

ABN: 37 009 250 051

Review of Environmental Factors

for the

Bowdens Exploration and Resource Drilling Program – EL 5920



October 2021

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Bowdens Silver Mine – Exploration and Resource Drilling Program

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LIST OF ACRONYMS

AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
BSAL	Biophysical Strategic Agricultural Land
CCC	Community Consultative Committee
DD	Diamond (core) drilling
DPI Water	Department of Primary Industries Water
DRE	Division of Resources and Energy
DRNSW	Department of Regional NSW
EC	Electrical Conductivity
EL	Exploration Licence
EP&A Act	Environmental Planning and Assessment Act 1979
GPS	Global Positioning System
JORC	Joint Ore Reserves Committee
LGA	Local Government Area
OEH	Office of Environment and Heritage
RC	reverse circulation percussion drilling
REF	Review of Environmental Factors
SLU	soil landscape unit
TEC	Threatened Ecological Community

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FOREWORD

This Review of Environmental Factors (REF) has been prepared by Bowdens Silver Pty Limited ("the Company") in conjunction with R.W. Corkery & Co. Pty. Limited to outline the proposed mineral exploration activities and to assess their likely environmental impacts within a specific area (the "REF Area") of Exploration Licence (EL) 5920 near Lue, approximately 26km east of Mudgee (**Figure 1**).

It is noted that EL 5920 is divided into two discrete areas with the proposed exploration activities wholly located within "EL 5920(1)" located near Lue. The second area, EL 5920(2), is located to the west of the townships of Rylstone and Kandos (see **Figure 1**) and is not the subject of any exploration addressed in this REF.

A range of exploration activities have previously been undertaken by the Company as outlined within the REFs prepared in 2016 (RWC, 2016) for the "Stage 2 Exploration Area" and in 2017 (RWC, 2017a and 2017b) for the "Gumarooka Exploration Area" and "Waste Rock Emplacement Sterilisation Drilling Program" (see **Figure 1**). The activities proposed in this REF are additional to the activities proposed in Bowdens (2016) and Bowdens (2017) with the primary objectives of the proposed Exploration and Resource Drilling Program are to:

- better define potentially economic mineralisation at depths below the current proposed open cut pits which could be recovered through either open cut or underground mining methods; and
- further test areas surrounding the proposed open cut pits and improve the Company's geological model.

The Exploration and Resource Drilling Program also builds upon previous Exploration Programs undertaken by Silver Standard Australia (1997 to 2002) and the Kingsgate Stage 1 Exploration Program.

For the purpose of this document, the following terminology is used.

- Licence Area the area covered by EL 5920.
- REF Area an area of approximately 648ha in which the exploration activities would be undertaken.

Section 23A of the Mining Act 1992 requires that

"...the holder of the licence must not carry out an assessable prospecting operation on land over which the licence is granted unless an activity approval has been obtained for the carrying out of the assessable prospecting operation in relation to that land..."

The document *ESG5: Assessment Requirements for Exploration Activities* identifies a range of thresholds for exempt, complying and non-complying exploration activities. The proposed activities are classified as non-complying exploration activities and hence the application for approval is to be supported by a Guideline REF. The application is to be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).



R.W. CORKERY & CO. PTY. LIMITED

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This document has been prepared in accordance with the document *ESG2: Guideline for Preparing a Review of Environmental Factors (2015)* ("the ESG2 Guideline"). Sufficient information and detail is provided to allow the Department of Regional NSW (DRNSW) to assess the proposed mineral exploration activities in accordance with Part 5 of EP&A Act. **Appendix 1** reproduces a copy of *ESF4 – Exploration Activities Application Form*.

The information contained in this document has been assembled from a combination of published material and data together with a range of site specific material and data compiled as part of the *Environmental Impact Statement* (EIS) (RWC, 2020) and supporting specialist consultant studies lodged with an application for development consent to develop and operate an open cut mine within and surrounding the REF Area.



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1. THE SITE

Figure 2 presents the land title information and ownership of land within the REF Area. **Table 1** presents where in this document the required key information is presented.

The locations of key activities within the REF Area are discussed in Section 4.2.

Table 1
Key Requirements and Where Addressed

Requirement	Where Addressed
Coordinates of REF Area	Figure 15
Boundaries of the title	Figure 1
Lot/Deposited Plan (DP) numbers and boundaries	Figure 2
Topographic contours	Figures 1, 4, 5
Location of the proposed activity	Figures 1, 4, 5
Layout of the proposed activity	Figure 15
Major regional features	Figure 1
Existing and proposed access tracks	Figure 15
Existing structures and infrastructure	Figures 9, 15
Location of identified sensitive land	Figure 10
Nearby sensitive receptors (residences, schools, hospitals, etc.)	Figure 11
Coal seam gas exclusion zones	Not Applicable
Location of threatened species, populations or ecological communities, or their habitats	Figures 12, 13
Location of Aboriginal and historic cultural heritage sites	Figure 14



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2. THE EXISTING ENVIRONMENT

2.1 GENERAL DESCRIPTION

2.1.1 Climate and Weather

Table 2 presents meteorological data obtained from the Mudgee Airport weather station No. 062101 operated by the Bureau of Meteorology and located approximately 24km west of the REF Area.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Temperature (°C) Mudgee Airport Station (Station # 062101) Period of Record 29 Years													
Mean maximum temperature	31.1	29.4	26.8	23.0	18.6	15.0	14.6	16.3	19.7	23.2	26.5	28.8	22.8
Mean minimum temperature	16.2	15.7	12.8	8.0	4.0	2.4	1.1	1.5	4.3	7.8	11.3	13.8	8.2
Rainfall (mm) M	udgee A	Airport S	Station (Station	# 06210	01) Peri	od of Re	ecord 20	6 Years				
Mean monthly rainfall	66.2	64.3	62.3	36.3	36.7	42.9	43.4	34.4	54.4	50.6	72.3	79.0	642.9
Highest monthly rainfall	195.6	233.0	187.0	110.0	124.0	127.2	143.8	112.2	197.4	135.8	162.8	241.6	1 152.4
Lowest monthly rainfall	10.0	2.2	0.0	0.0	0.4	1.4	2.6	1.0	0.8	0.2	9.4	2.8	349.6
Highest daily rainfall	65.0	174.2	72.0	55.2	44.4	37.0	51.2	51.2	61.0	51.0	57.2	100.8	174.2
Average Rain Days (>1mm)	5.6	5.1	5.2	2.7	4.0	5.5	5.3	4.0	4.9	5.5	6.3	6.1	60.2
Evaporation (mi	n) SILC	Climat	e Data -	Period	of Reco	ord 128	Years (pre 197	'0: syntł	netic pa	n evapo	oration)	
Mean Monthly Evaporation	218.5	173.6	150.5	96.8	62.5	42.3	46.5	67.7	98.1	140.7	176.8	218.1	1492.2

Table 2 Monthly Climate Averages – Mudgee

The climate in the vicinity of the REF Area is a warm temperate climate, i.e. warm to hot summers and mild to cool winters. January is the hottest month with a mean maximum temperature of 31.1°C and mean minimum temperature of 16.2°C. July is the coolest month with a mean maximum temperature of 14.6°C, a mean minimum temperature of 1.1°C.

Mean annual rainfall recorded at Mudgee is 642.9mm with rainfall distributed relatively evenly throughout the year. April and May are the driest months while the mean monthly rainfalls in November and December are higher than other months. The average monthly rainfall varies from 36.3mm in April to 79.0mm during December.

Figure 3 displays wind roses prepared from data recorded at meteorological stations operated by Bowdens Silver located to the east of the REF Area (MET01) and within Lue village (MET02). The data displays the effect that the local topographical features have the ability to affect the local climatic conditions, with the northeasterly wind profile in particular being affected by the northeasterly/southwesterly trending valley system. The notable differences between the stations include the following.

• The predominant winds at the REF Area (Met01) blow from the north, northeast and southwest directions. There is a general absence of southeasterly flow due to blocking by the elevated terrain immediately to the southeast of the station.

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- As a consequence of the topography, wind blowing from the northeast of the REF Area is generally diverted to the northwest before it reaches Lue.
- The gentle winds recorded at the REF Area (Met01) blowing from the northeast occur principally of an evening whereas the stronger winds from the northwestern to southwestern quadrant occur principally of an afternoon.
- A general absence of northeasterly flow and a dominance of southeasterly flow at Lue (Met02) due to winds from the northeastern direction being blocked by elevated terrain immediately to the northeast of the station.
- The principally light winds from the southeast that are recorded in Lue (Met02) occur during both day-time and evening periods with the stronger northwesterly winds principally occurring during the day-time.

2.1.2 Topography

Figure 1 displays the regional topography and drainage whilst **Figure 4** displays the local topography and drainage surrounding the REF Area. **Figure 5** displays the slope categories and drainage within the REF Area. The slopes are displayed in four categories.

- >18°.
- 10° to 18°.
- 5° to 10°.
- <5°.

Regionally, the REF Area is located on the western flank of the Great Dividing Range. Locally, the topography is dominated by a number of ridges and valleys. The local topography surrounding the REF Area comprises three north-south orientated ridges with small intermediate valleys and a broad, flat valley to the south of the Site containing Hawkins Creek. The highest elevation within the local area is located immediately north of the REF Area with a maximum elevation of approximately 781m AHD and the lowest elevation is located immediately south in Lawsons Creek with an elevation of approximately 550m AHD and falling towards the west.

Within the REF Area, there are three north-south oriented ridgelines referred to for the purposes of this document at the Western, Central and Eastern Ridges. Between these ridges the watercourses of Blackmans Gully and Price Creek flow to the south within a number of steeply incised valleys feeding these water courses before they merge with Lawsons Creek to the south of the REF Area. Elevations on the ridgelines vary between approximately 650m AHD and 750m AHD.

Within the REF Area, slopes are typically $<10^{\circ}$ within the valleys and increase to between 10° and 18° on the lower slopes of the ridge lines and greater than 18° on the upper slopes of the ridge lines (see **Figure 5**). Slopes $<10^{\circ}$ are typically present on the upper section of each ridge.



TN MN Rid orthern +781 **EL5920** 68 +774 +743 +670 West Central Ridge nt9 630 Southern Ridge +688 dge Bara - Lue +650 , **P**.030 540 530 tern Ridge STL Bingnan Hill +678 080 gleRoad Elevation (mAHD) 821 - 840 801 - 820 Lue Road REFERENCE 781 - 800 761 - 780 Exploration Licence Boundary Proposed Mine Site Boundary 741 - 760 - Bowdens Exploration and Resource Drilling Program 721 - 740 Proposed Drillhole 701 - 720 Contour (mAHD) (Interval=10m) Closed Railway Line 681 - 700 661 - 680 Roads 641 - 660 621 - 640 Sealed 601 - 620 Unsealed 581 - 600 Watercourses 561 - 580 541 - 560 Perennial 930 940 Ephemeral 522 - 540 SCALE 1:35 000 (A4) Figure 4 0.5 1 km LOCAL TOPOGRAPHY AND DRAINAGE Base Map Source: Geoscience Australia - February 2017



REVIEW OF ENVIRONMENTAL FACTORS

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2.1.3 Soils and Land Capability

Soils and land capability has previously been assessed as part of studies supporting the 2020 EIS for the proposed Bowdens Silver Mine. Within the REF Area the Land and Soil Capability classes include Classes 4, 5 and 6 (see **Figure 6**). The soil landscape units recorded within REF Area are shown on **Figure 7** and a summary of the mapped SLUs and potential land capability constraints is presented in **Table 3**.

SLU	Number of soil test pits	Dominant soil type(s)	Sub-Dominant soil type(s)	Land Capability Constraints
Sedimentary –	3	Kurosol	Tenosol (1)	Strong water erosion hazard;
steep land		(2 of 3 soil test pits)		Acidity;
				Stony soil with poor water holding capacity.
Sedimentary -	5	Tenosol (2)	Kurosol (1)	Water erosion hazard;
gentle slope (<10%)		Chromosol (2)		Acidity.
Acid (felsic)	4	Chromosol (2)	Dermosol (1)	Strong water erosion hazard;
volcanic – steep			Rudosol (1)	Acidity;
				Poor water holding capacity.
Acid (felsic)	14	Kurosol (4)	Sodosol (3)	Water erosion hazard;
volcanic –			Dermosol (3)	Acidity;
(<10%)			Chromosol (1) Rudosol (1)	Poor water holding capacity.
Ordovician shale	3	Dermosol (3)		Despite shallowness of the soil, the water holding capacity would be favourable because of steeply dipping and partially decomposed shale parent material.
Alluvium – high quality	3	Stratic Rudosol (3)		Deep young soil with favourable physical subsoil conditions for root growth; derived from alluvium associated with Price Creek.
Alluvium –	6	Chromosol (2)	Dermosol (1)	Deep; slow drainage associated with
medium quality		Sodosol (2)	Hydrosol (1)	subsoil sodicity. The alluvium is derived mainly from Hawkins Creek.
Source: SMD (2020)	– Table 6			

Table 3	
Soil Landscape Units and Land and Soil Capability	Constraints

As part of the assessment work for the EIS, a Site Verification Certificate was also sought and received. The verification certificate confirms that the soil within the proposed Mine Site, which includes the REF Area, is considered not to constitute Biophysical Strategic Agricultural Land (BSAL). The closest mapped BSAL to the REF Area is located >2km to the northwest (see **Figure 8**).



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2.1.4 Existing Land Uses

Existing land uses within and surrounding the REF Area comprise primarily rural activities such as grazing and some cropping, with interspersed hobby farms/lifestyle blocks. Land parcels range from grazing properties of up to 200ha to hobby farms/lifestyle blocks of up to 50ha. The outskirts of parts of the Lue village are included within EL 5920(1) but are not within the REF Area.

Within the REF Area, the land has previously been and continues to be used for cattle and sheep grazing.

2.1.5 Services and Public Infrastructure

Figure 9 displays the services known to occur within and surrounding the REF Area. The key services are as follows.

- 1. A 500kV power transmission line oriented generally north-south.
- 2. A network of 11kV and low voltage power transmission lines providing power to local residences and farm buildings.
- 3. Various buried telecommunications cables principally to the residences and located largely within the local road reserves.

Maloneys Road roughly bisects the REF Area and is the main point of access to the site. Maloneys Road intersects with Pyangle Road at the southern boundary of the REF Area which subsequently intersects with Lue Road. Lue Road is the main thoroughfare between Mudgee to the west and Rylstone to the southeast.

2.2 DESCRIPTION OF SENSITIVE LAND

Figure 10 and **Table 4** presents an overview of sensitive land within or surrounding the REF Area, i.e. in terms of the consideration of a range of areas nominated in the ESG2 Guideline.

Sensitive Land	Present within or surrounding the Licence Area
Conservation Areas	
Land reserved under the National Parks and Wildlife Act 1974.	None present
Land acquired by the Minister for the Environment under the <i>National Parks and Wildlife Act 1974</i> .	None present
Land subject to a 'conservation agreement' under the <i>National Parks and Wildlife Act 1974.</i>	None present
Land declared as an aquatic reserve under the <i>Marine Estate Management Act 2014.</i>	None present
Land declared as a marine park under the Marine Estate Management Act 2014.	None present

Table 4 Sensitive Land within and Surrounding the Licence Area

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REVIEW OF ENVIRONMENTAL FACTORS





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Table 4 (Cont'd) Sensitive Land within and Surrounding the Licence Area

Page 2 d						
	Present within					
	or surrounding					
Sensitive Land	the Licence Area					
Conservation Areas (Cont'd)						
Land within a State Forest set aside under the <i>Forestry Act 2012</i> for conservation values including:	None present					
Flora Reserves, or						
Special Management (and other) Zones.						
Land reserved or dedicated under the <i>Crown Lands Act 1989</i> for the preservation of flora, fauna, geological formations or for other environmental protection purposes.	None present					
Land identified as wilderness or declared a wilderness area under the <i>Wilderness Act 1987.</i>	None present					
Land subject to a 'biobanking agreement' under the <i>Threatened Species</i> Conservation Act 1995.	None present					
Drinking Water Catchment Protection Areas						
Land declared to be a controlled area' or a 'special area' under the <i>Water NSW</i> Act 2014 or a 'special area' under the <i>Water Management Act 2000</i> or <i>Hunter Water</i> Act 1991.	None present					
Environmentally Sensitive Areas						
Land identified as critical habitat under the <i>Threatened Species Conservation</i> Act 1995 or Part 7A of the <i>Fisheries Management Act</i> 1994.	None present					
Land designated as a wetland of international significance under the <i>Ramsar Convention on Wetlands.</i>	None present					
Land to which State Environmental Planning Policy No. 14 – Coastal Wetlands applies.	None present					
Land to which State Environmental Planning Policy No. 26 – Littoral Rainforests applies.	None present					
Coastal Waters of the State as defined in the <i>Coastal Protection Act</i> 1979 and the <i>Coastal Protection Regulations</i> 2011.	None present					
Land identified in an environmental planning instrument as being of biodiversity significance or zoned for environmental conservation.	Present					
Waterfront land as defined under the Water Management Act 2000.	Present ¹					
Land with a slope greater than 18 degrees measured from the horizontal.	Present ²					
Land with Potential for Soil and Water Contamination						
Potential Acid Sulphate Soils or Actual Acid Sulphate Soils.	None present					
Aboriginal Heritage Protection Areas						
Land declared as an Aboriginal place under the <i>National Parks and Wildlife Act 1974.</i>	None present					
Land identified in an environmental planning instrument as being of Aboriginal cultural significance.	None present					
Historic or Natural Heritage Protection Areas						
Land identified on the World Heritage List, National Heritage List or Commonwealth Heritage List.	None present					
Land, places, buildings or structures listed on the State Heritage Register.	None present					
Land identified in an environmental planning instrument as being of heritage significance.	None present					

Table 4 (Cont'd) Sensitive Land within and Surrounding the Licence Area

Page 3 of 3					
Sensitive Land	Present within or surrounding the Licence Area				
Biophysical Strategic Agricultural Land and Critical Industry Clusters					
Land identified as biophysical strategic agricultural land under <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries)</i> 2007.	None present				
Land identified as a Critical Industry Cluster Land under State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.	None present				
Community Land					
Public land classified as community land under the Local Government Act 1993.	None present				
Note 1: Waterfront land within the REF Area includes the areas within 40m of the creeks defined on the (1986) 1:25,000 topographic maps - see Figure 10	Botobolar and Lue				
Note 2: see Figure 5					

As a result of this overview, identified sensitive land within the REF Area includes:

- land within 40m of Blackmans Gully, Price Creek and unnamed tributaries (see Figure 10);
- some areas where natural slopes exceed 18° (see Figure 5); and
- areas identified by the *Mid-Western Regional Local Environmental Plan 2012* as being of biodiversity sensitivity (see Figure 10).

2.3 DESCRIPTION OF SENSITIVE RECEPTORS

The locations of sensitive receptors (i.e. residences) surrounding the REF Area together with Project-related residences and land, and Crown Land are shown in **Figure 11**.

2.4 DESCRIPTION OF COAL SEAM GAS EXCLUSION ZONES

The proposed activities do not relate to petroleum exploration and therefore coal seam gas exclusion zones do not apply.

2.5 DESCRIPTION OF SURFACE AND GROUNDWATER RESOURCES

2.5.1 Surface Water Environment

The REF Area lies wholly within the area covered by the Water Sharing Plan for the Macquarie Bogan Unregulated and Alluvial Water Sources (2012): Lawsons Creek Water Source. There are a number of watercourses within or immediately adjacent to the REF Area. The watercourses within the REF Area are ephemeral and consist of named 3rd order and unnamed 1st and 2nd order watercourses (under the Strahler classification system). Hawkins Creek, the sub-regional drainage feature and major tributary of Lawsons Creek, do not traverse the REF Area but are coincident with a section of the REF Area's southeastern boundary.





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A brief description of each watercourse within or immediately adjacent to the REF Area is provided below with each watercourse identified on **Figure 5**.

- Hawkins Creek is an intermittent, unregulated watercourse with a catchment area of 61km² and flowing in a southwesterly direction from headwaters located approximately 11km east of the REF Area.
- Price Creek is an ephemeral, 3rd order tributary of Hawkins Creek with a catchment area of 5.2km². This system flows south through the eastern section of the REF Area from eastern and western headwaters originating in the sandstone escarpments northeast of the REF Area.
- Blackmans Gully is also an ephemeral, 3rd order south flowing tributary of Hawkins Creek. Blackmans Gully, with a catchment area of 2.3km² flows through the centre of the REF Area. The bulk of the proposed open cut pits and processing plant are located within the Blackmans Gully catchment.
- Walkers Creek is an ephemeral, west-flowing, 3rd order tributary of Lawsons Creek with a catchment area of 4.9km². Whilst this system is comprised of a northern headwater and southern headwater draining the western side of the REF Area, only the northern headwater is located in the REF Area.
- Watercourse A is an ephemeral 2nd order watercourse that originates as a series of 1st order watercourses (erosional features) in the topographic highs of the Western and Southern Ridges. Watercourse A flows in a southwesterly direction watercourse until its confluence with Watercourse B. A minor reach of a 1st order headwater drainage feature is situated in the western section of the REF Area.
- Watercourse B is an ephemeral 3rd order watercourse which originates in the Western Ridge and northwestern slopes of Bingman Hill as 1st and 2nd order drainage features. Watercourse B flows in a westerly direction and is joined by Watercourse A, becoming a 3rd order watercourse flowing to Lawsons Creek. Minor reaches of Watercourse B 1st order headwater drainage features are situated in the western section of the REF Area.
- Watercourse C is an ephemeral 3rd order watercourse originating in the Western Ridge and northeastern slopes of Bingman Hill as 1st and 2nd order drainage features. Watercourse C flows in an easterly direction before joining Blackmans Gully and discharging into Hawkins Creek. The full reach of Watercourse C is situated within the REF Area.

The lesser order watercourses forming the 3^{rd} order watercourses typically have small catchments of between 15ha to 25ha. This means they respond relatively quickly to rainfall events but exhibit very little baseflow following rainfall. This discharge behaviour also results in a rapid flow response in the 3^{rd} order watercourses that quickly subsides. Therefore, whilst the Strahler classification system identifies Price Creek, Walkers Creek, Blackmans Gully, Watercourse B and Watercourse C as 3^{rd} order watercourses, in reality they behave as ephemerally discharging 2^{nd} order systems and display limited development of geomorphic features.

Monthly surface water quality monitoring was undertaken between April 2012 and November 2018 at a range of locations within and surrounding the REF Area. A summary of the median, minimum and maximum electrical conductivity and pH values for sites located



surrounding the REF Area is provided in **Table 5** with exceedances of NSW Aquatic ecosystem protection criteria (Macquarie-Bogan Water Quality Objectives) identified in **bold** text. It is noted that the majority of these sites are located in Lawsons Creek and Hawkins Creek as these watercourses have sufficient flow to enable regular sampling.

		Electrical Conductivity @ 25°C µS/cm (criteria 350µS/cm)			pH (criteria 6.5-8.0)		
ID	Location to REF Area	Median	Min	Max	Median	Min	Max
BSW07	Hawkins Creek (upstream)	460	73	925	6.9	6.4	8.1
BSW11	Hawkins Creek (upstream)	570	105	1 570	7.5	6.4	8.7
BSW12	Hawkins Creek (boundary)	489	249	755	7.4	6.1	7.7
BSW13	Hawkins Creek (upstream)	702	123	3 550	7.3	6.5	9.0
BSW19	Hawkins Creek (downstream)	498	254	939	7.2	6.2	8.0
BSW20	Lawsons Creek (downstream)	1 120	300	2 050	7.9	7.0	8.8
BSW25	Watercourse B (downstream)	179	110	250	8.0	7.3	8.4
BSW28	Lawsons Creek (downstream)	1 090	379	1 340	7.1	7.2	9.4

 Table 5

 Surface Water Quality Summary

2.5.2 Groundwater Environment

Hydrogeological investigations have been conducted to date by Jacobs Group to support a current application for mining operations (Jacobs, 2020). These investigations identified the presence of four hydrostratigraphic units in the area which are identified as follows.

- Alluvium.
- Sydney Basin Sediments (porous rock).
- Rylstone Volcanics (fractured rock).
- Lachlan Fold Belt / Coomber Formation (fractured rock).

The Sydney Basin Sediments (porous rock) are reported to occur as a thin veneer of outcropping sandstone within the elevated sections of the REF Area (hill capping), a unit that thickens to the north. Previous drilling found it to be unsaturated in the vicinity of the Stage 2 Exploration Area approximately in the centre of the REF Area, which is supported by the fact that there are no groundwater users associated with this unit within 2km of the REF Area. Jacobs (2020) anticipate this unit in the REF Area to be partially saturated, however due to the elevated locations of the proposed drillholes in this unit, it is unlikely that significant volumes of groundwater would be encountered.

Underlying the Sydney Basin Sediments (porous rock) are the rhyolitic Rylstone Volcanics. This unit is considered by Jacobs to be a fractured rock aquifer with a reported range in thickness from 10m to 200m. The unit is reported to be comprised of breccia, ignimbrites and tuffs and generally displays a dip to the north. Jacobs conceptualised that this aquifer was an extensively fractured and well-connected unit with this finding being supported by subsequent pump testing.

Jacobs considered that interaction between the Rylstone Volcanics fractured rock aquifer and watercourses, such as Watercourse A, Watercourse B and Watercourse C, is likely to involve leakage of surface water to the groundwater, given the greater depth to the regional water table in these areas.



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The Lachlan Fold Belt / Coomber Formation unit underlies the Rylstone Volcanics and outcrops at the southern boundary of the REF Area. Jacobs reported that the results of pumping tests for this aquifer showed a wide range in hydraulic conductivity values. Four registered bores within 3km of the proposed REF Area were interpreted by Jacobs as extracting groundwater from this aquifer unit.

Groundwater quality information for the alluvium and regional groundwater system (porous and fractured rock) was collected from observation bores on a monthly basis between mid-2012 and late-2018. Electrical Conductivity (EC) readings for alluvial monitoring bores ranged from 121μ S/cm to 2 620μ S/cm, with an average of 654μ S/cm whilst those of the regional system ranged from 153μ S/cm to 5 680μ S/cm, with an average of $1 260\mu$ S/cm. The pH values of alluvial groundwater ranged between 5.6 to 7.7 with values for the regional system being between 5.2 and 8.9.

In summary, the hydrogeological environment is best described as a fractured rock system with superficial lenses of alluvial sediments located along minor drainages. In the fractured rock system, groundwater is generally transmitted through faults, fractures and other openings in consolidated rocks. The effective (largely secondary) porosity of the geological units present at in the REF Area is controlled by the density and connectivity of fractures and faults that are present and the aperture dimensions of the fractures. It is conceptualised that the permeability of the fractured rock aquifers will decrease with depth as the weight of overburden rocks close the fractures thus inhibiting the movement of water.

A review of the groundwater levels within the piezometers within and immediately surrounding the REF Area display the following groundwater levels.

- Typically <5m below ground level within the valleys and associated with alluvium.
- Typically 10m to 30m below ground level on the side slopes and ridges.

2.6 DESCRIPTION OF THREATENED SPECIES, POPULATIONS AND ECOLOGICAL COMMUNITIES

2.6.1 Threatened Ecological Communities and Flora

Terrestrial and aquatic ecological survey and assessment has previously been assessed as part of studies supporting the 2020 EIS for the proposed Bowdens Silver Mine and the subsequent 2021 Submissions Report. A total of 11 biometric vegetation types (BVTs) were recorded as part of these surveys, of which seven occur within the REF Area (see **Figure 12**). Of these 11 BVTs, three meet the definition of the Threatened Ecological Community (TEC) Box Gum Woodland, specifically the NSW *Biodiversity Conservation Act 2016* (BC Act) endangered *White Box, Yellow Box, Blakely's Red Gum Woodland*, and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* critically endangered *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived* Native *Grassland*.

In addition to the TEC, Silky Swainson-pea (*Swainsona sericea*) and Small Purple-pea (*Swainsona recta*) have been recorded within the 2021 Exploration Area. Silky Swainson-pea is listed as vulnerable under the BC Act and Small Purple-pea is listed as endangered under the BC Act and EPBC Act.

The location of the TEC and listed threatened flora species is shown on Figure 13.



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2.6.2 Threatened Fauna Species and Populations

As part of the terrestrial and aquatic ecological survey and assessment supporting the 2020 EIS for the proposed Bowdens Silver Mine and the subsequent 2021 Submissions Report a total of 14 threatened fauna species and two migratory species were recorded (see **Figure 13**). A further four threatened fauna species and two migratory species, whilst not recorded, are presumed to occur.

Table 6 provides a summary of these species, their legal status, and an overview of the survey results.

Species	Legal Status	Overview of Survey Results
Birds		
Barking Owl	Vulnerable under the BC Act.	Recorded on two separate nights from the same location within the Mine Site and within the disturbance footprint. It is uncertain if this was the same individual, or two individuals. No breeding site has been located within the Study Area, despite extensive searches of hollow-bearing trees. It is probable that the woody vegetation portions of the Study Area provide foraging habitat and potentially breeding habitat.
Dusky Woodswallow	Vulnerable under the BC Act.	Frequently recorded along the southern section of the existing Maloneys Road where open woodland and cleared land occurs. Breeding activity was also recorded in this area. This species was also recorded in the western portion of the Mine Site and along the water supply pipeline corridor on Bara-Lue Road. Based on the frequency of sightings, it is likely that this species occurs across the general locality.
Hooded Robin	Vulnerable under the BC Act.	The Study Area contains habitat for this species, which appears to be mostly confined to lightly wooded country. The five sightings within the Study Area are mostly outside of the disturbance footprint. One sighting has also occurred on Bara-Lue Road, near an active quarry.
Diamond Firetail	Vulnerable under the BC Act.	Eight sightings in total, all of which, except one, were in open woodland. The exception was a single bird in a gully in the northeast corner of the Study Area in the vicinity of the Mine Site.
Varied Sittella	Vulnerable under the BC Act.	Three sightings within the Study Area, all within the disturbance footprint. Given the relatively sedentary nature of this species, it is most likely that any individuals observed are resident within the Study Area, confirming breeding and foraging habitat is present.
Scarlet Robin	Vulnerable under the BC Act.	Recorded on a single occasion, next to the existing Maloneys Road in dense Cypress Pine regrowth within the disturbance footprint. This record confirms that foraging habitat and most likely, breeding habitat is present.
Speckled Warbler	Vulnerable under the BC Act.	Recorded three times in the Study Area; twice in the southeast corner, east of Pyangle Road, and along Ulan Road near Ulan.
Brown Treecreeper	Vulnerable under the BC Act.	Recorded on a single occasion in the Study Area, with a single sighting in the disturbance footprint in open woodland in the western portion. An existing record is also mapped with the Study Area from BioNET records.
Grey-crowned Babbler	Vulnerable under the BC Act.	It is thought that two family troupes occur within the Study Area, both outside the disturbance footprint. At least five birds comprise the family troupe along the existing Maloneys Road (in the far south of the Study Area), while at least three birds occur as a family troupe along Pyangle Road. Bowdens Silver personnel have also observed a troupe visit the 'Bowden' residence (office) area and presume this is the same family troupe from Pyangle Road.

 Table 6

 Listed and Migratory Fauna Recorded or Likely to be Present

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Table 6 (Cont'd) Listed and Migratory Fauna Recorded or Likely to be Present

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Species	Legal Status	Overview of Survey Results	
Birds (Cont'd)			
Regent Honeyeater*	Critically Endangered under the BC Act and EPBC Act.	No Regent Honeyeater were recorded despite comprehensive surveys and surveys being completed during appropriate sampling months. However, it is considered probable that the Regent Honeyeater uses the woodland areas within the Study Area from time to time but went undetected. Species credit species.	
Swift Parrot*	Endangered under the BC Act and Critically Endangered under the EPBC Act.	No Swift Parrots were recorded despite some surveys during the suitable season. However, suitable habitat is present, there are previous records in the locality, and the Study Area is located at the northern extent of the Capertee Important Bird Area. Therefore it is possible that Swift Parrot could use the Study Area from time to time but went undetected.	
Migratory Birds			
White-throated Needletail	Migratory under the EPBC Act.	Recorded during field survey and has previously been recorded in the locality.	
Rainbow Bee-eater	Migratory under the EPBC Act.	Recorded during field survey and has previously been recorded in the locality.	
Cattle Egret*	Migratory under the EPBC Act.	Not recorded during the field survey. However, the species has been recorded previously within the locality, and it may use the Study Area from time to time given its highly mobile nature.	
Latham's Snipe*	Migratory under the EPBC Act.	Not recorded during the field survey. However, the species has been recorded previously within the locality, and it may use the Study Area from time to time given its highly mobile nature.	
Bats			
Eastern Cave Bat (foraging only)	Vulnerable under the BC Act.	The only record within the Study Area is from previous surveys by ELA pre-December 2016. The source and date of this record is unknown. Given that the species is reliant on specific features for roosting and maternity sites, they are most likely only to forage within the Study Area.	
Greater Broad- nosed Bat	Vulnerable under the BC Act.	Recorded during surveys by ELA (source and date unknown). There are no other records in the locality, and EnviroKey are uncertain as to the level of accuracy of this record particularly if it was through echolocation call recording analysis.	
Eastern Bentwing Bat (foraging only)	Vulnerable under the BC Act.	Recorded in the Study Area by EnviroKey by echolocation call recording. Eastern Bentwing Bat are also known from previous records across the locality, so their presence within the Study Area is not surprising but it more likely to be foraging habitat only given the absence of caves.	
Large-eared Pied Bat (foraging only)	Vulnerable under the BC Act and EPBC Act.	Recorded in the Study Area by EnviroKey by echolocation call recording. The Study Area contains woodland foraging habitat but not potential breeding habitat.	
Mammals			
Spotted-tail Quoll*	Vulnerable under the BC Act and Endangered under the EPBC Act.	Whilst not recorded by the comprehensive field surveys, two records of Spotted-tailed Quoll occur in relatively close proximity to the Study Area.	
Arboreal Mammals			
Squirrel Glider*	Vulnerable under the BC Act.	Not recorded during field survey but have previously been recorded in the locality and BGW is known habitat. Species credit species.	
Koala	Vulnerable under the BC Act and EPBC Act.	Recorded twice within the Study Area with one of these within the disturbance footprint. Species credit species. Since the EIS was exhibited, Bowdens Silver personnel have also recorded four additional sightings of individual Koala traversing the Study Area.	
* Species not recorded through survey but presumed to occur.			
Sources: EnviroKey (2021) – Compiled from Section 5 and Bowdens Silver			

2.7 DESCRIPTION OF ABORIGINAL CULTURAL HERITAGE

Aboriginal cultural heritage survey and assessment has previously been undertaken as part of studies supporting the 2020 EIS for the proposed Bowdens Silver Mine. Thirty-one Aboriginal cultural heritage sites were newly identified during the field assessments undertaken by Landskape (2020). These comprised 19 stone artefact scatters, nine isolated finds of stone artefacts, two scarred trees and a rock shelter with potential archaeological deposits and stone artefacts. Sites identified within the proposed Mine Site are shown on **Figure 14** and include the following.

- 1 stone artefact scatter exposed on the flat surfaces of a rhyolitic outcrop north of Hawkins Creek in the south of the proposed Mine Site.
- 2 stone artefact scatters in the vicinity of the Bowdens Silver office, in the south of the proposed Mine Site.
- 1 isolated find of a stone artefact west of the proposed Southern Barrier.
- 3 stone artefact scatters and 3 isolated finds of stone artefacts in the alluvial valley of Price Creek in the northeast of the proposed Mine Site.
- 10 stone artefact scatters and 3 isolated finds of stone artefacts in the northern headwater, southern headwater and main valley of Walkers Creek in the west of the proposed Mine Site.
- 1 rock shelter with a stone artefact scatter and potential archaeological deposits in the southern headwater of Walkers Creek in the west of the proposed Mine Site.
- 1 fallen tree with possible cultural scar in the northern headwater of Walkers Creek in the west of the proposed Mine Site.

2.8 DESCRIPTION OF HISTORIC CULTURAL OR NATURAL HERITAGE

Historic cultural heritage survey and assessment has previously been undertaken as part of studies supporting the 2020 EIS for the proposed Bowdens Silver Mine. Landskape (2020) recorded three historical features thought to be associated with nineteenth century gold mining activities in the Apple Tree Flat Goldfield Reserve (Richard Smart *personal communication*, 23 November 2011) within the proposed Mine Site. These historical cultural heritage sites are located on the western flanks of Blackmans Gully (see **Figure 14**) and include the ruins of a (possible prospector's) hut and two shallow pits thought to be the beginnings of abandoned attempts to dig mine shafts. Landskape (2020) considered the three sites to be of low historic significance.

No natural heritage sites are known to occur.



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3. THE PROPOSED ACTIVITY

3.1 SUMMARY OF THE ACTIVITY

Table 7 presents a brief summary of the proposed activity.

Exploration Licence No.	5920	
Licence Holder Bowdens Silver Pty Limited		
Operator:	Bowdens Silver Pty Limited	
Activity Type:	Reverse Circulation (RC) and Diamond Core (DD) drilling program with ancillary activities	
Activity Location:	ty Location: Approximately 2km to 4km north of Lue, NSW	
Activity Duration: 5 years from the approval of the REF		

Table 7Summary of the Proposed Activity

3.2 DESCRIPTION OF THE ACTIVITY

3.2.1 Overview

The primary objectives of the proposed Exploration and Resource Drilling Program are to:

- better define potentially economic mineralisation at depths below the current proposed open cut pits which could be recovered through either open cut or underground mining methods; and
- further test areas surrounding the proposed open cut pits and improve the Company's geological model.

The program would involve the drilling of approximately 255 drill holes using a combination of Reverse Circulation (RC) and Diamond Drilling (DD) to target depths ranging from 300m up to 1 000m. The proposed access tracks and drill pads would utilise existing tracks and cleared areas where possible including some previously progressively rehabilitated areas from previous drilling campaigns requiring re-disturbance. In total, approximately 5km of new tracks and 163 new drill pads would need to be established.

It is noted that none of the areas described as progressively rehabilitated above have been acknowledged by submission of a form ESF4 or official signoff and as such re-disturbance of these areas is not included in disturbance calculations.

Figure 15 displays the location of all proposed drill holes and access tracks within the REF Area.

The exploration process would involve the following key steps.

- 1. Confirmation (by GPS) and pegging of specific drill hole locations.
- 2. Access preparation, involving track preparation where existing tracks do not provide appropriate access.
- 3. Drill pad preparation including placement or excavation of sumps.



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- 4. Drilling and sample collection.
- 5. Demobilisation of all equipment and temporary stabilisation.
- 6. Final rehabilitation of the drill pad and access tracks (once no longer required).

Selected drill core would be sawn longitudinally to enable sampling for specific chemical analysis. Other cores would be used for geotechnical and metallurgical testing.

Plates 1 and **2** display reverse circulation and diamond drilling operations in progress. **Plate 3** displays typical diamond drill core and **Plate 4** displays the typical excess reverse circulation sample bag storage on a drill pad.

The process to identify the exact drill hole locations would take into consideration the following to ensure that each drill hole and its associated disturbance would have a minimal impact on the surrounding environment.

- Drill holes and tracks would be located on existing disturbance areas to the extent possible.
- Areas of new disturbance associated with all drill holes and access track locations would avoid the identified individual threatened flora (i.e. *Swainsona* species) and identified heritage.
- Particular care would be placed upon locating drill sites in the defined TEC to ensure that impacts within these area are minimised to the greatest extent practicable including avoiding clearing of trees or mature shrubs. Additionally, consistent with drilling activities to date, disturbance would be limited through placing multiple drill holes on single drill pads, wherever possible.
- Earthworks to form drill pads, etc. would be minimised at those sites where natural slopes are <10°. In terrain with slopes >10°, drill pads would be shaped through earthmoving works to provide a near horizontal slope.
- Identification and avoidance of underground service cables and overhead power lines.
- The orientation of the drill rig and ancillary equipment, where possible, to minimise noise impacts upon surrounding residents.

In general, the exploration activities would be undertaken with reference to the following documents.

- Exploration Code of Practice: Community Consultation March 2016.
- Exploration Code of Practice: Environmental Management June 2021.
- Exploration Code of Practice: Rehabilitation June 2021
- Exploration Code of Practice: Produced Water Management, Storage and Transfer - June 2021

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3.2.3 Access

The proposed drilling program would obtain access to proposed drill collar locations primarily from the existing road/track network or through traversing previously cleared land without formation of formal tracks. Some previously rehabilitated areas from previous drilling campaigns would require re-disturbance in order to reinstate existing tracks. In some instances, new access tracks would be required to be constructed. Under these circumstances, track construction would be reduced in areas within the identified TEC and minimised in areas where natural slopes are <10°. It is anticipated that approximately 5.5km of new or upgraded access tracks would be required.

The construction of new tracks would incorporate drainage channels and, if topography becomes a safety issue, windrows constructed from cut material. All new tracks would be constructed in the manner outlined in the Water, Erosion and Sediment Control Management Plan (WESCMP) (see **Appendix 3**) and would avoid mature / established trees wherever possible. Sediment traps are also incorporated into the design where erosional runoff is likely to occur and would either involve coarse rocky material being placed in the drainage channels at regular intervals or the construction of silt-stop fencing as dictated by the track's length and slope. Sediment basins would be constructed at the base of hillside tracks to collect sediment from runoff water. A conceptual cross-sectional view and plan view of the proposed tracks are shown in **Figure 16**.

While the Company would endeavour to confine access to the nominated access tracks, the locations of some tracks may need to be modified pending unforeseen field practicalities or safety issues.

3.2.4 Drilling Operations

3.2.4.1 Preparation of Drill Pads

Both RC and DD drilling would require the operations to be undertaken within an area typically 20m x 20m (approximately). This area is typically referred to as a "drill pad". **Figures 17** and **18** display the typical layouts of drill pads for both types of drilling on both near flat ground or a moderate slope.

Preparation of each new drill pad would initially involve delineation of the area of disturbance and an evaluation of the extent of vegetation clearing and levelling earthworks required. Preparatory activities would involve clearing of vegetation, stripping of soil material and, if necessary, cut and fill works to provide a level pad. Where required, vegetation would preferentially be cut using chainsaws or broken using an excavator or tracked tractor just above ground level to enable re-shooting at a later date. All vegetation removed would be stockpiled immediately adjacent to the drill pad, preferably on the downslope side. In addition to the use of existing access tracks, it is expected that a total of approximately 7.0ha of disturbance would be required as follows.

- Drill pads 163 new drill pads and 20 partially disturbed pads3.95ha
- Access tracks 5 065m at 4m wide plus 50% to allow for road-side 3.04ha disturbance

Where present in recoverable thicknesses, stripped topsoil and subsoil would be stockpiled adjacent but separately on the drill pad to heights of no more than 2m.



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3.2.4.2 RC Drilling

RC drilling involves the use of compressed air to drive a slowly rotating percussion drill bit, which operates in a similar manner to a jack hammer. The percussion drill bit is typically fitted with numerous, hardened protrusions that crush the rock at the bottom of the hole. The crushed material is brought to the surface with the returning air through the centre of the drill rods. This drilling method is relatively fast compared with diamond drilling methods. Typically, this drilling method requires multiple vehicles, including a drill rig (truck or track-mounted vehicle), compressor (truck or track-mounted vehicle) and support truck, as well as one or more light vehicles. RC drill holes would typically range in diameter between 100mm and 150mm. The planned depths of the RC drill holes vary with depths principally between 300m and 400m but extending up to 1000m.

3.2.4.3 Diamond Core Drilling

Diamond core drilling involves the use of a rapidly rotating, diamond impregnated drill bit and water with drilling additives to cool and lubricate the drill bit. As the drill rods and drill bit spin, the diamonds grind away the face of the hole leaving a cylinder of rock in the centre of the drill barrel. As the drill rods advance, the cylinder of remaining rock (core) gradually becomes enveloped by the drill rods. The drilling is stopped at regular intervals (commonly 1.5m, 3m or 6m) and the resulting drill core from that run is bought to the surface by a wireline retrieval tool operating within the drill pipe. All recovered drill core is placed in drill trays (see **Plate 3**).

Drilling fluids returning to the surface contain fine ground-up rock which settles out in either an above-ground or in-ground sump. Typically this drilling method requires a truck or track mounted drill rig, a support truck and a number of light vehicles. Diamond core drill holes would typically range in diameter between 75mm and 120mm. The planned depths of the diamond drill holes would similarly vary with depths principally between 300m and 400m but extending up to 1 000m. In some instances, diamond drilling may be utilised to extend RC drill holes, providing a core 'tail' to the drill hole.

Based on experience from the previous exploration programs, it is anticipated that an average of 40 000L of 'makeup water' would be required for each diamond core drill hole. Makeup water would be sourced, where available from existing dams and equipped bores on Company-owned land within and surrounding the REF Area. Makeup water not available on Company-owned land would be sourced off site from a licenced water vendor. It is expected that there would be minimal produced water from diamond core drill holes and up to 5 000L produced per RC drill hole, although average volumes are expected to be substantially less. Further information regarding produced water is outlined in Section 3.5.2.

3.2.5 Sample Management

A proportion of the drilled materials ('drill cuttings') from each RC drill hole which is to be sent to a laboratory for assay would be directly placed into calico bags, sealed in polyweave plastic bags and transported in heavy duty "Bulka Bags" and/or plastic Sample Tubs. The samples would be dispatched approximately weekly from site to the contracted laboratory.



The drilled material that is not used for the initial assay would be kept on or immediately adjacent to the drill pad, in their calico or plastic bags, until it is no longer required (see **Plate 4**). At that time, the materials would be disposed of on-site through placement into empty sumps.

The diamond drill core would be stored in core trays (see **Plate 3**) and transported to a sample storage shed adjacent to the "Bowden" residence (see **Figure 2**) at the end of each day or following completion of each hole. Selected sections of core would be sawn longitudinally to provide core for assay and reference material to be retained on site.

The core saw used to cut diamond core would continue to be positioned on the southern end of the sample storage shed. The saw would be positioned inside a confined shed to reduce potential for noise impacts. All cuttings and fluids are captured by a primary drum and excess water drained to a 5 000L rain water tank and then collected by licensed waste disposal contractors such as Polpure. All cuttings are stored in drums for disposal, in the manner discussed in Section 3.5.4.

3.2.6 Exploration Equipment

The proposed exploration activities would involve the use of the following mobile equipment/vehicles (or similar).

Drill Rig

• 3 or 4 and maximum of 5 x UDR650 track mounted drill rigs or similar.

Drill Support Equipment/Vehicles

- 6 x Toyota Land Cruiser diesel tray backs or similar.
- 1 x Great Wall petrol single cab utility
- 1 x Toyota Land Cruiser diesel station wagon
- 1 x (8 x 8) MAN truck or similar.
- 2 x (4 x 4) Mercedes truck with 10 000L water tank or similar.
- 1 x (4 x 4) Mercedes support truck (incl. booster, auxiliary and fuel) or similar.

Earthmoving Equipment

- 1 x 2007 Kolbelco SK2008 excavator (and rock hammer) or similar.
- 1 x 2002 Komatsu D65E6 tracked tractor or similar.
- 1 x 1995 Komatsu WA420 loader or similar.
- 1 x 1990 Ford LTL 9000 tip truck or similar.
- 1 x 1980 12G Caterpillar grader (occasional use) or similar.

3.2.7 Hours of Operation and Program Timeline

Drilling and related activities would be undertaken between the hours of 6:00am and 7:00pm Monday to Sunday, consistent with the previous Gumarooka Exploration Program. It would remain the Company's practice to aim to complete all drilling before 6:00pm on Monday to Saturday with the provision of the time between 6:00pm and 7:00pm as a buffer to conclude activities, if necessary. Maintenance activities would continue to be undertaken principally during Saturday afternoons and Sundays.

It is expected that approximately 100m to 150m of RC drilling could be completed each day whilst for Diamond Drilling, an estimated 35m to 50m could be completed each day per drilling rig. As such, the duration of drilling at each hole could vary from approximately 2 to 3 days (RC) up to 20 days (DD).

The Company anticipates that the proposed exploration activities would commence Q4 2021 and would be undertaken over a period of up to 5 years.

3.2.8 Exploration Personnel

Anticipated exploration personnel requirements during drilling campaigns is summarised in **Table 8**. In total, there would typically be up to 28 full-time and 6 part-time exploration personnel on site at any one time.

	Exploration an Drilling P	nd Resource Program
Personnel	Full Time	Part Time
Caretaker	1	-
Field assistant	6	2
Field geologist	3	-
Senior geologist	1	
Environmental Officer	1	1
Field supervisor	1	
Driller	5	-
Drill offsider	10	-
Drilling supervisor	-	1
Plant operator	-	2
Total	28	6
Source: Bowdens Silver Pty Limited	•	•

Table 8 Anticipated Exploration Personnel

The exploration personnel would be supported by the Company's Community Liaison Officer and periodically by other Company personnel and visiting consultants.



3.2.9 Ancillary Activities

The drilling contractor would utilise the existing facilities on Company-owned land, with the exception of local contractors who do not require on-site lodging. Existing facilities on site include:

- sleeping quarters;
- ablutions facilities, including showers and septic toilets;
- cooking facilities;
- offices;
- core sawing and sample storage; and
- a workshop.

Additional "overflow" accommodation would be sought from surrounding suppliers, including suppliers located potentially in Mudgee, Lue, Kandos or Rylstone.

Equipment servicing, fuel storage and sample storage would occur at the workshop. Potable water supply would also be supplied from rainwater tanks on site and would be topped up as required via a water tanker.

3.2.10 Decommissioning and Rehabilitation

Rehabilitation of areas disturbed during the drilling programs would be undertaken in the following three stages.

1. Following Construction Works

Following construction works for access tracks and each drill pad, all constructed embankments created adjacent to tracks or drill pads would either be rock armoured or covered with fresh topsoil and allowed to revegetate naturally. If necessary, the placed soil would be seeded with a suitable seed mix to facilitate stabilisation of the placed topsoil. Silt-stop fencing would be positioned downslope from all constructed embankments until they are adequately stabilised. Appropriate drainage controls, if required, would be constructed to protect disturbed areas. The rehabilitation works undertaken would be consistent with the measures outlined within the WESCMP (see **Appendix 3**).

2. Following Completion of Drilling

Once all drilling activities are completed on each drill pad, the need for temporary rehabilitation would be reviewed on and adjacent to each pad and the access track to the drill pad. The key factor influencing the decision whether temporary rehabilitation is undertaken would centre on the likelihood of natural revegetation or excess sediment loss until the drill pad or pad(s) are either permanently rehabilitated or incorporated within an approved mine. For those drill pads and access tracks where excess sediment loss is likely, those areas would either be lightly scarified and seeded with a suitable seed mix to stabilise the soil or rock armoured.



3. Long Term Rehabilitation

In the event that the proposed mine does not receive approval or within a period of 2 years after the exploration activities conclude (whichever occurs later), the Company would undertake a program of final rehabilitation to provide for a stable long term landform in those areas disturbed by exploration.

Long term rehabilitation would involve the following component activities.

- i) Re-shaping the drill pads to remove their geometric shape and creating slopes comparable with those natural slopes around the pads.
- ii) Replacing topsoil set aside during pad construction onto the final landform.
- iii) Installation of any required surface water management structures to protect the disturbed area, including silt-stop fencing.
- iv) Spreading of any cleared vegetation.
- v) Revegetation of the entire disturbed area with a native or pasture seed mix, if necessary.

All revegetated areas would be inspected at least every 6 months for a period of up to 2 years and following any substantial storm events to identify whether there is a need for any maintenance activities.

All PVC drill collars would be retained as long as the holes are required to be open and available for further tests or groundwater monitoring. In the unlikely event the mine does not proceed, and the exploration licence is relinquished, the drill collars would be cut to a level approximately 1 foot below the ground surface and a metal plate positioned on the hole before the hole is backfilled to ground level.

3.3 STAKEHOLDER CONSULTATION

The Company has reviewed the *Exploration Code of Practice: Community Consultation* dated March 2016 and assigned the Activity Impact Assessment scores as outlined within the guideline (see **Table 9**).

In summary, with a Consultation Assessment Score of 19, the consultation category is classified as "Medium Impact" for which the *Exploration Code of Practice: Community Consultation* defines the following relevant stakeholders.

- Landholders and residents/tenants at the site of the activity.
- Native title holders or claimants.
- Relevant local community and environment groups.
- Local government.
- Landholders, residents and businesses within a 5km radius¹ of the operational area.

¹ This consultation with the wider community would be undertaken through an advertisement in the Mudgee Guardian and communications through the Community Consultative Committee.



- Local Aboriginal Land Council.
- NSW Government local Member of Parliament.

Assessment Component	Level of Impact	Score
Level of community interest	Medium – Intermediate level of interest with locally known community members and groups.	8
Activity type	High – The proposed activities do not meet the common exploration activities criteria as defined by <i>ESG5: Assessment Requirements for Exploration Activities</i> (DRE, 2015).	8
Population Density	Medium – Intermediately populated ² .	1
Location – dwellings	Low – Less than 100 dwellings within 2km.	0
Location – sensitive receivers (excluding dwellings)	Low – No other sensitive receivers (e.g. school, church, etc.) known within 2km of the closest drill collar.	0
Cumulative impact	Low – No other mining or extractive industry projects known within 5km.	0
Temporal impact	High – Activity will occur for more than 12 months.	2
	Consultation Assessment Score	19

 Table 9

 Activity Impact Assessment Scoring for Consultation

In accordance with the requirements of *Exploration Code of Practice: Community Consultation* and *Condition 3* of EL 5920, the Company has / would undertake the following consultation prior to commencing exploration activities.

- An agreement has been reached with Landowner 10, the only private freehold landowner within the REF Area (see **Figure 11**). The landowner will be informed about the planned drilling activities on their land in accordance with the terms of the agreement reached.
- Surrounding Landowners Landowners, residents and businesses within a 5km radius of the REF Area (see **Figure 11**) will be notified of activities through a combination of an advertisement in the Mudgee Guardian newspaper and via personalised mailout and/or email via Bowdens Silver's known mailing list. An update will also be placed on the Company website to notify of the commencement of the proposed drilling activities. Dependent on timing, notification and updates can also be provided in community newsletters.
- Wider Community / Non-residential Stakeholders The wider community and non-residential stakeholders will be advised of the Exploration and Resource Drilling Program by a personalised mail out and/or email and an update on the Company website. The Company has also employed a Community Liaison Officer who is a resident in the district. Contact details of the Community Liaison Officer will be distributed with the mailout and are available on the company website.

² Mid-Western Regional (A) Local Government Area – Population 24 076 (ABS, 2016).

- Community Consultation Committee the Company has established a Community Consultation Committee (CCC) comprising an independent chair, and representatives from the local community, Mid-Western Regional Council, Wellington Valley Wiradjuri Aboriginal Corporation, Lue Action Group, and the Company. Relevant information and updates will be provided during meetings.
- Local Indigenous Communities Contact with registered Aboriginal stakeholder groups, including the Local Aboriginal Land Council occurs as part of regular consultation activities.
- Native Title Native Title has been extinguished on all lands within the REF Area. However, consultation with relevant Native Title Claimants for the area has been undertaken as part of the consultation with all local Indigenous communities.
- Mid-Western Regional Council Council will be briefed regarding the proposed Exploration and Resource Drilling Program.
- Local Members The offices of the NSW local members for the Upper Hunter, David Layzell, and NSW local member for Dubbo, Dugald Saunders, will be informed of the proposed Exploration and Resource Drilling Program.
- Department of Regional NSW Resources Regulator Discussions have been held with officers from the Resources Regulator regarding the planning for the proposed Exploration and Resource Drilling Program and the required approach to the REF preparation.

3.4 ACCESS ARRANGEMENTS

All except one landholding (Landowner 10) within the REF Area are held by Bowdens Silver (see **Figure 11**) and an agreement has previously been reached with Landowner 10 which includes provision for access and exploration activities.

3.5 MITIGATION STRATEGY

3.5.1 Water Management Strategy

The Company would implement the following strategies to ensure compliance with the requirements of the *Water Management Act 2000*.

- Identify all areas of waterfront land, as defined under the *Water Management Act 2000*, namely land within 40m of the top bank of a watercourse (see Figure 10), would be identified as a Controlled Area or sensitive land and the management measures as identified in the WESCMP (Appendix 3) would be implemented.
- Cement the porous section of any holes that intersect more than one aquifer to ensure no cross contamination of aquifers.
- Following the completion of exploration drilling activities, casing would be securely capped as further testing may need to be undertaken.



The Company would also implement the following strategies to ensure that the potential risk of contamination of water is minimised and activities are compliant with those requirements of the *Protection of the Environment Operations Act 1997*.

- Use of above ground drilling sumps for diamond core drilling involving two to three rain water tanks of greater than 5 000L capacity to store and capture drilling fluids.
- Capture of water intercepted during RC drilling in an above ground tank/sump to enable testing prior to release, re-use or disposal.
- Use existing tracks and disturbance areas avoiding the creation of additional watercourse crossings, wherever possible.
- Construct, where practicable, drill sites in a manner that would divert clean water away from the drill site and would retain potentially contaminated or sediment-laden water within the drill site.
- Construct surface water structures, where required, including silt-stop fences, to limit the transport of suspended sediment from disturbed areas.
- Line the underside of drill rigs and support equipment where there is a risk of leaks and spills with plastic and hessian/or other absorbent material to collect any spilt hydrocarbons.
- Store all hydrocarbons and other chemicals in bunded containers or on a bunded pallet / tray on the support vehicles.
- Maintain hydrocarbon spill kits at all active drill sites.

3.5.2 Produced Water Management Strategy

It is expected that water would be produced during drilling, principally for RC drill holes, and would be managed as follows.

- Produced water generated from RC drill holes would be contained within a tank/sump and tested for baseline electrical conductivity (EC) and pH and visually inspected for oil and grease. If the water contained is within guideline values for EC and pH and no oil and grease is visible then the water would be irrigated off the drill site either to well vegetated land or transferred to a mobile water cart for use in dust suppression activities. In order to ensure irrigated water does not result in surface water pollution, water would not be irrigated within 40m of a watercourse (see **Figure 10**) or during saturated conditions. As no drilling fluids are utilised for RC drilling, no contamination of the groundwater is expected.
- In the unlikely event that artesian conditions are encountered, drilling would cease and the hole would be grouted.

Given the relatively small volumes of produced water that is expected, i.e. up to 5 000L per RC drill hole, management of the produced water in this manner is considered to be an acceptable approach. It is noted that even if all drill holes were RC holes, the total produced water would be in the order of 1.3ML, i.e. below licencing requirements.



3.5.3 Hydraulic Fracturing (Well Stimulation)

This section does not apply to proposed mineral exploration activities.

3.5.4 Waste and Chemical Management Strategy

Table 10 presents the hydrocarbons and chemicals that the drilling contractor would be likely to use during drilling operations. These would be stored in bunded containers / trays / storage units or, in the case of bulk diesel, within the self-bunded mobile fuel tanker.

Product	Use	Hazardous	Biodegradable
Cement	To cement drill casings	No	No
ZN50	Lubrication of Pipe threads No		No
Rod Grease	Lubrication of drilling rods	No	NA
EP Bit Lube	Lubrication of drill rods	No	Yes
DD5000	Lubrication of drill rods	No	Yes
Tuff CRP	Flocculation agent added to drill sumps	No	NA
Tuff Foam Ultra	Foaming agent used for stabilising drill collars	No	Yes
Tuff Gel Extra	Used in drilling fluids and cement slurries for drill casings	Yes	NA
Tuff Pac R	Used for hole stabilisation No NA		NA
Tuff Plug B	Polyurethane foam polyol blend Yes Yes		Yes
Tuff Pol	Drilling fluid additive	No	NA
Tuff Set	Fuff SetHigh strength gypsum cement, formulated to set as a strong plug in various set times		NA
Note: Equivalent products with different names, may be used			
Source: Bowdens Silver Pty Limited			

Table 10 Indicative Drilling Chemicals

Table 11 identifies the waste management strategy that would be implemented during the exploration program.

The Company would implement the following general mitigation strategies to manage the risk of contamination or inappropriate chemical or waste management.

- Inspect all contractor equipment for leaks prior to working on site.
- Ensure all equipment and containers/drums used are regularly inspected and maintained, including scheduled replacement of hydraulic hoses to minimise the risk of hydrocarbon spills.
- Place appropriate plastic liners, hessian or other absorbent materials in areas of potential hydrocarbon and chemical leaks or spills, including drill rigs and support equipment, where there is a risk of leaks and spills, and pumps.
- Ensure that all exploration personnel, including contractors, are trained and aware of the procedures and requirements of hydrocarbon and chemical materials management prior to the exploration program commencing.



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Waste Type	Storage	Estimated Volume	Removal
General waste (including food scraps and used sample bags)	A small bin would be located within the general area of the drilling site footprint for the collection of general wastes. Used and empty sample	60 litre bin per day during drilling campaigns.	The bin would be taken off site for disposal at an appropriately licenced facility. Sample bags would be removed following completion of required sample analysis.
	bags would be collected in other used sample bags.		
Waste oils and greases	Placed within bunded storage container	Approximately 1L to 30L per week depending on holes drilled ¹ .	Wastes would be collected as required during drilling and transported to an appropriately licensed facility for recycling or reuse.
Reagent and Chemical Containers	All containers would be stored in a bunded area.	Up to 10 containers per week depending on the type of holes drilled.	Empty containers would be removed following the completion of drilling activities and either returned to the supplier or disposed of at a licenced facility.
Sump waste (liquid component)	Within excavated drill sumps and/ or above ground tanks.	Variable. Up to 5 000L per RC drill hole and negligible for DD holes.	Placed back down the drillhole or if of suitable quality, irrigated to surrounding vegetation ensuring that no irrigation is undertaken within 40m of a waterway. If considered 'contaminated', sediments and residues from drilling would either be remediated on site or removed for off-site disposal at an appropriately licenced facility.
Sump waste (solid component)	Within excavated drill sumps and/ or above ground tanks.	Variable.	If not contaminated by hydrocarbons, the sump liner would be removed to allow the material to dry out. The material would then be buried within an in-ground sump or placed down the drill hole. If considered 'contaminated', sediments and residues from drilling would either be remediated on site or removed for off-site disposal at an appropriately licenced facility.
RC sample waste	Stored in green 'RC Bags' stacked neatly on or adjacent to the drill pad.	Likely 75-95% of the recovered sample	Either placed back down the drillhole after drilling activities have been completed or placed within excavated sumps/ drill pads and buried with approximately 1m subsoil / topsoil cover.
Sump liners and any hydrocarbon contaminated plastic or hessian	Rolled up tightly to minimise rain collection	Variable. Approximately 60m ² of plastic liner per DD hole.	Removed for off-site disposal at an appropriately licenced facility.
Note 1: Equipment servicing would principally be undertaken off site. As a result, the anticipated amount of waste oil and grease is likely to be very limited			
Source: Bowdens Silver Pty Limited			

Table 11Waste Management Strategy

- Ensure that all exploration personnel, including contractors, are trained and aware of waste storage and disposal requirements.
- Conduct regular site inspections during and post drilling operations to ensure compliance with Bowdens Silver's hydrocarbon management procedures.

All of the above mitigation strategies will be the subject of internal audits conducted throughout the Exploration and Resource Drilling Program.

3.5.5 Noise Management Strategy

The following mitigation measures would be implemented in order to manage the risk of adverse noise-related impacts.

- Consultation with the surrounding residents regarding noise-related impacts prior to and during periods when drilling operations are planned and underway.
- Strict enforcement of the hours of operation.
- Use noise mitigated drilling and other equipment, such as silenced generators and compressors and rubber mallets instead of metal hammers where possible.
- Where practicable, drilling rigs would be orientated to enable the side of the rig with the quietest sound power level to be directed towards the closest residence.
- Education and training of drillers and other on-site personnel in quiet work methods and locations of nearby residents.

In the event that a noise complaint is received, it would be promptly responded to and, if necessary, additional mitigation measures implemented, e.g. use of temporary noise barriers such as hay bales.

The Company's Environmental Officer will regularly monitor noise levels both qualitatively and quantitatively to ensure that the relevant criteria are being satisfied and/or potentially affected residents consulted.

3.5.6 Air Quality Management Strategy

The following mitigation measures would be implemented in order to reduce potential dust emissions.

- Minimise surface disturbance to that required for the safe access, safe operation of drilling equipment and installation of necessary environmental management controls.
- Use a cyclone dust extraction system on RC drill rigs.
- Limit the speed at which all Company personnel and contractors travel on unsealed private roads accessing the REF Area to 40km/h in order to minimise wheel generated dust.
- Covering (or removal if required) of drilling residues once dried.



3.5.7 Bush Fire Management Strategy

The Company would implement the following management strategies to manage the risk of bush fire, in consultation with the Lue Rural Fire Service, as required.

- Maintain and operate machinery in a manner that would minimise the potential to start a fire. This would include ensuring spark-free exhausts are fitted and all fuel, electrical and braking systems are maintained in good order.
- Permit smoking only within designated, cleared areas.
- Ensure appropriate fire extinguishers are fitted on all Company vehicles and other firefighting equipment is available when operating within the REF Area to manage any fire-related incidents associated with the proposed exploration activities.
- Ensure all employees are aware of fire risk and mitigation, and company representatives are trained in the proper use of firefighting equipment.
- Monitor and comply with the daily bush fire hazard category.
- Modify on-site activities during high fire danger periods (in accordance with hazard category notifications).
- Prepare an evacuation plan in the event of bush fire.

3.5.8 Aboriginal Cultural and Historic Heritage

The Company would implement the following mitigation measures to ensure that objects of Aboriginal heritage significance are protected and that it complies with its obligations under the *National Parks and Wildlife Act 1974*.

- Ensure that surface disturbance is limited to the proposed REF Area.
- Undertake an assessment of all drill sites that have not been the subject of a formal heritage assessment for the application for development consent in accordance with the NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects.
- Ensure that all personnel are aware of the location of the known Aboriginal objects and their obligations under the *National Parks and Wildlife Act 1974* to protect Aboriginal objects.
- Where required, when activities are being undertaken within proximity of a known Aboriginal object, temporary fencing would be utilised to delineate 'no go' areas.
- Ensure that in the event that an object of suspected Aboriginal heritage significance is identified during the proposed exploration activities, that the site is protected and the advice of Heritage NSW is sought.



3.5.9 Ecological Management Strategy

3.5.9.1 General Mitigation Measures

The following general ecological management measures would be implemented.

- Wherever possible, existing access tracks and cleared areas would be utilised.
- Where additional access tracks are required, these would be selected to, wherever practicable, avoid the need to clear vegetation, particularly mature trees.
- Any cleared vegetation would be utilised within the rehabilitation process to minimise the loss of habitat resources.
- All vehicles, machinery and equipment would be inspected and if required cleaned prior to arriving on site to prevent the spread of weed species (see Section 3.5.9.3).
- Prior to vegetation clearing each site would be inspected by the Bowdens Silver Environmental Officer/s in accordance with the procedure described in Section 3.5.9.2.

3.5.9.2 Flora and Fauna Mitigation

The following specific flora and fauna management measures would be implemented.

- To minimise direct impacts on flora and fauna within the exploration area Bowdens Silver would undertake a pre clearance inspection where vegetation clearing is required to construct exploration drill pads and associated access tracks.
- This inspection would take place as close as practicable to clearing activities beginning on each site but not more than five days prior.
- This inspection would be conducted by suitably qualified person(s).
- Bowdens Silver Environmental Officer/s would use the TEC polygons from the Bowdens Silver Project EIS assessment to identify drillholes located within and adjacent to the TEC. If possible, drill site locations will be adjusted outside the identified TEC or, failing that, to avoid clearing of mature shrubs and trees as far as practicable.
- When activities are being undertaken within proximity of known locations of threatened flora species identified during the impact assessment for the Bowdens Silver Project EIS (i.e. Swainsona species), prior to disturbance, an inspection would be undertaken to locate the individuals and temporary fencing/flagging would be installed so that inadvertent damage to identified flora during drilling operations is avoided.
- The drill collar location would be identified in the field and the expected disturbance boundaries delineated using flagging tape and/or painted pegs. Where possible all drill sites and access tracks would be modified to avoid the disturbance of mature trees.



- Any trees within the disturbance area would be assessed for the presence of fauna and signs of residence including the following.
 - Hollows/nests in trees.
 - Scratches and wear marks on tree trunks, forks and around hollows.
 - Accumulation of scats within the dripline.
 - Accumulation of owl pellets within the dripline.
 - Fauna residing in trees or leaving hollows at the time of inspection.

Where any of these features are identified at a site the drill pad would be adjusted to allow the tree to be retained and levelling works completed with a 2m to 5m setback from the base of the tree. If the tree cannot be retained, the tree would be marked and cleared in according with 'SOP554 Habitat Tree Felling/Clearing procedure' (see **Appendix 4**).

- In the event additional threatened flora species are identified during this inspection the drill pad would be re-orientated/relocated to avoid disturbance and temporary fencing/flagging installed so that inadvertent damage to identified flora during drilling operations is avoided.
- A record of the above inspection including site photographs and the details of the person undertaking the inspection would be recorded using the Bowdens Silver gated checklist system (see **Appendix 3**) utilising either the paper checklist or equivalent electronic document (such as iAuditor).

3.5.9.3 Weed mitigation

The following specific weed management measures would be implemented.

- All equipment and vehicles used to complete exploration activities would be inspected for the presence of material including mud, dirt, and debris that could contain weed seeds and vegetative propagules prior to entering the exploration area.
- The Equipment Onboarding Checklist (see Appendix 5) includes prompts for action to be undertaken should the equipment be brought to site in an unsuitable condition, namely that the equipment must be washed down prior to use on site.
- A record of this inspection including photographs and the details of the person undertaking the inspection would be recorded using the Equipment Onboarding Checklist (on iAuditor or an equivalent paper copy).



3.6 JUSTIFICATION OF ACTIVITY AND ANALYSIS OF ALTERNATIVES

3.6.1 Justification of the Activity

3.6.1.1 Introduction

Sustainable practices by industry, all levels of government and the community are recognised to be important for the future prosperity and well-being of the world.

Throughout the planning of the proposed Exploration and Resource Drilling Program, the Company has endeavoured to address each of the principles of Ecologically Sustainable Development. Section 3.2 describes the proposed activities in detail, while the following subsections draw together the features of the proposed activities that reflect the four principles of sustainable development, namely:

- the precautionary principle;
- the principle of intergenerational equity;
- the principle of the conservation of biodiversity and ecological integrity; and
- the principle for the improved valuation, pricing and incentive mechanisms.

3.6.1.2 **Precautionary Principle**

Examples of matters relating to the precautionary principle that were considered during the planning of the exploration program are listed below.

- Utilisation of existing disturbance areas wherever possible to minimise the risk of serious or irreversible environmental damage. Further details of the impact assessment are provided in Section 4.
- Retention of flexibility to modify the placement of drill sites to avoid sensitive areas.
- Completion of pre-clearance surveys where vegetation clearing is unavoidable to confirm the presence / absence of threatened fauna and implementation of appropriate management.

An assessment of environmental impacts was undertaken to determine the implications of the proposed exploration. Excluding for biological impacts, which were rated as medium, consequences of the exploration activity were rated as low or negligible. Given this and the proposed approach, the risk of unforeseen impacts would be minimised.

3.6.1.3 Intergenerational Equity

The Company recognises that all members of the local and surrounding community should benefit appropriately from the activity either directly or indirectly. In order to ensure a realistic distribution of benefits, the Company would continue to consult with the local community and maintain a pro-active approach to issues of interest. This dialogue would also include a system to record, manage and respond to any complaints relating to the Exploration and Resource Drilling Program.



In terms of Aboriginal heritage, intergenerational equity has been considered in terms of the cumulative impacts to Aboriginal objects and places in a region. Given that no additional disturbance to the defined Aboriginal sites would occur, the impact of the proposed activity is assessed to be low.

3.6.1.4 Conservation of Biological Diversity and Ecological Integrity

The Company is committed to undertake all activities in an environmentally responsible manner, and recognises the need to ensure that changes to natural components of the environment do not adversely affect biological diversity or ecological integrity. As such, the activity has been designed to minimise impacts on the flora and fauna by using a number of mitigation measures, avoidance of mature trees and threatened species / communities, and the re-use of cleared vegetation during rehabilitation activities to enhance natural regrowth while providing habitat for fauna species.

3.6.1.5 Improved Valuation and Pricing of Environmental Resources

The principles of this strategy would be applied to all exploration activities including the recycling of materials during drilling, segregation of waste materials and the disposal at designated waste facility at the cost of the Company.

3.6.1.6 Conclusion

The proposed exploration activities are essential to provide sufficient geological confidence in the resource and information on the metallurgical characterisation of the mineralisation. This will determine whether further recovery of mineral at depth (through either open cut or underground methods) is feasible and, if so, support any future application to the NSW Government to extend the currently proposed operations. Given that the anticipated residual environmental impacts of the proposed exploration activities at each location would be limited to minor short-term impacts, principally located within previously disturbed areas, and that no long-term impacts are anticipated as a result, it is considered that the proposed activities are justified.

3.6.2 Analysis of Feasible Alternatives

In consideration of minimising impacts, the Company reviewed a number of alternatives to develop greater confidence in the resource and gather further information on the metallurgical characterisation of the mineralisation. These alternatives included:

- the use of different drilling techniques to further assess the geology at depth; and
- the placement of drill sites to minimise environmental impacts.

It was concluded that there was no other effective method of further assessing the resource and metallurgical characterisation of the mineralisation at depth other than drilling and collection of either drill core or drill cuttings.



The drill hole sites for the Exploration and Resource Drilling Program were selected with due consideration given to a range of environmental aspects including ecology, heritage, agricultural potential and access arrangements. It was also concluded that the selected sites would minimise any environmental and social impacts to the extent feasible whilst still targeting the mineralised area to collect the data required by the Department of Regional NSW.

Given the results of the previous exploration programs and the regulatory framework for public reporting of mineral resources, the Company contends that there are no feasible alternatives to the proposed drilling program to provide sufficient geological confidence in the resource and information on the metallurgical characterisation of the mineralisation to support an application to further develop the currently proposed mine.

3.6.3 Consequences of Not Carrying Out the Activity

The proposed exploration activities are essential to further the progression of the Bowdens Silver Project which includes the potential for a possible development of an economic underground mining operation, extending the currently proposed open cut operations. The data collected as a result of the exploration program is needed to satisfy the requirements of the Department of Reginal NSW before an underground mine is developed or the open cut pits are extended. Without completion of the proposed drilling program, future mining and associated benefits to the local community, to the State and to the Company may not eventuate.



4. IMPACT ASSESSMENT

4.1 ASSESSMENT OF PHYSICAL AND POLLUTION IMPACTS

4.1.1 Air Impacts

The principal air pollutant that would be generated by the proposed Exploration and Resource Drilling Program is particulate matter. The potential for adverse impacts from particulate matter would be negligible given:

- the implementation of the mitigation measures outlined in Section 3.5.6; and
- the separation distance to surrounding residences, with the closest non-project related residence (R17) located approximately 900m from the closest identified drill collar (see **Figure 11**).

The proposed activities do not involve any venting, flaring or other significant generators of greenhouse gas. The only sources of greenhouse gas would be from burning of diesel fuel for the operation of the drill rigs and support vehicles. Given the extent and duration of the drilling program, these emissions would be minimal.

No toxic or radioactive emissions would result from the proposed activities.

As a result, air quality impacts are expected to be **negligible**.

4.1.2 Water Impacts

In relation to surface water, with the implementation of the proposed management measures (see Section 3.5.1 and **Appendix 3**), including erosion and sediment controls, the proposed activities would not result in:

- the noticeable redirection of flow or changes to flow rates or volumes in local watercourses;
- any noticeable changes to the area, volume or flow rates within local watercourses;
- pollution of waters; or
- any changes to the local flood regime.

As identified in Section 3.2, the REF Area is not located within a drinking water catchment and the local community does not rely upon surface water flows from the REF Area for drinking water supply.

The irrigation of minor quantities of groundwater recovered from some drill holes to the land surface, would not have any measurable impact on surface water.

As a result, surface water impacts are expected to be **negligible**.

The potential impacts to groundwater quality include the following.

- The possibility of cross contamination of aquifers (e.g. brackish or saline water being introduced to a fresh water aquifer via the drilling process).
- The possibility of contamination of the aquifers by drilling muds / fluids.
- Seepage of drilling mud, drilling additives and/or hydrocarbons (oils / lubricants, etc.) to shallow groundwater beneath the rig at exploration sites.

During the drilling of diamond exploration holes, the circulating drilling mud will establish a wall cake (low permeability "skin" around the wall of the hole) and also maintain a positive head (pressure) on the various aquifers intercepted. This will prevent both the ingress of groundwater to the hole (and any possible mixing or discharge to the surface) and also limit the ingress of drilling mud into the aquifers to the immediate vicinity of the exploration holes.

During the drilling of RC exploration holes, no drilling muds are necessary.

Based upon the experience gained during the previous exploration programs, no artesian pressures are anticipated and therefore the potential for pressurised groundwater reaching the surface is considered negligible.

Any minor changes in groundwater levels due to the removal of small quantities of water would not impact upon the few bores within 2km to 3km of the REF Area, the majority of which are situated on land owned by the Company, nor any groundwater dependent ecosystem.

With the implementation of the proposed management measures outlined in Sections 3.5.1 and 3.5.2, the potential impacts to groundwater are considered **negligible**.

4.1.3 Soil and Stability Impacts

With the implementation of the proposed erosion and sediment control measures (Section 3.5.1 and **Appendix 3**) and rehabilitation strategy (Section 3.2.9), the proposed activities would not result in:

- any contamination, salinisation or acidification of soil;
- any significant soil erosion or loss of soil structural integrity;
- any increase in land instability; or
- induced seismicity or ground movements due to fracture stimulation or injection / extraction of groundwater.

Where disturbance may lead to sedimentation, appropriate erosion and sediment controls would be installed. Previous exploration drilling activities have been successfully rehabilitated and revegetated with the same strategies proposed for this program. **Plates 5** to **8** display examples of previous rehabilitation of both drill pads and tracks.

As a result, soil and stability impacts are expected to be **negligible**.

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4.1.4 Noise and Vibration Impacts

The principal noise sources would include the following plant and corresponding L_{Aeq} sound power level (SWL).

- Site preparatory works, e.g. the use of a small bulldozer 113dB(A).
- Drilling activities:
 - reverse circulation 100dB(A).
 - diamond core 88dB(A).

The assessment of noise impacts has been assessed as a "construction activity" in accordance with the '*Interim Construction Noise Guidelines*' given the comparatively short duration of the drilling activities in areas closest to the surrounding residences. The guidelines nominate a noise management level of rating background level plus 10dB(A), i.e. 40dB(A) for activities that occur during standard hours³ and plus 10dB(A), i.e. 35dB(A) outside standard hours.

Using conservative point to point calculations⁴ accounting for attenuation for distance only, the maximum noise levels for the closest drill hole location to the closest residence (900m) are presented in **Table 12**.

Distance (m)	Predicted Noise Levels (distance attenuation only)	
Pad Preparation (Bulldozer)		
900	45.9	
1 800	39.9	
RC Drilling Operations		
900	32.9	
DD Drilling Operations		
900	20.9	
Bold figures exceed the 40dB(A) criterion		

Table 12Calculated Sound Pressure Levels

As can be seen from the conservative calculations which only account of attenuation due to distance, drilling activities at the closest drill hole location to the closest residence are predicted to remain below the 40dB(A) criteria. As such, no exceedances from drilling is expected to occur throughout the drilling program.

However, preparation of the drill pads utilising a bulldozer is predicted to exceed the criteria at the closest residence (R17). However, the calculations do not take into account topographic shielding. At the closest residence (R17) a minimum of 60m of topographic shielding is present between the residence and closest drill hole locations. Given the topographic shielding, it is unlikely that any exceedances would occur.

⁴ Formula is as per "Worked example – rough calculation of noise levels" in the Interim Construction Noise Guideline (DECC 2009) - page 17



³ Standard hours are 7:00am to 6:00pm Monday to Friday and 8:00am to 1:00pm Saturdays

Notwithstanding, due to the limited number of holes within proximity to residences and short duration required for preparatory works (<1 day), completion of preparatory works within 1 800m of any residence would be undertaken during favourable meteorological conditions (i.e. not during temperature inversions).

Based upon the above and the experience gained during previous exploration programs, surrounding residents may be aware of the noise from the drilling operations from time to time however, the noise levels would invariably be less than the relevant criterion. Notwithstanding the predicted low level of impacts, the Company would remain in regular contact with surrounding residents about the drilling operations and, wherever practicable, program drilling to reduce noise impacts for surrounding residents.

Based upon the above it is assessed that the noise impacts from the proposed preparatory activities and drilling operations would be **low adverse**.

4.1.5 Other Physical or Pollution Impacts

The Company has considered other potential physical and pollution impacts and notes the following.

- Coastal Processes and Coastal Hazards The REF Area is not located within proximity to the coast and the proposed activities would not affect or be affected by coastal processes or coastal hazards.
- Hazardous Substances or Chemicals
 The likely drilling chemicals that may be utilised are outlined in Section 3.5.4.
 These chemicals would be stored and transported in accordance with the relevant Material Safety Data Sheets and are commonly used within exploration drilling without resulting in pollution of the environment.
- Generation and Disposal of Waste Section 3.5.4 outlines the likely wastes to be generated, expected volumes and disposal methods. The wastes that would be generated are typical of exploration drilling and would be collected, stored and disposed of in accordance with relevant policies and guidelines and records would be kept.

The potential impacts upon other physical parameters are considered to be **negligible**.

4.2 ASSESSMENT OF BIOLOGICAL IMPACTS

The disturbance to biological values from the proposed Exploration and Resource Drilling Program can be classified into the following categories.

Category 1 – Open areas <10° requiring no levelling (Plate 9)

No clearing of trees or shrubs would be required in Category 1 areas. Some trimming of branches of nearby large trees may be necessary (for safety reasons) or moving of fallen timber by hand may be required. Small shrubs would be driven over, if required, preserving the root stock to facilitate later regrowth. Existing slopes are less than 10° and therefore require no levelling other



than potentially minor earthworks with soil stripping limited to the area directly around the drill collar and to adjust any minor undulations. Above-ground sumps would be utilised for all diamond core drilling sites, in particular within the TEC and limited in-ground sumps beyond the TEC where practicable to do so. The estimated disturbance per Category 1 drill site is $20m^2$ (within the TEC) and up to $50m^2$ (beyond the TEC).

Category 2 – Open areas >10° requiring levelling (Plate 10)

No clearing of mature trees is required in Category 2 areas, however, due to slopes exceeding 10° disturbance of any shrubs and groundcover is required in order to construct each drill pad. Soil (incorporating shrubs and groundcover) would be stripped, stockpiled and respread over disturbed areas during rehabilitation. The site would be assessed to determine appropriate sump usage (above or in-ground sump). Above-ground sumps would be utilised in the TEC. The maximum area of disturbance at each Category 2 drill site would be $400m^2$ with an average of $300m^2$.

Category 3 – Woodland Areas <10° requiring clearing (Plate 11)

Category 3 areas are located in woodland areas which will require removal of trees within the drill pad area. However, as far as practicable, no standing trees with a diameter at a breast height greater than 20cm would be removed, with the shape and orientation of the drill pad adjusted, if possible, to avoid these trees. The removed vegetation would be pushed to one side and then pushed back over the pad area after the pad is no longer required. Existing slopes are less than 10° and therefore require no levelling other than potentially minor earthworks with soil stripping limited to the area directly around the drill collar and to adjust any minor undulations. The site would be assessed to determine appropriate sump usage (above or in-ground sump). Above-ground sumps would be utilised in the TEC. The maximum area of clearance at each Category 3 drill site would be 400m² with an average area of disturbance of approximately 300m². Of this area, only approximately 50m² of disturbance would involve removal of groundcover and soil material.

Category 4 – Woodland areas >10° requiring clearing and levelling (Plate 12)

Category 4 areas are located in woodland areas which require removal of trees and, due to slopes exceeding 10° , disturbance of any shrubs and groundcover in order to construct a level drill pad. As far as practicable, no standing trees with a diameter at a breast height greater than 20cm would be removed with the shape and orientation of the drill pad adjusted, if possible, to avoid these trees. Soil (incorporating shrubs and groundcover) would be stripped, stockpiled and replaced during rehabilitation. The site would be assessed to determine appropriate sump usage (above or in-ground sump). Above-ground sumps would be utilised in the TEC. The maximum disturbance at each Category 4 drill site would be 400m^2 with an average area of disturbance of approximately 300m^2 .


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Access Tracks

New or upgraded access tracks would be classified as either Category 2, 3 or 4 and have an average 5m width of disturbance. No access tracks would be required within Category 1 areas.

When considering potential ecological impacts, consideration has been given to the proposed disturbance located within the area of identified TEC and the area of other native vegetation.

As outlined in Section 2.3.4, a total of approximately 7.0ha of disturbance would be required as follows.

- Drill pads 163 new drill pads and 20 partially disturbed pads 3.95ha
- Access tracks 5 065m at 4m wide plus 50% to allow for road-side 3.04ha disturbance

The following provides a breakdown of this disturbance for both TEC and other native vegetation in accordance with the above categorisation.

TEC Disturbance

Of the proposed 255 drill holes, 69 are located within the TEC. Of these 13 have previously been disturbed and 4 have previously been partially disturbed. Only 15 drill holes within the TEC require clearing of trees and/or shrubs,

Utilising the above category system and removing previously disturbed areas, the likely disturbance of TEC as a result of the program would be as follows.

- Category 1 = 27 holes requiring $500m^2$ of ground disturbance with no tree clearing.
- Category 2 = 7 holes totalling $2 \ 100 \text{m}^2$ of ground disturbance with no tree clearing.
- Category 3 = 5 holes totalling $1 350 \text{m}^2$ of tree clearing of which approximately 250m^2 would involve ground disturbance.
- Category 4 = 10 holes totalling $2850m^2$ of disturbance including tree or shrub clearing, although tree clearing would be avoided where possible.
- Approximately 582m of access tracks totalling 3 492m² of ground disturbance with limited clearing of trees or shrubs.

Total disturbance within the TEC would be approximately 1.03ha, of which 0.26ha would require only groundcover disturbance without clearing of trees. This purposeful selection of drill location to avoid disturbance to the TEC to the maximum extent feasible and, where avoidance is not possible, minimise tree clearing. This would result in minimal impact to the TEC which would be further reduced following completion of rehabilitation.

Other Native Vegetation Disturbance

Of the remaining 186 holes, 52 have been located within previously disturbed areas and 16 within areas that have previously been partially disturbed. Estimated disturbances are as follows.

• Category 1 = 23 holes totalling 1.025m^2 of ground disturbance with no tree clearing.



- Category 2 = 13 holes totalling $3750m^2$ of ground disturbance with no tree clearing.
- Category 3 = 37 holes totalling 9 750m² of tree clearing of which approximately 1 850m² would involve ground disturbance.
- Category 4 = 61 holes totalling 18 150m² of disturbance including tree or shrub clearing, although tree clearing would be avoided where possible.
- Approximately 4 483m of access tracks totalling 26 898m² of disturbance with limited clearing of mature trees.

Total disturbance within native vegetation would be approximately 5.96ha, of which 0.48ha would require only groundcover disturbance.

Assessment of Significance

Section 7.3 of the *Biodiversity Conservation Act 2016* provides a 'test' for determining whether a proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. The following brief assessment presents the matters that must be taken into account in determining the significance of proposed impact with a brief assessment of each matter provided. Consideration has also been given to the *Threatened Species Test of Significance Guidelines* (OEH, 2018).

a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Given the small total area of disturbance in the context of the area of available habitat and habitat resources within the locality, it is considered unlikely that the proposed activity would impact the life cycle of any species such that it would threaten the viability of any local populations of threatened species. The use of preclearance inspections would also minimise the potential for harm to any individuals of threatened (and non-threatened) species.

- b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:
 - *i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or*
 - *ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*

Up to 1.03ha of TEC (Box-Gum Woodland) would be disturbed as a result of the Exploration and Resource Drilling Program, of which only 0.77ha would include clearing of trees and/or shrubs. In context of the local extent of the TEC, a total of ~820ha of the Box-Gum Woodland was recorded within the Study Area (which incorporates the REF area) for the 2020 and 2021 Biodiversity Assessments completed by EnviroKey. Furthermore, the composition of the remaining Box-Gum Woodland would not be impacted by the activity given that disturbance would be restricted to the proposed access tracks and drill pads which would be subsequently rehabilitated.

As such, the proposed disturbance would not place the local occurrence of the Box-Gum Woodland TEC at risk of extinction.

- c. in relation to the habitat of a threatened species or ecological community:
 - *i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and*
 - *ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and*
 - *iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,*

The proposed activity would disturb up to 7.0ha of native vegetation. This vegetation provides habitat for a range of threatened species as outlined in Section 2.6. However, there remains extensive areas of similar habitat within the locality. Furthermore, as the access tracks and drill pads would disturb small and separated areas over a large geographical area and then be subsequently rehabilitated, the local habitat would not be significantly modified, fragmented or isolated.

d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposed activity would not directly or indirectly affect any declared areas of outstanding biodiversity value.

e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The proposed activity would exacerbate the key threatening process of native vegetation clearing, however, the disturbance would be rehabilitated and is minor in the context of the existing vegetation within the locality. The activity may also disturb dead wood and trees by moving these from the drill pad or access tracks. However, as these would simply be moved and not destroyed there would be negligible contribution to this key threatening process. The proposed activity would have either no or negligible contribution to other key threatening processes.

In summary, whilst short-term biological impacts are expected as a result of clearing of groundcover and a limited number of shrubs and trees, with the implementation of the proposed management measures, including pre-clearance inspections and avoidance of the identified *Swainsona sp*, the potential impacts upon flora and fauna species is considered to be low adverse. However, as a small amount of clearing of a TEC would occur, overall biological impacts are considered to be **medium adverse**.

4.3 ASSESSMENT OF RESOURCE USE IMPACTS

4.3.1 Community Resources

The proposed activities would result in direct employment by the Company of approximately 30 persons on a full-time equivalent basis. Employees would be either locally based or accommodated within quarters on Company owned land or within local towns if "overflow" is needed. No additional facilities would need to be constructed.



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The proposed activities would also require a limited use of community services with consumables and maintenance relying upon existing drilling and civil contractors. The proposed activities would also not generate significant volumes of waste, all of which could be readily accommodated by existing waste facilities within the Mid-Western Regional Local Government Area.

Given the above, it is expected that the proposed activity would not result in the degradation of or a significant increase in demand for services and infrastructure resources to the local or broader community. Therefore impacts on community resources would be **negligible**.

4.3.2 Natural Resources

The proposed activities would not significantly deplete natural resources with water and soils being protected and clearing of vegetation minimised as far as practicable.

The drilling program itself would not deplete natural resources. Rather it would better define important minerals for future beneficial exploitation.

Therefore, as the proposed activities would not significantly disrupt, deplete or destroy natural resources, the impact would be **negligible**.

4.4 ASSESSMENT OF COMMUNITY IMPACTS

4.4.1 Social Impacts

Given the small workforce and relatively short-term nature of the activities, potential impacts upon the demographic structure of the community would not be significant. It is also considered that the environmental impacts would not cause any substantial change or distribution to the community, loss of facilities or loss of community identity. As a result, social impacts would be **negligible**.

4.4.2 Economic Impacts

It is expected that there would be a **positive** economic impact from the wages paid, purchase of consumables, payment of accommodation, fuel and food etc.

Local contractors would be engaged to prepare drill sites and conduct rehabilitation activities following completion of the program. If available, all drilling consumables would also be sourced through local supplies.

The improved definition of the ore body for the Bowdens Silver Project would underpin the substantial economic benefits that would accrue from the development / expansion of a mine centred on the defined resource.

No adverse economic impacts are anticipated from the proposed exploration activities.



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4.4.3 Cultural Heritage Impacts

The proposed activities would not result in any disturbance to known Aboriginal objects. Additionally, the mitigation strategies outlined in Section 3.5.8 would ensure that currently identified and any unidentified Aboriginal objects are protected. With the implementation of these measures, the potential Aboriginal heritage impacts are considered **negligible**.

4.4.4 Historic Heritage Impacts

With the implementation of the mitigation measures outlined in Section 3.5.8, the identified historic heritage sites would be protected. Therefore, the potential historic heritage impacts are also considered **negligible**.

4.4.5 Aesthetic Impacts

The proposed activities do not involve any venting or flaring of gas and, with the implementation of the proposed air quality measures, would not result in significant visible dust generation.

Whilst the proposed activities would not be visible from the village of Lue or from Lue Road, some motorists travelling on local roads would periodically observe the drilling activities when these are activities in progress close to the public road network. It is also likely that some residents would periodically observe drilling activities from neighbouring properties. However, as the activities at each drill site would invariably be short-lived, night time operations are not proposed and the intervening topography and vegetation would largely shield or obscure the activities, the impacts would be **negligible**.

4.4.6 Land Use Impacts

The proposed activities would not result in any impact to the uses of surrounding properties during the exploration program. The proposed activities would also not result in any significant impact upon property values.

No land within or adjoining the REF Area is identified as BSAL and no agricultural activities would be impacted.

Therefore, potential land use impacts are considered negligible.

4.4.7 Transportation Impacts

The exploration program would generate approximately up to 30 light vehicle movements per day to/from the REF Area. The water truck used on site and occasional delivery vehicles would also periodically travel on the public roads approaching and within the REF Area.

Whilst the increased level of traffic activity may be noticeable to some surrounding residents, given the low volume of existing traffic and low volumes that would be generated by the proposed activities, transportation impacts are expected to be **negligible**.



4.5 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE – EPBC ACT

The ESG2 Guideline requires the Company to establish whether the proposed activity is likely to impact on matters of national environmental significance (MNES) under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

A number of MNES have been recorded within and/or surrounding the REF Area (see **Figure 13**), namely:

- Box-Gum Woodland;
- Koala;
- Large-eared Pied Bat;
- White-throated Needletail;
- Rainbow Bee-eater; and
- Small Purple-pea (*Swainson recta*).

Additionally, a number of species of MNES, whilst not recorded, are predicted to occur within and/or surrounding the REF Area based on habitat. These include:

- Regent Honeyeater;
- Swift Parrot;
- Spotted-tailed Quoll;
- Cattle Egret (migratory);
- Latham's Snipe (migratory); and
- White-throated Needletail (migratory).

All these MNES have been assessed for the proposed Bowdens Silver Mine, which would result in disturbance of 381.84ha of native vegetation. The assessment was completed by EnviroKey (2020 and 2021) in accordance with the *Significant Impact Guidelines* 1.1 - Matters of NationalEnvironmental Significance. Without taking into account biodiversity offsets, the assessmentconcluded that there would not be a significant impact except potentially for the RegentHoneyeater and Box-Gum Woodland. For the Regent Honeyeater it was concluded the proposedBowdens Silver Mine would:

- not lead to a long-term decline in the size of a population of the species;
- not reduce the area of occupancy to the detriment of the species; and
- be unlikely to result in the introduction of species or diseases that are potentially harmful to the Regent Honeyeater.

For the Box-Gum Woodland, of which a total 182.3ha would be disturbed, a biodiversity offset has been proposed to mitigate the impact.



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In comparison, the proposed Exploration and Resource Drilling Program would result in a total disturbance of 7.0ha of native vegetation, of which only 1.03ha is Box-Gum Woodland. Of this, approximately 0.77ha would include clearing of trees and shrubs. As such, given the comparatively limited disturbance and outcomes of previous assessments, it is considered that the proposed activities are very unlikely to have any significant impact upon any MNES, including the Regent Honeyeater and Box-Gum Woodland.

4.6 ASSESSMENT OF CUMULATIVE IMPACTS

No other non-Company-related existing or proposed activities that could result in cumulative impacts with the proposed activities are known within the vicinity of the REF Area.

As a result, cumulative impacts would be **low adverse**.



5. SUMMARY OF IMPACTS

Table 13 provides a summary of the anticipated environmental impacts associated with the proposed activities and the overall ranking of potential significance. In summary, the proposed activities would have a **negligible** impact across the majority of physical, biological and community parameters. In fact, the bulk of the impacts would largely be confined within the REF Area. However, a **medium adverse** ranking has been adopted given the rankings for biological impacts, including as a result of cumulative impacts.



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Table 13 Summary of Potential Impacts

Impacts	Size	Scope	Intensity	Duration	Level of Confidence in predicting impacts	Resilience of environment to cope with impacts?	Level of reversi- bility of impacts?	Ability to manage or mitigate impacts	Ability of the impacts to comply with standards, plans or policies?
Physical or Po	ollution In	npacts	•	•	•	•		•	•
Air	Small scale	Localised	Low Three to five drill rigs operating at one time.	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available (Section 3.5.6)	Compliance almost certain
Water	Small scale	Localised No significant surface water resources to be traversed and no direct discharges to surface water No sensitive aquifers, groundwater dependent ecosystems or groundwater users	Low Limited water take (<3ML/y)	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	Moderate to High	High	Impacts reversible	Effective mitigation measures available (Sections 3.5.1 and 3.5.2)	Compliance almost certain
Soil and Stability	Medium scale	Localised	Low Disturbance to be limited to existing disturbance as far as practicable	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available (Sections 3.2 & 3.5.1)	Compliance almost certain
Noise and ∀ibration	Small scale	Localised	Low One drill rig operating at one time in proximity to surrounding residences. Day operations only.	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation and management measures available (Section 3.5.5)	Short-term non- compliance possible with minor exceedances of criteria at two nearby residences
Coastal Processes and Hazards	Issue no	t relevant							
Hazardous Substances and Chemicals	Small scale	Localised Drilling chemicals and hydrocarbons only	Low Small quantities stored in bunded containers	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available (Section 3.5.4)	Compliance almost certain
Wastes	Small scale	Localised Wastes removed regularly	Low Small quantities of waste generated	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous) and wastes removed from site regularly	High	High	Impacts reversible	Effective mitigation measures available (Section 3.5.4)	Compliance almost certain

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Level of public interest	Requirement for further information on the impacts of the activity or mitigation	Ranking of potential significance
Moderate	High level of understanding and information on the impact based on prior experience on site	Negligible
Moderate	High level of understanding and information on the impact based on prior experience on site	Negligible
Low	High level of understanding and information on the impact based on prior experience on site	Negligible
Moderate	High level of understanding and information on the impact based on prior experience on site	Low adverse
Low	High level of understanding and information on the impact based on prior experience on site	Negligible
Low	High level of understanding and information on the impact based on prior experience on site	Negligible

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Table 13 (Cont'd) Summary of Potential Impacts

Impacts	Size	Scope	Intensity	Duration	Level of Confidence in predicting impacts	Resilience of environment to cope with impacts?	Level of reversi- bility of impacts?	Ability to manage or mitigate impacts	Ability of the impacts to comply with standards, plans or policies?
Biological Imp	acts			I					
Flora and Fauna	Small scale	Localised Total disturbance of approximately 7.0ha of which approximately 0.74ha would be ground disturbance without tree clearing	Low Limited disturbance and minimal removal of mature trees	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	Moderate to High	High Scale of disturbance small in context of remaining habitat	High Natural vegetation likely to re- establish quickly	Effective mitigation measures available (Section 3.5.9)	Significant impacts unlikely
Ecology	Small scale	Localised Total disturbance of approximately 7.0ha of which approximately 0.74ha would be ground disturbance without tree clearing	Low Limited disturbance and minimal removal of mature trees	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	high High High High high high high high		High Natural vegetation likely to re- establish quickly	Effective mitigation measures available (Section 3.5.9)	Significant impacts unlikely
Resource Use	Impacts								
Community	Small scale	Localised Proposed activity is unlikely to increase the demand for services or degrade those that are currently available	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available	No standards, plans or policies apply
Natural Resources	Small scale	Localised Proposed activity is unlikely to disrupt, deplete or destroy natural resources	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available	No standards, plans or policies apply
Community Im	npacts								
Social Factors	Small scale	Localised Proposed activity is unlikely to effect the demographic structure of the community or disrupt or disadvantage any particular component of the community	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available	No standards, plans or policies apply
Economic Factors	Small scale	Localised Proposed activity is likely to generate economic activity and income for the community	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible Effective mitigation measures available		No standards, plans or policies apply
Heritage Impacts	Small scale	Localised Proposed activity will not impact on items of historic heritage	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High High Impacts Effective mitigat measures availated and the second se		Effective mitigation measures available	Compliance almost certain	
Aesthetic Impacts	Small scale	Localised	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available	No standards, plans or policies apply

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у ?	Level of public interest	Requirement for further information on the impacts of the activity or mitigation	Ranking of potential significance
\$	Low to moderate	Moderate to high understanding based on previous flora and fauna surveys.	Low adverse (individual species)
5	Low to moderate	Moderate to high understanding based on previous flora and fauna surveys.	Medium adverse (TEC disturbance)
IS	Low	High level of understanding and information on the impact based on prior experience on site	Negligible
IS	Low	High level of understanding and information on the impact based on prior experience on site	Negligible
IS	Low	High level of understanding and information on the impact based on prior experience on site	Negligible
IS	Low	High level of understanding and information on the impact based on prior experience on site	Positive to Negligible
t	Low	High level of understanding and information on the impact based on prior experience on site	Negligible
IS	Low	High level of understanding and information on the impact based on prior experience on site	Negligible

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Table 13 (Cont'd) Summary of Potential Impacts

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Impacts	Size	Scope	Intensity	Duration	Level of Confidence in predicting impacts	Resilience of environment to cope with impacts?	Level of reversi- bility of impacts?	Ability to manage or mitigate impacts	Ability of the impacts to comply with standards, plans or policies?	Level of public interest	Requirement for further information on the impacts of the activity or mitigation	Ranking of potential significance
Community Im	pacts (C	ont'd)										
Cultural Impacts	Small scale	Localised Proposed activity will not result in disturbance to Aboriginal objects	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts irreversible	Effective mitigation measures available	Compliance almost certain	Low	High level of understanding and information on the impact based on prior experience on site	Negligible
Land Use	Small scale	Localised	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available	No standards, plans or policies apply	Moderate	High level of understanding and information on the impact based on prior experience on site	Negligible
Transportation	Small scale	Localised	Low	Medium Term Drilling program completed throughout a maximum 5 year period (shorter if activities continuous)	High	High	Impacts reversible	Effective mitigation measures available	Compliance almost certain	Low	High level of understanding and information on the impact based on prior experience on site	Negligible
Ranking of Ac	tivity as a	a Whole										
Generally the p in consideration	roposed a	activities would have a negligible tal potential disturbance of 7ha.	impact across the	majority of physical and comm	nunity paramete	rs. However, a m	edium adverse ranki	ng has been adopted give	n the rankings for biolo	gical impac	ts which have been assessed	Medium Adverse

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6. CONCLUSIONS

The Company contends that the proposed activities would:

- be unlikely to have a significant effect on the environment, threatened species, population, ecological communities or their habitats;
- not result in permanent and adverse changes to the environment; and
- not result in unacceptable impacts to land that is already stressed or cumulative impacts that would be unacceptable.

Furthermore, the Company contends that there is a high level of confidence in relation to the determined impacts and that the proposed activities would not, therefore, result in unacceptable impacts.



7. STATEMENT OF COMMITMENTS

Table 14 provides a description of the Statement of Commitments for the proposed exploration activities.

	Page	e 1 of 4
ltem	Commitment	
Activity Type	Exploration activity comprising the following.	
	Construction of up to 5km of new or upgraded access tracks.	
	Drilling of approximately 255 drill holes.	
	Construction of drill sites up to approximately 20m x 20m in size.	
	Rehabilitation of completed drill sites and access tracks.	
Activity Location	Within EL 5920, Lue NSW.	
Activity Scope	Limited vegetation clearing for access and drill sites.	
(including any	Operation of drill rigs and ancillary support equipment.	
ancillary activities)	Rehabilitation of areas disturbed by the proposed activities.	
	Operation of workshop, office and lodging facilities within Company-owned property.	
Hours of Operation	6:00am to 7:00pm up to 7 days per week.	
Activity Duration	Up to 5 years.	
Proposed Commencement Date	Quarter 4 2021.	
Proposed Completion Date	31 December 2026.	
Maximum Area of Disturbance	7.0ha of additional disturbance as follows of which approximately 0.74ha woul involve ground disturbance only.	d
Rehabilitation Commitments and Timeframes	Progressively throughout drilling program and completion of rehabilitation audi following drilling program.	ít
Management Meas	sures	
General	Undertake operations generally in accordance with the following.	
	 Exploration Code of Practice: Environmental Management. 	
	 Exploration Code of Practice: Produced Water Management, Storage an Transfer. 	nd
	 Exploration Code of Practice: rehabilitation. 	
	 Exploration Code of Practice: Community Consultation. 	
Air Quality	Surface disturbance to be minimised as much as practicable.	
	Dust extraction systems to be used on RC drill rigs.	
	 Limit the speed at which all Company personnel and contractors travel on unsealed private roads accessing the REF Area to 40km/h in order to minim wheel generated dust. 	nise
	Removal or covering of drilling residues once dried.	

Table 14Statement of Commitments

Table 14 (Cont'd) Statement of Commitments

Page 2 of 4

Item	Commitment
Management Meas	ures (Cont'd)
Protection of Surface Water	 Erosion and sediment controls to be installed as required and in accordance with the Water, Erosion & Sediment Control Management Plan.
Sources	 Any excess water /drilling fluids encountered will be contained in the sump and/or reused on site for drilling, dust suppression or land irrigation purposes.
	 Drill residues from the RC drilling will be collected in the sump and subsequently buried.
	 Produced water to be irrigated onto internal access tracks for dust suppression. No application of produced water within 40m of a watercourse.
	 Implementation of appropriate hydrocarbon and chemical storage and handling practices.
Protection of	 Above-ground drilling sumps for the diamond drill holes.
Groundwater Sources	 In the unlikely event artesian conditions are encountered, drilling would cease and the hole would be grouted.
	 Following the completion all exploration drilling activities, each exploration drill hole casing would be securely capped in the short term as further testing may need to be undertaken.
Erosion and sediment controls	 Install sediment and erosion control measures, including silt stop fencing, in accordance with Managing Urban Stormwater.
	 Utilise existing tracks wherever possible and avoid crossing drainage lines where possible.
	 Surface disturbance to be minimised as much as practicable.
	 Site access to be restricted to defined access tracks.
	 Topsoil and subsoil from areas disturbed would be separated and replaced during rehabilitation.
Noise and vibration	 Use of noise mitigated drilling and other equipment, such as silenced generators and compressors and rubber hammers where possible. Education and training of drillers and other on-site personnel in quiet work methods and locations of nearby residents. Adherence to hours of operation.
Use of chemicals, fuels and lubricant	 Ensure all equipment is regularly inspected and maintained, including scheduled replacement of hydraulic hoses to minimise the risk of hydrocarbon spills.
	 Place appropriate plastic liners or other absorbent materials in areas of potential hydrocarbon leaks.
	 Ensure that all exploration personnel, including contractors, are trained and aware of the procedures and requirements of hydrocarbon and chemical materials management prior to the exploration programme commencing.
	 Ensure that all hydrocarbons and chemicals are stored in accordance with Australian Standard AS 1940-2004: The Storage and Handling of Flammable and Combustible Liquids.
Waste	 Ensure that all exploration personnel, including contractors, are trained and aware of waste storage and disposal requirements.



Bowdens Silver Mine – Exploration and Resource Drilling Program

Table 14 (Cont'd) Statement of Commitments

	Page 3 of 4
Item	Commitment
Management Meas	ures (Cont'd)
Aboriginal cultural and historic heritage	 Ensure that all identified heritage sites in proximity to proposed disturbance are located and, where required, temporary fencing would be utilised to delineate 'no go' areas.
	• Ensure that all personnel involved in ground disturbance are trained in locating, identifying and avoiding Aboriginal objects and their legislative protection under the <i>National Parks and Wildlife Act 1974</i> .
	 Ensure that ground disturbing activities are contained to the proposed areas.
Ecology, fauna and	 Ensure existing tracks and disturbance areas are used where possible.
livestock	 Ensure the route of new access tracks are selected to avoid the need to clear mature trees, wherever practicable.
	 Keep clearing at drill sites to the minimum extent necessary and avoid mature trees wherever practicable.
	 If a mature tree is required to be removed, ensure a pre-clearance inspection is undertaken by an appropriately trained or qualified person.
	 When activities are being undertaken within proximity of a known threatened flora species (i.e. Swainsona species), prior to disturbance, undertake an inspection to locate the individuals and utilise temporary fencing to delineate 'no go' areas.
	 Utilise any cleared vegetation within the rehabilitation process to minimise the loss of habitat resources.
	 Ensure all vehicles, machinery, equipment and work boots are inspected and cleaned prior to arriving on site to prevent the spread of weed species.
Weeds, pests and diseases	 Ensure that all vehicles, machinery, equipment and work boots are inspected and cleaned prior to arriving on site.
Rehabilitation commitments and	 Complete stage rehabilitation following: construction work; completion of drilling; and long-term rehabilitation.
timetrames	 Any protruding PVC collar pipe would be cut off approximately 1cm below the surface. The PVC pipe would then be capped with a metal plate before the hole is backfilled to ground level.
	 Backfill drill sumps and re-shaping the drill pads to remove their geometric shape and create slopes comparable with those natural slopes around the pads.
	 Replace subsoil and topsoil set aside during pad construction and install any required surface water management structures to protect the disturbed area, including silt-stop fencing.
	 Spreading of any cleared vegetation and revegetation with a native or pasture seed mix, if necessary.
Other regulatory approvals required.	None.
Community consultation	• Ensure that consultation is undertaken in accordance with the <i>Exploration Code</i> of <i>Practice: Community Consultation</i> and <i>Condition 3</i> of EL 5920.
Complaint management	 Implement the Company's Complaints Management Procedure and provide contact details to all those consulted.
	 Ensure at least one Company representative is available to be contacted seven days a week and that an after-hours message service is available.



Table 14 (Cont'd) Statement of Commitments

	Page 4 of 4
Item	Commitment
Management Meas	sures (Cont'd)
Incident management	 Implement the Company's Incident Management Procedure in the event of an incident.
	 Notify relevant government agencies, including the NSW Department of Regional NSW, as required.
Monitoring	 Ensure that activities undertaken are documented daily through drillers logs and project manager diary notes.
	 Ensure that site inspections and checklists are completed before, during and after exploration, activities, including photographs.
Continuous Improvement	 No additional measures identified.
Reporting	 Ensure that reporting is completed in accordance with the requirements of EL 5920.
Other	 Ensure appropriate fire extinguishers and other firefighting equipment is available to manage any fire-related incidents associated with the proposed activities.
	Ensure all employees are trained in the proper use of firefighting equipment.
	 Modify on-site activities during high fire danger periods (in accordance with hazard category notifications).

8. **REFERENCES**

Australian Bureau of Statistics (ABS), 2016. 2016 Census of Population and Housing.

- **Division of Resources and Energy (DRE), 2015.** ESG2: Guideline for Preparing a Review of Environmental Factors.
- **Division of Resources and Energy (DRE) 2015.** ESG5: Assessment Requirements for Exploration Activities.
- EnviroKey Pty Ltd (2020) Biodiversity Assessment Report, Part 9a of the Specialist Consultant Studies Compendium. Prepared on behalf of Bowdens Silver Pty Limited
- **EnviroKey Pty Ltd (2021)** *Biodiversity Assessment Report Updated*, Part 9a of the *Specialist Consultant Studies Compendium*. Prepared on behalf of Bowdens Silver Pty Limited
- Landskape Natural and Cultural Heritage Management (2020) Aboriginal and Historic Heritage Assessment, Part 13 of the Specialist Consultant Studies Compendium. Prepared on behalf of Bowdens Silver Pty Limited
- **R.W. Corkery & Co Pty Limited (RWC), (2016)**. *Review of Environmental Factors for the Bowdens Stage 2 Exploration Activities EL 5920(1)*. Prepared for Bowdens Silver Pty Limited
- **R.W. Corkery & Co Pty Limited (RWC), (2017a)**. *Review of Environmental Factors for the Bowdens Gumarooka Exploration Activities – EL 5920(1)*. Prepared for Bowdens Silver Pty Limited
- **R.W. Corkery & Co Pty Limited (RWC), (2017b)**. *Review of Environmental Factors for the Bowdens Silver Project Waste Rock Emplacement Sterilisation Drilling Program.* Prepared for Bowdens Silver Pty Limited
- **R.W. Corkery & Co Pty Limited (RWC), (2020)**. Bowdens Silver Project Environmental Impact Statement. Prepared for Bowdens Silver Pty Limited



Appendices

(Total No. of pages including blank pages = 124)

Appendix 1	ESF4 – Exploration Activities Application Form (64 pages)
Appendix 2	Agricultural Impact Statement (4 pages)
Appendix 3	Water, Erosion and Sediment Control Management Plan (42 pages)
Appendix 4	SOP554 Habitat Tree Felling / Clearing (8 pages)
Appendix 5	Equipment Onboarding Checklist



Bowdens Silver Mine – Exploration and Resource Drilling Program

Report No. 429/37 Appendices

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Appendix 1

ESF4 – Exploration Activities Application Form

(Total No. of pages including blank pages = 64)



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FORM

ESF4 Application to conduct exploration activities for assessable prospecting operations

May 2020

Mining Act 1992, Petroleum (Onshore) Act 1991 and Work Health and Safety (Mines and Petroleum Sites) Act 2013.

When to use this form

This form must be used to:

- seek approval to conduct assessable prospecting operations in NSW (refer to Sections 23A and 44A of the *Mining Act 1992*)
- seek approval to modify an approved assessable prospecting operation.

This form may also be used to:

- notify the NSW Resources Regulator of the appointment of a mine operator of a workplace where exploring for minerals is taking place, prior to commencement (refer to clauses 6 and 7 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014, which requires notification of the appointment of a 'mine operator', being the operator of a workplace where 'mining operations' are being carried out, prior to commencement. Mining operations includes exploring for minerals by mechanical means.
- notify the NSW Resources Regulator of the commencement of exploring for minerals (refer to clause 129 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014, which requires notification prior to the commencement of 'mining operations' - which includes exploring for minerals, however, excludes exploring by non-mechanical means.

You do not need to complete this form if you are conducting prospecting operations identified as exempt development under State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.

NSW Resources Regulator

This form has been prepared and approved in accordance with the *Mining Act 1992, Mining Regulation 2016, Petroleum (Onshore) Act 1991,* Petroleum (Onshore) Regulation 2016, *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.

The information requested in this form may not be specifically referenced in the *Mining Act 1992*, Mining Regulation 2016, *Petroleum (Onshore) Act 1991*, Petroleum (Onshore) Regulation 2016, *Work Health and Safety (Mines and Petroleum Sites) Act 2013* or Work Health and Safety (Mines and Petroleum Sites) Regulation 2014, however, its inclusion in the approved form validates the authority of the NSW Department of Planning, Industry and Environment, NSW Resources Regulator to request it.

If there is insufficient room in the fields please provide the information as an attachment.

Important notes

Any information or template that is required to accompany this application should be lodged within 10 business days of the lodgement date. Failure to supply the information within this timeframe may be considered as grounds for refusing the application according to Schedule 1B, clause 6(d) of the *Mining Act 1992*.

If this application is lodged by any party other than the authority holder (i.e. an agent), the department may seek confirmation of that authority and any limits of that authority (*Mining Act 1992* Section 163F and Mining Regulation 2016 Clause 97).

The department may make the information in the form and any supporting information available for inspection by members of the public, including by publication on the department's website or by displaying the information at any of its offices. If you consider any part of your application to be confidential, please provide that part in a separate addendum clearly marked 'Confidential'.

Please read the following guides before completing this form:

- ESG5: Assessment requirements for exploration activities
- ESG2: Guideline for preparing a review of environmental factors
- Guideline for agricultural impact statements at the exploration stage



Exploration in exempted areas

Exempted areas are defined in the *Mining Act 1992* and the *Petroleum (Onshore) Act 1991* as lands set aside for public purposes. Exempted areas include travelling stock routes, road reserves, state forests, state conservation areas, public reserves/commons and land held under a lease for water supply.

The Minister's consent is required before the department can approve exploration activities in exempted areas.

This application cannot be processed until Ministerial consent has been obtained.

To apply for approval to prospect in an exempted area, contact the Division of Resources and Geoscience – Resource Operations by phone: (02) 4063 6600 or email: <u>titles.services@planning.nsw.gov.au</u>

Exploration in State Conservation Areas

The Department of Planning, Industry and Environment (National Parks and Wildlife Service) is responsible for management of <u>State Conservation Areas</u> (SCAs) under the *National Parks and Wildlife Act 1974.* This application cannot be processed until approval from the National Parks and Wildlife Service has been obtained. If you are applying to carry out activities in a State Conservation Area, you must first obtain the following before your application can be processed by the department:

- approval from the Minister administering the <u>National Parks and Wildlife Act 1974</u> (Section 47J(7))
- a Review of Environmental Factors (REF) approved by the <u>National Parks and Wildlife Service.</u>

Surface Disturbance Notice

The conditions of some older authorities require authority holders to provide a Surface Disturbance Notice before carrying out exploration activities. This application is regarded as a Surface Disturbance Notice (SDN) for the notification of exploration activities.

Modification of approved exploration activities

To modify an already approved exploration activity, the modification must be substantially the same as the existing approval and have environmental impacts consistent with those already assessed and approved. Otherwise, a new application for the entire activity must be made.

FORM

ESF4 Application to conduct exploration activities for assessable prospecting operations

NSW Resources Regulator

A modification could include:

- 1. A change to the timing/scheduling of the activity (including extending a time-based approval).
- 2. A change to the location and/or layout of the activity. For example:
 - within the boundary of an area already assessed
 - within an area already disturbed
 - within an area where the impact will be similar to that already assessed.

This could include the relocation of approved drill holes within a reasonable distance of the original location/s that meet the above standards.

3. A reduction in the nature and scale, and related disturbance, of the originally approved activity.

A modification does not include:

- a change to the location of the activity outside of the area previously assessed.
- an increase in the nature and scale, and related disturbance, of the original activity.
- an increase in the quantity/number of activities (e.g. number of drill holes, number of excavations, increased clearing etc.).

How to submit this form

- By email: Send an electronic copy of the form including any attachments to: <u>nswresourcesregulator@service-now.com</u>
- By mail: Mail your form and attachments to: NSW Resources Regulator, Mining Act Inspectorate, PO Box 344, Hunter Region Mail Centre NSW 2310.
- In person: Submit your application in person at Department of Planning, Industry and Environment, NSW Resources Regulator, 516 High Street, Maitland, NSW. Office hours are 9.30am to 4.30pm.

How this application will be processed

Once your application has been registered and checked, it will be assessed by the department. The Minister (or their delegate) will consider the department's recommendation and all relevant information and may propose to grant or refuse the application.



1. Authority details

Exploration licence (EL) or Assessment lease (AL) number	EL5920
Act	1992
Authority expiry date	30 January 2023

2. Authority holder/s details

Provide the full name of authority holder/s and if applicable, the ACN or ARBN (for foreign companies)

Name	(note: form field for postal address doesn't work)
ACN/ARBN	
Registered street address	
Postal address	Same as above
	Enter here if different

Name	Bowdens Silver Pty Limited
ACN/ARBN	009 250 051
Registered street address	Level 11, 52 Phillip Street, Sydney NSW 2000
Postal address	Same as above GPO Box 225, Sydney NSW 2000

Name	
ACN/ARBN	
Registered street address	
Postal address	Same as above
	Enter here if different



Additional authority holders

Provide the full name, ACN or ARBN (for foreign companies) registered street address and postal address details of additional authority holders

3. Contact for the authority holder

Any correspondence relating to this application will be sent to this person

Contact name	Anthony McClure
Position held	Managing Director
Company	Silver Mines Limited
Postal address	GPO Box 225 Sydney NSW 2000
Phone (including area code)	02 8316 3997
Mobile	
Email	

Your preferred contact method

Email (For companies – provide a generic company email address that is regularly monitored rather an individual employee's email address.)

Mail

4. Appointment of a 'mine operator'

The Work Health and Safety (Mines and Petroleum Sites) Act 2013 and associated Regulation requires the authority holder to provide notification of the appointment of a 'mine operator', being the operator of a workplace where 'mining operations' are being carried out. 'Mining operations' includes exploring for minerals by mechanical means (refer Section 5 for clarification regarding 'mechanical means').



Appointment of a 'mine operator' and notification to the NSW Resources Regulator is required prior to the commencement of exploring by mechanical means.

4.1. Do you want to appoint a mine operator and give notice to the Regulator pursuant to clauses 6 and 7 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014?

No. Go to Section 5

Yes. Complete the table below and the declaration in Section 4.2

Name of mine operator	
ACN/ABN/ARBN	
Postal address	
Business address	
Phone (including area code)	
Mobile	
Email	
Date appointment takes effect	
Name of contact person	

4.2. Declaration by mine operator

I am the nominated mine operator listed in Section 4.1 above and I declare that:

- I agree to be appointed as the mine operator for the mine(s) or petroleum site(s) listed in Section 11.
- I am / will be a person conducting a business or undertaking at the mine or petroleum site.
- I have been appointed to carry out mining operations at the mine, or petroleum operations at the petroleum site, on behalf of the mine holder or petroleum site holder
- I have the skills, knowledge, experience and resources to exercise the functions of the mine operator of the mine or petroleum site.

FORM

ESF4 Application to conduct exploration activities for assessable prospecting operations

NSW Resources Regulator

- I have been appointed by the mine or petroleum site holder to have management or control of the mine or petroleum site and to discharge the duties of the mine operator under the work health and safety laws.
- I have been given all the relevant information under the control of the mine or petroleum site holder that is required by the mine operator to discharge the duties imposed on the mine operator under the work health and safety laws.
- I authorise the contact person (identified in Section 4.1 above) to receive any documents (including notices) on my behalf, for the purposes of the work health and safety laws.
- I consent to NSW Resources Regulator making enquiries and exchanging information with government agencies, in NSW and in other states or territories or the Commonwealth regarding any matter relevant to this form.

Mine operator's name	
Position/title	
Date	
Signature	

The details of the mine operator specified in **Section 4.1** of this form are correct.

NOTE: Giving false or misleading information is a serious offence under section 268 of the *Work Health and Safety Act 2011* and Part 5A of the *Crimes Act 1900.*

NOTE: Clause 7(2) of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* requires an authority holder who is also a mine operator to notify the Regulator.

NOTE: A mine or petroleum site 'mine operator' must notify the regulator of any change to the contact person's details provided below. Penalties apply if changes are not notified as soon as practicable (and no later than 28 days) after any change. Notifications must be made by submitting the <u>Change of contact details of operator form</u> to the Regulator.

5. Notification of commencement of operations

The Work Health and Safety (Mines and Petroleum Sites) Act 2013 and associated Regulation requires notification prior to the commencement of 'mining operations' - which includes exploring for minerals by mechanical means that disturb the ground (refer to clause 129 of the Work Health and Safety (Mines and Petroleum Sites Regulation 2014)

Mechanical exploration that disturbs the ground must be notified before commencement.

Notification is **not required** for mining or petroleum operations that only involve exploration for minerals or petroleum **by non-mechanical means. Non-mechanical exploration** means exploring for minerals or petroleum (other than by mechanical means that disturb the ground) and includes the following:

- geological mapping
- sampling and coring using hand-held equipment
- geophysical surveying (but not seismic surveying) and borehole logging
- access by vehicle (but not if access requires the construction of an access way such as a track or road)
- shallow reconnaissance drilling involving no more than minimal site preparation (e.g. nonmechanical means such as a hand auger)
- minor excavations (but not costeaning or bulk sampling) (e.g. non-mechanical means such as using hand held equipment)

5.1. Do you want to notify the Regulator of the commencement of operations the subject of this application pursuant to clause 129 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014?

No. Go to Section 6

Yes. Complete the table below and declaration in Section 5.2

Name of mine operator	Bowdens Silver Pty Limited
ACN/ABN/ARBN	009 250 051

FORM

ESF4 Application to conduct exploration activities for assessable prospecting operations



Proposed date of commencing operations	(notification must be before commencement)
Date of intended conclusion of operations	1 October 2026
GPS co-ordinates of the area covered by the exploration site and in the case of a petroleum site, the coordinates of the location of any proposed wells.	See REF Figure 15

5.2. Declaration of commencement of operations by the mine operator

I declare that:

In giving this notice as the mine operator, I understand that I have satisfied the requirements under clause 129 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 to notify the regulator of commencement of mining.

Mine operator's name	Bowdens Silver Pty Limited
Position/title	Managing Director
Date	13 th September 2021
Signature	

NOTE: Giving false or misleading information is a serious offence under section 268 of the Work Health and Safety Act 2011 and Part 5A of the Crimes Act 1900.

6. Exempted areas

Exempted areas are defined in the *Mining Act 1992* and *Petroleum (Onshore) Act 1991* as lands set aside for public purposes, which includes travelling stock routes, road reserves, state forests, state conservation areas, public reserves/commons and land held under a lease for water supply. Exempted areas require Ministerial consent – this application cannot be processed until Ministerial consent has been obtained.

6.1. Will the activity include prospecting in an exempted area?

No. Go to Section 7

Yes. Continue to Section 6.2
ESF4 Application to conduct exploration activities for assessable prospecting operations



6.2. Prospecting in exempted areas

6.2.1. Minister's consent

Attach a copy of the Minister's consent to prospecting in exempted areas. To apply for approval to prospect in an exempted area, contact the Division of Resources and Geoscience – Resource Operations Unit by phone (02) 4063 6600 or email titles.services@planning.nsw.gov.au.

I have attached a copy of the Minister's consent to prospect in an exempted area.

6.2.2. Identify exempted areas

Identify the exempted areas where prospecting activities will take place:

Insert a map in the field above or enter your text here

7. State conservation areas

If you are applying to conduct prospecting activities in a State Conservation Area, **you must** obtain the approvals below (Section 7.2) before your application can be processed by the department. Requests

for approval to prospect in a State Conservation Area are to be submitted to the relevant regional office of the National Parks and Wildlife Service.

7.1. Will the activity include prospecting in a State Conservation Area?

No. Go to Section 8

Yes. Complete Sections 7.2, 8, 10, 18, 19 and 20 only.

7.2. Prospecting in a State Conservation Area

7.2.1. Minister's consent

If you are applying to carry out activities in a State Conservation Area, you must obtain approval from the Minister administering the *National Parks and Wildlife Act 1974* (Section 47J(7)).

I have attached a copy of the Minister's consent to prospect in a State Conservation Area.

7.2.2. Review of environmental factors

The Department of Planning, Industry and Environment (National Parks and Wildlife Service) manages State Conservation Areas under the *National Parks and Wildlife Act 1974*. If you are applying to conduct prospecting activities in a State Conservation Area, you must provide the department with a <u>Review of</u> <u>Environmental Factors</u> which has been approved by the National Parks and Wildlife Service.

I have attached a copy of the review of environmental factors approved by the National Parks and Wildlife Service.

7.2.3. Identify the State Conservation Area

Identify the State Conservation Area/s where prospecting activities will take place.

ESF4 Application to conduct exploration activities for assessable prospecting operations





8. New application or modification of approved exploration activities

To modify an already approved exploration activity, the modification must be substantially the same as the existing approval and have environmental impacts consistent with those already assessed and approved. Otherwise, a new application for the entire activity must be made. Refer to explanatory notes on page 3 of this form for further clarification.

8.1. Is this a new application for approval or an application to modify an existing approved activity?

 \bigotimes New application for approval. Complete the details below, then go to Section 9

Project name	Bowdens Exploration and Resource Drilling Program
Project location	Via Lue NSW
Brief description	255 drill holes (combination of Reverse Circulation and Diamond Drilling) at depths ranging from 300m to 1 000m.

ESF4 Application to conduct exploration activities for assessable prospecting operations

Modification of an approved application. Complete the details below, then continue to Sections 8.2, 11, 18, 19 and 20 only.

Approved project or activity name	
Department reference and date of previous approval	
Reason for modification	

8.2. Modification of an approved application

Describe the modification to the approved application and the environmental impacts.

9. Application type and assessment requirements

Environmental assessment requirements vary depending on whether a proposed activity is a 'Complying Exploration Activity' or a 'Non-Complying Exploration Activity'. Refer to Section 4 of <u>ESG5 Assessment</u> requirements for exploration activities to determine whether a proposed activity is a Complying Exploration Activity.

An activity can only be assessed under the Complying Exploration Activity pathway if all boxes in **Sections 14** and **15** have been ticked as 'No' and none of the impact thresholds and criteria in **Section 15** have been exceeded.

Petroleum exploration activities are not eligible to be assessed under the Complying Exploration Activity assessment pathway.

Select one application type and assessment pathway only.

Complying exploration activity (minerals or coal authorities only)

Complete all sections in this form, apart from Sections 10, 12 and 17.

Note: Information provided in this form regarding an activity which meets the Complying Exploration Activity criteria will be taken to be a Review of Environmental Factors for the purposes of any authority conditions which require the submission of a Review of Environmental Factors.

OR

ESF4 Application to conduct exploration activities for assessable prospecting operations



Non-complying exploration activity (minerals or coal authorities only)
 Select one of the options below
 Option 1: Complete all sections in this form to provide a targeted review of environmental factors.
 Option 2:

- Complete only Sections 1-3, 6-11 and 18-20 of this form
- Attach a Guideline Review of Environmental Factors prepared in accordance with <u>ESG2 Guideline</u> for preparing a <u>Review of Environmental Factors</u>

OR

Petroleum exploration activity (petroleum authorities)

- Complete only Sections 1-3, 6-11 and 18-20 of this form
- Attach a Guideline Review of Environmental Factors prepared in accordance with <u>ESG2 Guideline</u> for preparing a <u>Review of Environmental Factors</u>

10. Agricultural impact statement

Under the <u>NSW Strategic Regional Land Use Policy</u>, certain **Non-Complying Exploration Activities** must be accompanied by either a Leve 1 or Level 2 Agricultural Impact Statement. When preparing an Agricultural Impact Statement, you should refer to the <u>Guideline for Agricultural Impact Statements at</u> <u>the Exploration Stage</u>. An Agricultural Impact Statement may be included as part of a Guideline Review of Environmental Factors.

10.1. Project area location

Is any part of the project area located on, or within, 2 km of <u>Strategic Agricultural Land</u> or directly on <u>Land and Soil Capability Classes 1, 2 or 3</u>?

Yes. Attach a Level 2 Agricultural Impact Statement. Go to Section 11

No. Continue to Section 10.2

ESF4 Application to conduct exploration activities for assessable prospecting operations

NSW Resources Regulator

10.2. Entire project area

10.2.1. Indicate where the entire project area is located

The entire project area is located (check one or multiple boxes)

- A. Within a <u>State Forest</u>, <u>Nature Reserve</u> or <u>State Conservation Area</u> or
 - B. on existing residential, village, business or industrial zoned land under a <u>Local Environment Plan</u> (LEP), or
- C. within an existing mining lease, or
- D. on Land and Soil Capability Classes 7 or 8
- E. and 500 metres or further inside the boundary of the areas listed above.

If you checked boxes A or B or C or D (and then E above), go to Section 11

If not, continue to Section 10.2.2

10.2.2. Agricultural Impact Statement

If you **did not** check the relevant boxes in **Section 10.2.1**, you will need to attach a Level 1 Agricultural Impact Statement.

 \boxtimes I have attached a Level 1 agricultural impact statement. Enter any additional comments below.

11. Site plan and location details

Attach site plans and/or maps at an appropriate scale showing the following (as relevant):

- boundaries of the authority
- Iot/DP numbers and boundaries
- topographic contours
- Iocation of the proposed activity (including location of key features of the activity using MGA94 co-ordinates or co-ordinates of the area specified for proposed activity)
- GPS co-ordinates of the area covered by the exploration site and in the case of a petroleum site, the coordinates of the location of any proposed wells (Note: This is a requirement of

ESF4 Application to conduct exploration activities for assessable prospecting operations

NSW Resources Regulator

Clause 129 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* when notification of commencement of operations is provided to the Regulator (see Section 5).

- layout of the proposed activity (using dimensions and alignments where appropriate)
- major regional features
- existing and proposed access tracks
- existing structures and infrastructure (including dimensions and alignments where relevant)
- nearby sensitive receptors (including residences, educational establishments, hospitals, places of worship, etc)
- location of Aboriginal and European heritage sites (including AHIMS search) (refer to Section 12.11 and 12.10, respectively)
- Iocation of identified sensitive land (refer to Section 14)
- location of threatened species or ecological communities, or their habitats (refer to Section 15.4).

Note: The site plans and/or maps required here can be included in a Guideline review of environmental factors.

Where the exact location of exploration sites are unknown, the plan(s) and/or map(s) should show the area that the proposed exploration activities and associated disturbance will occur. As such, the scope of this application to conduct assessable prospecting operations will be applicable to the areas demarcated on the attached plan(s) and/or map(s). Assessable prospecting operations proposed to be undertaken outside of approved areas would need to be the subject of a new application (or modification of the approved activities as outlined in **Section 8**).

11.1. Identify the area

Identify the map sheet within which the activities are proposed (where relevant include block number/s and unit letter/s for mineral authorities and petroleum titles). These details are referenced on your authority conditions.

Name of map sheet	Block number	Unit letter/s
Canberra	575	m, n, r, s, w, x

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Name of map sheet	Block number	Unit letter/s

11.2. Site plan/s and map/s

List the site plans and maps you have attached to this application, including relevant plan/map title, dates, reference numbers.

	Reference	e No.	Name/title	Date
1	Figure 1		Locality, Regional Topography and Drainage	Aug 21
2	Figure 2		Exploration and Resource Drilling Program - Land Titles and Ownership	Aug 21
3	Figure 3		Bowdens and Lue Annual Wind Roses	Aug 21
4	Figure 4		Local Topography and Drainage	Aug 21
5	Figure 5		Exploration Area Topography and Drainage	Aug 21
6	Figure 6		Land and Soil Capability Mapping	Aug 21
7	Figure 7		Soil Landscape Units	Aug 21
8	Figure 8		Biophysical Strategic Agricultural Land	Aug 21
9	Figure 9		Services and Public Infrastructure	Aug 21
10	Figure 10		Sensitive Land	Aug 21
Fig	ure 11	Land Ow	nership and Surrounding Residences	
Fig	ure 12	Mine Site	e Vegetation Communities	
Fig	ure 13	Threater	ned Species and Communities	
Fig	ure 14	Cultural	Heritage	
Fig	ure 15	Propose	d Drill Sites	
Fig	ure 16	Propose	d Access Track Construction	
Fig	ure 17	Typical R	C Drill Site Layouts	
Fig	ure 18	Typical D	Diamond Drill Site Layouts	

11.3. Photographs of all sites to be disturbed

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Attach photographs of all sites to be disturbed. List all the photographs attached, including relevant photograph titles, site locations and dates. Include a plan illustrating where the photographs were taken from and their aspect.

	Photo number /reference	Photo name/description		
	Tererence			
1	Plate 7	Category 1 Area		
2	Plate 8	Category 2 Area		
3	Plate 9	Category 3 Area		
4	Plate 10	Category 4 Area		
5				
6				
7				
8				
9				
10				
Ad	Add additional references and notes here			

12. Site description and existing environment

For help answering this section, refer to Sections 1 and 2 of <u>esg2 guideline for preparing a review of</u> <u>environmental factors</u>. Spatial information regarding the site and existing environment can be viewed at the <u>NSW SEED environmental data portal</u>. Importantly, where the exact location of assessable prospecting operations is unknown at the time of the application, a description of the sites and existing environment needs to address the areas as demarcated on the plan(s) and/or map(s) provided in **Section 11** of the application.

12.1. Existing land uses

Provide details of existing land uses that may be affected by the proposed activity and any proposed changes (temporary or otherwise) to the current land use/s during the activity.

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NSW Resources Regulator

12.2. Sensitive receptor/s

Describe the location, type and distance to the nearest sensitive receptor/s (including residences, educational establishments, hospitals, places of worship).

12.3. Soil types and properties

Describe the soil types and properties (including susceptibility to compaction, erosion and dispersion; presence of acid sulfate soils and potential acid sulfate soils). Refer to <u>Strategic Agricultural Land Maps</u>, <u>Land and Soil Capability Class Maps</u> and <u>Acid Sulfate Soils Maps</u>.

12.4. Surface water sources

Provide details of the existing surface **water** sources in the area that are likely to be affected by the activity. Provide details of the nearest watercourse/s and the distance between the proposed disturbance area/s and the nearest watercourse/s.

12.5. Groundwater sources

Provide details of any existing groundwater sources that occur in the area that are likely to be affected by the activity.

12.6. Vegetation cover

Describe the vegetation cover type, density and condition.

12.7. Critical habitat/area of outstanding biodiversity value

Provide details of any critical habitat/area of outstanding biodiversity value that is likely to be affected by the activity including:

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- declared areas of outstanding biodiversity value under the Biodiversity Conservation Act 2016 as listed in the <u>Register</u> maintained by the Department of Planning, Industry and Environment.
- areas declared as critical habitat under the *Fisheries Management Act 1994* as recorded in the Department of Primary Industries register of critical habitat.

12.8. Threatened species record search (wildlife and vegetation)

Attach copies of any relevant threatened species records kept by the Department of Planning, Industry and Environment according to the *Biodiversity Conservation Act 2016*. Refer to <u>mailto:www.bionet.nsw.gov.au</u> for this information. Ensure searches are relevant to the proposed disturbance areas.

A copy of the NSW BioNet search is attached (refer to <u>NSW BioNet</u>).

12.9. Aquatic habitat species record search

Attach copies of any relevant t<u>hreatened and protected species records for aquatic habitats</u> kept by the Department of Primary Industries according to the *Fisheries Management Act 1994*.

A copy of the threatened and protected species records for aquatic habitats search is attached.

12.10. Historic cultural or natural heritage items

12.10.1. Record searches

Attach copies of record searches for any historic cultural or natural heritage items that may be impacted by the activity. As a minimum, identify if any of the following are impacted. For any of the items below, only attach copies of **relevant** heritage searches.

Items listed on the World Heritage List

Items listed on the Commonwealth Heritage List

Items listed on the National Heritage List

State Heritage Register

Items listed in the heritage schedule of an <u>environmental planning instrument</u>, such as a local council's Local Environment Plan



12.10.2. Describe any items of historic cultural or natural heritage that may be impacted by the activity

12.11. Aboriginal heritage sites

12.11.1. Describe the nearest Aboriginal sites or any sites that may be affected

Describe the location, type and distance to the nearest Aboriginal heritage sites and any impact the proposed activity will have on Aboriginal heritage sites (Aboriginal objects and places).

12.11.2. AHIMS search

For exploration activities, the <u>National Parks and Wildlife Act 1974</u> requires you to exercise due diligence to check if Aboriginal sites will be harmed.

The Department of Premier and Cabinet (Heritage) maintains the <u>Aboriginal Heritage Information</u> <u>Management System</u> (AHIMS) which you can use to undertake due diligence. The AHIMS includes:

- information about Aboriginal objects that have been reported to the Secretary, Department of Premier and Cabinet
- information about Aboriginal Places which have been declared by the Minister for Energy and Environment to have special significance with respect to Aboriginal culture
- archaeological reports.

Attach your AHIMS search to support that you have undertaken due diligence for this application.

I have attached a copy of the AHIMS search.

13. Description of the exploration activity

For guidance answering this section, refer to Section 3 <u>ESG2 Guideline for preparing a Review of</u> <u>Environmental Factors.</u>

13.1. Activity description

Describe all stages of the activity, including before, during and after exploration, including rehabilitation. For drilling activities include drilling type, number of drill holes, drill hole depths and size of drill pads.

13.2. Exploration methods

Describe the exploration methods, including machinery and equipment to be used (including what equipment will be operating at any one time).

13.3. Total surface disturbance

Provide the total surface disturbance (in sqm/ha) for the proposed exploration program.

13.4. Earthworks or vegetation clearing

Detail any earthworks or vegetation clearing, including the re-use and disposal of cleared material (including use of spoil-on-site).

13.5. Timing and phasing of the activity

Describe the timing and any phasing of the activity (including anticipated commencement dates and anticipated completion dates for all activities).

13.6. Proposed sealing/suspension of drill holes/wells

Describe the proposed sealing/suspension of drill holes/wells, including details of any well head suspension, security, maintenance and monitoring programs.



13.7. Venting, flaring or re-use of gases

Describe any proposed venting, flaring or re-use of gases, including details of the system design and venting/flaring/re-use processes.

13.8. Access to exploration activities

Describe the means of access to the various exploration activities. Describe any upgrading of existing access tracks and any construction of new access tracks.

13.9. Ancillary activities

Provide details of any activities which are ancillary to the proposed exploration activities including requirements for water storage, ancillary infrastructure, temporary accommodation.

Note: Certain ancillary works and activities (such as accommodation camps and environmental assessment activities) do not constitute an 'exploration' or 'prospecting' activity under the *Mining Act 1992* or the *Petroleum (Onshore) Act 1991* and therefore cannot be approved by the department. The authority holder should obtain their own advice, and/or make their own enquiries with the relevant local council, Crown Lands controlling authority or the landholder regarding separate consent or approvals required under the *Environmental Planning and Assessment Act 1979* and/or *Local Government Act 1993*.

13.10. Proposed hours of operation

Provide details of the proposed hours of operation.

13.11. On-site employee or contractor numbers

Provide an estimate of on-site employee or contractor numbers.

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13.12. Surface water management

Describe how surface water will be managed (including water sources, water usage, water storage and water disposal/reuse).

Note: for guidance answering this section, refer to Section 3.5 of ESG2 Guideline for preparing a Review of Environmental Factors.

13.13. Groundwater management

Describe how groundwater will be managed (including water produced, stored and disposed of/reused during exploration).

Note: for guidance answering this section, refer to Section 3.5 of ESG2 Guideline for preparing a Review of Environmental Factors.

13.14. Waste and excess material management

Describe the type, quantities and management of any waste and excess materials (including drill cuttings, waste water, solid wastes, radioactive material, hazardous wastes, restricted wastes or special wastes).

Note: for guidance refer to Section 3.5 of ESG2 Guideline for preparing a Review of Environmental Factors.

13.15. Chemical management

Detail the handling, use, storage and transportation of any chemicals and hydrocarbons.

Note: for guidance refer to Section 3.5 of ESG2: Guideline for preparing a Review of Environmental Factors.



13.16. Noise management

Describe how noise will be managed to minimise impacts on any nearby sensitive receivers.

Note: for guidance refer to Section 3.5 of ESG2: Guideline for preparing a Review of Environmental Factors.

13.17. Air quality management

Describe how air quality will be managed, including measures to minimise impacts resulting from any dust generation, venting, flaring and fugitive emissions.

Note: for guidance refer to Section 3.5 of ESG2: Guideline for preparing a Review of Environmental Factors.

14. Sensitivity of land to be disturbed

Advise whether the activity will occur on any of the types of land listed below (use the <u>SEED mapping</u> <u>portal</u> to view map layers). All sections must be completed. Explanatory notes are provided in Section 7.1 of <u>ESG5: Assessment Requirements for Exploration Activities</u> to assist authority holders in identifying land to which these location restrictions apply.

An activity can only be assessed under the Complying Exploration Activity assessment pathway if all boxes have been ticked as 'No'. Some of these areas are also 'exempted areas' under the *Mining Act 1992* and *Petroleum (Onshore) Act 1991* (refer to **Section 6**).

If you answer '**yes**' to any of the sections below, provide an assessment of impacts by completing **Section 17.**

14.1. Conservation areas

Land	Yes	No
Land reserved under the National Parks and Wildlife Act 1974		
Land acquired by the Minister for Energy and Environment under Part 11 of the National Parks and Wildlife Act 1974		

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NSW Resources Regulator

Land	Yes	No
Land subject to a 'conservation agreement' under the <i>National Parks and Wildlife Act 1974</i>		
Land declared as an aquatic reserve under the <i>Marine Estate</i> Management Act 2014		
Land declared as a marine park under the <i>Marine Estate Management Act</i> 2014		
Land within State Forests set aside under <i>the Forestry Act 2012</i> for conservation values, including Flora Reserves or Special Management (and other) Zones		
Land reserved or dedicated under the <i>Crown Lands Act 1989 / Crown</i> <i>Lands Management Act 2016</i> (as applicable) for the preservation of flora, fauna, geological formations or other environmental protection purposes		
Land identified as wilderness or declared a wilderness area under the <i>Wilderness Act 1987</i>		
Land subject to a Biodiversity Banking and Offsets Scheme under the <i>Biodiversity Conservation Act 2016</i>		

14.2. Drinking water catchment protection areas

Land	Yes	No
Land declared to be a 'controlled area' or a 'special area' under the <i>Water</i> NSW Act 2014		
Land declared to be a 'special area' under the Water Management Act 2000 or Hunter Water Act 1991		

14.3. Sensitive areas

Note: The upgrade or use of existing access tracks on waterfront land can still be assessed as a Complying Exploration Activity, refer to Sections 7.1 and 7.2 of ESG5 Assessment Requirements for Exploration Activities

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NSW Resources Regulator

Land	Yes	No
Land declared as area of outstanding biodiversity value under the Biodiversity Conservation Act 2016 or critical habitat under Part 7A of the Fisheries Management Act 1994		
Wetlands of international significance listed under the Ramsar Wetlands Convention		
Land designated as a nationally important wetland in the Directory of Important Wetlands		
Coastal wetlands mapped under <i>State Environmental Planning Policy</i> (Coastal Management) 2018		
Littoral rainforests mapped under <i>State Environmental Planning Policy</i> (Coastal Management) 2018		
Coastal zone as defined in the Coastal Management Act 2016		
Land identified in an environmental planning instrument as being of biodiversity significance or zoned for environmental conservation		
Waterfront land defined under the Water Management Act 2000		
Land with a slope greater than 18 degrees measured from the horizontal		

14.4. Land with potential for soil and water contamination

Land	Yes	No
Land mapped as Actual Acid Sulfate Soils (AASS) or Potential Acid Sulfate Soils (PASS) on the Acid Sulfate Soils Risk Maps for NSW		



14.5. Heritage protection areas (Aboriginal and European)

Land	Yes	No
Land declared as an Aboriginal place under the <i>National Parks and Wildlife</i> Act 1974		
Land listed on the World Heritage List, National Heritage List or Commonwealth Heritage List		
Land, places, buildings or structures listed on the NSW State Heritage Register		
Land identified in an environmental planning instrument (such as a State Environmental Planning Policy, Regional Environment Plan or Local Environment Plan) as being of Aboriginal or European heritage significance		

14.6. Critical industry clusters

Land	Yes	No
Land identified as Critical Industry Cluster under State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007		

14.7. Community land

Land	Yes	No
Public land classified as community land under the <i>Local Government Act</i> 1993		

14.8. Other areas

Land	Yes	No
Land identified on the authority as environmentally sensitive land		

15. Impact thresholds and criteria

Provide details relating to the impact thresholds and criteria outlined below. These include cumulative impact thresholds from existing approved activities that have not yet been undertaken/rehabilitated to the satisfaction of the department. Explanatory notes are provided in Section 7.2 of <u>ESG5 Assessment</u> <u>Requirements for Exploration Activities</u> to assist authority holders in completing these details.

Note: An activity can only be assessed under the Complying Exploration Activity assessment pathway if all boxes have been ticked as 'no' and none of the impact thresholds and criteria have been exceeded. A previously approved/undertaken activity must be counted unless the department has acknowledged in writing that the area has been satisfactorily rehabilitated.

All sections, tick boxes and values must be completed - even if the value is zero

15.1. Vegetation clearing

15.1.1. Will cumulative vegetation clearing and/or removal of tree canopy exceed more than 1,000 square metres in any single hectare?

Note: Use a grid overlay of 1ha cells over the authority area for this calculation

Yes. Provide assessment of impacts by completing Section 17.

No

A = Clearing proposed

example text Drill hole a - 400sqm per ha Drill hole b - 400sqm per ha m²

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B = Clearing previously approved or undertaken	Within 1ha around drill hole a - 300sqm Within 1ha around drill hole b - 200sqm	m²
C = Clearing in B that has now been rehabilitated <u>AND</u> approved in writing by the Department (include Departmental Ref. No.)	Within 1ha around drill hole a - 100sqm Within 1ha around drill hole b - 100sqm	m²
Total Clearing = A + B - C	Within 1ha around drill hole a - 600sqm Within 1ha around drill hole b - 500sqm	m ²

15.1.2. Will cumulative vegetation clearing and/or removal of tree canopy exceed more than 1 hectare in any single unit of the authority (or every 250 hectares in the case of authorities which do not have units or do not align to unit boundaries)?

Yes. Provide assessment of impacts by completing Section 17.

No

No

A = Clearing proposed	example text 0.08 ha	ha
B = Clearing previously approved or undertaken	0.05 ha	ha
C = Clearing in B that has now been rehabilitated <u>AND</u> approved in writing by the department (include department Ref. No.)	0.02 ha	ha
Total Clearing = A + B - C	0.11 ha	ha

15.1.3. Will cumulative vegetation clearing and/or removal of tree canopy exceed more than 5 hectares in any single authority?

Yes. Provide assessment of impacts by completing Section 17.

A = Clearing proposed	example text 0.08 ha	ha

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B = Clearing previously approved or undertaken	0.05 ha	ha
C = Clearing in B that has now been rehabilitated <u>AND</u> approved in writing by the department (include department Ref. No.)	0.02 ha	ha
Total Clearing = A + B - C	0.11 ha	ha

15.2. Surface disturbance and excavations

15.2.1. Will cumulative surface disturbances exceed a total of 1 hectare within any single unit of an authority (or every 250 hectares in the case of authorities which do not have units or do not align to unit boundaries)?

Yes. Provide assessment of impacts by completing Section 17.

No	
A = Disturbance proposed	ha
B = Disturbance previously approved or undertaken	ha
C = Disturbance in B that has now been rehabilitated <u>AND</u> approved in writing by the department (include department Ref. No.)	ha
Total disturbance = A + B - C	ha

15.2.2. Will cumulative surface disturbance exceed a total of 5 hectares within any single authority?

Yes. Provide assessment of impacts by completing Section 17.		
Νο		
A = Disturbance proposed		ha

No

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B = Disturbance previously approved or undertaken	ha
C = Disturbance in B that has now been rehabilitated <u>AND</u> approved in writing by the department (include departmentRef. No.)	ha
Total disturbance = A + B - C	ha

15.2.3. Will cumulative excavations exceed 200 cubic metres within any single unit of an authority (or every 250 hectares in the case of authorities which do not have units or do not align to unit boundaries)?

Yes. Provide assessment of impacts by completing Section 17.

A = Excavations proposed	m ³
B = Excavations previously approved or undertaken	m ³
C = Excavations in B that has now been rehabilitated <u>AND</u> approved in writing by the Department (include Departmental Ref. No.)	ha
Total excavations = A + B - C	m ³

15.2.4. Will cumulative excavations exceed 1,000 cubic metres within any single authority?

Yes. Provide assessment of impacts by completing Section 17.

No

A = Excavations proposed

B = Excavations previously approved or undertaken

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C = Excavations in B that has now been rehabilitated <u>AND</u> approved in writing by the Department (include Departmental Ref. No.)	ha
Total excavations = A = B - C	m ³

15.3. Extraction of groundwater (produced water)

15.3.1. Will cumulative extraction of groundwater from all exploration activities within the authority exceed 3 megalitres (ML) per year?

Yes. Provide assessment of impacts by completing Section 17.

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No
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A = Extraction proposed	ML per year
B = Extraction previously approved or undertaken	ML per year
C = Extraction in B that has now ceased	ML per year
Total extraction = A + B - C	ML per year

15.4. Ecology

15.4.1. Will the activity have a significant effect on threatened species or their habitats?

No. Continue to Section 15.4.2

Yes. Provide assessment impacts by completing **Section 17** and any relevant details below (and attach copies as relevant) of any supporting documentation e.g. test of significance undertaken in accordance with the criteria set out in <u>Section 7.3</u> of the *Biodiversity Conservation Act 2016*.

15.4.2. Will the activity have a significant effect on threatened ecological communities or their habitats?

No. Continue to Section 15.4.3

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Yes. Provide assessment impacts by completing **Section 17** and any relevant details below (and attach copies as relevant) of any supporting documentation e.g. test of significance undertaken in accordance with the criteria set out in <u>Section 7.3</u> of the *Biodiversity Conservation Act 2016*.

15.4.3. Will vegetation be removed as part of access track upgrade works in waterfront land?

No. Go to Section 15.5

Yes. Provide assessment impacts by completing **Section 17** and relevant details of vegetation removal.

15.5. Aboriginal heritage

15.5.1. Will the activity harm Aboriginal objects?

No. Go to Section 15.6

Yes. Provide assessment impacts by completing Section 17 and any relevant details below (and attach copies as relevant) of any supporting documentation (e.g. any Aboriginal archaeological due diligence assessments undertaken in accordance with the <u>NSW Minerals Industry Due Diligence Code of</u> <u>Practice for the Protection of Aboriginal Objects</u> (NSW Minerals Council Ltd, 2010).

15.6. European heritage

15.6.1. Will the activity damage heritage items?

	No.	Go	to	Se	cti	on	1	6
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Yes. Provide assessment impacts by completing **Section 17** and any relevant details below (and attach copies as relevant) of any supporting documentation.

16. Compliance with exploration codes of practice

<u>Exploration codes of practice</u> have been prepared by the department. The codes of practice are **only** applied to prospecting authorities granted, renewed or transferred in respect of applications received **after 1 July 2015**. Exploration activities undertaken pursuant to these titles must comply with the relevant exploration codes of practice to be assessed under the complying exploration activity pathway.

The codes of practice provide authority holders with information about the minimum performance requirements to ensure that exploration is undertaken to manage and minimise risks to the environment.

16.1. Does the authority include references to Category 1, Category 2 and Category 3 prospecting operations?

Yes. <u>Do not complete remainder of Section 16</u>. (Note: Compliance with the exploration codes of practice is not required as the existing conditions of the authority will apply as the management controls).

No. Complete Section 16.2, to confirm that the proposed prospecting operations will comply with the relevant exploration codes of practice.

16.2. Compliance requirements

Check the boxes to indicate that the proposed prospecting operations will comply with the relevant code.

 Environmental management

 Yes, the activity will be undertaken in accordance with the Exploration code of practice: Environmental management.

 Rehabilitation

 Yes, the activity will be undertaken in accordance with the Exploration code of practice: Rehabilitation.

 Produced water management, storage and transfer

 Yes, the activity will be undertaken in accordance with the Exploration code of practice: Rehabilitation.

 Produced water management, storage and transfer

 Produced water management, storage and transfer.

 This code is only relevant to prospecting operations where produced water will need to be stored on

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site (excluding the management of incidental groundwater mixed with drilling fluids that can be temporarily contained in drilling sumps or above ground tanks)].

Not applicable.

16.3. Further details

Provide any further details relating to the above management controls and codes of practice as required.



17. Targeted review of environmental factors for noncomplying exploration activities

Complete Section 17 below to provide a Targeted Review of Environmental Factors (REF). This information should focus on the potential environmental impacts associated with the departure(s) from the relevant Complying Exploration Activities location restriction, impact threshold/criteria or management control. This would generally be appropriate for activities that do not significantly depart from the Complying Exploration Activities criteria.

17.1. Physical and pollution impacts

For guidance refer to Section 4.1 of ESG2 Guideline for preparing a review of environmental factors.

17.1.1. Air impacts

Is the activity likely to impact on air quality? Consider air quality impacts:

- such as dust, smoke, odours, fumes, fugitive emissions, toxic or radioactive gaseous emissions with economic, health, ecosystem or amenity considerations
- through generation of greenhouse gas emissions or release of chemicals
- on nearby sensitive receptors

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Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.1.2. Water impacts

Is the activity likely to impact on water quality and/or water quantity? Consider impacts from:

- the use of surface or groundwater
- the storage of water
- changes to natural waterbodies, wetlands or runoff patterns
- aquifer interference including changes to inter-aquifer connectivity
- changes to flooding or tidal regimes
- changes in surface and groundwater quality and quantity

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

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17.1.3. Soil and stability impacts

Is the activity likely to impact on soil quality or land stability? Consider any:

- degradation of soil quality including contamination, salinisation or acidification
- loss of soil from wind or water erosion
- increased land instability with high risks from landslides or subsidence

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

17.1.4. Noise and vibration impacts

Is the activity likely to have noise or vibration impacts on nearby sensitive receptors?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

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17.1.5. Coastal processes and hazards

Is the activity likely to affect coastal processes and hazards including those under projected climate change conditions?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.1.6. Hazardous substances and chemicals

Is the activity likely to result in impacts associated with the use, generation, storage or transport of hazardous substances or chemicals? Consider any:

- use, storage or transport of hazardous substances
- use or generation of chemicals which may build up residues in the environment
- chemicals or radioactive material that will be reacted, returned to the surface or left in a drill hole or target formation.

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

17.1.7. Wastes and emissions

Is the activity likely to result in any impacts to the environment resulting from the generation or disposal of gaseous, liquid or solid wastes or emissions?

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Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

17.2. Biological impacts

For guidance refer to Section 4.2 of ESG2: Guideline for preparing a review of environmental factors.

Fauna and flora (including impact on Threatened Species, or Ecological Communities or their Habitats) – for the purposes of Section 7.3 of the Biodiversity Conservation Act 2016, and in the administration of Sections 5.5 and 5.7 of the Environmental Planning and Assessment Act 1979, the matters below must be taken into account in deciding whether there is likely to be a significant effect on threatened species, or ecological communities or their habitats.

This assessment of significance must be undertaken pursuant to the assessment guidelines issued and in force under the Biodiversity Conservation Act 2016 or the Fisheries Management Act 1994. This assessment of the significance is the first step in considering potential impacts. When a significant effect is likely, a Species Impact Statement (SIS) prepared in accordance with the Biodiversity Conservation Act 2016 or the Fisheries Management Act 1994 may be required.

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17.2.1. Vegetation

Is any vegetation to be cleared or modified (including vegetation of conservation significance)?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.2.2. Threatened species

Is the activity likely to have an adverse effect on the life-cycle of a threatened species such that a viable local population of the species is likely to be placed at risk of extinction?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.2.3. Area of outstanding biodiversity value (AOBV)/Critical habitat

Is the activity likely to have an adverse effect on AOBV / critical habitat (either directly or indirectly)? (Refer to Section 12.7)

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

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17.2.4. Endangered ecological community or critically endangered ecological community

Select as relevant:

The activity is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

The activity is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.2.5. Habitat of a threatened species or ecological community

Select as relevant:

The extent to which the habitat is likely to be removed or modified as a result of the activity will be significant.

The area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the activity.

] The habitat to be removed, modified, fragmented or isolated is important to the long-term survival of the species, population or ecological community in the locality.

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Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.2.6. Recovery plan or threat abatement plan

Is the activity consistent with the objectives or actions of any relevant plan?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

17.2.7. Declared area of outstanding biodiversity value

Is the activity likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly)?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

17.2.8. Key threatening process

Will the activity constitute or form part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process?
ESF4 Application to conduct exploration activities for assessable prospecting operations



Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.2.9. Barriers to movement

Does the activity have the potential to endanger, displace or disturb fauna or create a barrier to their movement?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

17.2.10. Ecological and biosecurity impacts

Select as relevant:

The activity is likely to cause a threat to the biological diversity or ecological integrity of an ecological community.

The activity is likely to create a biosecurity risk or introduce modified organisms into an area.

The activity is likely to cause a bushfire risk.

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

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17.3. Resource use impacts

For guidance refer to Section 4.3 of ESG2 Guideline for preparing a review of environmental factors.

17.3.1. Community resources

Is the activity likely to degrade or significantly increase the demand for services and infrastructure resources?

Note: Infrastructure includes roads, power, water, drainage, waste management, educational, medical or social services.

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

Is the activity likely to require any significant resource recycling or reuse schemes to reduce resource usage?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

Is the activity likely to result in any diversion of resources to the detriment of other communities or natural systems?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

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17.3.2. Natural resources

Is the activity likely to disrupt, deplete or destroy natural resources?

Note: Natural resources include land and soil, water, air and minerals.

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

Is the activity likely to disrupt existing activities (or reduce options for future activities)?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

Is the activity likely to result in the degradation of any area reserved for conservation purposes?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

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17.4. Community impacts

For guidance refer to Section 4.4 of ESG2 Guideline for preparing a review of environmental factors.

17.4.1. Social impacts

Is the activity likely to result in a change to the demographic structure of the community, including changes to workforce or industry structure of the area/region?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

Is the activity likely to have an environmental impact that may cause substantial change or disruption to the community, including loss of facilities, reduced links to other communities or loss of community identity?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

Is the activity likely to result in some individuals or communities being significantly disadvantaged?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

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Is the activity likely to result in any impacts on the health, safety, privacy or welfare of individuals or communities because of factors such as air pollution, odour, noise, vibration and lighting?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.4.2. Economic impacts

Is the activity likely to have significant economic impacts? Consider any impacts that may:

- affect economic activity (positive or negative), particularly impacts which result in a decrease to net economic welfare
- result in a decrease in the economic stability of the community
- result in a change to the public sector revenue or expenditure base.

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

ESF4 Application to conduct exploration activities for assessable prospecting operations



17.4.3. Heritage impacts

Is the activity likely to cause impacts on localities, places, landscapes, buildings or archaeological relics of heritage significance?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.4.4. Aesthetic impacts

Is the activity likely to cause impacts on the visual or scenic landscape, including any venting or flaring of gas?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

17.4.5. Cultural impacts

Will the activity disturb the ground surface or any culturally modified trees?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

ESF4 Application to conduct exploration activities for assessable prospecting operations



Will the activity affect known Aboriginal objects or Aboriginal places?

Impact level	Detail of impacts	Outline any management controls/mitigation
		Incasures
Select level		

Is the activity located in areas where landscape features indicate the presence of Aboriginal objects?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

Can harm to Aboriginal objects or disturbance of landscape features be avoided?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

Will the activity affect areas subject to native title claims, indigenous land use agreements or joint management agreement?

Impact level	Detail of impacts	Outline any management controls/mitigation
		measures
Select level		

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17.4.6. Land use impacts

Is the activity likely to result in major changes to land use, including any curtailment of other beneficial land uses?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

Is the activity likely to result in any significant property value impacts with land use implications?

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

17.4.7. Transportation impacts

Is the activity likely to result in any significant impacts on transportation? Consider any:

- substantial impacts on existing transportation systems (such as road, rail, pedestrian) which alter present patterns of circulation or movement
- impacts associated with direct or indirect additional traffic.

Impact level	Detail of impacts	Outline any management controls/mitigation measures
Select level		

ESF4 Application to conduct exploration activities for assessable prospecting operations



17.4.8. Matters of national environmental significance

For guidance refer to Section 4.5 of ESG2 Guideline for preparing a review of environmental factors.

Is the activity likely to impact on any of the following matters of national environmental significance under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*? Select as relevant:

N/A

	Listed	threatened	species and	communities
--	--------	------------	-------------	-------------

- Listed migratory species
- Ramsar wetlands of international importance
- Commonwealth marine environment
- World heritage properties
- National heritage places
- Great Barrier Reef Marine Park
- Nuclear actions
- A water resource, in relation to coal seam gas development and large coal mining development

Provide further details relating to any impacts on matters of national environmental significance.

ESF4 Application to conduct exploration activities for assessable prospecting operations

18. Rehabilitation cost estimate

All authority holders are required to lodge a security deposit with the department to cover the government's full costs in undertaking rehabilitation in the event of default by the authority holder. The Rehabilitation cost estimate is used by the department to help determine the amount of the security. Refer to <u>ESG1 Rehabilitation cost estimate guidelines</u> and <u>Rehabilitation</u> <u>cost estimation tool</u> for more information.

The scope of the Rehabilitation cost estimate must include the cost of fulfilling any rehabilitation liabilities or other obligations associated with on-going previously approved exploration activities on the authority, as well as proposed exploration activities subject to this application.

18.1. Is your application for a complying exploration activity?



No. Go to Section 18.3.

18.2. Will the cost of fulfilling any rehabilitation liabilities associated with the proposed complying exploration activity, as well as any previously approved exploration activities on the authority, exceed \$10,000?

 \times

Yes. Go to Section 18.3.

No. Go to Section 19. No rehabilitation cost estimate needs to be lodged.

18.3. Have you already lodged an RCE related to this application?

	Yes. Provide the rehabilitation cost estimate lodgement date and further details in text box below and go to Section 19 .
\square	No. Attach a rehabilitation cost estimate which evidences how the estimate is derived and complete the fields below.
	Select one of the options below to confirm the methodology

ESF4 Application to conduct exploration activities for assessable prospecting operations

Department's rehabilitation c	ent's rehabilitation cost schedule Other		
Current security held by the d	epartment		
347000			
Total of this rehabilitation cos	t estimate		
131025.25			

19. Checklist of items included with this application (as applicable)

Item		Reference
Minister's consent to prospect in exempted areas		Section 6
Minister's consent to prospect in a State Conservation Area		Section 7
A Guideline Review of Environmental Factors		Sections 9 and 17
Agricultural Impact Statement	\square	Section 10
Site plan/maps showing location of activities and proposed site layout	\bowtie	Section 11
Site photographs of the site/s prior to disturbance	\square	Section 11
Copy of the NSW BioNet System search		Section 12.8
Threatened species assessment of significance		Sections 12.8 and 15.4
Copy of threatened and protected species records for aquatic habitats		Section 12.9
Heritage database searches		Sections 11, 12.10, 15.5 and 15.6
AHIMS search		Sections 11 and 12.11

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Aboriginal heritage due diligence assessment		Sections 12.11 and 15.5
Rehabilitation Cost Estimate	\square	Section 18
For agents only – evidence of appointment as agent by the authority holder/s		Section 20
Other (list below)		

19.1. Have you lodged all the required information with this form?

X Yes

No. I will provide outstanding information within 10 business days of lodging this application. **Note:** failure to supply the required information may result in the refusal of the application.

Describe the additional information to be provided.

20. Declaration by authority holder/s or authorised agent

This form must be signed by the authority holder/s or an agent authorised to act on behalf of the authority holder/s.

I/We certify that the information provided in this application is true and correct. I/We understand that under Part 5A of the *Crimes Act 1900*, that knowingly giving false or misleading information is a serious offence; and under Section 378C of the *Mining Act 1992* or Section 135 of the *Petroleum (Onshore) Act 1991*, any person who provides information that the person knows to be false or misleading is guilty of an offence, for which they may be subject to prosecution.

ESF4 Application to conduct exploration activities for assessable prospecting operations

Declaration

Authority holder name Anthony McClure			
Position/title	Managing Director		
Signature		Date	13/09/2021

Authority holder name	rity holder name			
Position/title				
Signature			Date	

Authority holder name			
Position/title			
Signature		Date	

Or

Declaration by agent authorised to act for this authority holder

Provide evidence of appointment by the authority holder.

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Authority holder name			
Position/title			
Signature		Date	

Office use only

Application received		
Time:		
Date:		

Received under delegation from the Secretary

Name:		
Signature		

ESF4 Application to conduct exploration activities for assessable prospecting operations

Document control

Authorised by Director Compliance DOC19/936714

Amendment schedule					
Date	Version #	Amendment			
01 March 2016	2.0	New template			
06 March 2016	2.1	Hyperlinks updated, minor edits			
19 July 2016	2.2	Repeated note from Page 2 "Requests for approval to prospect in a SCA" at Q5			
12 September 2016	2.3	Updated links to legislation; updated Q7 & Q8 clarifying that an AIS is not required for CEAs; clarifying Q15 for non-CEAs; amending Q16 so that an RCE is not required for CEAs where rehabilitation liability is less than \$10,000.			
29 September 2017	2.4	Updated Department name; Updated hyperlinks and reference to new <i>Biodiversity Conservation Act 2016</i> ; changed "Common Exploration Activity" references to "Complying Exploration Activity"; Q10.8 – referenced new NSW BioNet search; Q11.1 – included explanatory note re. drilling hole details; Q13.1 – added explanatory note and example text to assist with calculations; Q14.2 – added explanatory note to explain when Produced Water Code applies; Q17 – updated checklist to reflect changes to NSW BioNet search; Q18 – "Company Name" added to Agent declaration.			
28 May 2018	2.5	Updated hyperlinks to SEED environmental mapping portal; update to legislative changes being: <i>Environmental Planning</i> <i>and Assessment Act, 1979; State Environmental Planning</i> <i>Policy (Coastal Management) 2018, Coastal Management Act</i> <i>2016</i> and <i>Biodiversity Conservation Act 2016</i> .			
4 November 2019	2.6	Amended to include notification of mine operator details and notifiable activities at the mine or petroleum site under the <i>Work Health and Safety (Mines and Petroleum Sites) Act 2013.</i> Additional guidance note regarding modifications of approved exploration activities.			

ESF4 Application to conduct exploration activities for assessable prospecting operations

Updated names of departments and Ministers. Updated section numbers.

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DOC19/936714

Appendix 2

Agricultural Impact Statement

(Total No. of pages including blank pages = 4)



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Appendix 2

Bowdens Silver Mine – Exp	loration and	Resource	Drilling Program	n

T	Table A1.1	
Agricultural	Impact A	ssessment ¹

	Issue	Response	
1	Describe the nature, location, intensity and duration of the proposed exploration activity and include a map of the	Section 3 of the REF outlines the nature, location, intensity and duration of the proposed exploration activities. The locations of these activities are shown in REF Figures 1 to 15 .	
	exploration area.	In summary, up to 255 RC and Diamond Drill holes are proposed to be drilled throughout up to a 5 year period.	
2	Describe the nature and location of agricultural resources or industries with the potential to be impacted by the proposed exploration activity.	Agricultural uses currently within the REF Area is largely restricted to grazing of livestock across a range of land types consisting of heavily vegetated and steeply sloping to flatter cleared areas of improved pasture. Soil and Land Capability Classes range between 4 and 6.	
		Agricultural resources and industries beyond the REF Area are unlikely to experience any impacts as a result of the proposed exploration.	
3	Identify and describe the nature, duration and consequence of any potential impacts on agricultural resources or industries.	The nature and duration of potential impacts to agricultural resources is extremely limited with a total disturbance footprint of 7.0ha. This disturbance would also be for a limited period (5 years or less). Given the limited disturbance compared with the broader agricultural land and resources, the consequences of this disturbance is considered to be negligible. Impacts associated with weeds would be mitigated through cleaning of machinery. Potential noise, air and traffic impacts are also limited and extremely unlikely to have any adverse impact on surrounding agricultural resources or industry.	
4	Outline how and when any disturbance resulting from the exploration activity will be rehabilitated.	Section 3.2.9 of the REF describes the rehabilitation activities in detail. The rehabilitation works undertaken would be consistent with the measures outlined in the WESCMP (see Appendix 3).	
5	Location of the project to sensitive agricultural activities. Sensitive agricultural activities may include: Intensive plant agriculture such as	The exploration activities are not located within proximity to any sensitive agricultural activities. The closest known orchard, East Ridge Olives is located approximately 2.6km to the east. No intensive livestock operations are known within 1km of the exploration activities and no breeding paddocks are located within 300m of the exploration activities.	
	 Intensive livestock agriculture located within 1km of exploration activities; 		
	 Breeding paddocks (e.g. lambing paddocks) located within 300m of exploration activities 		
6	Agricultural biosecurity	The principal agricultural biosecurity risk is the importation of	
	Exploration activities should consider enterprise specific industry biosecurity plans (e.g. viticulture, cotton, equine, grains, feedlots, poultry industries).	weeds. This will be managed through cleaning of machinery before it is transported to site.	
7	Accounting for the use of water	Water take is expected to be significantly less than 3ML per	
	If more than 3 ML of water will be taken per year (as a result of cumulative exploration activities within the exploration authority/title area).	With the implementation of the measures in Section 3.5.1 of the REF, no significant impacts are expected upon any water sources.	

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Appendix 3

Water, Erosion and Sediment Control Management Plan

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ABN: 37 009 250 051

Bowdens Silver Mine – Exploration and Resource Drilling Program

Water, Erosion and Sediment Control Management Plan for Exploration Licence 5920

September 2021





ABN: 37 009 250 051

Bowdens Silver Mine – **Exploration and Resource** Drilling Program

Water, Erosion and Sediment **Control Management Plan** for **Exploration Licence 5920**

Compiled for:

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Ref No. 429/37

September 2021

Bowdens Silver Mine – Exploration and Resource Drilling Program

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Bowdens Silver Mine – Exploration and Resource Drilling Program

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LIST OF ACRONYMS

AHD	Australian Height Datum
DECC	Department of Environment and Climate Change
EL	Exploration Licence
ha	hectare
m ²	Square metre
m	metre
mm	millimetre
RC	reverse circulation
V:H	vertical to horizontal ratio
<	less than
>	greater than



1. INTRODUCTION

This document has been compiled on behalf of Bowdens Silver Pty Limited ("the Company") to record the proposed water and erosion/sediment controls to be adopted throughout the exploration activities at the proposed Bowdens Silver Project Site within EL 5920(1). **Figure 1** displays the location of EL 5920(1) and the Exploration Area in which the proposed exploration program is to be undertaken. The Exploration Area covers an area of 648ha and incorporates a total of 255 drill hole locations (**Figure 2**).

The management of surface water and groundwater together with erosion and sediment controls for the exploration activities are effectively integrated into the overall design of the exploration program. As a consequence, this document describes the proposed controls for the key exploration activities, namely track construction, drill pad construction and drilling operations.

This document outlines the proposed controls required to manage water and sediment within the Exploration Area to ensure that the surface water and groundwater resources are not compromised by the proposed exploration activities. The approach to the management of water and sediment is based upon observations of previous disturbances in 1996 to 2000 (by Silver Standard Australia Pty Ltd) and the Company's experience during the previously Stage 1, Stage 2, Gumarooka and Sterilisation Exploration programs.

2. OVERVIEW OF EXPLORATION ACTIVITIES

2.1 TRACK CONSTRUCTION AND USE

2.1.1 Track Construction

Tracks are required to provide access to some of the proposed drilling sites. A range of existing tracks were originally constructed by Silver Standard Australia Pty Ltd during the period 1996 to 2000. Those tracks have exhibited negligible erosion and have been substantially stabilised by natural regrowth. A range of new tracks, typically approximately 3m to 4m wide and constructed with a bulldozer and/or excavator, have been established as part of the more recent exploration programs. At times, the excavator is fitted with a rock hammer to break the rock which cannot be removed by the bulldozer during track construction. In some areas, on comparatively flat ground, little or no construction work was required. Wherever possible, these previous tracks will be utilised. However, where required, new tracks would be constructed typically in the following manner.

- 1. The indicative location of each proposed track is provided to the Senior Field Assistant by the Senior Geologist for inspection/ground truthing in the field. Subject to the alignment/location of the track being assessed as appropriate, the track is marked out at 10m intervals with emphasis placed upon avoiding any mature trees and minimising/avoiding the need to use a rock hammer to break rock along the proposed track alignment.
- 2. Once defined, any mature trees will be inspected for hollows and the presence of nesting / roosting fauna. Vegetation is driven over or pushed over. The vegetation is preferably pushed to the downslope side of the track to act as a supplementary sediment barrier.

Bowdens Silver Mine – Exploration and Resource Drilling Program

WATER, EROSION AND SEDIMENT CONTROL MANAGEMENT PLAN Report No. 429/37



WATER, EROSION AND SEDIMENT CONTROL MANAGEMENT PLAN

Report No. 429/37



- 3. Any topsoil present within the alignment of the track is pushed downslope adjacent to the stacked trees (if present). Emphasis is placed upon pushing the topsoil into discrete stockpiles.
- 4. The tracks are constructed largely with a bulldozer or excavator pushing subsoil material (and rock where present) to the downslope side. Where hard rock is present that cannot be ripped, a rock hammer is used to break the required rock from within the track alignment. The broken rock is then placed upon material on the downslope side of the track.
- 5. Where the material pushed out by a bulldozer is erodible in nature and lies within 40m of any prescribed watercourses, sediment fencing is installed as close as practical to the downslope toe of the batter i.e. typically within 2m. Where there is adequate rock ripped or broken from the upslope side of the road, the rock is positioned on the downslope batter to protect the slope from erosion. For tracks located greater than 40m from a prescribed watercourse, sediment fencing is not required when the downslope batter is protected with broken rock and there is good vegetation cover (bush or grass) over the downslope lands.
- 6. The track surface would be checked to ensure runoff is directed at a gentle slope either towards the downslope batter where it is rock faced or the toe of the upslope batter where it is directed to an outlet point via a roll over diversion that directs runoff to a discharge point through a set of straw bales.

2.1.2 Track Use

All tracks are used by all drilling equipment and support vehicles as required throughout the drilling program. Access is restricted during and following periods of wet weather and until they can be safely traversed.

2.2 DRILL PAD CONSTRUCTION AND USE

2.2.1 Drill Pad Construction

Drill pads are constructed to provide a safe working area for the drilling of either a diamond drill hole or a reverse circulation (RC) drill hole. Typically, the drill pads are approximately 20m x 20m to provide sufficient area for the following.

Diamond Drill Pad	RC Drill Pad
Track-mounted drill rig.	Track-mounted drill rig.
Rod Truck.	Track-mounted compressor.
In-ground lined sumps / above-ground sump.	In-ground or above-ground sump.
Core retrieval area & Core Trays.	Bag storage area.
Topsoil/subsoil storage (as required).	Topsoil/subsoil storage (as required).
Spill kit.	Spill Kit.



Light vehicles invariably park on the access road to the drill site or any previously disturbed area. Parking of light vehicles in undisturbed areas is avoided, wherever possible.

The principal activities involved in the construction of the drill pads are as follows.

- 1. The Senior Field Assistant identifies the location of each nominated drill hole through the use of the coordinates provided by the Senior Geologist.
- 2. For applicable drill holes, any known heritage or threatened flora species within proximity of the drill hole will be located and, if required, the drill hole location adjusted to avoid impact.
- 3. Based upon the location of the drill hole, the boundary of a 20m x 20m pad is defined and marked together with the optimum location for the drill sump(s) i.e. down slope from the proposed drill hole. The drill pad is invariably orientated so that the track to (and beyond) the pad is located on solid ground and used for drilling the subject hole. An area on both sides of the track is then defined to complete the boundary of the pad. The dimensions/configuration of each pad is assessed on a site-specific basis. The ultimate outlet point for runoff from the pad is identified at this stage. All components of each pad are recorded on a sketch prepared by the Senior Field Assistant. The pads are constructed typically in the following manner.
 - i) If within proximity to heritage or ecological constraints, if necessary, installation of temporary fencing to ensure accidental disturbances do not occur.
 - ii) Removal of existing vegetation, if required, to one or more sides of the pad (i.e. after any mature trees with hollows are inspected). Minimal vegetation is disturbed i.e. only that required for safe and efficient drilling.
 - iii) Where ground disturbance is necessary, recoverable topsoil is removed from the pad area and pushed to one side of the pad to create a bund around the pad area.
 - iv) For drill pads >10°, the earth capable of being ripped and pushed by a bulldozer/excavator is pushed to the downslope side of the pad effectively creating a level cut and fill surface. In the event un-rippable material is present, a rock hammer is used to break the remaining rock within the footprint of the pad down to the required level. The surface of each pad would be profiled to promote a gentle slope to the pre-determined point where sediment can be captured or runoff directed onto surrounding vegetated lands.
 - where there is broken rock, this is re-located onto the outer face of the downslope batter to provide the necessary erosion protection. In the event insufficient rock is available and subsoil is present on the batters, sediment fencing is installed on the day when the batter is finalised. Attachment 1 Figure SD 6-8 displays the preferred configuration for the placement of sediment fencing to contain sediment from disturbed sites.

- vi) The sumps are excavated within the pad. For a diamond drill hole, the approximately 4m x 4m x 2m deep sump is preferably constructed in two sections, namely a sediment sump and a return water sump with an intervening barrier. For an RC hole, the approximately 4m x 4m x 2m deep sump is excavated with the excavated material typically placed in mounds around the hole, increasing its freeboard.
- vii) Once established, the drill pad is left vacant until the drill is moved onto the pad to drill the required hole.

2.2.2 Drill Pad Use

The drill pads are used to recover either solid rock core (from diamond drilling) or rock chips from the RC drilling.

Diamond Core Drilling

Diamond core drilling involves the use of a rapidly rotating, diamond impregnated drill bit and water with drilling additives to cool and lubricate the drill bit. As the drill rods and drill bit spin, the diamonds grind away the face of the hole leaving a cylinder of rock in the centre of the drill barrel. The cutting face of the drill bit is lubricated using a water and additives mix. As the drill rods advance, the cylinder of remaining rock gradually becomes enveloped by the drill rods. The drill rods are stopped at regular intervals, commonly 1.5m, 3m or 6m intervals, and the resulting drill core is brought to the surface. Ground-up rock material is transported to the surface by the returning fluids and is separated from the fluids in the drill sumps which are often contain two components – a sediment sump and a return water sump.

RC Drilling

RC drilling involves the use of compressed air generated by a tracked compressor to drive a slowly rotating percussion drill bit, which operates in a similar manner to a jack hammer. The percussion drill bit is typically fitted with numerous, hardened protrusions that crush the rock at the bottom of the hole. The crushed material is brought to the surface with the returning air through the centre of the drill rods. This drilling method is relatively fast compared with diamond drilling methods typically drilling up to 200m per day. When drilling proceeds below the regional groundwater table, groundwater is also brought to the surface with the rock chip samples. Water management during this phase is detailed in Section 4.

3. EROSION AND SEDIMENT CONTROLS

3.1 INTRODUCTION

This section outlines the principles to manage soil erosion and sediment generation/collection as well as the site specific methods for the track and drill pad construction and use.

The approach to erosion and sediment control is based upon the principles and methods incorporated in Volume 1 of *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004), *Volume 2C Unsealed Roads (DECC, 2008a)*, and *Volume 2E Mines and Quarries* (DECC, 2008b) together with the Company's experience/observations of previous exploration activities.



R.W. CORKERY & CO. PTY. LIMITED

3.2 PRINCIPLES

Ten principles of erosion and sediment control need to be followed during all track and drill pad construction (Source: Landcom 2004).

- 1. Assess the site for soil and water management issues when marking out the site for clearing and disturbance.
- 2. Plan erosion and sediment control works with the site preparation.
- 3. Install erosion and sediment control measures as the first step or in conjunction with the first works.
- 4. Plan to minimise erosion in addition to catching sediment.
- 5. Minimise the area of vegetation and soil disturbance.
- 6. Conserve all soil for revegetation.
- 7. Control the flow of water onto and off the disturbed areas.
- 8. Manage wind erosion and dust by minimising traffic movement and wetting surfaces in dry weather, minimising disturbance and by appropriate management of dust from the drill rig and other machinery.
- 9. Ensure that the site is in a protected state at all times and rehabilitate as soon as practicable.
- 10. Inspect and maintain all erosion and sediment control measures and monitor weather forecasts.

The Company's approach to satisfying each of the above principles is set out below. Use is made of an Erosion and Sediment Control Check Sheet for tracks and drill pads (Attachment 2) to ensure all aspects are considered and to record the completion of the various tasks required. The approach to the methods adopted reflects the risk associated with the location of the track or drill pad with respect to the prescribed watercourses on site. Clearly, a greater level of control needs to be exercised with any activity undertaken within 40m of a watercourse, which is defined as 'waterfront land' (see **Figure 3**). The Company would avoid any disturbance within 10m of either the bank of a defined channel or flow line unless track construction is required (see Section 3.3).

1. Site Assessment

No work commences before the site conditions are assessed in the field and the environment and likely erosion and sediment control issues identified. Gated checklist system employed by the company for both tracks and drill pads are included as **Attachment 2**. A sketch of the proposed track or drill pad layout and other relevant environmental issues should also be recorded.



WATER, EROSION AND SEDIMENT CONTROL MANAGEMENT PLAN Report No. 429/37




2. Planning

Plan the erosion and sediment control measures to manage water movement on and around the site. Ensure adequate materials are available to implement the control measures. Allow sufficient time for the control works to be installed. The control works are to be marked out in the field and will serve to limit the vegetation and land disturbance. In some areas, the disturbance area will not be fully delineated as the slope and soil (rocky) conditions may make it difficult to determine the likely extent of disturbance. In these instances, ensure that the site erosion and control measures are installed as soon as possible and they are suitable and operative at the completion of site preparation.

3. Installing the Control Measures

Install the control structures before construction of the works. If not practical or safe to do so prior to construction, it is imperative that the erosion and sediment control measures are installed and operative as soon as practicable afterwards.

4. Priority of Erosion Control

The priority of control is to minimise erosion rather than simply managing the sediment after it has eroded. Minimising erosion will necessarily minimise sediment that needs management. However, it will not negate the need for sediment control works, but is likely to reduce the scope of these works.

5. Limit the Area of Disturbance

The undisturbed area is usually in equilibrium with the natural processes and will not normally need protection measures. The vegetation cover is a key factor in the erosion cycle, and limiting its disturbance is a means of limiting the potential for erosion. The area of disturbance is to be limited to the minimum practical at all times and only designated vegetation will be cleared.

6. Conserve Soil for Revegetation

Soil is an essential part of a landform and is necessary for revegetation of the disturbed areas. The soil is any loose material within the approximately top 20cm and can include very rocky material. Where the soil is limited by underlying rock or is very rocky, it is still preferable to separate the surficial materials from subsoils as it will contain a bank of native seeds. The rocky substrate and subsoil will not be mixed with the topsoil as the dilution will reduce the effectiveness of the soil in revegetation activities.

Topsoil is not to be used to construct any erosion and sediment control structures as it will inevitably destroy some of its vital characteristics and often makes it very difficult to recover it later. It is extremely important that the soil is stored in an easily identifiable location and its location marked on the Erosion and Sediment Control Check Sheet sketch.

7. Control Water Flow

This is the most crucial principle of erosion and sediment control. Water is by far the most prevalent medium for erosion and sediment movement and, without control of the flow of water, there will be limited control of erosion and sedimentation processes. It is important during the planning and at subsequent stages to establish where water will flow onto a disturbed site. Where opportunities exist to divert upslope runoff without creating substantially more sediment-laden runoff, diversion banks could be installed. However, given the comparatively small area of disturbance for each drill pad and the slopes on the site, upslope diversions at most sites is assessed as impractical.

For the purposes of the current exploration program, it is proposed that sedimentladen runoff from disturbed areas is controlled through the preferential use of outfall drainage and in high risk areas the use of sediment fences, straw bale filter, rock check barriers and rock facing steep slopes. Use of small sediment basins is not required given each area of disturbance is substantially less than the 2 500m² threshold nominated in Section 6.3.2(d) of Landcom (2004).

Water flow paths will be identified on the sketch on each Check Sheet sketch.

8. Manage Wind Erosion and Dust

Wind is the other medium through which erosion can occur on site. While it will not be as effective as water in moving materials, it is still a factor, particularly in these areas where vegetation is limited and the ground is exposed to winds. Measures to control dust include limiting disturbance and the use of a water truck in exposed areas where there is considerable traffic. Dust from the rig is controlled by dust suppression equipment on the rig itself, i.e. when drilling above the water table.

9. Rehabilitate Disturbance

Any disturbed areas not required for further exploration activities are rehabilitated progressively. A record of the disturbed areas is maintained on each drill hole check sheet until rehabilitation is considered satisfactory.

10. Maintain Control Measures

The Company has a program to inspect all erosion and sediment control measures on a regular basis and following substantial rainfall events (i.e. when >25mm of rain falls within 24 hours).

Following completion of drilling, all erosion and sediment controls would continue to be inspected on monthly or quarterly basis and following substantial rainfall. These inspections would continue until successful rehabilitation is achieved.

3.3 TRACKS

Figure 4 displays a typical layout of tracks and drill pads within the 40m setback from the bank of a defined channel or flow line.



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Figures 5, **6** and **7** display a range of approaches to track construction within the Exploration Area. As discussed in Section 2.1.1, little or no construction work is required in some areas as the tracks are located on comparatively flat ground and vehicles will travel on the existing surface although access may be restricted during/following periods of wet weather. Track construction within 10m of a watercourse would only occur in the event a constructed watercourse crossing is proposed (see **Figure 6**).

Track Construction near Watercourses Not Requiring Excavation

A number of the watercourses displayed on **Figure 3**, particularly the first and second order "watercourses" comprise gently sloping topography centred on a depression in the landscape. The previous landholders have typically gained access in these areas by travelling in off-road vehicles on the natural surface without constructing any tracks. The Company intends to adopt a similar approach to gain access to drill sites via these tracks on the natural ground surface, however, avoiding such areas following substantial rain events that would result in damage to the soils in those areas.

Track Construction near Watercourses Requiring Excavation

Figure 5 displays a typical method for track construction near watercourses that display a defined channel and the proposed erosion and sediment controls required. It is recognised that within 40m of the prescribed watercourses, the substrate for a track may either be rocky or comprise clay with a soil cover. Consequently, two alternatives are proposed for track construction with differing erosion controls.

Figure 5A displays the proposed use of rock facing on the downslope batter of the access track constructed from rock recovered from the upslope side of the track. This material will be carefully placed on the downslope face, typically at a slope of 1:2 (V:H) covering the finer fraction beneath. It is recognised that some areas within the Exploration Area have slopes in excess of 2:1 (V:H) and therefore the slope of the rock batter and contained finer material will need to be increased to reduce the area of disturbance, while maintaining adequate sediment and erosion control. Therefore in certain areas, the slope will be steepened from 1:2 (V:H) to minimise the area of disturbance while maintaining effective sediment control and safe operational conditions within and downslope of the working area.

The slope of the track would be maintained slightly towards the downslope batter and rock check barriers (preferred for long term maintenance), sediment fencing or straw bale filter placed downslope of the roll overs and/or turnouts.

Figure 5B displays the section through a typical track whereby the material excavated presents a higher risk of erosion with limited rock. The topsoil from the footprint of the track would be separated and stockpiled whilst the underlying clayey subsoil is excavated and placed on the downslope side at a slope of 1:2 (V:H). Once shaped, the downslope batter would be covered with stripped topsoil to encourage revegetation and if required seeded with a sterile pasture mix to aid stabilisation.



WATER, EROSION AND SEDIMENT **CONTROL MANAGEMENT PLAN**

Report No. 429/37



BOWDENS SILVER PTY LIMITED

Bowdens Silver Mine – Exploration and Resource Drilling Program

WATER, EROSION AND SEDIMENT **CONTROL MANAGEMENT PLAN**

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If the track constructed with a soil/clay substrate presents a high risk for erosion the slope will be gentle and towards the toe of the upslope batter to avoid any runoff across the downslope batter. The runoff from the track would be directed towards a series of rollovers positioned at intervals of between 20m and 40m to direct the runoff across the road to the downslope side (spacing reduced with increased incline of track) and towards either stable well vegetated areas, rock check barrier (preferred for long term maintenance) or a straw bale filter, placed downslope of the roll overs and/or turnouts, which will filter the sediment-laden runoff from the track.

Track Construction across Watercourses

The watercourses within the Exploration Area occur either as gentle depressions without a defined channel or defined channels without significant bank development and typically less than 1m to 2m in depth.

At the outset, track crossings will be limited and located in areas that are best located to avoid/minimise impacts arising from the crossings. It is recognised that the watercourses within Exploration Area are all non-perennial and that water is rarely present for long periods following rainfall.

Figure 6A displays the Company's approach to crossing a watercourse without a defined channel, i.e. a 6m wide section of the track would be covered with either logs typically 100mm to 200mm in diameter recovered from the pre-clearing activities, or alternatively using rock ballast of diameter between 100mm to 250mm above a layer of bidim cloth laid across the watercourse.

Figure 6B displays a similar approach to crossing a watercourse with a defined channel. Essentially either logs are placed longitudinally in the channel which in turn allows low flows to continue through the channel, or alternatively bidim cloth is laid out across the watercourse and finer ballast <100m is placed around a culvert pipe within the defined channel and rock ballast of diameter between 100mm to 250mm is placed above this to allow the flow of water both within the channel and above the channel during high flow periods.

Track Construction >40m beyond Watercourses

Figure 7 displays the typical layout of tracks constructed either parallel to slope or across/downslope away from the prescribed watercourses within the Exploration Area.

For tracks constructed generally parallel to slope, they will be constructed in a manner similar to those within 40m of watercourses although sediment fencing will only be required downslope of those tracks where a high risk of erosion is present due to either slope or substrate conditions.

For tracks traversing slopes, the track will be constructed such that all runoff will be directed towards the upslope batter and flow along the upslope side of the track until it reaches one of the roll overs constructed across the track. Roll overs will be typically constructed at distances of 20m to 40m along the various tracks with a rock check barrier positioned at the downslope side of each rollover.

3.4 DRILL PADS

The key erosion sediment controls for either diamond or RC drill pads involve the following.

- 1. The installation of sediment fencing on the downslope side within:
 - i) all drill sites within 40m of watercourses; and
 - ii) all other drill sites where the batter slope is not rock armoured.
- 2. A straw bale barrier or other sediment control structure will be positioned at the drill pad runoff point to allow sediment in runoff from the pad to be filtered prior to flowing downslope. A coarse rock barrier will be used in conjunction with the straw bales where longer term protection is required. When the surface is sufficiently stable, the straw bales may be removed, but rock barriers should remain.
- 3. RC drill sumps will be provided with a splashboard on the downslope side of the sump to provide protection for water (under pressure) entering the sump. Further discussion on the management of sump water is included in Section 4.

Figures 8 and 9 display the typical layout of the drill pads and the various erosion and control measures to be adopted.

3.5 MAINTENANCE

All disturbed areas and their erosion controls require regular inspection and, where necessary, maintenance of the structures to prevent any sediment-laden runoff entering the surrounding watercourses.

Tracks

All actively used tracks will be inspected on a regular basis to ensure that all sediment fences straw bale filter and rock check barriers do not have excessive sediment retained. In the event that excessive sediment has accumulated behind/within any of these structures, the sediment will be removed either manually or with a small excavator.

All roll overs on tracks will be inspected to ensure they remain effective in directing runoff from the tracks to the designated trackside barriers.

Inspections of all tracks will be undertaken following any rainfall event during which >25mm of rainfall occurs within a 24 hour period. Reliance is placed upon the rainfall records collected at the on-site meteorological station.

Drill Pads

Drill pads will be inspected throughout the construction and use. The frequency of inspection will be similar to tracks inspections, and higher levels of scrutiny employed where drill pads present a high risk of erosion and sedimentation.



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The principal areas inspected will include the:

- 1. side walls of the sump to confirm its integrity;
- 2. integrity of the downslope batter from the drill pad;
- 3. sediment fence, where present; and
- 4. straw bale and rock barriers at the runoff point.

Excavations

Where retained for longer term use, excavations should be inspected quarterly.

4. WATER MANAGEMENT

4.1 SURFACE WATER

Surface water will be encountered throughout the Exploration Program both in terms of overland flow towards and across the access tracks and drill pads and within the watercourses that traverse the Exploration Area.

It is considered inappropriate to create upslope diversion banks above the drill pads given the comparatively short period of time that the drill pads are in use, the small quantity of runoff likely to be diverted, and that the construction of the diversion bank itself would be a source of sediment-laden runoff. Rather, runoff water would be minor and best managed through collection and disposal from the drill pad itself. As discussed in Section 2.2.1, each drill pad will be sloped in a defined direction to direct runoff that flows onto the pad and is generated on the pad itself toward an outlet point protected by a straw bale filter or sediment fencing (see **Figure 8**).

Runoff collecting in the non-perennial watercourses that traverse the Exploration Area will not be impacted through the adoption of various erosion sediment controls nominated in Section 3.

The Company also ensures that each drill site is provided with a fully equipped spill kit to ensure neither the surface water nor groundwater are compromised by any hydrocarbon spills.

4.2 GROUNDWATER

Groundwater will be encountered during the drilling program when the diamond core and RC drilling intersects the regional groundwater table.

All groundwater recovered during the diamond drilling operations (in addition to the water added for lubrication purposes) will be directed from the collar of the drill hole to the nearby sump. Each sump for the diamond drilling operations may comprise two sections, one being a sediment sump and the other a water return sump. Groundwater and added drilling water would collect in the sumps and be recirculated through the drilling process. In the event that excess water is generated throughout the drilling of a diamond drill hole, excess water from the sump will be tested for pH and EC and if within ANZECC guidelines irrigated to nearby well vegetated land or pumped to a mobile water truck for use in dust suppression or disposal.



Groundwater encountered during RC drilling will be returned to the surface principally via the drill collar or sample cyclone. Water from both sources will be directed to an above-ground sump/tank. Where an in-ground sump is used, the sump will also incorporate a splash board positioned on the downslope side of the sump to prevent scouring of the unconsolidated material on the downslope side of the sump.

Drilling personnel will test the water in the sump for pH and Electrical Conductivity and inspect for visible oil and grease. If within ANZECC guideline values and no oil and grease is visible, water would be pumped from the sump for irrigation to nearby well vegetated areas or transferred to the mobile water cart. Water collected in the mobile water tank will be irrigated to access roads to aid dust suppression.

To ensure irrigated water does not result in surface water pollution, water would not be irrigated within 40m of a watercourse or during saturated conditions.

5. **REFERENCES**

- **Department of Environment and Climate Change (DECCa) 2008**. Managing Urban Stormwater: Soils and Construction Volume 2E Mines and Quarries.
- **Department of Environment and Climate Change (DECCb) 2008**. Managing Urban Stormwater: Soils and Construction Volume 2C Unsealed Roads.

Landcom 2004. *Managing Urban Stormwater: Soils and Construction – Volume 1 (4th Edition)*.

Strahler, A.N. 1957. *Quantitative Analysis of Watershed Geomorphology – Transactions of American Geophysical Union.*



Bowdens Silver Mine – Exploration and Resource Drilling Program



Attachments

- Attachment 1: Standard Drawings
 - 1. Sediment Fence
 - 2. Straw Bale Filter

Attachment 2:

Bowdens Silver Gated Checklist System

- 1. Gate 1: Prepare Drill Pad
- 2. Gate 2: Ecology
- 3. Gate 3: Post Construction Pad/Track

Total number of pages including blank pages = 12



Bowdens Silver Mine – Exploration and Resource Drilling Program



Attachment 1 Standard Drawings

- 1. Sediment Fence*
- 2. Straw Bale Filter*

* Modified after Landcom (2004)

Total number of pages including blank pages = 4



Bowdens Silver Mine – Exploration and Resource Drilling Program







*Burying straw bales into the ground is not required if good contact is attained with the ground level.

Attachment 2 Erosion and Sediment Control Check Sheets

- 1. Gate 1: Prepare Drill Pad
- 2. Gate 2: Ecology
- 3. Gate 3: Post Construction Pad/Track

Note: Checklist will be completed on the attached templates or an equivalent electronic checklist.

Total number of pages including blank pages = 6

Bowdens Silver Mine – Exploration and Resource Drilling Program



Environmental Exploration Compliance Checklist

Gate 1: Prepare Drill Pad

EL #5920

Proposed Hole ID		Conducted on				
Diamond / RC Hole		Access Agreeme	nt Yes/No			
	Procedure			Yes	No	n/a
GPS location checked and	correct?					
Is the site located in EEC						
AHIMS/Cultural Heritage check completed? Site clear to proceed?						
Drill pad disturbance area (~15x20m) identified and clearly demarcated						
Comment (any adjustment of pad loc	tion, track length, bearing. Pad size etc.	8				
If the site is near residence	es, can the site be reorien	ted to minimise n	oise impact			
Have appropriate erosion and sediment controls been installed? or have arrangements been made for installation?						
Site photo taken and uploaded to BS_ENV_MonitorMeasure_Checklists server						
Sketch site layout with proposed tree placement, soil stockpiles, runoff outlets etc.						

Ν	
	14A2 01 TON

Completed by - name/signature:

ENVIRONMENTAL EXPLORATION: GATE1 PREPARE DRILL

SALLY MAYBERRY 04/10/2016

BOWDENS SILVER Environmental Exploration Compliance Checklist

Gate 2: Ecology

EL #5920

Hole/Track ID		Date			
Checklist completed by: Located		Located in EEC	Yes / No		
	Tree Informa	ation		Yes	No
Are there live ma	ture trees (>20cm DBH)	1234567	8		
Are there dead m	ature trees (>20cm DBH)	1234567	8		
Does the tree have a small (<10cm) hollow					
Does the tree have a medium (10-20m) hollow					
Does the tree hav	e a large (20-30cm) hollow				
Does the tree have an extra-large (>30cm) hollow					
General comment	ts:				

General site ecology check	Yes	No
If 'yes', reconsider construction options		
Are there nests in trees (birds/mammals)		
Are there scratches on trees		
Are there wear marks around hollows		
Were birds been seen leaving hollows at the time of inspection		
Is there whitewash on tree trunks		
Are there owl pellets visible on ground		
Is there an accumulation of bat scats under trees		
Are there any known threatened flora species on the site Ausfeld's Wattle, Acocio austweldii Capertee Stringybark, Eucobptus cannonii Small Purple-pea, Swainsona recta Eyebrights - Euphrasia arguta		

Bowdens Representative name/signature:

ENVIRONMENTAL EXPLORATION: GATE2 ECOLOGY

SALLY MAYBERRY 19/10/2016

BOWDENS SILVER

Environmental Exploration Compliance Checklist

Gate 3: Post Construction Pad/Track

Hole/Track ID	Date	Completed by		
	Procedure		Yes	No
GPS Coordinates checked and correc	t for hole/track location			
Pre clearance ecological inspection c	onducted <5 days prior to cons	struction		
Sediment fence installed in predefin	ed area			5 07
Sediment fence integrity checked po	st construction			
Tree clearing and placement in pred	efined areas			
Separate subsoil and topsoil stockpil	es in predefined areas			
Excavated sump (no sumps to be cor	nstructed in EEC)			8.
Pad/track construction as per predet	fined sketch. Cleanwater divers	sion if practicable		S
Site photo taken and uploaded to BS	ENV_MonitorMeasure_Check	dists server		
N				
NOT TO SEALE				

Bowdens Representative name/signature:

ENVIRONMENTAL EXPLORATION: GATE 3 POST CONSTRUCTION

SALLY MAYBERRY 04/10/2016

Bowdens Silver Mine – Exploration and Resource Drilling Program

Appendix 4

SOP554 Habitat Tree Felling / Clearing

(Total No. of pages including blank pages = 8)



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JILVEN	Habitat Tree Felling/Clearing	Printed: 27-Sep-21



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1.	Bowdens Site Office	
2.		

DOCUMENT CONTROL:

Rev No.	Date Revised	Revised By	Approved By Dept. Supervisor	Signature
1	25/01/2019	Tom Purcell	Tom Purcell	
2	27/09/2021	Tom Purcell	Tom Purcell	

BOWDENS	Standard Operating Procedure Electronic version current Uncontrolled copy valid only at time of printing	SOP No. 554 Page 2 of 6
JILVEN	Habitat Tree Felling/Clearing	Printed: 27-Sep-21

1 PURPOSE

The purpose of this SOP is to assist Bowdens Silver Pty Limited (Bowdens Silver, the company) to minimise the environmental impact of felling/clearing habitat trees during exploration activities.

2 SCOPE:

- 2.1 This document applies to all Bowdens Silver personnel who are involved with vegetation clearing activities.
- 2.2 Trees may only be felled/cleared as part of vegetation clearing as described in an activity approval.
- 2.3 No vegetation clearing/tree felling may occur without the permission of the company's Environmental Officer.

3 DEFINITIONS

- 3.1 For the purposes of this SOP a habitat tree is defined as a tree that has signs of habitation by fauna such as:
 - Nests
 - Hollows
 - Scratch/ wear marks
 - Accumulation of bat/bird scat within the dripline
 - Accumulation of owl pellets within the dripline
 - has fauna residing in it when inspected.
- 3.2 The Bowdens Silver Environmental Officer is responsible for identifying habitat trees. HAZARDS
 - Objects falling from trees (widow makers/hung up tree branches)
 - Bites and stings
 - Slips trips and falls
 - Adverse weather conditions (hot, wet, windy or cold)

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- Injury to wildlife
- Un-approved vegetation clearing

4 SAFETY

4.1 PPE

- Safety glasses.
- Ear plugs
- Steel capped boots Protects feet from injuries.
- Long pants Reduces the chance of cuts, abrasions and snake bites.
- Hard hat with/without wide brimmed sun visor
- Sunscreen To prevent sunburn.
- UHF radio For communication with others.
- GPS
- Drinking Water
- Snake catching kit including snake bite first aid kit
- First aid kit

4.2 Training

- Complete all relevant inductions (General & Environmental Inductions).
- Trained in Emergency Response Procedures
- Exclusion zones are clearly marked.
- Meet Fitness for Work requirements
- Qualified to operate relevant machinery
- Only staff who are trained in the capture and relocation of venomous snakes and have access to adequate snake handling PPE are to handle snakes.



Page 4 of 6

Habitat Tree Felling/Clearing

5 PROCEDURE

- Step 1: All habitat trees in need of removal must be demarcated with pink **and** blue tape by the Bowdens Silver Environmental Officer. Note: blue tape alone is used to demarcate trees that are not approved for felling, pink tape alone is used to demarcate trees that are approved for felling and have been classed as non-habitat trees.
- Step 2: Using the Bowdens Silver Gate 1: Inspection for the drill hole, the Bowdens Silver Environmental Officer shall record any habitat trees identified, along with information about hollows etc. (photos of all trees to be removed are to be included in this checklist).
- Step 3: The Bowdens Silver Environmental Officer shall notify the personnel completing the tree felling/clearing activities that a habitat tree MUST NOT be removed in the first pass of clearing.
- Step 4: After receiving authorization for felling/clearing of the habitat tree from the Bowdens Silver Environmental Officer, personnel conducting the clearing shall clear all vegetation around the tree.
 - For felling using a chainsaw, the tree should be struck firmly several times and left for at least 24 hrs to encourage resident fauna to relocate;
 - If using an excavator/dozer for clearing, the tree should be nudged several times with the machine then left for 24hrs before felling.
- Step 5: The Bowdens Silver Environmental Officer shall re-inspect trees for resident fauna immediately before felling/clearing. No felling, clearing or limb removal may occur until inspection indicates that resident fauna has left the tree/limb or fauna has been relocated by an ecologist or suitably competent person.
- Step 7: Felled trees should be left undisturbed for 24 hrs (other than to ensure hollow opening is not blocked) to enable fauna to self-relocate.



• If an injured animal is found Mudgee Vet Hospital, Wires or Wildlife Carers Network Central West Inc. must be contacted and the animal transferred to the appropriate location for care.

6 RECORD KEEPING

In addition to the records described above, if any Fauna are present in felled trees a record will be kept of the:

- Location including the location of release if required
- Species including photographs if possible
- Total number
- Details of any other parties involved in the capture, care or release e.g. wildlife carers groups / veterinarians.

All collected data will be reported to the department if requested.

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7 RELATED DOCUMENTS

- 7.1 Injured fauna contacts;
 - Mudgee Vet Hospital (02) 6372 2105
 - Wires 1300094737
 - Wildlife Carers Network Central West Inc. 0408 966 228
- 7.2 Bowdens Safety System
 - SOP521 Operation of Chainsaw
 - SOP523 Remote Safety

8 REVIEW AND AUDIT

This document will be reviewed on yearly basis.

Appendix 5

Equipment Onboarding Checklist

(Total No. of pages including blank pages = 4)



Report No. 429/37 Appendix 5


Equipment Onboarding Checklist

Equipment ID/description:			
Operating Company:			
Date:	Completed by:		
Procedure		Yes	No
Is the equipment free from dirt mud and debris that could contain weed seeds			
and/or vegetative propagules?			
If you answer no the equipment must be washed down prior to entering the			
exploration area			
Comments:			
Are there any visible Hydrocarbon Leaks?			
If the answer is yes, the equipment must be repaired prior to entering the			
exploration area			
Comments:			
If the equipment is a fuel storage is the system 'gravity fed'? you may need to			
consult the contractor to determine this.			
If the answer is yes – this type of fuel storage is no longer permitted to be used on			
bowdens exploration sites the contractor/owner must arrange alternative fuel			
storage.			
Comments:			
Photographs showing the condition of the equipment at the time of inspection must be filed on the Bowdens			
Silver Server with this inspection.			

Bowdens Representative signature:

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Resources Regulator

Our ref: MAAG0012238 LETT0006667

Attn: Tom Purcell Bowdens Silver Pty Limited Level 11, 52 Phillip Street SYDNEY NSW 2000

By email: tompurcell@bowdenssilver.com.au

Dear Tom Purcell

EL 5920 (1992) Application to conduct exploration activities for Assessable Prospecting Operations Bowdens Exploration and Resource Drilling Program

Notification of grant of activity approval

Notification of assessment of security deposit (Assessed Deposit)

NOTICE OF GRANT OF ACTIVITY APPROVAL

Your application has been assessed and I advise that pursuant to section 23A(4) of the *Mining Act 1992*, a delegate of the Minister has decided to grant the activity approval on the terms set out in the activity approval. The activity approval is attached at **Annexure A** to this letter.

This activity approval is effective from the date of this letter.

You are reminded that the conditions of EL5920 sets out obligations in respect of the *Exploration Code of Practice: Rehabilitation* (NSW Department of Planning and Environment, July 2015). One of the obligations is to provide to the Secretary, no later than 14 days prior to the commencement of any surface disturbance activity associated with an assessable prospecting operation:

a. a copy of specific, measurable, achievable, realistic and time-bound rehabilitation objectives and completion criteria for activities associated with that activity, developed in consultation with relevant landholders, and

b. if associated with higher risk prospecting operations, a copy of a Rehabilitation Management Plan which provides for the effective rehabilitation of areas disturbed by that activity.

NOTICE OF ASSESSMENT OF SECURITY DEPOSIT (ASSESSED DEPOSIT)

Approval of Bowdens Exploration and Resource Drilling Program has triggered assessment of the security deposit required to secure funding for the fulfilment of obligations under EL5920.

An assessment of the security deposit required under EL5920 has been made under section 261BC of the *Mining Act 1992* by a delegate of the Secretary. The reason for this assessment is to secure funding for the fulfilment of obligations under EL5920 in relation to Bowdens Exploration and Resource Drilling Program.

The Assessed Deposit for EL5920, including fulfilment of obligations in connection with

Bowdens Exploration and Resource Drilling Program is \$478,000.

This will require an additional payment of \$131,000 (being the difference between the "Assessed Deposit" and the current security deposit held by the Department).

Notice of the change in the security deposit condition for EL5920 related to this approval will be provided separately by the Mining, Exploration and Geoscience within the Department.

REVIEW OF THE ASSESSED DEPOSIT

If you disagree with the assessment of the security deposit, you may apply to the Minister for a review of the Assessed Deposit.

Applications for review of this assessment must be made using Form AD17, and lodged **within 28 days of receipt of this letter**. Form AD17 is available on the Resource Regulator's website at the following address:

https://www.resourcesregulator.nsw.gov.au/environment/forms

OTHER

You are reminded of your obligations under the *Mining Act 1992* to provide and maintain a security deposit to secure funding for the fulfilment of obligations under the authorisation, including obligations under the authorisation that may arise in the future.

If you require additional information, please contact the Resources Regulator on 1300 814 609 (Option 2, then 5), or via email at <u>nswresourcesregulator@service-now.com</u>.

Yours sincerely,

Christine Fawcett Manager Environmental Operations Mining Act Inspectorate Resources Regulator

22 October 2021

Signed under delegation from the Minister for Regional NSW, Industry and Trade and under delegation from the Secretary of the Department of Regional NSW

ANNEXURE A

ACTIVITY APPROVAL OF ASSESSABLE PROSPECTING OPERATIONS

EL 5920 (1992) Activity: Bowdens Exploration and Resource Drilling Program **Application Reference:** MAAG0012238, LETT0006667

ACTIVITY APPROVAL

Pursuant to section 23A(4) of the *Mining Act 1992*, activity approval is granted to carry out the assessable prospecting operations, which form part of the Activity on EL 5920 (1992), from the date specified in the 'Notice of grant of activity approval' given for this approval, on the following terms by reference to the definitions below:

General

1. The licence holder must carry out the Activity in accordance with the Application.

Exploration Code of Practice: Environmental Management

2. When carrying out the Activity, the licence holder must comply with Part B of the *Exploration Code of Practice: Environmental Management* (NSW Department of Planning and Environment, July 2015, as amended from time to time).

Note: Part B of the *Exploration Code of Practice: Environmental Management* (NSW Department of Planning and Environment, July 2015) prevails in the event of any inconsistency in it and the Application.

DEFINITIONS

Words in this instrument have the meaning given to those terms in EL 5920 (1992), unless otherwise specified below.

EL 5920 (1992) means Exploration Licence No. 5920.

Activity Bowdens Exploration and Resource Drilling Program means the activities described in the Application.

Application means:

The original Application Form ESF4 (Application to conduct exploration activities for assessable prospecting operations) and supporting documents (RR21/120405) prepared by Bowdens Silver Pty Limited and dated 13/09/2021 as amended by:

(a) The modified Application Form ESF4 (Application to conduct exploration activities for assessable prospecting operations) and supporting documents (RR21/132710) prepared by Bowdens Silver Pty Limited and dated 13/09/2021,

(b) RR21/132710 MAAG0012238 - 42937 REF 2021 - Combined - October 2021.pdf
(c) RR21/120400 MAAG0012238 - 42937_REF 2021_Appendix 3 - September 2021.pdf
(d) RR21/120401 MAAG0012238 - 42937_REF 2021_Appendix 2 - September 2021.pdf
(e) RR21/120402 MAAG0012238 - 42937 REF 2021 - September 2021.pdf (superceded by LETT0006627 FIR response)
(f) RR21/120406 MAAG0012238 - FI F020_Exploration_RCF_Depart_20210010 pdf

(f) RR21/120406 MAAG0012238 - EL5920_Exploration RCE Report_20210910.pdf (g) RR21/121192 MAAG0012238 - MAAG0012238 - 42937_REF 2021_Appendix 2 -September 2021.pdf (h) RR21/121197 MAAG0012238 - MAAG0012238 - 42937_Appendices Cover & Appendix 1 - September 2021.pdf.

If you require additional information, please contact the Resources Regulator on 1300 814 609 (Option 2, then 5), or via email at <u>nswresourcesregulator@service-now.com</u>.

Yours sincerely,

Christine Fawcett Manager Environmental Operations Mining Act Inspectorate Resources Regulator

22 October 2021

Signed under delegation from the Minister for Regional NSW