited to below 800 m ASL. There are four records within 10 km of the site. The site does not contain any suitable Eucalypt forest or woodland.
Smoky Mouse	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Smoky Mouse is a small native rodent endemic to mainland south-eastern Australia, where it occurs in Victoria, NSW and the ACT. The species has a relatively wide but disjunct distribution within this broad range; populations are small and fragmented. The precise habitat requirements of the Smoky Mouse are not clear. A wide range of vegetation communities are occupied, from damp coastal heath in East Gippsland, to sub-alpine heath. However, in the South Eastern Highland most records are from ridgeline dry heathy open-forest. The species has not been recorded within 10 km of the site. The site is outside the known distribution of the species and does not support preferred habitat types.
Grey-headed Flying-fox	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Grey-headed Flying-fox is a large, endemic megachiropteran bat occurring in south-eastern Australia. The species distribution extends from Bundaberg in Queensland to Melbourne in Victoria, and from the coast inland to the western slopes of NSW.

Species	Impact
	There are some contemporary records from South Australia. The Grey-headed Flying-fox feeds on nectar and pollen from flowers of canopy trees and fleshy fruits from rainforest trees and vines, with regional preferences shown. There are two records within 10 km of the site, to the west. The site does not support suitable feeding or roosting vegetation, lacking necessary canopy trees and freshy fruits.
Yellow-spotted Tree Frog	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Yellow-spotted Tree Frog has only recently (2010) been recorded in the wild again. Before this it had not been recorded in the wild since the 1970s. It has a disjunct distribution, being recorded on the New England Tableland and on the southern highlands from Lake George to Bombala. There are unconfirmed reports from near Bathurst and Orange. Found in large permanent ponds, lakes and dams with an abundance of bulrushes and other emergent vegetation. It shelters during autumn and winter under fallen timber, rocks, other debris or thick vegetation. The species has not been recorded within 10 km of the site. The site does not support suitable wetland habitat.
Southern Bell Frog	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Low The Growling Grass Frog is a large frog endemic to south-eastern Australia. In NSW the species occurs from Bombala in the far south-eastern corner of the state, through the Southern Tablelands, and along the Murrumbidgee and Murray Rivers. The Growling Grass Frog inhabits a wide range of still waterbodies, including lagoons, swamps, lakes, ponds, farm dams, irrigation channels and quarries and may occupy slow-flowing sections of streams and rivers . There are two records of the species adjacent to the site. The site does not support suitable still waterbodies, or slow-flowing stream habitat.
Pink-tailed Worm-lizard	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = Low

Species	Impact
	The Pink-tailed Worm-lizard a small, legless and very slender lizard that lives underground. The species occurs in NSW, Victoria and the ACT where it is widely but patchily distributed along the foothills of the western slopes of the Great Dividing Range between Bendigo in Victoria and Gunnedah in NSW. Habitat includes primary and secondary grassland, grassy woodland and woodland communities, and the species usually inhabits sloping sites that contain rocky outcrops or scattered, partially buried rocks. Habitat tends to be well-drained mid-slope or ridge-top sites with loosely embedded rocks on soil substrate with ant galleries present. There is one record of the species adjacent to the site. The site does not contain suitable habitat with loosely embedded and surface rocks specific for this species.
Striped Legless Lizard	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = High The Striped Legless Lizard is a member of the family Pygopodidae. As with other members of the legless lizard family, the species lacks forelimbs and has only very reduced vestigial hind limbs. The species is patchily distributed in grasslands of south-eastern NSW, the ACT, north-eastern, central and south-western Victoria, and, possibly, south-eastern South Australia. The species inhabits both native, derived and exotic grasslands; the presence of a relatively dense and continuous structure, rather than the floristic composition of the grasslands, may be important in influencing the persistence of the species. There are 22 records of the species within 10 km of the site, to the south. The site contains suitable tussock grassland habitat.
Grassland Earless Dragon	Potential to occur in the site (desktop assessment) = Yes Likelihood of occurrence following detailed vegetation mapping = High Occurs at sites dominated by wallaby grasses, spear grasses, Poa Tussock, Red Grass, Kangaroo Grass and introduced pasture grasses. It prefers areas open structure, with small patches of bare ground between the grasses and herbs. Partially embedded surface rocks, and spider and insect holes are used for

Species	Impact
	shelter. Rocks and arthropod holes provide important thermal refuges. There are 71 records of the species within 10 km of the site, to the south and west. The site contains suitable open grassland habitat.
Murray Cod	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Murray Cod was formerly widespread and abundant in the lower and mid-altitude reaches of the Murray-Darling Basin but now has a patchy distribution and abundance across its historic range. The species has been found in diverse habitats including flowing and standing waters, small, clear, rocky streams on the inland slopes and uplands of the Great Dividing Range, large, turbid, meandering slow-flowing rivers, creeks, anabranches, and lakes and larger billabongs of the inland plains of the Murray Darling Basin. The species has not been recorded within 10 km of the site. The site does not contain any suitable waterways.
Macquarie Perch	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Macquarie Perch is found in the Murray-Darling Basin, particularly the upstream reaches of the Lachlan, Murrumbidgee and Murray rivers, and parts of south-eastern coastal NSW. The draft National Recovery Plan for Macquarie Perch identifies four self-sustaining populations; none are within the site. Macquarie Perch prefer clear water and deep, rocky holes with extensive cover in the form of aquatic vegetation, large boulders, debris and overhanging banks. Macquarie Perch inhabiting impoundments would likely undertake upstream spawning migration in October to mid-January after which adults usually move from the streams to the lake. Migration may not be necessary in stream dwelling fish. The species has not been recorded within 10 km of the site. The site does not contain any suitable waterways.

2.4.2 Do you consider this impact to be significant?

No

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Fork-tailed Swift	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Almost exclusively aerial (foraging). The Fork-tailed Swift breeds in Asia but migrates to Australia from September to April. Individuals or flocks can be observed hawking for insects at varying heights from only a few metres from the ground and up to 300 m high. There is one record of the species within 10 km of the site. The species has the potential to occur flying over the site. The species does not breed within Australia; therefore no breeding habitat is within the site.
White-throated Needletail	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible An aerial species found in feeding concentrations over cities, hilltops and timbered ranges. Breeds in Asia. White-throated Needletails almost always forage aerially, at heights up to ‘cloud level’. There is one record of the species within 10 km of the site. The species has the potential to occur flying over the site; however, there is no suitable roosting or breeding habitat.
Black-faced Monarch	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Black-faced Monarch mainly occurs in rainforest ecosystems and occasionally found in nearby open eucalypt forests in gullies with a dense, shrubby understorey. The Black-faced Monarch breeds in Australia in rainforest habitat, generally nesting near the top of trees with large leaves or in lower shrubs. Nests are well concealed by

Species	Impact
	foliage. The species has not been recorded within 10 km of the site. The site does not contain suitable rainforest habitat or open eucalypt forests.
Yellow Wagtail	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Regular spring-summer visitor in north of Australia, rare vagrant or occasional visitor farther south. Found in marshes, damp paddocks, airfields, cultivated fields, lawns and estuaries. The species has not been recorded within 10 km of the site. The site is not considered to support suitable habitat for this species.
Satin Flycatcher	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Satin Flycatcher inhabits heavily vegetated gullies in eucalypt-dominated forests and taller woodlands, and on migration, occur in coastal forests, woodlands, mangroves and drier woodlands and open forests. The species can occur at elevations of up to 1,400 m ASL. The Satin Flycatcher breeds in heavily vegetated gullies. The species has not been recorded within 10 km of the site. The site does not contain support suitable eucalypt-dominated forests or woodlands
Rufous Fantail	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Migratory species that prefers dense, moist undergrowth of tropical rainforests and scrubs. The species mainly inhabits wet sclerophyll forests often in gullies dominated by eucalypts such as Tallow-wood (Eucalyptus microcorys), Mountain Grey Gum (E. cypellocarpa), Narrow-leaved Peppermint (E. radiata), Mountain Ash (E. regnans), Alpine Ash (E. delegatensis), Blackbutt (E. pilularis). During migration it can stray into gardens and more open areas. There are four records of the species within 10 km of the site. The site does not support suitable dense rainforest habitat.
Common Sandpiper	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping =

Species	Impact
	Negligible Inhabits a wide range of coastal and inland wetlands, often with muddy or rocky margins. Also known to occur at estuaries, billabongs, dams, pools and lakes, often associated with mangroves. The species has not been recorded within 10 km of the site. The site does not support suitable wetland habitat for this species.
Sharp-tailed Sandpiper	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Sharp-tailed Sandpiper forages at the edge of water within wetlands or intertidal mudflats, either on bare wet mud, sand or shallow water. They will also forage among inundated vegetation of saltmarsh, grass or sedges. Roosting occurs at the edges of wetlands, on wet open mud or sand or in sparse vegetation. The species has not been recorded within 10 km of the site. The site does not support suitable wetland habitat with open mud or sand banks
Curlew Sandpiper	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible The Curlew Sandpiper occurs around the coasts and are also quite widespread inland, though in smaller numbers. Breeding is restricted to the Arctic of northern Siberia. The species mainly occurs on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons. They are also recorded inland around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. The species has not been recorded within 10 km of the site. The site is outside of the known distribution of the species and does not provide suitable waterbodies with muddy or sandy edges.
Pectoral Sandpiper	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Scarce, but regular visitor, usually recorded in summer from November to March. Widespread but scattered records in Australia. Usually found in fresh to saline wetlands, floodplains, swamps, estuaries and lagoons,

Species	Impact
	sometimes with emergent or fringing vegetation such as grass. The species has not been recorded within 10 km of the site. The site does not support suitable wetland habitat.
Latham’s Snipe	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Typically found on wet soft ground or shallow water with good cover of tussocks or in wetland with dense cover. Often found in wet paddocks, seepage areas below dams. There are two records of the species within 10 km of the site. Suitable habitat does not occur within the site.
Eastern Curlew	Potential to occur in the site (desktop assessment) = No Likelihood of occurrence following detailed vegetation mapping = Negligible Occurs in sheltered coasts, especially estuaries, embayments, harbours, inlets and coastal lagoons with large intertidal mudflats or sandflats often with beds of seagrass. The species has not been recorded within 10 km of the site. The site is outside of the known distribution of the species and does not provide suitable waterbodies with muddy or sandy edges.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

Yes

2.7.1 Is the proposed action likely to have ANY direct or indirect impact on the Commonwealth land?

Yes

2.7.2 Describe the nature and extent of the likely impact on the whole of the environment.

Environmental assessments of the proposed segment factory have commenced and are ongoing. The potential impact of the proposed segment factory on the environment generally has yet to be determined. Snowy Hydro has resolved to take a precautionary approach and nominate that the proposed segment factory has the potential to have a significant impact on the environment generally so that actual impacts can be assessed and documented within an EIS for the project.

2.7.3 Do you consider this impact to be significant?

Yes

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

Yes

2.11.1 Describe the nature and extent of the likely impact on the whole of the environment.

Environmental assessments of the proposed segment factory have commenced and are ongoing. The potential impact of the proposed segment factory on the environment generally has yet to be determined. Snowy Hydro has resolved to take a precautionary approach and nominate that the proposed segment factory has the potential to have a significant impact on the environment generally so that actual impacts can be assessed and documented within an EIS for the project.

2.11.2 Do you consider this impact to be significant?

Yes

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on any part of the environment in the Commonwealth marine area?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

Preliminary flora and fauna surverys of the project area have been undertaken.

Vegetation habitat description

The results of the surveys indicate that habitat has historically been modified as part of previous and current land uses, including the introduction of many non-native grassland species and forbs. The habitat has also been grazed by cattle, with evidence of cows having an impact on the grassland habitat.

Non-native arable grassland dominated the site with some patched of degraded natural temperate grassland, listed as Natural Temperate Grassland of the South Eastern Highlands, a critically endangered ecological community under the EPBC Act. The natural temperate grassland consists mainly of native grasses and forbs. Native grasses include Wallaby Grass (*Rytidosperma* spp.), Yangabil (*Austrostipa bigeniculata*), Common Couch (*Cynodon dactylon*), Speargrass (*Austrostipa scabra*), Common Wheatgrass (*Elymus scaber*), Red Grass (*Bothriochloa macra*), Hairy Panic (*Panicum effusum*), *Themeda triandra* and *Enneapogon nigricans*. Native forb species include Crowfoot (*Erodium spp.*), Fuzzweed (*Vittadinia spp*.), Small Crumbweed (*Dysphania pumilio*), Common Everlasting (*Chrysocephalum apiculatum*), Bluebell (*Wahlenbergia spp.*), Swamp Dock (*Rumex brownii*), Pigweed (*Portulaca oleracea*), Woodruff (*Asperula spp.*), Hairy Sheep's Burr (*Acaena agnipila*), Climbing Saltbush (*Einadia nutans*) and *Calotis spp.*.

Exotic species were also recorded within the site including African Lovegrass (*Eragrostis curvula*), Viper's Bugloss (*Echium vulgare*), Skeleton Weed (*Chondrilla juncea*), Buchan Weed (*Hirschfeldia incana*), St. Johns Wort (*Hypericum perforatum*), Lamb's Tongues (*Plantago lanceolataI*), *Salvia verbenaca* and Common Crowfoot (*Erodium cicutarium*).

Fauna habitat description

The site contains limited features to support terrestrial mammals as the grass cover is mostly patchy and no features such as fallen wood are on site. No trees are present and the site contains no features suitable for arboreal mammals. The site contains some habitat for foraging and ground nesting birds. No permanent water features are on site with only a dry creek bed and drainage line located on the site.

Three listed reptile species are known to be associated with natural temperate grassland and have the potential to occur on site. These species include; Grassland Earless Dragon (*Tympanocryptis pinguicolla*) listed as endangered under the NSW *Biodiversity Conservation*

*Act 2017 (*BC Act) and EPBC Act, Striped Legless Lizard (*Delma impar*) listed as vulnerable under the BC and EPBC Act and Little Whip Snake (*Suta flagellum*) listed as vulnerable under the BC Act. Features that are suitable to support these reptile species such as surface rocks, clay cracks from the drying soil and some suitable tussocky grasses are scatted throughout the site. Micro-habitats that are known to be favoured by the Grassland Earless Dragon, such as Wolf Spider (*Lycisa* sp.) burrows have been observed on site. While the site contains features suitable to support these species, the habitat has been modified and is no longer considered as optimal habitat.

Fora and fauna survey work is ongoing and the results will be documented in the EIS being prepared for the proposed segment factory.

3.2 Describe the hydrology relevant to the project area (including water flows).

An unnamed third order watercourse traverses the site. The watercourse receives runoff from a 4.6 square kilometres (km2) catchment area located to the south-east of the site. The catchment comprises cleared agricultural land and the Cooma landfill, which is located approximately 1.5 km upstream of the site.

Within the site, the third order watercourse flows in a north-westerly direction. The upper reach is characterised as a naturalised channel, that has been fully cleared. The watercourse enters a culvert in the lower portion of the site. The culvert discharges into an excavated channel that continues to the north-west, downstream of the site. The watercourse is known to have an ephemeral flow regime.

Downstream of the project area the watercourse flows through the Polo Flat industrial area before flowing in a northerly direction for 7.5 km before joining Cooma Creek.

Key surface water aspects that will be assessed in the EIS include flood impacts, stormwater management and impacts to watercourses and adjoining riparian land.

Survey work is being undertaken to asertain the characteristics of this creek and surrounding water courses.

A surface water and flooding assessment will be prepared as part of the EIS that will consider potential impacts of the proposed segment factory on the creek and surrounding water courses.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Vegetation characteristics have been described in section 3.1.

Soil surveys are currently being undertaken for site. The results of these will be surveys will be documented in the EIS being prepared for the proposed segment factory.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

There are no outstanding natural features or unique natural values relevant to the site or its immediate surrounds.

3.5 Describe the status of native vegetation relevant to the project area.

The status of native vegetation on the site is described in Section 3.1.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

Site levels are currently being surveyed and will be documented within the EIS being prepared for the proposed segment factory. The site levels will be used in a number of the technical assessments being undertaken as part of the EIS, including the surface water and flooding assessment, noise assessment and air quality assessment.

3.7 Describe the current condition of the environment relevant to the project area.

The current condition of the site is descriebd in Section 3.1.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

There are no Commonwealth Heritage Places or other places recognised as having heritage values relevant to the site. Notwithstanding this, the site has been used an airstrip since the 1920s, including its use as the base for the Snowy Mountains Hydro-electric Authority's flying unit to service the construction of the Snowy Scheme. While the site is not listed on any heritage register, a historic heritage assessment will be undertaken to assess the potential impact of the proposed segment factory on the site and its surrounds. The assessment will be documented within the EIS for the proposed segment factory.

3.9 Describe any Indigenous heritage values relevant to the project area.

The Monaro is country to many Aboriginal people, who 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.

Archaeologists believe that Aboriginal people had been living on Monaro for as long as 20,000 years before Europeans arrived. Although it was originally thought, by Europeans, that the Monaro Aboriginal people only resided in the high country during the warmer months (heading to the south coast district during winter), it is now understood that some groups lived on Monaro year-round. Other groups travelled through this region to the high country for Bogong moth season.

The two main groups on Monaro were the Ngarigo people of the tablelands and the Wogul or

Wolgalu group in the high country.

A comprehensive Aboriginal cultural heritage assessment of the proposed segment factory is currently being undertaken. It will be undertaken in consultation with registered Aboriginal parties.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

The site of the proposed segment factory is located on the south eastern side of the Polo Flat industrial area, predominantly on the southern part of the land owned by Snowy Hydro. The site is located to the east of Polo Flat Road and to the north of Carlaminda Road.

The site contains the following land parcels:

* southern part of Lot 14 in DP 250029 – also known as 9 Polo Flat Road, Polo Flat;

* Lot 3 in DP 238762 – also known as 33 Carlaminda Road, Polo Flat; and

* an unmade road corridor, directly south of 9 Polo Flat Road, Polo Flat and 33 Carlaminda Road, Polo Flat.

Lot 14 in DP 250029 and Lot 3 in DP 238762 are owned by Snowy Hydro. The unmade road is owned by the State of NSW.

3.11 Describe any existing or any proposed uses relevant to the project area.

Except for a few buildings located on the southern part of Lot 3 in DP 238762, the site is vacant.

Lot 14 in DP 250029 is a large parcel of land (about 57 ha) which contains a private airfield predominantly located in the middle and northern part of the land. This airfield was originally established in 1921 and further developed in the late 1950s and 1960s to service the Snowy Scheme. It became the base for the Snowy Mountains Hydro-electric Authority’s (the predecessor to Snowy Hydro) flying unit and aircraft. The land was sold by Snowy Hydro in 2001 where it continued use as a private airfield. Snowy Hydro purchased the land again in early 2019.

The site is surrounded by industrial development to the west and predominantly vacant land to the south and east. To the north of the site is the remainder of Lot 14 in DP 250029 which contains the private airfield, and other industrial development. Snowy Hydro’s private airfield contains a main north-south aligned runway, hangers and offices. It also contains an above ground fuel tank for the refuelling of planes and helicopters.

Lot 3 in DP 238762 contains a communications tower which is being decommissioned in August 2019.

There is an isolated industrial operation located about 150 m to the south east, and an abattoir located about 350 m to the east of the site.

The nearest rural residence is located about 450 m to the south south-east of the site. The nearest residences within Cooma are located about 1 km to the west of the site.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

Consistent with the principles of ecologically sustainable development, the proposed segment factory is being designed to avoid and minimise impacts where possible. In the first instance this has included consideration of the location and condition of the degraded natural temperate grassland on the site, and the siting of the proposed segment factory to avoid as much of this grassland as possible. Initial designs of the proposed sement factory had it sited predominantly on the grassland. Following surveys to undertake vegetation mapping, the proposed segment factory was resited to avoid as much of the grassland as possible.

Other measures undertaken to reduce impacts have included the enclosure of elements of the factory (eg concrete batching plant) to reduce potential noise impacts to nearby residences, and the sourcing of quarries supplying aggregate and sand to reduce truck movements through Cooma.

This process of avoidance and minimisation of impacts is an iterative process between design and environment assessment and supported by consultation activities. This process is known as a design integration and assessment (DIAA) process where the preliminary results of technical assessments, based on preliminary design information, are reported back to the designers so that designs are updated.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

For listed species and threatened ecological communities, an assessment of the biodiversity values and the likely biodiversity impacts of the project will be undertaken in accordance with relevant NSW and Commonwealth legislation and guidelines, including:

* Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (Commonwealth of Australia 2013);

* Commonwealth Department of the Environment – survey guidelines for nationally threatened species (various);

* Biodiversity Assessment Method (OEH 2017);

* Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (DEC 2004);

* Threatened species survey and assessment guidelines: field survey methods for fauna – Amphibians (DECC 2009); and

* NSW Guide to Surveying Threatened Plants (OEH 2016).

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

No

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

Protection of the environment from actions involving Commonwealth land - Yes

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

Protection of the environment from Commonwealth actions - Yes

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

Not applicable.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Snowy Hydro has an excellent track record of responsible environmental management and compliance with environmental laws, permits and approvals.

Snowy Hydro's operations are subject to environmental laws and regulations as well as project and site-specific environmental permits and approvals issued at the Federal, State and Local Government levels. These include compliance with the KNP Plan of Management and the Snowy Management Plan for operations within KNP; Environmental Protection Licences (EPLs) and environmental authorisations applicable to each of Snowy Hydro's generation facilities; and the Snowy Water Licence which prescribes rights and obligations with respect to the collection, diversion, storage, use and release of water within the Snow Scheme and the release of environmental flows.

Snowy Hydro operates in accordance with the following EPLs and environmental authorisations that specify the conditions relating to pollution prevention and monitoring:

* EPL 10515 Scheme Wide Operations;

* EPL 10379 Cabramurra Town Sewage Treatment Plant;

* EPL 13036 Colongra Power Station;

* EPL 13161 Transport of Trackable Waste;

* EPL 21051 Helicopter related activities;

* Valley Power Waste Discharge Licence;

* Laverton North Waste Discharge Licence;

* Lonsdale and Port Stanvac Power Station EPL; and

* Angaston Power Station EPL.

For Snowy Scheme operations, licensed under EPLs 10515, 10379 and 13161, a Pollution Incident Response Management Plan (PIRMP) has been developed and made publicly available in accordance with Part 3A clause 98D(2) and 98D(3) of the NSW Protection of the

Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012 for Snowy Hydro.

All licences and the PIRMP for Snowy Scheme operations are located on the Snowy Hydro website (https://www.snowyhydro.com.au/our-energy/environment/environment-protection licences/) as well as the NSW EPA's register under the Protection of the Environment Operations Act 1997 (POEO Act).

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

EPA v Snowy Hydro Limited (2008) 162 LGERA 273 – Land and Environment Court of NSW: In September 2008, as occupier, Snowy Hydro was convicted and fined $100,000 + prosecutor's costs for an offence against section120(1) of the POEO Act, regarding an incident that occurred at Jindabyne Dam.

The fine was imposed for causing water pollution to the Snowy River. This resulted from an incident during works to upgrade the Jindabyne Dam spillway in 2006. Snowy Hydro was prosecuted as occupier of the site, and its principal contractor, Fulton Hogan, who carried out the works which introduced the pollutants to the river, was also convicted for the same offence (EPA v Fulton Hogan Pty Ltd [2008] NSWLEC 268).

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation’s environmental policy and framework?

Yes

6.3.1 If the person taking the action is a corporation, please provide details of the corporation's environmental policy and planning framework.

An Environmental Management System (EMS) has been in place at Snowy Hydro since June 2000 and independently certified to the ISO14001 Standard. Further information is available on Snowy Hydro's website (https://www.snowyhydro.com.au/ourenergy/environment/environmentalsystems-processes/).

The EMS ensures Snowy Hydro stands by its environmental commitments by:

* setting clear direction through the Environment Policy and Objectives;

* identifying environmental risks and legal obligations;

* putting in place effective operational controls;

* checking and correcting as they go; and

* reviewing and updating policies and procedures.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Yes

6.4.1 EPBC Act No and/or Name of Proposal.

2000/112 - Snowy Mountain Hydro-electric Authority (SMHEA)/Water Management/Kosciuszko National Park/NSW/Murray 1 Pressure Tunnel

2018/8217 - SNOWY HYDRO LIMITED/Commonwealth/Lobs Hole Ravine Road, Kosciuszko National Park, NSW, 2627/New South Wales/Snowy 2.0 Exploratory works, Snowy Mountains, NSW

2018/8322 - SNOWY HYDRO LIMITED/Commonwealth Development/The proposed action incorporates multiple land parcels in the Snowy Mountains Region/New South Wales/Snowy 2.0 Main Works, Snowy Mountains, NSW

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
EMM 2019. Scoping Report for Proposed Segment Factory for Snowy 2.0, EMM Consulting Pty Ltd, June 2019	In this report, EMM has relied on information from publicly available desktop sources such as the NSW BioNet Atlas, Aboriginal Heritage Information Management System (AHIMS) database, and other published literature and reports. The report has been prepared by suitably qualified environmental consultants. As such, a reasonably high level of reliability is assumed in the context of the desktop level of information presented.	Any uncertainties identified in the cited text should be considered in the context of the uncertainties of those database and desktop results presented.
Snowy Hydro Ltd, 2017. Snowy 2.0 Feasibility Study Report, December 2017	The report is a feasibility study outlining the concept of Snowy 2.0. The context of the report is to provide an understanding of the overall project to a feasibility level.	The report is a feasibility study outlining the concept of Snowy 2.0 and is subject to the limitations noted in that report.
EMM 2018b. Environmental Impact Statement, Exploratory Works for Snowy 2.0, EMM Consulting Pty Ltd, July 2018	The report was prepared by suitably qualified environmental consultants largely based on field surveys and monitoring. As such, a reasonably high level of reliability is assumed. For some aspects, EMM had to rely on information from publicly available desktop sources.	Any uncertainties identified in the cited text should be considered in the context of the uncertainties of those database and desktop results presented.

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

In developing Snowy 2.0, Snowy Hydro and FGJV considered a range of alternative designs, layouts and locations for the proposed segment factory. Some of these were considered during the *Snowy 2.0 Feasibility Study* (Snowy Hydro 2017). Others were the subject of more recent and more detailed investigations and resulted in the location of the proposed segment factory at Polo Flat in its proposed configuration on the site.

The alternatives and options considered included:

* Within KNP – Snowy Hydro considered siting of the proposed segment factory within KNP at Tantangara Dam to maximise operational efficiencies and minimise the traffic movements associated with the segments, inclusive of material that was proposed to be sourced from within KNP (quarries).

* Overseas – FGJV considered the manufacture of the segments at an existing factory in Malaysia which constructs segments for tunnelling projects in Asia. These segments would be transported to Australia via ship to the port of Eden, which is the closest port to Polo Flat. In order to receive and unload the segments onto trucks, facilities at the port would need to be upgraded.

* Site of an existing quarry – FGJV considered constructing and operating the proposed segment factory at the site of an existing quarry at Culcairn which is located about half-way between Wagga Wagga and Albury to minimise traffic movements associated with raw materials required for the segments.

* Private land adjacent to KNP – the construction and operation of the proposed segment factory on private land adjacent to KNP was considered by Snowy Hydro and FGJV to reduce traffic movements associated with the delivery of the segments to the KNP.

* Other sites – several alternative sites, including sites within Canberra were considered for the location of the proposed segment factory.

* Alternative site configurations – several alternative layouts and configurations at the site were considered by FGJV for the proposed segment factory to maximise the efficiency of the factory but also minimise environmental impacts, particularly impacts on native grasslands.

Ultimately the site and layout of the proposed segment factory was chosen by Snowy Hydro and the FGJV as it:

* reduces the amount of land (and, in turn, amount of clearing) required in the KNP;

* is likely to provide the best opportunities for the local community with regards to direct employment and additional flow on economic benefits from using other local companies and facilities;

* minimises environmental impacts on the site, particularly to native grasslands; and

* minimises travel distance for raw material supply.

All feasible options and alternatives will be identified and documented within the EIS.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

No

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

GM Water and Environment

9.2.2 First Name

Andrew

9.2.3 Last Name

Nolan

9.2.4 E-mail

andrew.nolan@snowyhydro.com.au

9.2.5 Postal Address

PO Box 332
Cooma NSW 2630
Australia

9.2.6 ABN/ACN

ABN

17090574431 - SNOWY HYDRO LIMITED

9.2.7 Organisation Telephone

02 6453 2888

9.2.8 Organisation E-mail

info@snowyhydro.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, ANDREW HOLAH, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature:..... Date: 27/6/19

I, _____, the person proposing the action, consent to the designation of _____ as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature:..... Date: .....

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

GM Water and Environment

9.5.2 First Name

Andrew

9.5.3 Last Name

Nolan

9.5.4 E-mail

andrew.nolan@snowyhydro.com.au

9.5.5 Postal Address

PO Box 332
Cooma NSW 2630
Australia

9.5.6 ABN/ACN

ABN

17090574431 - SNOWY HYDRO LIMITED

9.5.7 Organisation Telephone

02 6453 2888

9.5.8 Organisation E-mail

info@snowyhydro.com.au

Proposed designated proponent - Declaration

I, ANDREW NOLAN, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: ..... Date: 27/6/19

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Director

9.8.2 First Name

Brett

9.8.3 Last Name

McLennan

9.8.4 E-mail

bmclennan@emmconsulting.com.au

9.8.5 Postal Address

Ground Floor

20 Chandos Street
St Leonards NSW 2065
Australia

9.8.6 ABN/ACN

ABN

28141736558 - EMM CONSULTING PTY LIMITED

9.8.7 Organisation Telephone

02 9493 9500

9.8.8 Organisation E-mail

info@emmconsulting.com.au

Referring Party - Declaration

I, BRETT McLENNAN, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature: Bmclennan/ Date: 27/06/2019

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. 06.20 - LAYOUT PRECAST YARD rev1.pdf
2. Figure 1.2 - PFSR002_LocalContext_20190614_02.jpg