Title of Proposal - Lake Vermont Meadowbrook Project,

Section 1 - Summary of your proposed action

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

1.1 Project Industry Type

Mining

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

Existing Operations
The existing Lake Vermont Open-cut Coal Mine (LV Mine) is owned by Bowen Basin Coal Pty Ltd (BBC) (the Proponent). Bowen Basin Coal Pty Ltd is owned by the Lake Vermont Joint Venture (LVJV) who's participants and interests are:
• QCMM (Lake Vermont Holdings Pty Ltd) (70%);
• Marubeni Coal Pty Ltd (10%);
• CHR Vermont Pty Ltd (10%); and
• Coronar (Australia) Pty Ltd (10%).

Lake Vermont Resources Pty Ltd manages Lake Vermont Mine on behalf of the LVJV. Lake Vermont Resources Pty Ltd is 100% owned by Jellinbah Group Pty Ltd.
The LV Mine is located in the Bowen Basin of central Queensland (Qld), approximately 30 kilometres (km) northeast of Dysart and 180 km southwest of Mackay, within the Isaac Regional Council (IRC) Local Government Area (LGA) (refer Attachment 1; Figure 1). The Mine is currently comprised of three Mining Leases (MLs); being ML 70331, ML 70477 and ML 70528 (refer Attachment 1; Figure 2). The LV Mine is authorised by Queensland Environmental Authority (EA) EPML00659513, last updated on 18th December 2017.

The Bowen Basin contains numerous regional mining operations (refer Attachment 1; Figure 3), with a number directly bordering the Project site (refer Attachment 1; Figure 4). Neighbouring mining projects include BHP Mitsubishi Alliance's (BMAs) Saraji Mine to the west; the recently approved Pembroke 'Olive Downs Coking Coal Project' to the north and east; Whitehaven Coal's 'Winchester South Project' and Aquilla Resources' 'Eagle Downs South Project' both to the north-east and the existing Lake Vermont Mine to the south.

Proposed Action
The Project is proposed to include the development of a double-seam underground longwall coal mine, supported by some bord and pillar development, along with three small-scale 'satellite' open-cut pits targeting the coal resource.

To support the operation of the proposed underground development, a new 'satellite' surface Mine Infrastructure Area (MIA) will be constructed on Mineral Development Licence (MDL) 429 and MDL 303. A new infrastructure corridor will also be constructed on MDL 303, linking the new MIA to the existing infrastructure located at Lake Vermont Mine (on ML 70331). This infrastructure corridor will enable the delivery of power and water, provide personnel and

materials access, as well as facilitate the clearance of ROM coal to the existing Coal Handling and Preparation Plant (CHPP). A conceptual Project layout is provided in Attachment 1; Figure 5.

The Project is expected to produce up to seven million tonnes per annum (Mtpa) of run of mine (ROM) coal, equivalent to approximately 5.5 Mtpa of metallurgical and thermal product coal (for the export and domestic market) over a life of approximately 25 years. The output from the Project will supplement the scheduled decline in production from the existing open-cut operations, so that the total output from the Lake Vermont complex will be maintained within the existing EA limit of 12 Mtpa of ROM coal.

The proposed mine development will therefore be comprised of:
• a double seam underground longwall coal mine (supported by some bord and pillar mining development);
• three small-scale ‘satellite’ open-cut pits (on MDL 303 and MDL 429);
• expansion of the existing accommodation facility at Dysart to support the construction and operational stages of the mine, noting that the expansion of the existing accommodation facility may consist of a temporary construction village as well as expansion of the existing permanent village;
• a new MIA located on MDL 303 and MDL 429, including provisioning for:
- a mine clean water dam as well as a dewatering dam (with exact locations and sizing to be determined as part of detailed technical studies);
- a surface ROM stockpile; workshop facilities; a diesel storage/re-fuelling area; an emulsion farm; equipment washdown/laydown area; administrative and operational facilities; bath house facilities; potable water and sewage treatment plants;
• an overland conveyor system or truck haulage road to deliver ROM coal from the new MIA to the existing CHPP;
• an infrastructure corridor for the delivery of power and water as well as an access roadway for the movement of personnel and materials; and
• gas drainage bores and associated surface infrastructure, including access tracks, across the underground mine footprint within MDL 303 and MDL 429.

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
Meadowbrook Project Boundary	1	-22.424850980235	148.36787283382
Meadowbrook Project Boundary	2	-22.424890650343	148.36782991848
Meadowbrook Project Boundary	3	-22.397912360453	148.36791574917
Meadowbrook Project Boundary	4	-22.397594937633	148.35143625698
Meadowbrook Project	5	-22.381802237619	148.35160791836

Area	Point	Latitude	Longitude
Boundary Meadowbrook Project	6	-22.364856819788	148.35139334164
Boundary Meadowbrook Project	7	-22.364856819788	148.3352571722
Boundary Meadowbrook Project	8	-22.331674340574	148.33491384945
Boundary Meadowbrook Project	9	-22.33119797954	148.31749021969
Boundary Meadowbrook Project	10	-22.31357147783	148.31860601864
Boundary Meadowbrook Project	11	-22.320241226797	148.37422430477
Boundary Meadowbrook Project	12	-22.324369959289	148.37370932064
Boundary Meadowbrook Project	13	-22.322305608313	148.3814340826
Boundary Meadowbrook Project	14	-22.321511619036	148.38460981808
Boundary Meadowbrook Project	15	-22.320876424362	148.38864386043
Boundary Meadowbrook Project	16	-22.320479426223	148.39293539486
Boundary Meadowbrook Project	17	-22.320161826898	148.39688360653
Boundary Meadowbrook Project	18	-22.319288425029	148.40100347957
Boundary Meadowbrook Project	19	-22.319288425029	148.40280592403
Boundary Meadowbrook Project	20	-22.319447225775	148.40967237911
Boundary Meadowbrook Project	21	-22.319447225775	148.4127622839
Boundary Meadowbrook Project	22	-22.337469936175	148.42417776546
Boundary Meadowbrook Project	23	-22.355966595487	148.43645155392
Boundary Meadowbrook Project	24	-22.358982985191	148.43035757503
Boundary Meadowbrook Project	25	-22.377714890034	148.43241751156
Boundary Meadowbrook Project	26	-22.379064124842	148.43173086605
Boundary Meadowbrook Project	27	-22.379540322239	148.43224585018
Boundary Meadowbrook Project	28	-22.380492712144	148.43267500362
Boundary Meadowbrook Project	29	-22.387238620671	148.41404974422

Area	Point	Latitude	Longitude
Meadowbrook Project Boundary	30	-22.392952546096	148.39490950069
Meadowbrook Project Boundary	31	-22.394539705939	148.39490950069
Meadowbrook Project Boundary	32	-22.39604749101	148.39482367
Meadowbrook Project Boundary	33	-22.397634615526	148.39353620968
Meadowbrook Project Boundary	34	-22.398507526286	148.39173376522
Meadowbrook Project Boundary	35	-22.399618495691	148.39078962765
Meadowbrook Project Boundary	36	-22.401681701029	148.3896738287
Meadowbrook Project Boundary	37	-22.404220988635	148.38864386043
Meadowbrook Project Boundary	38	-22.407156982095	148.38761389217
Meadowbrook Project Boundary	39	-22.408664630308	148.3866697546
Meadowbrook Project Boundary	40	-22.410807049628	148.38709890804
Meadowbrook Project Boundary	41	-22.412473352926	148.38675558529
Meadowbrook Project Boundary	42	-22.413504863999	148.38641226253
Meadowbrook Project Boundary	43	-22.414377675079	148.38641226253
Meadowbrook Project Boundary	44	-22.416043935549	148.38632643185
Meadowbrook Project Boundary	45	-22.417234109361	148.38606893978
Meadowbrook Project Boundary	46	-22.418741648215	148.38641226253
Meadowbrook Project Boundary	47	-22.424850980235	148.36787283382

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 Meadowbrook Project is located directly north and adjacent to the existing LV Mine, in the

Bowen Basin of central Qld, approximately 30 km northeast of Dysart and 180 km southwest of Mackay, within the IRC LGA.

The Meadowbrook Project is largely surrounded by existing or proposed coal mines. The Saraji Mine (and associated Saraji East Project) border the Project MDLs to the west, whilst the Olive Downs Coking Coal Project borders the Project MDLs to the north and east. The Olive Downs Coking Coal Project has recently had its Queensland EIS approved and is currently awaiting final commonwealth approval and grant of its associated MLs and EA. The northwest area of the Project shares an MDL border with the Eagle Downs South Project. These surrounding coal mining Projects are shown in Attachment 1; Figure 4 and detailed in Table 1 below.

Table 1. Surrounding Mining Tenure

Tenure	Project	Entity	Status
Multiple	Saraji Mine	BMA	Active Mine
MLA 70383	Saraji East Project	BMA	Current EIS
MLA 700033	Olive Downs Coking Coal Project	Pembroke Resources	EIS Approved (May 2019)
MLA 700034	Olive Downs Coking Coal Project	Pembroke Resources	EIS Approved (May 2019)
MDL 519	Eagle Downs South Project	Aquila Resources	Exploration & Feasibility

The Project occurs over one freehold land parcel (Refer Attachment; Figure 6) as detailed in Table 2 below.

Table 2 Land Tenure and Ownership

Lot / Plan	Tenure	Registered Owner	Property Name	Tenement
10 / CNS93	Freehold	BMA	Meadowbrook	MDL 429 & MDL 303

The current registered owners of the Meadowbrook property (within the BMA entity identified above) are BHP Coal Pty Ltd, Umal Consolidated Pty Ltd, BHP Queensland Coal Investments Pty Ltd, Mitsubishi Development Pty Ltd, QCT Investment Pty Ltd, QCT Mining Pty Ltd, and QCT Resources Pty Ltd.

At the time of preparing this Referral, the Proponent was in the late stages of purchasing the portion of the Meadowbrook property that overlays the Project MDLs. An application to subdivide this property has been made, with BMA to retain the portion of the property underlying their Saraji East Project. It is envisaged that the sale will be finalised in coming months. Upon transfer of ownership, BBC will be the registered owner of all land relevant to the Meadowbrook Project site.

Extensive areas of the proposed Meadowbrook Project have been previously cleared for grazing activities, with the land underlying MDL 303 and MDL 429 currently used predominately for cattle grazing. Qld Land Use Mapping classifies the Project area as ‘Grazing Native Vegetation’. Other dominant land uses in the nearby area are ‘Mining’ and ‘Cropping’. Minor infrastructure typically associated with grazing activities is located on the site, such as; dams, cattle yards, windmills, tracks, fence lines, etc.

Local topography is typically flat to undulating sand or clay plains with several defined alluvial flats. There are no major ranges, mountains or valleys, with desktop contour mapping showing the Meadowbrook Project typically ranges between 170 m and 200 m in elevation. The western side of the Meadowbrook Project is typically (slightly) higher in elevation, with the project generally draining west to east towards the Isaac River.

The Project site is located within the Isaac River catchment, which encompasses an area of 6,195 square kilometres (km2) within the Fitzroy River Basin. The southern and south-eastern portion of the Project site drains directly into the ephemeral Phillips Creek, which joins the Isaac River approximately 8.5 km downstream of the Meadowbrook Project. The western, eastern and central portions of the Project drain either directly into Boomerang Creek or into One-Mile Creek (a tributary of Boomerang Creek). Boomerang Creek drains into the Isaac River approximately 3.5 km downstream of the Meadowbrook Project. The northern portion of the Meadowbrook Project drains into Ripstone Creek (another tributary of Boomerang Creek) which flows into Boomerang Creek approximately 2 km downstream of the Meadowbrook Project.

There are several small wetlands scattered across the Meadowbrook Project site that are listed as either High Ecological Significance wetlands or wetlands shown on the Vegetation Management Wetlands Map (Qld), however the Meadowbrook Project is not associated with any wetlands of international or national importance. Surface water on the Meadowbrook Project is currently utilised for livestock watering.

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

1,272 hectares

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Lot 10 on Plan CNS93.

1.8 Primary Jurisdiction.

Queensland

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?

Yes

1.10.1 Is there a local government area and council contact for the proposal?

No

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

Start date 07/2022

End date 12/2047

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

The Meadowbrook Project requires a major amendment to the existing LV EA, under the Queensland Environment Protection Act 1994 (EP Act).

Given the Project development proposes a change in mining methodology (from open-cut to underground) and in respect of the plan to mine greater than 2 Mtpa; the Project EA amendment will require assessment through an Environmental Impact Statement (EIS) process.

The Project has submitted a voluntary EIS application to the Queensland Department of Environment and Science (DES) in parallel with this application. It is envisaged therefore, that the Queensland-Commonwealth bilateral assessment agreement will be applicable to establishing the assessment co-ordination between the Queensland and Commonwealth governments for this Project.

The Project is also subject to a mine lease application, pursuant to Queensland's Mineral Resources Act 1989 (MR Act).

In regards to other State legislation applicable to the Project, the following Acts have been identified as relevant:

- Aboriginal Cultural Heritage Act 2003;
- Biosecurity Act 2014;
- Electricity Act 1994;

- Environmental Offsets Act 2014;
- Environmental Protection Act 1994;
- Local Government Act 2009;
- Mineral Resources Act 1989;
- Mineral and Energy Resources (Common Provisions) Act 2014;
- Mineral and Energy Resources (Financial Provisioning) Act 2018;
- Nature Conservation Act 1992 (NC Act);
- Nature Conservation (Wildlife) Regulation 1992;
- Queensland Heritage Act 1992;
- Planning Act 2016;
- Plumbing and Drainage Act 2002;
- Regional Planning Interests Act 2014;
- Strong and Sustainable Resource Communities Act 2017;
- Vegetation Management Act 1999 (VM Act); and
- Water Act 2000.

A component of the Project will also require local government planning approval – being the upgrade of the Lake Vermont Accommodation Village in the nearby town of Dysart. The relevant local government approval authority for the Meadowbrook Project is the Isaac Regional Council (IRC).

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

BBC will undertake a public consultation program to ensure stakeholders have access to relevant Project information and are actively engaged during approval, construction and operational stages. All relevant stakeholder information including issues of concern and BBC's proposed management measures, will be described in detail within the EIS.

A Social Impact Assessment (SIA) and Economic Impact Assessment (EIA) will also be conducted to assess the potential impacts on the community and other key stakeholders. As impacts are identified, solutions will be canvassed with stakeholders, through a consultation program which will include:

- identifying affected and interested stakeholders;
- determining the affected and interested stakeholders' interests and impacts;
- development of a schedule of activities and engagements to inform the relevant stakeholders;
- development of an appropriate communication and consultation model along with the selection of appropriate communication and consultation tools; and
- ongoing review and maintenance of Project plans and documentation to address any comments and/or issues of concern from stakeholders and the community.

Communication and consultation tools will likely include the following options:

- face to face engagements;
- phone discussions;
- written notices and communications;
- newsletters; and
- media releases.

The Traditional Owners of the region are the Barada Barna people. As part of the EIS process, assessment of the Aboriginal cultural heritage values potentially impacted by the Project will be undertaken in consultation with the Barada Barna people. A Cultural Heritage Management Plan (CHMP) is currently in existence for the LV mine, with this to be reviewed as part of Project development.

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.

Several environmental studies have been completed previously for the existing LV Mine, as part of the 2004 EIS approval, the 2012 Western Extension and the 2016 Northern Expansion.

An EA Amendment Application (major amendment) will also be submitted to the DES to include the Meadowbrook Project as an extension of the existing mine. The major amendment process will trigger the requirement for an EIS under the EP Act (Qld), with a voluntary EIS application having recently been submitted by the proponent to commence this process.

The Terms of Reference (ToR) for the EIS will be developed by the DES taking into account the potential environmental impacts identified by BBC (through the Initial Advice Statement which is prepared to support the voluntary EIS application) and the specific requirements of regulators and other stakeholders, as identified through the public consultation process. The Initial Advice Statetment (IAS) that was prepared to support the Queensland EIS application is attached (as

'04072019_Meadowbrook_IAS_v3.3_Final.pdf').

The ToR for the Project is expected to include (but not be limited to) environmental impact assessment in the fields of:

- Groundwater;
- Surface water;
- Noise and vibration;
- Air quality and greenhouse gas;
- Visual amenity;
- Terrestrial ecology;
- Aquatic ecology;
- Cultural heritage (European and indigenous heritage);
- Soil and land suitability;
- Waste (mineral and non mineral);
- Land contamination;
- Rehabilitation;
- Social impacts; and
- Economic impacts.

The EIS process will facilitate comprehensive, field verified risk and impact assessment. Appropriate management and mitigation proposals will also be developed throughout the detailed technical studies.

The existing Queensland Environmental Authority (EA) for the Lake Vermont Mine is attached (as 'EA_Lake Vermont Mine_01072019.pdf').

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

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

The Project is an extension of the existing Lake Vermont Coal Mine, which commenced mining operations in September 2008 and is currently operating under EA EPML00659513 (attached above - as 'EA_Lake Vermont Mine_01072019.pdf').

Environmental studies previously undertaken for the LV EIS (2004) assessed the impacts of the proposed mine. The LV Mine did not require referral to the Commonwealth during the 2004 EIS nor the 2012 Western Extension, as environmental studies determined that no significant impacts to MNES existed at the time of application. The 2016 Northern Expansion was referred to the Commonwealth Government (Reference no. 2016/7701) and was deemed to constitute a controlled action, due to impacts to a water resource related to a large coal mining development.

This EPBC Referral describes the potential impacts of the LV Meadowbrook Project only (the proposed action). The existing LV Mine has been previously approved and has been operating since 2008.

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

No

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
Brigalow (Acacia harpophylla dominant and co-dominant) Threatened Ecological Community (TEC) – Endangered	Occurrence: Likely. Brigalow TEC is known to occur within a 20 km buffer of the Meadowbrook Project, as well as having been

Species	Impact
	previously identified on surrounding projects (LV Mine, Saraji East, Olive Downs). Three Regional Ecosystems (RE) that correspond to the TEC have been mapped by DES as occurring on the Meadowbrook Project. It is likely that this TEC will be identified within the Meadowbrook Project during RE mapping validation. TEC key diagnostic characteristics and condition threshold assessments will be undertaken as part of the EIS to confirm presence. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary possible impacts could be due to direct clearing or subsidence induced impacts. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Dichanthium queenslandicum (King Bluegrass) – Endangered	Occurrence: Potential. The species has not been recorded on any of the surrounding projects and the nearest records are over 20 km away. The species is mostly confined to Bluegrass TECs, none of which have been mapped within the Meadowbrook Project. Nevertheless, potential habitat in the form of grasslands on cracking clay soils exist within the Meadowbrook Project. This will be mapped and assessed as part of the EIS process. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts could be due to direct clearing and subsidence induced impacts. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Dichanthium setosum (Bluegrass) – Endangered	Occurrence: Potential. This species was returned in the 20 km PMST search as ‘may occur’, however has not been recorded on any of the surrounding projects and only one WildNet record was returned for the database and online searches. Nevertheless, potential habitat exists within the Meadowbrook Project, and this will be mapped and assessed as part of the EIS process. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts could be due to direct clearing and subsidence induced impacts. This will be defined through desktop and field assessments

Species	Impact
	and modelling undertaken as part of the EIS.
Eucalyptus raveretiana (Black Ironbox) – Vulnerable	Occurrence: Potential. This species was returned in the 50 km PMST search as likely to occur, however has not been recorded on any of the surrounding projects and no records were returned in the database and online searches. The species is unlikely to occur within the Meadowbrook Project as it is only known from coastal regions of eastern Qld, with the nearest records north and east of Coppabella. Nevertheless, suitable habitat exists within the Meadowbrook Project, and this will be targeted as part of the EIS process. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts could be due to direct clearing and subsidence induced impacts. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Denisonia maculata (Ornamental Snake) – Vulnerable	Occurrence: Likely. This species has been recorded several times to the west and north of the Meadowbrook Project - along Boomerang, One Mile, and Ripstone Creeks and/or their tributaries. Suitable habitat exists within the Meadowbrook Project, and this will be targeted and assessed as part of the EIS process. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary possible impacts could be due to direct clearing of species habitat and subsidence induced impacts such as water ponding. Physical disturbance activities also have the potential for species mortality and disturbance to behaviour patterns. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Erythrotriorchis radiatus (Red Goshawk) – Vulnerable	Occurrence: Potential. The species has not been recorded on surrounding projects but was listed as likely to occur within 20 km, on the PMST. One database record exists within 20 km of the Meadowbrook Project. The species is rare and elusive with a large home range. Suitable habitat is potentially available on or around the Meadowbrook Project, and the species has potential to occur on the Meadowbrook Project. Presence and habitat will be assessed during the EIS process. Impact: If found to occur, potential for impact

Species	Impact
	will be assessed against the final disturbance footprint. Primary potential impacts could include direct clearing of species habitat, subsidence related impacts to habitat, disturbance to behaviour patterns and changes to prey availability. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Geohaps scripta scripta (Squatter Pigeon (southern)) – Vulnerable	Occurrence: Likely. This species has been recorded several times on surrounding projects and returned results that it is 'known to occur' within 20 km of the Project site, on the PMST. Suitable habitat likely exists within the Project. The species is typically locally abundant in areas where it is known and its presence is not cryptic in nature. If the species is present it will likely be easily detected during the EIS process. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts could include direct clearing of species habitat, subsidence related impacts to habitat, potential for species mortality and disturbance to behaviour patterns. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Petauroides volans (Greater Glider) – Vulnerable	Occurrence: Likely. This species has been recorded on surrounding projects and returned results that it is 'likely to occur' within 20 km of the Meadowbrook Project, on the PMST. Numerous records exist within 50 km of the Project site. Suitable habitat likely exists within the Meadowbrook Project. The species is typically locally abundant in areas where it is known and curious in nature, often seen staring at spotlights during surveying activities. If the species is present it will likely be detected during the EIS process. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing of species habitat, subsidence related impacts to habitat, potential for species mortality and disturbance to behaviour patterns. This will be defined through desktop and field assessments
Phascolarctos cinereus (Koala) – Vulnerable	Occurrence: Likely. This species has been recorded on and around surrounding projects and returned that a result that it is 'known to

Species	Impact
	occur' within 20 km of the Meadowbrook Project, on the PMST. Numerous records exist within 50 km of the Meadowbrook Project site. Suitable habitat likely exists within the Meadowbrook Project. Presence and habitat will be assessed during the EIS process. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing of species habitat, subsidence related impacts to habitat, changes in the water table affecting groundwater dependant habitat, potential for species mortality and disturbance to behaviour patterns. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Rostratula australis (Australian Painted Snipe) – Endangered	Occurrence: Likely. This species was returned in the 20 km PMST search as 'may occur', however has been recorded on surrounding projects. WildNet returned two records within approximately 20 km of the Meadowbrook Project. Suitable habitat potentially exists within the Meadowbrook Project, in the form of seasonal wetlands and waterways. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing of species habitat, subsidence related impacts to habitat, changes in the water table affecting groundwater dependant habitat, potential for species mortality, disturbance to behaviour patterns and disturbance to migration patterns. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.

2.4.2 Do you consider this impact to be significant?

Yes

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
Calidris acuminata (Sharp-tailed Sandpiper) – Migratory (Wetlands)	Occurrence: Potential. This species was returned in the 20 km PMST search as may occur, with one database record within 20 – 50 km. Atlas of Living Australia (ALA) returned one record at Peak Downs Mine tailings dam, however this species has not been recorded on any of the surrounding projects. Species occurrence is concentrated on coastal margins, but still common throughout inland Australia, where suitable habitat is available. The species has potential to occur within the Meadowbrook Project as there is some seasonal habitat available to draw its presence. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing, subsidence related impacts to habitat and disruption to wetland systems. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Gallinago hardwickii (Latham's Snipe) – Migratory (Wetlands)	Occurrence: Potential. This species was returned in the 20 km PMST search as may occur, but no database records within 50 km. The closest ALA record is near Middlemount, approx. 40 km away, however it has been recorded on the Olive Downs Project site. Seasonally suitable habitat may occur within the Meadowbrook Project. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing, subsidence related impacts to habitat and disruption to wetland systems. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Gelochelidon nilotica (Gull-billed Tern) – Migratory (Wetlands)	Occurrence: Potential. This species was returned in the 20 – 50 km Wildlife Online search. ALA returned one record at Peak Downs Mine tailings dam, and a few records between Middlemount and Tieri. The species has not been recorded on any of the surrounding projects. The species has potential to occur within the Meadowbrook Project as there is some seasonal habitat available to draw its presence. Impact: If found to occur, potential for impact will be assessed against the

Species	Impact
	final disturbance footprint. Primary potential impacts include direct clearing, subsidence related impacts to habitats and other disruptions to wetland systems. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Hydroprogne caspia (Caspian Tern) – Migratory (Wetlands)	Occurrence: Potential. This species was not returned in any database search, however has been identified to occur on Olive Downs. ALA shows two records in close vicinity to the Meadowbrook Project. Seasonally suitable habitat likely occurs within the Meadowbrook Project. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing, subsidence related impacts to habitat and other disruptions to wetland systems. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Myiagra cyanoleuca (Satin Flycatcher) – Migratory (Terrestrial)	Occurrence: Potential. This species was returned in the 20 km PMST search as ‘may occur’, however no database records exist within 50 km. The closest ALA record is near Middlemount, approx. 40 km away, however it has been recorded on the Olive Downs Project site. Suitable habitat may occur within the Project. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing and subsidence related impacts to habitat. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Plegadis falcinellus (Glossy Ibis) – Migratory (Wetlands)	Occurrence: Likely. This species was returned over 50 times within 50 km of the Meadowbrook Project in the Wildlife Online search and listed as ‘may occur’ on the PMST search. ALA returned numerous records in the general area. The species has not been recorded on any of the surrounding projects, however populations frequently follow seasonal fluctuations and the species is common throughout Australia. The Meadowbrook Project likely supports suitable habitat. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing, subsidence related

Species	Impact
	impacts to habitat and other disruptions to wetland systems. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.
Tringa stagnatilis (Marsh Sandpiper) – Migratory (Wetlands)	Occurrence: Potential. This species returned one database record within 20 km of the Meadowbrook Project. ALA returned two records at Peak Downs Mine tailings dam; however it has not been recorded on any of the surrounding project sites. Some seasonal habitat may exist on the Meadowbrook Project. Impact: If found to occur, potential for impact will be assessed against the final disturbance footprint. Primary potential impacts include direct clearing, subsidence related impacts to habitat and other disruptions to wetland systems. This will be defined through desktop and field assessments and modelling undertaken as part of the EIS.

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?

No

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?

Yes

2.9.1 Impact table

Water Resource	Impact

Groundwater	The Project site is located within the Isaac Connors Groundwater Management Area as defined under the Water Resource (Fitzroy Basin) Plan 2011, made under the Water Act 2000 (Qld). Groundwater investigations within the region have been undertaken to support existing mining activities and geotechnical investigations. Existing data has identified that sources of groundwater associated with the existing LV Mine are limited. However, Groundwater may be impacted by mining activities by the depressurisation of aquifers and the release of contaminants impacting groundwater quality. Localised drawdown or depressurisation of groundwater is also considered a potential impact resultant of underground mining. Additionally, underground longwall mining will create subsidence, potentially resulting in surface cracking; which is another potential cause of depressurisation of overlying groundwater units. Subsidence cracking can also increase the potential for interaction between adjacent groundwater units and surface water. Seepage from chemical stores, mine water dams, and waste storage facilities are also potential sources of groundwater contamination. Project-specific hydrogeological studies (and impact assessment) will be undertaken as part of the EIS. This will include using early mine planning information to develop initial subsidence models; to enable potential subsidence impacts to be minimised at the design phase. Where necessary, mitigation strategies and management plans will also be utilised to support the management of impacts to groundwater.
Surface Water	The Project site is located within the Isaac River catchment, with waters in the region classified as ‘slightly to moderately disturbed’. Existing surface water impacts include broad-scale agriculture, and other mining and resource developments within the region. Saraji Mine and Saraji East Project are located upstream of the Meadowbrook Project, and through authorised releases, may influence the baseline water quality of the Project site. The Meadowbrook Project will also release into the same receiving environment as the Saraji

Water Resource	Impact
	projects which will require consideration through the EIS studies. The proposed Project drains into four watercourses; being Phillips Creek, Boomerang Creek, One-Mile Creek, and Ripstone Creek, all of which drain into the Isaac River. The Project has potential to impact on surface water resources by altering flow paths, altering flow velocities, changing flood inundation areas and potentially impacting downstream water quality and quantity (through mine-affected water releases, run-off from disturbed areas; and increased sediment loads due to erosion or disturbed land). Project-specific surface water hydrology studies (and impact assessment) will be undertaken as part of the EIS. This will include utilising early flood modelling works to minimise impacts to surface water (and inform mine design) at the design phase. Where necessary, mitigation strategies and management plans will also be utilised to support the management of impacts to surface water.

2.9.2 Do you consider this impact to be significant?

Yes

2.10 Is the proposed action a nuclear action?

No

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

No

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.

Autumn ecological field studies have already been undertaken for the Meadowbrook Project, with Spring surveys currently forecast to occur in September 2019. These ecological field surveys will form part of the EIS process and are undertaken in line with current Queensland regulatory guidelines.

The Meadowbrook Project lies within the Brigalow Belt (North) bioregion and the Isaac-Comet Downs sub-region, which are characterised by undulating to rugged ranges and alluvial plains. Vegetation is primarily acacia open forests and eucalypt woodlands (Attachment; Figure 7).

Flora

Current Queensland (DES) Regional Ecosystem (RE) mapping identifies ten REs as potentially occurring within the Meadowbrook Project site, along with significant areas of non-remnant vegetation, as shown in Attachment; Figure 7.

The identified REs occur across three land zones; being the Recent Quaternary alluvial systems (land zone 3), Tertiary to early Quaternary clay plains (land zone 4), and Tertiary to early Quaternary loamy and sandy plains and plateaus (land zone 5) (Neldner et al. 2014).

Of the ten REs identified, four are listed as Endangered and three are listed as Of Concern (under both the ‘DES Biodiversity Status’ and the Queensland ‘Vegetation Management Act’ status. An additional two REs are listed as Of Concern under the DES Biodiversity Status only (and Least Concern under the VM Act), and one is listed as Least Concern / No Concern under their respective conservation status’.

Field verification of RE mapping has commenced but is not yet complete, with further field assessment to be undertaken during Spring 2019. Thus far, seven of the ten REs have been confirmed on the Project site, with the DES RE Map confirmed as largely accurate. However, it is noted that some areas of the Project are yet to assessed, to finalise boundaries and the presence of all REs within the Project site.

The PMST returned two TECs as potentially occurring within a 0 to 20 km buffer zone of the Project site, with an additional two TECs potentially occurring within the 20 to 50 km buffer zone.

Desktop assessments identified that no Endangered, Vulnerable or Near Threatened (EVNT) flora species records occurred within 10 km of the Meadowbrook Project, while six species were identified to potentially occur within the 10 – 20 km buffer zone. An additional eleven EVNT flora

species were also identified to potentially occur within the 20 – 50 km buffer zone.

The EIS will assess the nature and extent of terrestrial and aquatic flora, TECs and vegetation communities within the Project site, along with an assessment of the potential impacts from the Project.

Fauna

Desktop assessments identified two EVNT fauna records within 10 km of the Meadowbrook Project site, 18 species with the potential to occur within the 0 – 20 km buffer zone, and an additional eight EVNT fauna species with the potential to occur within the 20 – 50 km buffer zone.

Desktop assessments identified 25 fauna species with Marine or Migratory significance under the EPBC Act, or Special Least Concern under the NC Act, with the potential to occur within 50 km of the Project site.

The EIS will assess the potential impacts to terrestrial and aquatic fauna from the Project, including clearing for mine infrastructure, as well as subsidence related impacts to habitat, watercourse and wetland values.

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

Surface Water

The Project is located within the Isaac River catchment, which encompasses an area of 6,195 square kilometres (km2) within the Fitzroy River Basin (Attachment; Figure 8). Relatively little water resource development has occurred along the Isaac River and the only significant water retaining structure is the Burton Gorge Dam, located at the headwaters of the Isaac River.

Waters in the region are classed as slightly to moderately disturbed with existing impacts from broad-scale agriculture, grazing and other mining and resource developments. For example, Saraji Mine is located upstream of Lake Vermont and releases into the same receiving environment as the Lake Vermont Mine and the proposed Project.

Three defined watercourses (under the Qld Water Act 2000) traverse the Project site (refer Attachment; Figure 9) being Hughes Creek, Boomerang Creek, and One Mile Creek. Hughes Creek is a stream order 4 watercourse and flows directly into Boomerang Creek (stream order 5) shortly after crossing the western (upstream) boundary of the Project. Boomerang Creek flows due east for about 10 km before receiving the water from One Mile Creek (stream order 3) which flows southeast for approximately 10 km, before joining Boomerang Creek close to the Project’s eastern boundary.

Boomerang Creek, One Mile Creek, and Hughes Creek flow through the neighbouring BMA leases (Saraji Mine, Saraji East Project) upstream of the Project. Thus, waters entering the Project may potentially be impacted by neighbouring mining operations.

North of the Project, crossing the northern sections of MDL 429, is Ripstone Creek and its

tributaries. Ripstone Creek flows through both the BMA leases and the recently approved Olive Downs Coking Coal Project, before joining with Boomerang Creek and flowing into the Isaac River. To the south of the Project is Phillips Creek, which flows through both the BMA leases and other Lake Vermont Mine tenements.

The southern and south-eastern portion of the Project drains directly into the ephemeral Phillips Creek (located outside of the Project boundary). Phillips Creek joins the Isaac River approximately 8.5 km downstream of the Project. The catchment area of Phillips Creek is approximately 514 km2 at the Isaac River confluence with both the Saraji Mine and Lake Vermont Mine within this drainage area.

All of the above-mentioned watercourses ultimately drain into the Isaac River (a stream order 6 watercourse under the Water Act 2000) located approximately 4 km to the east of the Project boundary.

A number of un-named drainage features form upper tributaries of the above watercourses. Streamflow in the region is highly variable, with periods of flow (typically during December to April) interspersed with long dry spells.

No wetlands of international importance (‘Ramsar’ wetlands) or nationally important wetlands (as per the Directory of Important Wetlands) are located on or near the Project site.

There are several small wetlands scattered across the Project that are listed as either High Ecological Significance wetlands (with an associated Wetland Protection Area (WPA) buffer zone) or wetlands shown on the Qld Vegetation Management Wetlands Map (refer Attachment; Figure 9).

There are also several more wetlands (of both categories) located downstream of the Project; occurring in association with the Isaac River. RE mapping also indicates the presence of lacustrine, palustrine, and riverine waterbodies, and lacustrine and palustrine REs, within the Project boundaries.

Groundwater

The Project is located within the Isaac Connors Groundwater Management Area, as defined under the Water Resource (Fitzroy Basin) Plan 2011, developed under the Water Act 2000. Groundwater assessment and modelling will be undertaken during the EIS process, to support assessment at both the State and Commonwealth level.

Groundwater investigations within the region have been undertaken to support existing mining activities and geotechnical investigations. Existing data has identified that sources of groundwater associated with the existing LV Mine are limited. Geological and hydrogeological units within the area are as follows.

Quaternary Alluvial Aquifers

Quaternary alluvium of the area is typically of limited lateral extent, relatively thin and has not been observed during prior site investigations or geological exploration data, to contain groundwater. It is conceptualised it will not contain permanent groundwater as recharge to the

alluvium via direct rainfall recharge or creek flow seeps downwards into the underlying Tertiary sediments. Review of data from groundwater databases indicates that bores have been drilled along watercourses; however, in many cases, the bores are shown to be constructed within units that underlay the alluvium, suggesting the alluvial deposits were initially targeted but found to be dry, and drilling continued until striking water at some depth below the alluvium. The alluvium, however, may be of importance as a source of groundwater recharge to underlying units which could explain the predominance of bores in areas beneath surface drainage lines.

Tertiary Sedimentary Units

Tertiary sediments nearby consist of a sub-horizontal blanket and have been previously observed from both exploration and groundwater drilling to be generally dry. However, the basal sand and gravel deposits have been noted to contain groundwater in some instances. The occurrence of these deposits is extremely sporadic, and the continuity of the deposits is not mappable.

Triassic Sedimentary Units

The Rewan Group occurs as a discrete lens that is fault-bound to the east by the Isaac Fault, and forms the recognised basal confining unit of the hydrogeological Great Artesian Basin and normally conceptualised as being a regional aquitard. The unit is known to contain structures or sandstone lenses that are capable of providing locally useable volumes of water for stock supply. However, in the surrounding region there are no registered bores constructed within Rewan Group sediments. This observation, combined with observations from prior drilling nearby, supports a conceptualisation of this unit as low permeability not forming significant regional groundwater units, and likely unimportant as a potential source of groundwater.

Permian Sedimentary Units

Within the Bowen Basin it is generally accepted that coal seams are more permeable relative to the Permian overburden and interburden material. Bores are often drilled dry until a water-bearing coal seam is encountered, with water rising up the borehole, indicating confined conditions within the coal seam. Due to the low permeability of the coal measures, groundwater residence time is often long, resulting in occurrences of highly saline groundwater in some areas. It is often the case however, that the coal measures are the first unit where useable volumes of groundwater are encountered.

Due to the likely limited groundwater resources present around the Meadowbrook Project, it is not anticipated that the Project will have an impact on Groundwater Dependant Ecosystems (GDE). However, during the EIS process an assessment will be undertaken to determine the presence of, and potential for, impact to GDEs. This will be based on a combined assessment inclusive of groundwater modelling, surface vegetation mapping and research into species rooting depths.

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

The Project consists of two major soil units (as per the Atlas of Australian Soils), with Va52 dominating the northern part of the Project and CC30 dominating the south. Va52 soils are hard

pedal mottled-yellow duplex soils formed on undulating or gently undulating lands. CC30 soils are grey self-mulching cracking-clays on gently undulating or level plains. A final soil type, Rf8, occurs on the southern margin of the Project, in association with Phillips Creek. Rf8 soils are hard pedal brown duplex soils on alluvial plains, adjacent to major streams. Soils of the Project site are shown through Attachment; Figure 10.

Prior to clearing, much of the Project supported extensive areas of Brigalow (Acacia harpophylla) on clay soils, with tracts of eucalypt woodlands on the alluvial and sand plains. Remaining remnant vegetation on the Project is characterised by forest or woodland dominated by Brigalow or Eucalyptus spp. Large portions of the vegetation within the area of the proposed action has been cleared of native vegetation to establish a range of exotic and native pastures to support cattle grazing.

The Meadowbrook Project also contains no ‘Strategic Cropping Areas’ (SCA) as established through the Queensland Regional Planning Interests Act 2014. The closest SCA to the Meadowbrook Project is located over 7 km to the south of the Project.

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

Not Applicable.

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

Queensland RE mapping (Version 10.1) mapped 10 REs in homogeneous and heterogeneous polygons within the Project site (Attachment; Figure 7).

Validation of RE mapping will be undertaken during the EIS process and this forms the basis for defining boundaries and presences of each RE within the Project.

RE	Description	**Conservation Status**	
		VM Act	**DES Biodiversity**
11.3.1	*Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains.	E	E
11.3.2	*Eucalyptus populnea* woodland on alluvial plains.	OC	OC
11.3.2b	*Eucalyptus camaldulensis* (sometimes *E. populnea* and or *E. tereticornis*) woodland in drainage depressions (i.e. vegetated swamp).	OC	OC

11.3.25	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines.	LC	OC
11.3.27b	Freshwater wetlands (i.e. billabongs, lakes). Vegetation ranges from open water +/- aquatic and emergent species.	LC	OC
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains.	OC	OC
11.4.8	*Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendron* on Cainozoic clay plains.	E	E
11.4.9	*Acacia harpophylla* shrubby woodland with *Terminalia oblongata* on Cainozoic clay plains.	E	E
11.5.3	*Eucalyptus populnea* +/- *E. melanophloia* +/- *Corymbia clarksoniana* woodland on Cainozoic sand plains and/or remnant surfaces.	LC	NC
11.5.17	*Eucalyptus tereticornis* woodland in depressions on Cainozoic sand plains and remnant surfaces.	E	E
Non-rem	Non-remnant vegetation (i.e. pasture, cropping, regrowth, etc.)	N/A	N/A

Note: E = Endangered, OC = Of Concern, LC = Least Concern, NC = No Concern at Present.

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

The topography of the Project site is described as undulating Downs country interspersed with flat broad floodplains of the Isaac River and upstream catchment.

The Project is situated in the Bowen Basin of Central Qld. Local topography is typically flat to undulating sand or clay plains with several defined alluvial flats. There are no major ranges, mountains or valleys with desktop contour mapping showing the Project typically ranges between 170 m and 200 m in elevation. The western side of the Project is typically slightly higher in elevation, with the Project generally draining west to east towards the Isaac River.

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

The environment within the area of the proposed action includes a matrix of native vegetation and vast areas of land cleared for cattle grazing purposes.

Forty three (43) introduced plant species were identified within a 20 km buffer search of the Wildlife Online database, including a variety of naturalised species such as pasture grasses and other forage forbs. Pest species of note include:

Bidens Pilosa (Cobbler's Peg);

Harrisia martinii (Harrisia Cactus);

Lantana camara (Lantana);

Opuntia stricta (Common Prickly Pear);

Opuntia tomentosa (Velvety Tree Pear);

Parthenium hysterophorus (Parthenium Weed);

Ricinus communis (Castor Oil Bush); and

Vachellia farnesiana (Mimosa Bush).

When the search was extended to a 50 km buffer, an additional 60 introduced plant species were also identified. To date, field surveys have confirmed the presence of the following weed species within the Project site:

Harrisia martinii (Harrisia cactus);

Lantana camara (Lantana);

Opuntia tomentosa (Velvety tree pear);

Parthenium hysterophorus (Parthenium weed); and

Xanthium pungens (Noogoora burr).

Four introduced animal species were identified within a 20 km buffer search of the Wildlife Online database. These are identified as:

Amphibians:

Rhinella marina (Cane Toad);

Mammals:

Canis sp. (Wild Dog);

Vulpes Vulpes (Red Fox); and

Oryctolagus cuniculus (European Rabbit).

When the search was extended to a 50 km buffer, an additional 12 introduced animal species were identified. These are:

Birds:

Ana platyrhynchos (Northern Mallard);

Passer domesticus (House Sparrow);

Mammals:

Bos sp. (Feral Cattle);

Axis axis (Chital);

Equus caballus (Wild Horse);

Felis catus (Feral Cat);

Lepus europaeus (European Brown Hare);

Mus musculus (House Mouse);

Rattus rattus (Black Rat);

Sus scrofa (Feral Pig);

Ray-finned Fishes:*Carassius auratus* (Goldfish); and

Gambusia holbrooki (Mosquitofish).

Seven pest animal species were identified as present during field surveys within the proposed Project site. These are:

Amphibians:

Rhinella marina (Cane toad);

Mammals:

Canis lupus dingo (Dingo);

Cervus elaphus (Red deer);

Felis catus (Feral cat);

Sus scrofa (Feral Pig);

Vulpes vulpes (Red fox); and

Oryctolagus cuniculus (European rabbit).

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

There are currently no known Commonwealth Heritage Places relevant to the Meadowbrook Project.

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

There are no known Aboriginal or non-Aboriginal cultural heritage sites within the existing Lake Vermont Mine or Meadowbrook Project tenements. Lake Vermont tenements lie within the National Native Title Tribunal determination area for the Barada Barna People, but do not overlay any current Native Title claims or applications.

As part of the EIS, assessment of the Aboriginal cultural heritage values of the Project will be undertaken in consultation with the Barada Barna people. The existing CHMP for LV will also be reviewed and updated as required, to support the proposed Project development.

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

The Meadowbrook Project occurs over one freehold land parcel – being identified as the 'Meadowbrook' property (Lot 10 / CNS93). This property has recently been purchased by the BHP Mitsubishi Alliance (BMA) as part of their proposed development of the Saraji East Project. (Refer Attachment; Figure 6).

Following negotiations between BMA and BBC, BBC is currently finalising the purchase of that part of the Meadowbrook property relevant to the Meadowbrook Project from BMA. This process is nearing completion, with an expected transaction and title transfer by August 2019.

Two Authority's to Prospect (ATP) permits for petroleum and one Petroleum Lease Application (PLA) also overlap with the Project site. These tenements are identified as follows:

· ATP 1103 – CH4 Pty Ltd;

· ATP 1031 – Bow CSG Pty Ltd; and

· PLA 488 – Arrow CSG Pty Ltd.

Co-ordination Agreements between the relevant parties (in relation to areas of overlapping tenure) are already in existence.

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

The land underlying the Project is predominately used for cattle grazing. Qld Land Use Mapping classifies the Project area as ‘Grazing Native Vegetation’. Other dominant land uses in the nearby area are ‘Mining’ and ‘Cropping’.

Proposed future land uses focus heavily on developing further coal mining activities.

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.

The potential impacts of the Meadowbrook Project are yet to be quantified. The type, extent and magnitude of environmental and social impacts associated with the proposed Project will be assessed during the EIS process. Depending on the findings of those assessments, appropriate mitigation and management strategies shall be developed and implemented to manage potential impacts to an acceptable level.

A range of mitigation measures and management strategies will be adopted for the Meadowbrook Project; which may include, but not be limited to:

· weed and pest control measures;

· locating and minimising disturbance from mine infrastructure and operations, where feasible, to avoid significant values;

· consideration of avoiding or minimising impacts to significant vegetation communities in mine planning where possible;

· surface and ground water control measures to minimise impacts on surface and ground water flow regimes and quality; and

· rehabilitation of disturbance areas to an agreed post mine land use.

Management Plans may also be developed to assist in establishing rigour around the management of key environmental challenges. Over the life of the Meadowbrook Project, all land disturbed by mining activity will be progressively rehabilitated. Detailed mitigation measures and management strategies will be provided in the EIS.

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.

It is anticipated that there will be no significant impact to the following MNES:

- World Heritage Properties;
- National Heritage Places;
- Ramsar Wetlands;
- Marine Environment;
- Listed migratory species
- Commonwealth Land; or
- Great Barrier Reef Marine Park.

The proponent will assess the following MNES through a comprehensive baseline and impact assessment program undertaken as part of the proposed Meadowbrook Project EIS process:

- Listed threatened species or ecological communities; and
- A water resource, in relation to a large coal mining development.

Listed threatened species or ecological communities

For TECs confirmed as present during the field verification of RE mapping, the boundaries will be mapped and a vegetation assessment undertaken, to determine whether the community meets the key diagnostic characteristics and condition thresholds of that TEC. Where possible, avoidance to impacts on field verified TECs will be undertaken through mine planning. If avoidance cannot be achieved, opportunities to minimise impacts will be investigated. Where this is not possible, and significant residual impact thresholds are expected to be exceeded, an Offset Strategy will be developed.

As a predominantly underground mine, land clearing will be minimised and the potential to impact essential habitat of species of conservation significance will be greatly reduced. Potential impacts to areas of essential habitat will be assessed in detail during the EIS process. Where possible, avoidance to impacts on essential habitat will be undertaken through mine planning. If avoidance cannot be achieved, opportunities to minimise impacts will be investigated. Where this is not possible, and significant residual impact thresholds are expected to be exceeded, an Offset Strategy will be developed.

EIS studies will assess the presence and potential impacts on flora and fauna species of conservation significance. Where possible, avoidance of impacts to species of conservation significance will be undertaken through mine planning. If avoidance cannot be achieved, opportunities to minimise impacts will be investigated. Where this is not possible, and significant residual impact thresholds are expected to be exceeded, an Offset Strategy will be developed. Additional efforts to reduce impacts to species of conservation significance also include; weed and pest species control/management and rehabilitation of disturbance areas.

Listed migratory species

EIS studies will assess the presence and potential impacts to fauna species of conservation significance. Where possible, avoidance of impacts to species of conservation significance will be undertaken through mine planning. If avoidance cannot be achieved, opportunities to minimise impacts will be investigated. Where this is not possible, and significant residual impact thresholds are expected to be exceeded, an Offset Strategy will be developed. Additional efforts to reduce impacts to migratory species of conservation significance also include; weed and pest species control/management and rehabilitation of disturbance areas.

A water resource, in relation to a large coal mining development

Surface Water:

During the EIS process a variety of assessments will be undertaken to guide the development of surface water management plans and strategies. These include, but are not limited to:

· the modelling of surface water drainage to inform mine planning, locating infrastructure and designing effective site drainage;

· a detailed flood and drainage impact assessment to identify and mitigate surface water impacts;

· a water balance model to simulate the performance of the mine water management system over the life of the Meadowbrook Project; and to assess the opportunity for re-use of water and minimise discharge of MAW; and

· a mine water management assessment to evaluate the performance of the proposed Site Water Management Plan.

Where impacts are identified, appropriate mitigation and management strategies will be designed and implemented. To minimise and manage impacts from the construction and operation of the mine, a water management system will be developed for the Meadowbrook Project. This system will be developed as part of the EIS and may include engineering designs to provide conveyance of clean water flows downstream (bypassing areas of sit disturbance).

Groundwater:

Studies conducted as part of the EIS process will assess all potential groundwater impacts related to the proposed development and provide mitigation measures for implementation. Studies will include a groundwater impact assessment (including consideration of potential groundwater dependant ecosystem(s) (GDEs); stygofauna impacts; water ingress into underground mine workings; and subsidence related impacts) This assessment will interface with the relevant findings of the surface water impact assessment and the project flood study.

Registered bores and existing groundwater users within the area of potential impact will be identified, and where needed ‘make good agreements’ will be negotiated and implemented.

The Meadowbrook Project will implement a Site Water Management Plan, Receiving Environment Monitoring Program and a Groundwater Monitoring Program to ensure effective water management during construction and operational mining phases of the Project.

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

Listed threatened species and communities - Yes

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

No

5.1.8 Great Barrier Reef Marine Park

No

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

A water resource, in relation to coal seam gas development and large coal mining development - Yes

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

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.

BBC is committed to operating in an environmentally and socially responsible manner during the approval, design, construction and operation of the Meadowbrook Project. The company currently holds multiple granted mining leases for its existing operations and is currently operating under the conditions of their EA. There have been no recent infringement notices or non-compliance orders issued. The company has a good relationship with local and state government authorities.

Environmental matters will be managed by the following commitments:

· complying with legislative requirements;

· communicating effectively with stakeholders; and

· committing to the reduction of environmental impacts.

BBC recognises that the above commitments are critical during the Project development stage and will develop a plan to ensure these commitments are met. The environmental impact assessment for each element of the Meadowbrook Project will describe the measures that will be taken to prevent or mitigate any potential adverse environmental impacts. BBC will also address the potential for social impacts and develop strategies to manage adverse impacts as required.

It is also acknowledged that environmental management requirements for the future operation of the Meadowbrook Project will be stipulated in the regulatory documents that are prepared as part of the approvals process (e.g. EA and EPBC conditions). BBC commits to establishing the necessary systems and processes to ensure compliance with all future conditioning.

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.

Not applicable.

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.

Please refer to attached Jellinbah Group Environmental Policy.

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.

2011/5873 Jellinbah Group Pty Ltd/Mining/Approx 180 km W of Rockhampton, 30 km NE of Blackwater /QLD/Mackenzie North Project, QLD.

2016/7701 Bowen Basin Coal Pty Ltd/Mining/Golden Mile Road, Dysart/Queensland/Lake Vermont open cut coal northern extension project, central Qld.

2018/8139 Jellinbah Group Pty Ltd/Mining/Freeholds: 6 LR94, 100 SP230773, 2 SP213140, 3 SP213140/Queensland/Jellinbah Coal Mine-Central North Extension, QLD.

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
AARC Environmental Solutions (AARC) (2019), Lake Vermont Meadowbrook Project Initial Advice Statement, prepared for Bowen Basin Coal Pty Ltd, AARC Environmental Solutions, Brisbane.	High	None
AARC Environmental Solutions Pty Ltd (AARC) (2019a), 'Meadowbrook Project: Aquatic Ecology Assessment', prepared for Bowen Basin Coal Pty Ltd.	High	None
AARC Environmental Solutions Pty Ltd (AARC) (2019b), 'Meadowbrook Project: Terrestrial Ecology Assessment', prepared for Bowen Basin Coal Pty Ltd.	High	None
Atlas of Living Australia website at https://www.ala.org.au/how-to-cite-ala/ Accessed August 2018	High	None
Australian Government Department of Environment and Energy (2018) Species Profile and Threat Database. Accessed Online, August 2018. http://www.environment.gov.au/cgi-bin/sprat/public/spratlookupspecies.pl	High	None
Bean AR (2012) Solanum species of eastern and northern Australia, available from <http://delta-intkey.com>, accessed October 2018.	High	None
Birdlife Australia (2018), Birdlife	High	None

Reference Source	Reliability	Uncertainties
Australia, viewed October 2018, < https://www.birdlife.org.au/all-about-birds/australias-birds/find-a-bird>		
Bureau of Meteorology (2018), Groundwater Dependent Ecosystems Atlas, available from, <http://www.bom.gov.au/water/groundwater/gde/map.shtml>	High	None
Bureau of Meteorology (2018a) Groundwater Dependent Ecosystems Atlas, available from <http://www.bom.gov.au/water/groundwater/gde/map.shtml>, accessed October 2018.	High	None
Curtis LK, Dennis AJ, McDonald KR, Kyne PM and Debus SJS (2012) Queensland's Threatened Animals, CSIRO Publishing, Queensland, Australia.	High	None
Curtis LK, Dennis AJ, McDonald KR, Kyne PM, and Debus SJS, (2012), Queensland's Threatened Animals, CSIRO Publishing, Collingwood.	High	None
Department of Agriculture and Fisheries (DAF) (2018), Restricted invasive plants of Queensland, Department of Agriculture and Fisheries, Queensland Government. Department of Environment and Science (DES) (2014), Significant Residual Impact Guideline, Queensland Environmental Offsets Policy, Department of Environment and Heritage Protection, Queensland Government, Brisbane.	High	None
Department of Environment (2013) Protected Matters Search Tool. Retrieved 2018, from http:/www.environment.gov.au/epbc/pmst/index.html	High	None

Reference Source	Reliability	Uncertainties
Department of Environment (DoEE) (2013b), Significant impact guidelines 1.1: Matters of National Environmental Significance, Commonwealth of Australia.	High	None
Department of Environment and Science (2018) Regional Ecosystems Biodiversity Status, Environmental Report for Area of interest : MDL3001, retrieved August, 2018.	High	None
Department of Environment and Science (DES) (2014) Queensland Acid Sulphate Soil Technical Manual – Soil Management Guidelines v4.0, Queensland Government, Brisbane.	High	None
Department of Environment and Science (DES) (2018a), Queensland Environmental Offsets Policy (Version 1.6), Department of Environment and Heritage Protection, Queensland Government, Brisbane.	High	None
Department of Environment and Science (DES) (2018b) Queensland Herbarium, Regional Ecosystem Description Database (REDD). Version 11 (December 2018) Brisbane. Vegetation Management Act 1999. Queensland Government	High	None
Department of Environment and Science (DES) (2018c), Species Profile Search, viewed October 2018, <https://environment.ehp.qld.gov.au/species-search/>	High	None
Department of the Environment and Energy (DoEE) (2013a), Approved Conservation Advice for the Brigalow (Acacia harpophylla dominant and co-dominant) ecological	High	None

Reference Source	Reliability	Uncertainties
community. Department of the Environment and Energy, Commonwealth of Australia, Canberra.		
Department of the Environment and Energy (DoEE) (2018), Species Profile and Threats Database, viewed October 2018, <http://www.environment.gov.au/sprat>.	High	None
Eyre T.J., Ferguson D.J., Hourigan C.L., Smith G.C., Mathieson M.T., Kelly A.L., Venz M.F., Hogan L.D. & Rowland J. (2018), Terrestrial Vertebrate Fauna Survey Guidelines for Queensland Version 3.0. Department of Science, Information Technology, Innovation and the Arts, Queensland Government, Brisbane, viewed October 2018, < https://www.qld.gov.au/__data/assets/pdf_file/0022/68224/fauna-survey-guidelines.pdf>	High	None
Holland AE and Butler DW (2007) ‘Trioncinia patens A.E. Holland and D.W. Butler (Asteraceae: Coreopsideae: Chrysanthellinae), a new and endangered species from central Queensland’, Austrobaileya, vol. 7, no. 3, p. 566.	High	None
Independent Expert Scientific Committee (IESC) 2018, Assessing Groundwater-Dependent Ecosystems: IESC Information Guidelines Explanatory Note, Department of Environment and Energy, Australian Government, Canberra	High	None
Isaac Regional Council (IRC) (2018a) Economic Indicators Profile, available from <https://www.isaac.qld.gov.au/documen	High	None

Reference Source	Reliability	Uncertainties
ts/12238/2653b654-5564-43df-8d20-4ecc2b172a76>, accessed June 2019.		
Kavanagh R.P. and Peake P. (1993), Survey procedures for nocturnal forest birds: an evaluation of variability in census results due to temporal factors, weather and technique, (edited by P Olsen), in Australian Raptor Studies, 86-100, Australian Raptor Association, Royal Australasian Ornithologists Union, Melbourne.	High	None
Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S. and Butler, D.W. (2017), Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 4.0. Updated May 2017. Queensland Herbarium, Queensland Department of Science, Information Technology and Innovation, Brisbane.	High	None
Threatened Species Scientific Committee (TSSC) (2008), Approved Conservation Advice for Delma torquata (Collared Delma), Department of the Environment, Canberra, viewed October 2018, < http://www.environment.gov.au/biodiversity/threatened/species/pubs/1656-conservation-advice.pdf>	High	None
Threatened Species Scientific Committee (TSSC) (2011), Phascolarctos cinereus (Koala) Listing Advice, Department of the Environment, Canberra, viewed May 2019,:< http://www.environment.gov.au/biodiversity/threatened/species/pubs/197-listing-advice.pdf>	High	None
Threatened Species Scientific	High	None

Reference Source	Reliability	Uncertainties
Committee (TSSC) (2016), Conservation Advice Petauroides Volans, Greater Glider, Department of the Environment, Canberra, viewed May 2019,< http://www.environment.gov.au/biodiversity/threatened/species/pubs/254-conservation-advice-20160525.pdf>		
Threatened Species Scientific Committee (TSSC) (2018), Conservation Advice Lasiorhinus krefftii northern hairy-nosed wombat, Department of the Environment, Canberra, viewed May 2019, < http://www.environment.gov.au/biodiversity/threatened/species/pubs/198-conservation-advice-15022018.pdf>	High	None
World Wide Wattle (2018) Acacia spania, viewed October 2018, <http://www.worldwidewattle.com/speciesgallery/spania.php>, accessed October 2018>	High	None

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?

No feasible alternatives are available to undertaking the proposed action.

The location of the proposed mining area is dictated by the location of the in situ coal resource and current mining operations. All mining areas and infrastructure components of the Meadowbrook Project are required to be located within the bounds of the mining leases that have been granted to BBC. Mine planning and engineering have also identified that the majority of the proposed coal resource can only feasibly be extracted via underground mining methods, due to the depth of the resource. BBC proposes the development of the mine to make best use of the existing resource.

The Meadowbrook Project has a direct economic benefit to local, regional, State and national economies. Production for the current LV opencut operation is scheduled to sharply decline from approximately 2027 as a result of increasing depth and the limits of available economic opencut reserves. The consequences of not proceeding with the Meadowbrook Project are associated with a significant coal resource remaining undeveloped and economic proceeds through taxation and royalties not being realised.

There is a significant opportunity cost to both State and Federal revenues without the development of the Meadowbrook Project. The availability of existing process facilities and product transport infrastructure at the Meadowbrook Project is limited to the economic life of the operating LV Mine. Should the development of the Meadowbrook Project be deferred to a later date, the use of existing coal processing and transport infrastructure is not guaranteed. The feasibility of a deferred Meadowbrook Project, without transport and processing facilities is highly uncertain.

The Meadowbrook Project’s EIS will consider various project alternatives to maximise the benefit of the resource and the efficiency of the existing infrastructure; while also minimising environmental impacts where possible. The EIS will also consider government priorities and objectives, to ensure the Project is well placed to deliver benefits to stakeholders.

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

Manager Underground Projects

9.2.2 First Name

Mike

9.2.3 Last Name

Rowlands

9.2.4 E-mail

mrowlands@jellinbah.com.au

9.2.5 Postal Address

1 Swann Road
Taringa QLD 4068
Australia

9.2.6 ABN/ACN

ABN

22065321440 - BOWEN BASIN COAL PTY. LTD.

9.2.7 Organisation Telephone

(07) 3877 6700

9.2.8 Organisation E-mail

mrowlands@jellinbah.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, MIKE ROWLANDS, 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: M Rowlands Date: 23/7/2019

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

Manager Underground Studies.

9.5.2 First Name

Mike.

9.5.3 Last Name

Rowlands.

9.5.4 E-mail

mrowlands@jellinbah.com.au

9.5.5 Postal Address

Level 7

12 Creek Street
Brisbane QLD 4000
Australia

9.5.6 ABN/ACN

ABN

22065321440 - BOWEN BASIN COAL PTY. LTD.

9.5.7 Organisation Telephone

(07) 3877 6700

9.5.8 Organisation E-mail

mrowlands@jellinbah.com.au

Proposed designated proponent - Declaration

I, MIKE ROWLANDS, 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: M Rowlands Date: 23/7/2019

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Director / Principal

9.8.2 First Name

Rod

9.8.3 Last Name

Hailstone

9.8.4 E-mail

rhailstone@aarc.net.au

9.8.5 Postal Address

Suite 5

1 Swann Road
Taringa QLD 4068
Australia

9.8.6 ABN/ACN

ABN

71620818920 - AARC ENVIRONMENTAL SOLUTIONS PTY LTD

9.8.7 Organisation Telephone

(07) 3217 8772

9.8.8 Organisation E-mail

info@aarc.net.au

Referring Party - Declaration

I, ROD HAILSTONE, 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: ..... Date: 02/07/2019

Appendix A - Attachments

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

1. 04072019_Meadowbrook_IAS_v3.3_Final.pdf
2. 27052019_Meadowbrook_Aquatic Ecology Assessment_v2.3_Final.pdf
3. EA_Lake Vermont Mine_01072019.pdf
4. Figures 1-10_Meadowbrook Project_01072019.pdf
5. JellinbahGroupEnvironmentalPolicy_01072019.pdf
6. Part 1_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf
7. Part 2_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf
8. Part 3_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf
9. Part 4_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf
10. Part 5_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf
11. Part 6_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf
12. Part 7_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf
13. Part 8_Meadowbrook_TerrestrialEcologyAssessment_11062019.pdf