Siberia Mining Corporation Pty Ltd

A SUBSIDIARY OF EASTERN GOLDFIELDS LIMITED

MINING PROPOSAL

RECOMMENCEMENT OF MINING AT THE SIBERIA PROJECT

MINING LEASES:

M24/39, M24/208, M24/960, L24/224

June 2017

Address: L1/24 Mumford Place BALCATTA WA 6021

Telephone: (08) 6241 1888

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DOCUMENT CONTROL SHEET

Document Title: Recommencement of Mining at the Siberia Project Mining Proposal

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Version Control

Document Status	Author	Reviewer	Date of Issue
Draft Report Rev01	Daniel Radovic		26/05/2017
		Andrew Czerw	30/05/2017
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File Location

S:\12 Environment\12.3 Legal Requirements & Commitments\12.3.1 DMP\Mining Proposals – Siberia

JUNE 2017

Q No	Mining Proposal Checklist	Y/N NA	Page No	Comments
Public availability				
1	Are you aware that this mining proposal is publicly available?	**Y**		
2	Is there any information in this mining proposal that should not be publicly available?	**Y**		Agreement for M24/39
3	If "No" to Q2, do you have any problem with the information contained in this mining proposal being publicly available?	**N**		
4	If "Yes" to Q2, has confidential information been submitted in a separate document/section?	**Y**		Within EARS 2
5	Has the mining proposal been endorsed? See last page Checklist.	**Y**		
Mining Proposal details				
6	Have you included the tenement number(s), site name, proposal overview and date in the title page?	**Y**		
7	Who authored the mining proposal? (Please include telephone number of author)	Daniel Radovic Senior Environmental Officer 08 6241 1888		
8	State who to contact enquiries about the mining proposal	Daniel Radovic		
9	How many copies were submitted to DMP?	Hard copies = N/A Electronic = EARS2		
10	Does this mining proposal support a lease application?	**N**		
11	Has a geological resource statement been included (refer section 4.3.2 of mining proposal guidelines)?	**Y**	27	3.2.1 Gold Resource
12	Will more than 10 million tonnes of ore and waste be extracted per year? State total tonnage:	**N**		
13	Will more than two million tonnes of ore be processed be year? State total throughout.	**N**		
14	Is the mining proposal located on pre-1899 Crown Grant lands? (not subject to the Mining Act)	**N**		
15	Is the mining proposal located on reserve land? If "Yes" state reserve types	**N**		
16	Will the mining proposal occur within or affect a declared occupied townsite?	**N**		

17	Is the mining proposal within two km of the coastline or a Private Conservation Reserve?	**N**		
18	Is the mining proposal wholly or partially within a World Heritage Property, Biosphere Reserve, Heritage Site or Soil Reference Site.	**N**		
Tenement Details				
19	Are all mining operations within granted or applied for tenement boundaries?	**Y**		
20	Are you the tenement holder of all tenements?	**N**		
21	If "No" at 20, do you have written authorisation from the tenement holder (s) to undertake the Mining proposal activities (Refer to section 4.2.1 of the Mining Proposal Guidelines)	**Y**		See REG ID 58635
22	Is "Yes" at 21, is a copy of the authorisation contained within the mining proposal?	**Y**		See REG ID 58635
23	Have you checked for compliance against tenement conditions?	**Y**	13	1.2.2 Existing Commitments
Location and Site Layout Plans				
24	Have you included location plans showing tenement boundaries and mining operations?	**Y**	24	2.3.3 Site Layout
25	Have you included site layout plans showing all mining operations and infrastructure in relation to tenement boundaries?	**Y**	24	2.3.3 Site Layout
26	Have you included Area of Disturbance Tables for all tenements impacted by mining operations?	**Y**	31	4.1 Area of Disturbance Table
Environmental Protection Act				
27	Does the mining proposal require referral under part four or the MOU? If 'Yes' describe why in space below:	**N**		
28	Has the EPA set a level of assessment? If yes state:	**N**		
29	Is a clearing permit required? If 'No' then explain why in space below?	**Y**	41	5.1 Land Clearing
30	If 'Yes' at Q29 then has a permit been applied for?	**Y**		
31	Is a works approval required by the DER?	**N**		
32	Has a Works Approval been submitted to the DER?	**N**		Not required
33	**Stakeholder Consultation -** Have the following stakeholders been consulted? (use N/A if not relevant)			
	Shire?	**Y**	49	6.0 Social Impacts

	Pastoralist?	**Y**	49	6.0 Social Impacts
	DER?	**Y**	49	6.0 Social Impacts
	Main Roads?	**Y**	49	6.0 Social Impacts
	Others? (specify):	**N**	49	6.0 Social Impacts
Environmental Assessment and Management				
34	Is the mining proposal wholly or partially within DER managed areas?	**N**		
35	If 'yes' at Q34 has DER been consulted?	**N/A**		
36	Is the mining proposal wholly or partially within a red book area or a bush forever site?	**N**		
37	Will the mining proposal impact upon a water resource area, water reserve, declared or proposed catchment, groundwater protection area, significant lake or wetland?	**N**		
38	Is a water or de-watering licence required?	**Y**		See REG ID 58635
39	If 'Yes' at Q39 then has the licence(s) been applied for?	**Y**		*GWL 154498*
40	Does the mining proposal include a new tailings storage or changes to existing tailings storage?	**N**		
41	Has AMD assessment been undertaken?	**Y**		See REG ID 58635
42	Have flora and fauna checks been undertaken?	**Y**		5.3 Flora, Fauna and Ecosystem
43	Are any rare species present?	**N**		
44	Has preliminary closure plan been included?	**Y**		
45	Do you acknowledge that the hard copies and the CD contain identical information? (this is important for DMP's electronic records system)	**Y**		Also uploaded EARS 2

I hereby certify that to the best of my knowledge the above checklist accurately reflects the information contained within this Mining Proposal

Name: Andrew Czerw **Position:** GM Resource Development

Signature: **Date:** 1/6/17

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ACRONYMS AND ABBREVIATIONS

ANC	Acid Neutralising Capacity
ARI	Average Reoccurrence Interval
AER	Annual Environmental Report
AMD	Acid Mine Drainage
ANZMEC	Australian and New Zealand Minerals and Energy Council
ARD	Acid Rock Drainage
BOM	Bureau of Metrology
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAA	Department of Aboriginal Affairs
DER	Department of Environmental Regulation
DME	Department of Mines and Energy (now DMP)
DMP	Department of Mines and Petroleum
DoIR	Department of Industry and Resources (now DMP)
DPAW	Department of Parks and Wildlife
DoW	Department of Water
GQDT	Golden Quest Discovery Trail
IBRA	Interim Biogeographic Regionalisation of Australia
LoM	Life of Mine
LCR	Legal and Compliance Register
mBGL	Meters Below Ground Level
MCP	Mine Closure Plan
MCA	Mineral Council of Australia
MP	Mining Proposal
NAG	Net Acid Generation
NAPP	Net Acid Producing Potential
NOI	Notice of Intent
PAF	Potentially Acid Forming
PEC	Priority Ecological Communities
PDAP	Placer Dome Asia Pacific
ROM	Run of Mine
SMC	Siberia Mining Corporation Ltd
TEC	Threatened Ecological Communities
TOFR	Top of Fresh Rock
TDS	Total Dissolved Solids
TSF	Tailings Storage Facility
UCL	Unallocated Crown Land
WA	Western Australia
WRD	Waste Rock Dump
WMC	Western Mining Corporation Ltd

DEFINITIONS

Care and Maintenance	Phase following temporary or unexpected cessation of mining operations where infrastructure remains intact and the site continues to be managed. All mining operations suspended, site being maintained and monitored.
Closure	A whole-of-mine-life process, which typically culminates in tenement relinquishment, including decommissioning and rehabilitation.
Closure Objective	Outcome based long term goal for closure, relating to each aspect based on the post mining land use.
Completion	The goal of mine closure. A completed mine has reached a state where mining lease ownership can be relinquished and responsibility accepted by the next land user (DTIR 2006a).
Completion Criteria	Qualitative or quantitative standards of performance used to measure the success of meeting the closure objectives.
Decommissioning	A process that begins, near, or at, the cessation of mineral production and ends with removal of all unwanted infrastructure and services.
Disturbed	Area where vegetation has been cleared and/or topsoil (surface cover) removed.
Domain	A group of features (landforms or infrastructure) with similar rehabilitation and closure requirements.
Post mining land use	Term used to describe a land use that occurs after the cessation of mining operations.
Quantitative	Sets a standard or numerical value at which point a criterion is considered to be achieved.
Rehabilitation	The return of disturbed land to a stable, productive and/or self-sustaining condition, consistent with the post mining land use.
Relinquishment	A state when agreed closure criteria have been met, government "sign-off" achieved, all obligations under the Mining Act removed and bonds retired, and responsibility accepted by the next land users or manager.

1.0 Executive Summary

1.1 Project Summary

The Siberia Gold Project (**Siberia, Mine, Site**) forms part of the broader Eastern Goldfields Limited (**EGL, Company**) Davyhurst Gold Project (**Davyhurst, Project**) and includes the re-establishment of mining activities at the historical Siberia Goldfield. Siberia is located 75 km northwest of Kalgoorlie and 25 km north of Ora Banda.

This document is to serve as an addendum to the Mining Proposal (**MP**) Recommencement of Open Pit Mining at the Siberia Gold Project (REG ID 58635). The items and commitments in the aforementioned document will remain with only proposed variations and additions included in this application.

The additional infrastructure or changes which will be required as part of this MP include:

- 30-40 person accommodation village;
- landfill (within waste dump foot print);
- containerised Reverse Osmosis (**RO**) Plant;
- open pit modification; and
- minor road amendments.

Relevant tenements where proposed activities are to be carried out include: L24/224, M24/208, M24/39 and M24/960. Annual reporting will be covered in the Environmental Assessment and Regulatory System (Project Code J00084, Site Code: S0231752) with Annual Environmental Reports (AERs) submitted in March.

The mining activities are proposed to occur over a 30 month period and will include the movement of 8.4 million bcm of waste and 2.134 Mt of ore. As per REGI 58635, ore is to be hauled to EGL's existing Davyhurst Processing Plant, located 35 kms northwest on the Davyhurst – Ora Band Road. The Davyhurst facilities have been the subject of previous approvals on M30/255 (formerly M30/73 and M30/108).

This addendum will require the clearing of an addition 24.2 hectares (**ha**). To facilitate clearing an additional level 1 flora survey was undertaken at the proposed camp site. The survey was conducted over an area of 54 Ha and found forty eight taxa recorded. This did not represent an unusually high degree of species richness for the region. No threatened flora were recorded and the condition of the vegetation was unlikely to support threatened flora. There are no known Threatened Ecological Communities (**TECs**) or Priority Ecological Communities (**PECs**) in the survey area.

The nearest conservation reserve is the Clear and Muddy Lakes Nature Reserve approximately 30 km south of the Mine. It is unlikely that clearing within the Mine will impact on that reserve.

The Company has undertaken a stakeholder engagement with the following agencies and will be complaint with their instructions:

- Department of Water (**DoW**);
- Department of Parks and Wildlife (**DPaW**);
- Department of Mines and Petroleum (**DMP**);
- Shire of Menzies;
- Shire of Kalgoorlie-Boulder;

- Department of Environment and Regulation (**DER**);
- Mt Burgess Pastoral Lease; and
- Northern Star Resources

Consultation with key stakeholders commenced in 2015 and will continue as required throughout the project. Consultation methods include regular meetings and informal discussions led by key Company personnel. Consultation with government agencies will be on a regular basis as defined by project amendments, annual reporting, inspection and regulatory requirements.

The environmental impacts and proposed mitigation have been provided in Table 3. A list of commitments for the management of the project have been outlined in Table 1 and Table 2.

1.2 Commitments

1.2.1 Approvals Commitments

1. Mining and accommodation infrastructure will be removed on completion of operations.
2. The company is committed to minimising waste generation and will encourage re-use and recycling of materials where possible.
3. Any contaminated material will be appropriately reported and remediated to the satisfaction of the DER and DMP.
4. The location of landfill trenched within the waste dump footprint will be reported annually in the AER.
5. Mining equipment will be used to rehabilitate historical disturbances.
6. Any unauthorised discharge will be immediately reported to the relevant regulatory agency.

1.2.2 Existing Commitments

Table 1: Consolidated Existing Tenement Conditions

Tenement	Number	Condition	Date
M24/960 (M24/290, M24/352, M24/633) M24/208 M24/39	2 5 12	Unless the written approval of the Environmental Officer, Department of Industry and Resources (**DoIR**), is first obtained, the use of scrapers, graders, bulldozers, backhoes or other mechanised equipment for surface disturbance or the excavation of costeans is prohibited. Following approval, all topsoil being removed ahead of mining operations and separately stockpiled for replacement after backfilling and/or completion of operations.	02/12/2005
M24/960 (M24/290, M24/352, M24/633)	3	The Lessee notifying the holder of any underlying pastoral or grazing lease by telephone or in person, or by registered post if contact cannot be made, prior to undertaking airborne geophysical surveys or any ground disturbing activities utilising equipment such as scrapers, graders, bulldozers, backhoes, drilling rigs; water carting equipment or other mechanised equipment.	02/12/2016

M24/960 (M24/290, M24/352, M24/633)	6	Mining on any road, road verge or road reserve being confined to below a depth of 15 metres from the natural surface.	02/12/2016
M24/208	6	No developmental or productive mining or construction activity being commenced until the tenement holder has submitted a plan of the proposed operations and measures to safeguard the environment to the Director, Environment Division, DoIR for assessment; and until his written approval has been obtained.	02/12/2005
M24/208 M24/960 (M24/290, M24/352, M24/633) M24/39	13 10 14	The development and operation of the project being carried out in such a manner so as to create the minimum practicable disturbance to the existing vegetation and natural landform.	10/11/1995
M24/960 (M24/290, M24/352, M24/633) M24/208 M24/39	11 14 15	All topsoil being removed ahead of all mining operations from sites such as pit areas, waste disposal areas, ore stockpile areas, pipeline, haul roads and new access roads and being stockpiled for later respreading or immediately respread as rehabilitation progresses.	10/11/1995
M24/208 M24/39	15 16	At the completion of operations, all buildings and structures are to be removed from site or demolished and buried to the satisfaction of the Director, Environment Division, DoIR.	02/12/2005
M24/960	12	All waste materials, rubbish, plastic sample bags, abandoned equipment and temporary buildings being removed from the mining tenement prior to or at the termination of exploration program.	02/12/2016
M24/960 (M24/290, M24/352, M24/633) M24/39	 17	All rubbish and scrap being progressively disposed of in a suitable manner.	10/11/1995
M24/39	18	At the completion of operations, or progressively where possible, all access road and other disturbed areas being covered with topsoil, deep ripped and revegetated with local native grasses, shrubs and trees to the satisfaction of the Director, Environment Division, DoIR.	02/12/2005

M24/39 M24/208	19 18	Any alteration or expansion of operations within the lease boundaries beyond that outlined in the above document(s), is not commence until a plan of operations and a program to safeguard the environment are submitted to the Director, Environment Division, DoIR for his assessment and until his written approval to proceed has been obtained.	02/12/2005
M24/39	21	Any saline water spills or environment incidents are to be reported to the Regional Environmental Officer, DoIR within 48 hours of occurrence.	17/12/2003
M24/39	26	Any failure of components of the waste management systems resulting in a loss of potentially polluting matter to the environment being immediately reported to the Inspectorate Environmental and Rehabilitation Officer of the DoIR.	17/12/2003
M24/208	9	No mining on Rifle Range Reserve 10760 without the prior written consent of the Minister for Mines.	18/05/1988
M24/960 (M24/290, M24/352, M24/633) M24/39	13 23	The lessee taking all reasonable and practicable measures to prevent or minimise the generation of dust from all materials handling operations, stockpiles, open areas and transport activities.	17/12/2003
M24/960 (M24/290, M24/352, M24/633) M24/39	24 24	Where saline water is used for dust suppression, all reasonable measures being taken to avoid any detrimental effects to surrounding vegetation.	17/12/2003
M24/39	25	Wastes from ancillary facilities such as maintenance workshops and laboratories being managed in a manner which minimises their detrimental effect on the surrounding environment. Practical measures such as protective bunding, skimmers, silt traps, neutralisation pits and petrol/oil traps being provided and maintained as appropriate.	17/12/2003
M24/39	26	Any failure of components of the waste management systems resulting in a loss of potentially polluting matter to the environment being immediately reported to the Inspectorate Environmental and Rehabilitation Officer of the DoIR.	17/12/2003

M24/960 (M24/290, M24/352, M24/633)	16	On the completion of operations or progressively where possible, all waste dumps, tailings storage facilities, stockpiles or other mining related landforms must be rehabilitated to form safe, stable, non-polluting structures which are integrated with the surrounding landscape and support self sustaining, functional ecosystems comprising suitable, local provenance species or alternative agreed outcome to the satisfaction of the Executive Director, Environment Division, DMP.	13/01/2017
M24/960 (M24/290, M24/352, M24/633) M24/39	15 31	Placement of waste materials must be such that the final footprint after rehabilitation will not be impacted upon by pit wall subsidence and zone of instability.	17/12/2003
M24/960 (M24/290, M24/352, M24/633) M24/39	18 35	A Mine Closure Plan is to be submitted in the AER month specified in tenement conditions in the year specified below, unless otherwise directed by an Environmental Officer, DMP. The Mine Closure Plan is to be prepared in accordance with the "Guidelines for Preparing Mine Closure Plans" available on DMP's website" •2020.	27/09/2011

Table 2: Other Existing Commitments

Condition	Reference
There are no listed heritage sites within the project area. Davyhurst will adhere to the Aboriginal Heritage Act and will report any archaeological cultural heritage sites discovered through the course of their activities. They recognize that it is an offence to disturb, alter, excavate or damage any Aboriginal site under either Section 16 or Section 18 of the Act.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg85
Davyhurst is aware of its responsibility to develop and maintain effective communications with people who could be adversely affected by the project. Davyhurst will ensure compliance with the provisions of the Aboriginal Heritage Act 1972 to ensure that no action is taken which is likely to interfere with or damage any Aboriginal Site.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg13
The proponents will comply with the provisions in applicable Acts and their Regulations, which include, but may not be restricted to, the following: • Aboriginal Heritage Act 1972; • Mining Act 1978 and Regulations 1981; • Mines Safety and Inspection Act 1994; • Mines Safety and Inspection Regulations 1995; • Environmental Protection Act 1986; • Explosives and Dangerous Goods Act 1961; • Wildlife Protection Act 1950;	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg2

Condition	Reference
• Soil and Land Conservation Act 1945; and • Environmental Protection Act (Noise) Regulations 1997.	
Davyhurst will comply with all environmental management, monitoring and reporting requirements contained in its DoIR, DEC and DoW approvals. Where previous leaseholders have failed to comply with approval conditions, Davyhurst will develop and implement an environmental compliance program to progressively and systematically bring the project into compliance with all relevant tenement conditions.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg9
The various operational areas within the project area will be clearly sign posted, warning the public of the presence of mining and treatment operations and requesting the public not to enter these areas. Where relevant, fences will be erected to restrict access.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg85
Dust, plant, blast and exhaust emissions will be estimated and reported in the National Pollution Inventory submitted annually to the DEC.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg13
A safety abandonment bund wall will be constructed around each Siberia open pit as set down in the DME document - “Guidelines for Safety Bund Walls around Open Pits”.	NoticeOfIntentToCommenceMiningSiberiaProjectOct2003pg_21
In order to preserve the relatively weed-free status of the project area, Davyhurst will implement an active program of management including: • Segregation of topsoil from weed-infested areas to ensure that material containing weeds will not be used for rehabilitation.	NoticeOfIntentToCommenceMiningSiberiaProjectOct2003pg_19
Where economically justified, waste rock will be placed over historical dumps, tailings facilities etc. or adjacent to existing waste dumps, thereby reducing the amount of clearing required for new waste dumping areas.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg83
Final outside batter angles of the sub-economic stockpiles will not exceed 20 degrees from the horizontal for all new stockpiles. Where existing stockpiles exceed 20 degrees, the company will endeavour to use sub-economic material from the new mining to try and rectify the existing non-compliant stockpiles.	NoticeOfIntentToCommenceMiningSiberiaProjectOct2003pg_2
A safety bund wall will be constructed around the pit according to the ‘Safety Bund Walls around Abandoned Open Pit Mines – Guideline’ (DME 1997). This is to be constructed whilst the pit is in operation and will form part of the diversion channel to be constructed to divert upper catchment flows safely from the pit and operations areas.	NoticeOfIntentToCommenceMiningSiberiaProjectOct2003pg_13
Groundwater monitoring will be carried out in accordance with the terms of the Groundwater Well Licence.	DOIRN Davyhurst Gold Project Proposal -

Condition	Reference
	Davyhurst Gold_April2007_pg82
Annual post-closure site audits will be undertaken for a period of at least five years post-mining. The audits will provide evidence of the effectiveness of the rehabilitation works and will assist in defining rehabilitation maintenance requirements. Rehabilitation maintenance programs will be planned and implemented, as required, based on the findings of regular site audits and inspections.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg13
Progressive characterisation of all mine waste-rock will be undertaken to avoid accidental exposure of potential acid forming (**PAF**) materials. Davyhurst will: Progressive characterisation of all mine waste-rock will be undertaken to avoid accidental exposure of PAF materials. Davyhurst will: • Be mindful of the materials that are generated and handled, and of appropriate disposal / stockpiling requirements depending on the nature of the material; • Undertake visual verification / identification of materials on an ongoing basis; • Undertake chemical / geochemical characterisation of materials where necessary (e.g. where new / unexpected lithologies are encountered); • Be mindful of the materials that are generated and handled, and of appropriate disposal / stockpiling requirements depending on the nature of the material; • Undertake visual verification / identification of materials on an ongoing basis; and • Undertake chemical / geochemical characterisation of materials where necessary (e.g. where new / unexpected lithologies are encountered).	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg12
Discussions with the pastoralist will include the disturbance to the pastoral lease and appropriate compensation.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg81
Mining Leases M24/290, M24/39, MLA24/633 and M24/352 fall within the Mt Burgess Station and its grazing rights. Site rehabilitation will re-establish native vegetation characteristic of the area and is expected to result in no loss of grazing value.	DOIRN Davyhurst Gold Project Proposal - Davyhurst Gold_April2007_pg22

1.3 Identification and Management of Environmental Impacts

An 'aspects and impacts analysis' has been conducted to systematically identify and rank the consequences, of potential environmental impacts arising from the Mine. This analysis found that the potential negative impacts of the Mine generally fell in the "insignificant" to "minor" categories of consequence.

The most significant potential impacts of the Mine were those ranked as having the potential to result in "moderate" adverse impacts. These impacts and their proposed mitigating actions have been detailed in Table 3.

'Moderate impacts' are defined as short to medium term effects on the biological or physical environment which may be widespread, but which are not severe enough to disrupt ecosystem function. Moderate impacts may also include impacts that result in injuries to people and which would be severe enough to require medical treatment. The key activities identified as requiring active management by EGL in order to limit environmental harm or pollution, and the potential impacts associated with the activities are:

Table 3 Identification and Management of Environmental Impacts

Activity	Potential Impact Details	Management/Mitigation/Control	Reporting Mechanism
Construction and use of haul roads	Direct and indirect impacts on vegetation arising from: introduction of weeds, alteration of surface hydrology, clearing, generation of dust, use of saline water for dust suppression. (Moderate consequence)	Stay on established tracks, weed management activities such as vehicle hygiene and weed mapping and control, dust suppression on haul roads, water management activities.	MP AER
Use of public roads for conveying fuels, ore or product	Risk of injuries to people in the event of an accident. (Moderate consequence)	Use of licence transport providers, incident reporting procedures.	PMP Shire Consultation Main Roads.
Storage of hydrocarbons	Risk of local contamination and/or injuries to people in the event of loss of containment.	Adherence to regulatory guidelines and Australian Standards, Periodic inspection of facilities by environmental staff.	Incident Reports AER
Waste refuse	Risk of local contamination	Adherence to regulatory guidelines and Australian Standards, Periodic inspection of facilities by environmental staff.	Incident Reports AER

2.0 Site Details

2.1 Ownership

The tenements held by Siberia Mining Corporation Pty Ltd and subject to this MP are outlined in Table 4.

EGL is the parent company of its subsidiary Siberia Mining Corporation Pty Ltd, the tenement holders of mining leases M24/208, M24/960 and L24/224 upon which the Mine is located.

The mining lease M24/39 is held by Robert Charles Gardener (**Gardener**) who entered into a materials exchange agreement in which EGL can exploit M24/39 for gold in exchange for Gardner having the right to exploit the adjacent tenement M24/240 for nickel.

Table 4: Siberia Mining Lease's

Tenement	Area (Ha)	Granted	Expiry	Lessee
M24/960	2031.00	02/12/2016	01/12/2037	Siberia Mining Corporation Pty Ltd
M24/208	416.65	18/05/1988	17/05/2030	Siberia Mining Corporation Pty Ltd
M24/39	747.75	16/01/1985	15/01/2027	GARDNER, Robert Charles
L24/224	8.00	07/07/2016	06/07/2037	Siberia Mining Corporation Pty Ltd

2.1.1 Contact Details

Site lodging and most operational activity will be based out of the nearby Davyhurst office complex, 35km northwest of Siberia. A small 30-40 man camp will be established on M24/960. There will be several transportable offices, ablution buildings and a crib hut located at Siberia to service the mining activities. All correspondence should be forwarded via post, facsimile or e-mail to the following address:

Company: Siberia Mining Corporation Pty Ltd (subsidiary of Eastern Goldfields Limited)

Address: L1/24 Mumford Place

Balcatta WA 6021

Telephone: + 61 8 6241 1888

Facsimile: + 61 8 6241 1811

Email: admin@EasternGoldfieldsLimited.com.au

Internet: http://www.EasternGoldfieldsLimited.com.au/

ABN: 14 117 116 097

2.2 Project Objectives

The project objectives provided in REG ID 58635 remain valid.

Table 5: Siberia Mine Summary.

Key Characterisation Table	Unit	Base Case
Mine life	Months	30
Total ore mined	Tonnes	2,134,000
Average head grade	g/t Au	2.3
Total metal production	Oz au	159,000
Maximum processing rate	Tonnes/month	100,000
Total waste mined	Tonnes	17,474,000
Production drilling	(m)	17,000

2.3 Site Details

2.3.1 Location

The project location provided in REG ID 58635 remain valid. The site location has been provided in Figure 1.

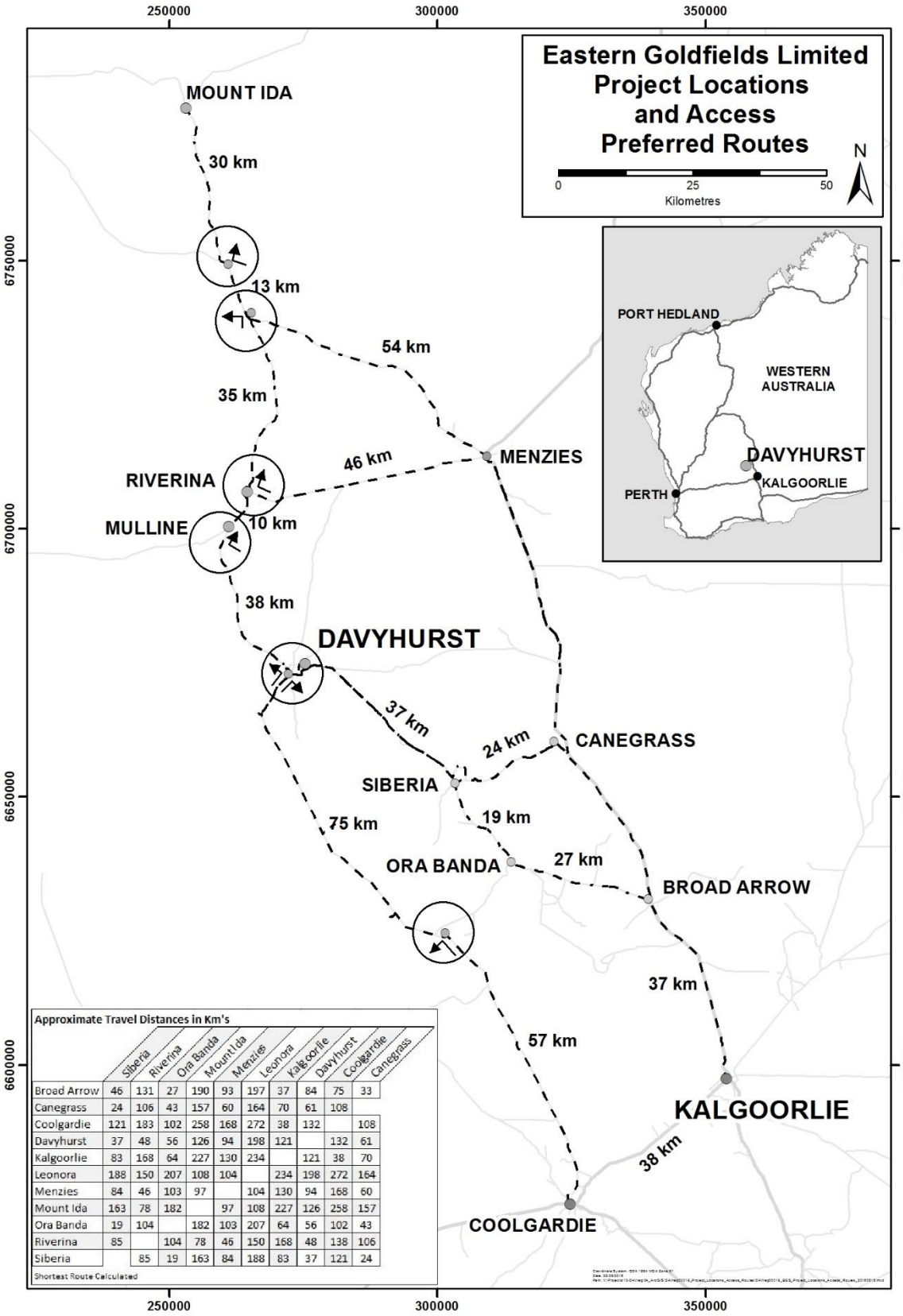
2.3.2 Land Use

The land use within the proposed areas subject to this addendum are:

(a) area north of the Sand King a Pastoral Lease, and

(b) the pre-existing land use or land under rehabilitation for the Siberia Town Common.

The tenure within the Mine area is provided in Figure 2. These features have been mapped with information extracted from tengraph and other publically available government sources such as the DoW for dams and water source areas.



Approximate Travel Distances in Km's

	Siberia	Riverina	Ora Banda	Mount Ida	Menzies	Leonora	Kalgoorlie	Davyhurst	Coolgardie	Canegrass
Broad Arrow	46	131	27	190	93	197	37	84	75	33
Canegrass	24	106	43	157	60	164	70	61	108	
Coolgardie	121	183	102	258	168	272	38	132		108
Davyhurst	37	48	56	126	94	198	121		132	61
Kalgoorlie	83	168	64	227	130	234		121	38	70
Leonora	188	150	207	108	104		234	198	272	164
Menzies	84	46	103	97		104	130	94	168	60
Mount Ida	163	78	182		97	108	227	126	258	157
Ora Banda	19	104		182	103	207	64	56	102	43
Riverina	85		104	78	46	150	168	48	138	106
Siberia		85	19	163	84	188	83	37	121	24

Shortest Route Calculated

Figure 1: Project Location and Access

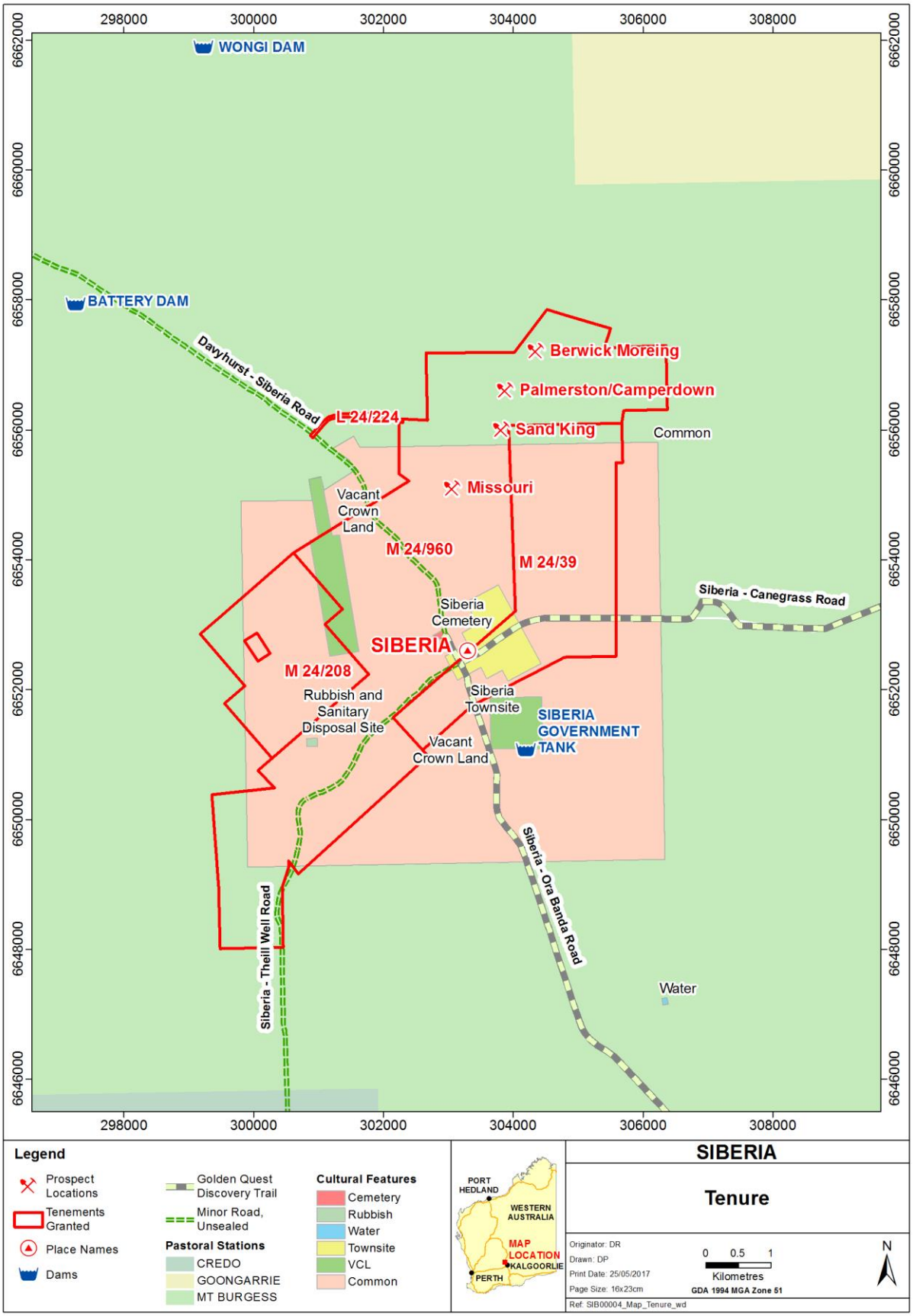


Figure 2: Tenure

2.3.3 Site Layout

The proposed amended Site layout has been provided in Figure 3. A new accommodation village and associated infrastructure is planned on M24/960 and M24/208, across the Davyhurst-Ora Banda Road well away from the blast and noise zones related to the mining event. The accommodation village on will also require a 1km road and related infrastructure such as a sewage treatment system. The Sand King Borefield will also be used to feed a small containerised RO Plant at the Mine Site. Any brine produced from the water treatment is to be discharged into the existing open pits and use.

A landfill for non-hazardous substances will also be established within waste landform footprint at Sand King or Missouri. Due to the advance of the landform over the project life the landfill we consist of a trench under the footprint, the exact location will be reported in the AER submitted for the site.

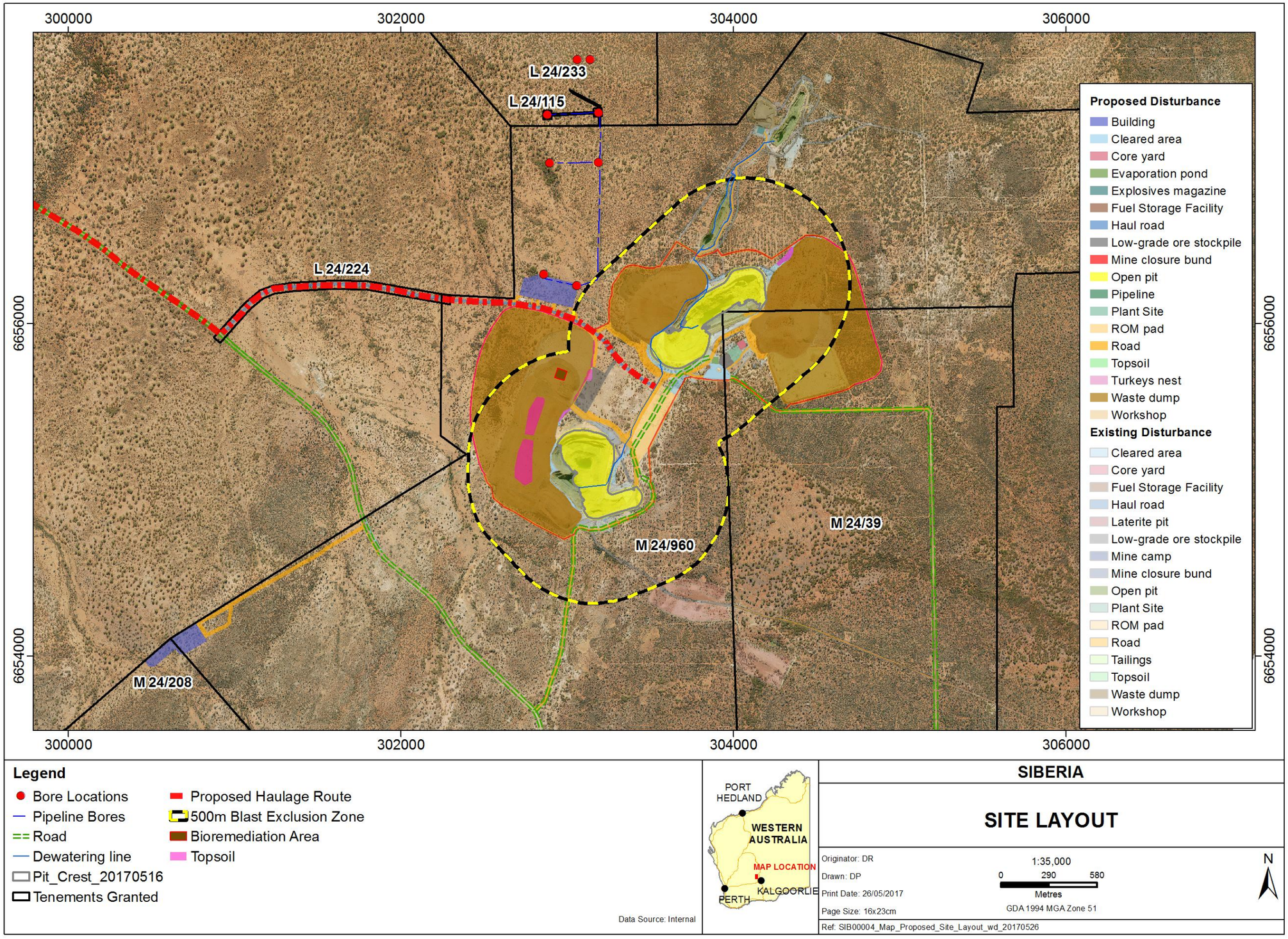


Figure 3: Site Layout

2.4 Site History

The site history provided in REG ID 58635 remain valid.

2.5 Existing Facilities

The existing approved infrastructure in REG ID 58635 remains valid.

A comprehensive list of existing features have been provided in Table 6, Table 10, Table 11, **Error! Reference source not found.** and Figure 5.

There will be additional clearing required to accommodate the camp, camp access road and a portion of haul road and these areas have been identified in Figure 4 and Section 5.1 - Land Clearing.

Table 6: Existing Features of the Project

Domain	Feature	Tenement
1.0 Landforms	Sand King Waste Rock Landform (WRL)	M24/39, M24/960
	Sand King Topsoil Stockpiles	M24/39, M24/960
	Missouri WRL	M24/960
	Missouri Topsoil Stockpiles	M24/960
	Berwick-Moreing WRL	M24/960
2.0 Mining Infrastructure	Sand King Open Pit	M24/39, M24/960
	Missouri Open Pit	M24/960
	Camperdown Open Pit	M24/960
	Palmerston Open Pit	M24/960
3.0 Industrial Infrastructure	Processing Plant Site (Vacant)	M24/39, M24/960,
	Groundwater Infrastructure	M24/960
	Workshop and Stores	M24/960
	Washdown Pad	M24/960
	Laydown	M24/960, M24/39
	Bioremediation Area	M24/960
4.0 Roads	Site Roads	M24/39, M24/960
	Haul Road	M24/39, M24/960, L24/224
5.0 Tailings Storage	Sand King TSF	M24/39
6.0 Exploration	Drill pads, Sumps and Tracks	M24/39, M24/960
	Exploration Tracks and Grid Lines	M24/39, M24/960

Domain	Feature	Tenement
	Core Yard	M24/39
7.0 Camp	Accommodation Village	M24/208, M24/960

3.0 Existing Environment

3.1 Regional Setting

The regional setting provided in REG ID 58635 remain valid.

3.2 Geology

The geological descriptions provided in REG ID 58635 remain valid.

3.2.1 Gold Resource

Table 7 details the Sand King and Missouri resources at a cut-off grade of +1 g/t Au. The resource is JORC compliant.

Table 7: Gold Resource for Siberia Project

Deposit	Cut-Off (g/t Au)	Tonnes	Grade (g/t Au)	Ounces of Au
Sand King	1	2,453,000	3.4	272,000
Missouri	1	2,431,000	2.9	227,000

The extent of the current resource and mineralised zone through the Siberia project is limited by drilling.

3.3 Characterisation of Waste Rock and Tailings

The waste and tailings characterisations provided in REG ID 58635 remain valid.

3.3.1 Material Inventory

Missouri and Sand King have engineered open pit mine designs. The details of the volumetric break has been provided in Table 8 and Table 9.

Table 8: Sand King Volumetric Breakdown

Movement	Unit	Amount
Movement Waste	bcm	**3,877,322**
Movement Ore	bcm	**306,164**
Movement Total	bcm	**4,183,486**

Table 9: Missouri Volumetric Breakdown

Movement	Unit	Amount
Movement Waste	bcm	**4,467,517**
Movement Ore	bcm	**460,476**
Movement Total	bcm	**4,927,994**

3.4 Soils and Soil Profiles

The soils and soil profiles description provided in REG ID 58635 remain valid.

3.5 Hydrology

The hydrology description provided in REG ID 58635 remain valid.

3.6 Hydrogeology

The hydrological descriptions provided in REG ID 58635 remain valid.

3.7 Water Quality

The water quality description provided in REG ID 58635 remain valid.

3.8 Water Management

The majority of dewatering activities proposed in REG ID 58635 remain valid.

The only variation to the proposal is that feed water for the RO Plant will be drawn from the open pits and bores located upon M24/960. The RO Plant is estimated to generate up to 100 kL per day. The brine generated from the plant is to be discharged into the existing pits and used for dust suppression. The brine is expected to be of a salinity of up to <50,000 mg/L TDS and diluted further from existing pit water (6,000 mg/L TDS). All pipelines will be placed in a v drain that will contain any potential discharge to the environment. Any inadvertent discharge will be reported in accordance with relevant regulatory agency.

The certificate of analysis for the groundwater bores sampled in December 2016 has been provided in Appendix E.

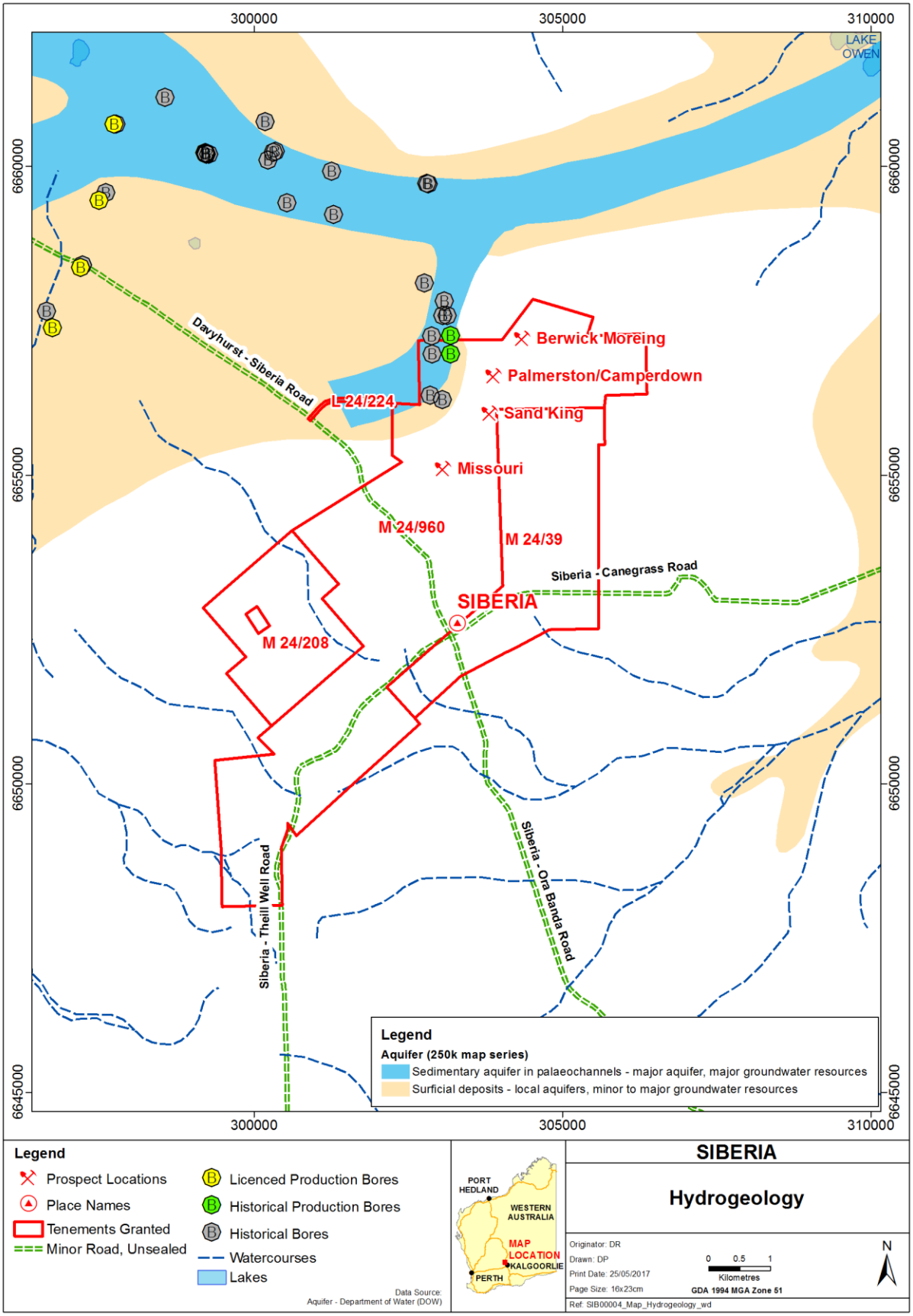


Figure 4: Regional Aquifers and Paleochannels

3.9 Climate

The climate description provided in REG ID 58635 remain valid.

3.10 Flora and Fauna

3.10.1 Flora

An additional survey was carried out upon the proposed camp and access track see Appendix A.

3.10.2 Fauna

The fauna description provided in REG ID 58635 remain valid.

3.10.3 Stygofauna

The stygofauna description provided in REG ID 58635 remain valid.

3.11 Social Environment

3.11.1 Land use

The land use description provided in REG ID 58635 remain valid.

3.11.2 Heritage

The heritage description provided in REG ID 58635 remain valid.

4.0 Project Description

4.1 Area of Disturbance Table

Table 10: Disturbance Table M24/39

Mining Activity Reference	Existing		Approved	Land Use Change	New
	M 24/39 Disturbed	M 24/39 Rehabilitated	REG ID 58635	M 24/39	M 24/39 Proposed (New Disturbance)
Exploration	3.65				
Sand King Laydown/Hardstand	3.68				
Sand King Mine Camp	0.06				
Sand King Mine Closure Bund		0.15			
Sand King Open Pit		1.21			
Sand King Topsoil Stockpile	0.14				
Sand King TSF	11.25				
Sand King Waste Dump East	4.16	5.33	10.25	10.70	
Siberia Core yard	0.21				
Siberia Fuel Storage Facility					0.16
Siberia Laterite scraping	5.67				
Siberia Laydown/Hardstand	0.65				0.00
Siberia Low Grade Stockpile	0.38				
Siberia Mine Closure Bund			0.82		
Siberia Plant Site	0.57				
Siberia Road	3.51		0.39	0.36	1.31
Total	**33.93**	**6.68**	**11.45**	**11.06**	**1.48**
Disturbed	**46.86**				
Undisturbed	**698.89**				
Tenement Area (ha)	**745.75**				

Table 11: Disturbance Table M24/960

Mining Activity Reference	Existing		Approved	Landuse Change	New
	M 24/960 Disturbed	M 24/960 Rehabilitated	REG ID 58635	M 24/960 Proposed	M 24/960 Proposed
Berwick Mine Closure Bund		2.10			
Berwick Open Pit		2.58			
Camperdown Laydown/Hardstand	2.57				
Camperdown Miss Road	0.60				
Camperdown Open Pit		2.45			
Camperdown Waste Dump	2.80				
Exploration	41.55				
Missouri Dry Blowing Pad	0.86				
Missouri Laydown/Hardstand	11.82				
Missouri Low Grade Ore Stockpile			2.57		0.00
Missouri Mine Closure Bund		0.90			
Missouri Open Pit		13.57	0.82	1.00	0.11
Missouri ROM	7.80				
Missouri Topsoil Stockpile	0.92				
Missouri Waste Dump	16.62	15.29	21.46		3.87
Sand King Berwick Mine Closure Bund		1.51			
Sand King Laydown/Hardstand	5.83				
Sand King Mine Closure Bund		0.67			
Sand King Open Pit		14.07	1.09	0.85	0.10
Sand King Waste Dump East	0.72	11.04	7.68		
Sand King Waste Dump West	15.45		3.95	0.27	
Siberia Evaporation Pond				0.16	
Siberia Freshwater Pipeline					0.36
Siberia Fuel Storage	0.05				
Siberia Fuel Storage Facility				0.00	0.23

Mining Activity Reference	Existing		Approved	Landuse Change	New
	M 24/960 Disturbed	M 24/960 Rehabilitated	REG ID 58635	M 24/960 Proposed	M 24/960 Proposed
Siberia Haul Road	11.34		2.61		
Siberia Laterite scraping	6.15	3.35			
Siberia Laydown/Hardstand	2.22	0.19	0.11	0.39	2.50
Siberia Low Grade Stockpile	0.14				
Siberia Mine Closure Bund			3.01		1.30
Siberia Mine Infrastructure			4.60		2.26
Siberia Pipeline				0.00	0.06
Siberia Road	1.37		3.70	1.44	10.50
Siberia ROM				0.59	
Siberia Workshop	0.05				
Total	**124.45**	**67.72**	**51.6**	**4.70**	**21.28**
Disturbed	**197.33**				
Undisturbed	**1833.67**				
Tenement Area (ha)	**2031**				

Table 12 Disturbance Table L24/224

Mining Activity Reference	New
	L 24/224 Proposed (New Disturbance)
Siberia Haul Road	2.68
Total	2.68
Disturbed	**2.68**
Undisturbed	**5.32**
Tenement Area (ha)	**8.0000**

Table 13 Disturbance Table M24/208

Mining Activity Reference	Existing	New
	M 24/208	M 24/208 Proposed
Exploration	1.185	
Siberia Mine Infrastructure		1.43
Disturbed	**2.615878**	
Undisturbed	**414.034122**	
Tenement Area (ha)	**416.65**	

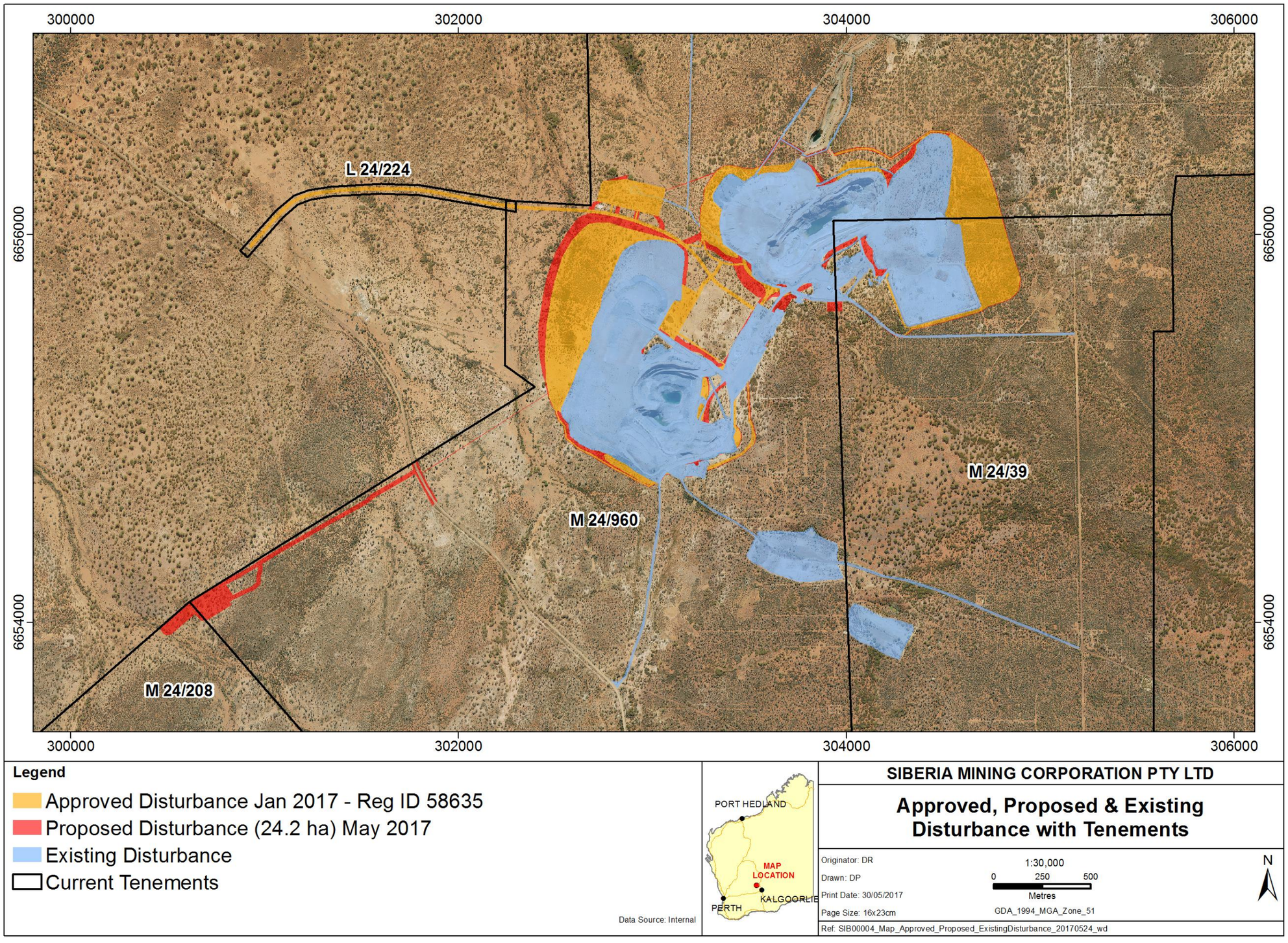


Figure 5: Existing and Proposed Disturbance

4.2 Mining Operations

The key details of the proposed mining operations have been summarised below in Table 14. The pit cut back design of the Missouri and Sand King Pits has been provided Figure 6 and Figure 7. The operational descriptions of mining methods provided in REG ID 58635 remain valid.

Table 14: Indicative Key Characterisation Table

Key Characterisation Sand King Deposit	**Feature**	**Base Case**
Mine life	Months	22
Total ore mined	BCM	823,000
Average head grade	g/t Au	2.5
Total metal production	Oz au	66,000
Maximum Processing rate	Tonnes/month	67,000
Total waste mined	BCM	**3,877,322**
Ore Development Metres	(m)	N/A
Waste Development Metres	(m)	N/A
Production Drilling	(m)	9,000
Key Characterisation Missouri Deposit	**Feature**	**Base Case**
Mine life	Months	30
Total ore mined	BCM	1,311,000
Average head grade	g/t Au	2.2
Total metal production	Oz au	93,000
Maximum Processing rate	Tonnes/month	67,000
Total waste mined	BCM	**4,467,517**
Ore Development Metres	(m)	N/A
Waste Development Metres	(m)	N/A
Production Drilling	(m)	8,000

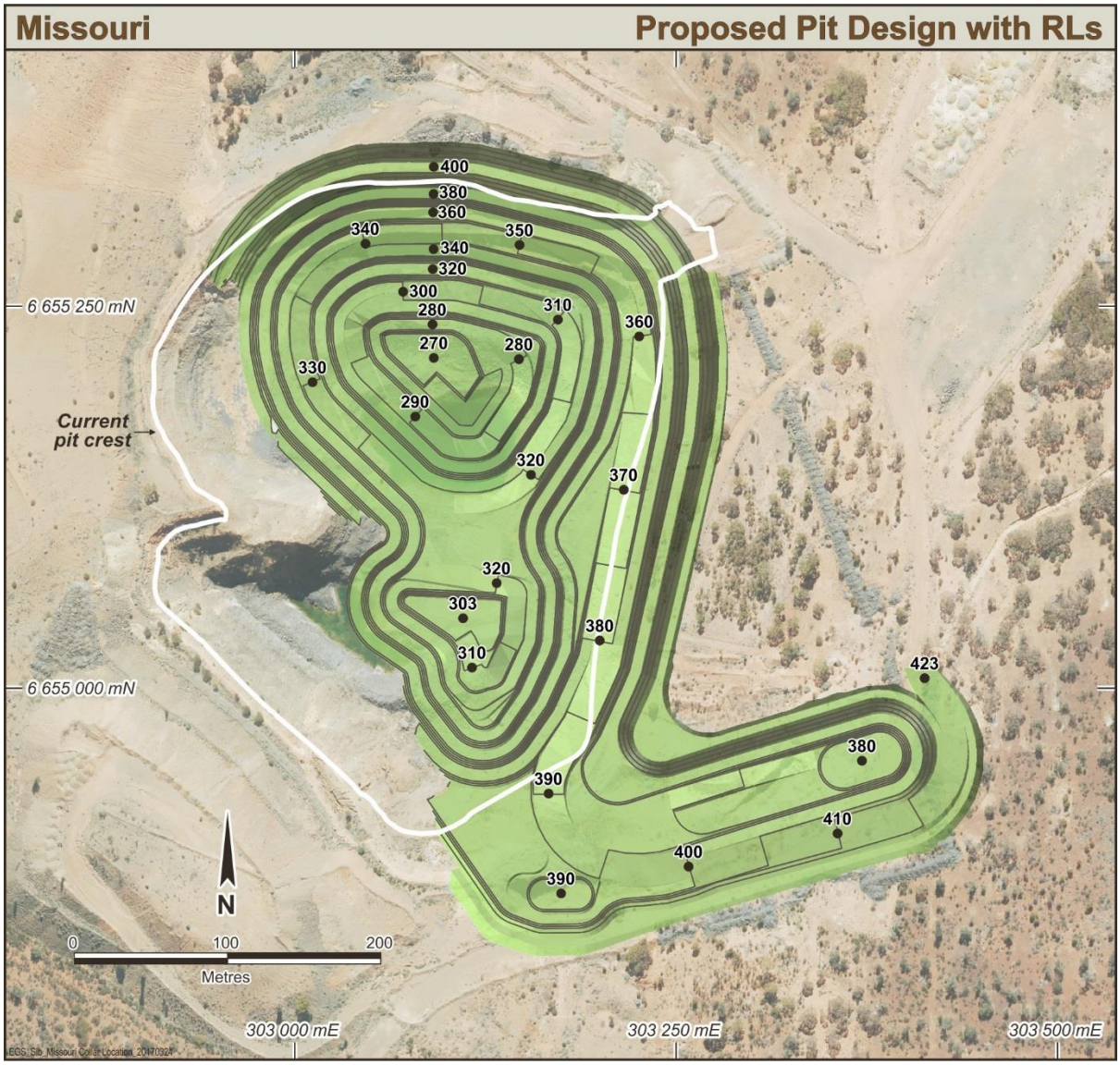


Figure 6: Missouri Revised Open Pit Cut Back Design

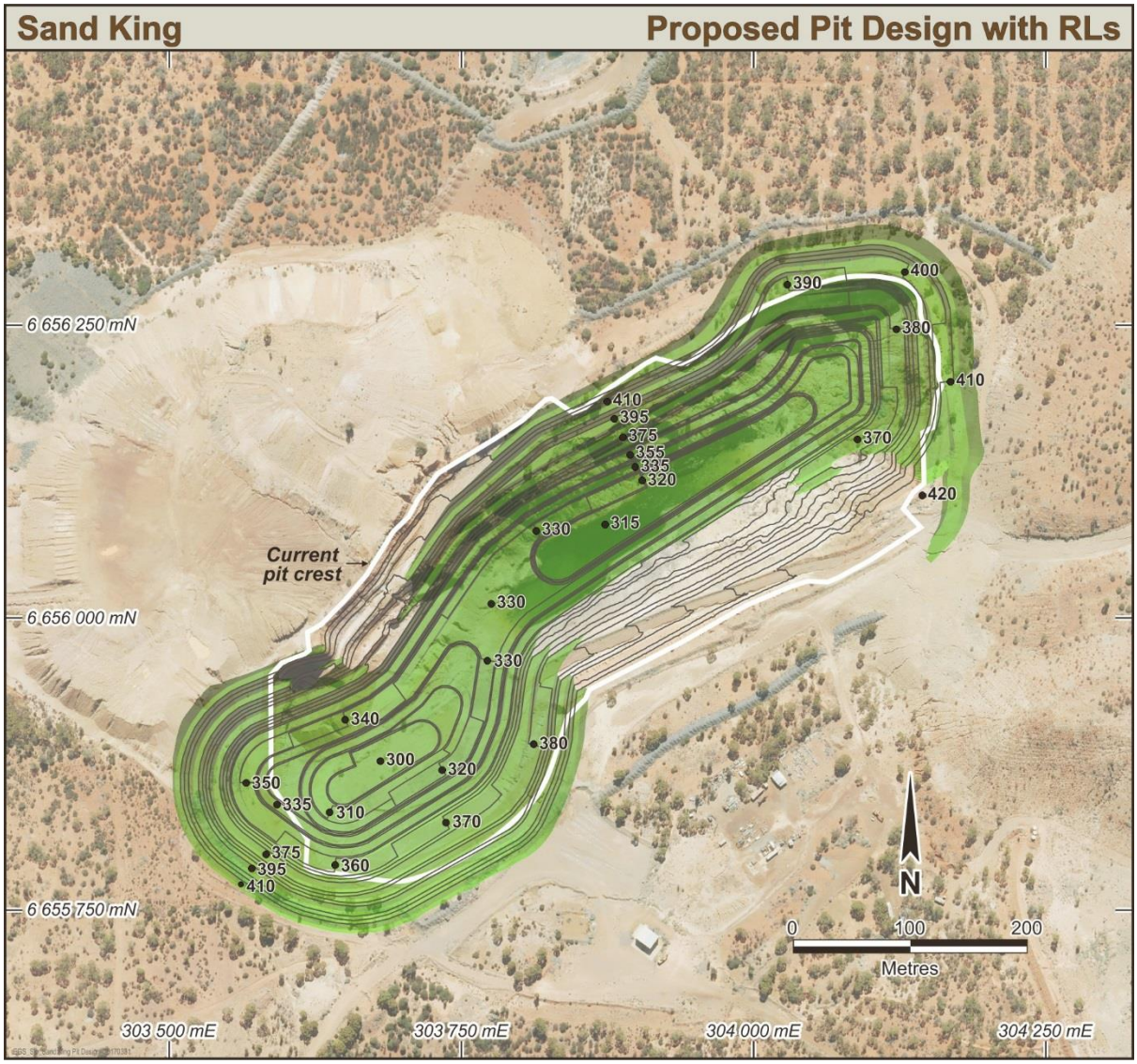


Figure 7: Sand King Revised Open Pit Cut Back Design

4.3 Ore Processing

The processing description provided in REG ID 58635 remain valid.

4.4 Tailings Storage

The processing description provided in REG ID 58635 remain valid.

4.5 Road Development

The Mine will require the establishment of 1km of new access road in order to establish a route to the camp, see Figure 3.

4.6 Support Facilities

Existing support facilities at Siberia include:

- Industrial Workshop;
- Washdown pad;

- Laydown yard; and
- Hardstand areas.

Facilities approved in REG ID 58635:

- Bulk fuel storage suitable for mining fleet;
- Generator;
- Crib Hut;
- Explosives magazine; and
- Bioremediation farm.

Should further sewerage treatment systems be required at the Site offices and crib huts they will be installed in accordance with Shire of Kalgoorlie-Boulder's requirements.

Facilities subject to this addendum

- 30-40 man camp
- 100kL per day RO Plant
- Landfill
- Minor road changes.

4.7 Workforce

The workforce description provided in REG ID 58635 remain valid.

4.8 Transportation Corridors

The transport description provided in REG ID 58635 remain valid.

4.9 Resource Requirements and Regional Infrastructure

4.9.1 Water Usage

The water usage description provided in REG ID 58635 remain valid with the exception of RO Plant feed of up to 100kL per day. The water is to be soucr from either the open pits or the existing Sand king Borefied.

4.9.2 Energy Usage

The energy usage description provided in REG ID 58635 remains valid. The power requirements for the camp will be met by establishing an 800m transmission line adjacent to the access road to the Davyhurst power line with a suitable step down transformer.

4.9.3 Workforce Requirements

The workforce will be transported to the site from Kalgoorlie or Perth. A limited number of the workforce will require travel from Perth. This would be accommodated from via charter at Perth and Kalgoorlie and then later when the airstrip is appropriate direct from Davyhurst.

4.9.4 Special Requirements or Infrastructure

This project does not have any special requirements or infrastructure.

4.10 Compliance with Legislation and Other Approvals

The Company is committed to maintaining a compliance register and undertaking the project in a lawful and socially responsible manner.

4.10.1 Legislation

The Mine will abide by the following legislation (but not limited to):

- *Aboriginal Heritage Act 1972;*
- *Contaminated Sites Act 2003;*
- *The Mines Safety and Inspection Act 1994;*
- *The Mines Safety and Inspection Regulations 1995;*
- *The Dangerous Goods Act 1993;*
- *The Explosives and Dangerous Goods Act 1961;*
- *The Environmental Protection Act 1986;*
- *Environmental Protection (Gold Operations) Exemption Order 1993; and*
- *Equal Employment Opportunity Act 1987.*

Where applicable all other relevant legislation will also be followed.

4.10.2 Tenement Conditions

The Company has reviewed the existing tenement conditions and will comply with all existing conditions and past approval documents as outlined below:

1. *"Recommencement of Mining at the Siberia Project"* dated 16 December 2016
2. (REG ID: 58635) Letter titled "RE Mining Proposal for the Recommencement of Mining at Siberia (REG ID 58635) – Further information required" dated 13 December 2016 signed by Andrew Czerw and retain on Department of Mines and Petroleum file no. EARS-MPMCP-58635 as Doc ID 4710796
3. (REG ID 58635) Letter titled "RE Mining Proposal for the Recommencement of Mining at Siberia (REG ID 58635) – Further information required" dated 9 January 2017 signed by Daniel Radovic and retain on Department of Mines and Petroleum file no. EARS-MPMCP-58635 as Doc ID 4742432
4. *"Work Proposal on Mining Tenement Project Heading Siberia Alluvials"* dated 9 July 1995
5. *"Notice of Intent Low Impact Mining Operation"* signed by RC Gardner dated 9 July 1995 and retained on Department of Minerals and Energy File No. 2180/95;
6. *"Siberia Gold Project Proposal to Remove Material from the Sand King Pit (M24/39, 24/290, 24/352)"* dated 29 October 1997, signed by Mr Garry Hooper - Supervising Geologist and retained on Department of Minerals and Energy File No. 897/90;
7. *"Proposal to Remove Material from the Sand King Pit"* dated 7 November 1997, signed by Mr Garry Hooper- Supervising Geologist and retained on Department of Minerals and Energy File No. 897/90;
8. *"Notice of Intent - Scraping and Detecting on Mining Lease 24/290"* dated 23 August 2001 and signed by Robert Gardener and retained on Department of Mineral and Petroleum Resources File No. 4367/01;
9. *"Notice of Intent to Commence Mining in the Siberia Project Area - M24/39, M24/290, M24/352 and MLA24/633"* dated October 2003 (NOI 4396), technically certified by Mr Douglas Koontz and corporately endorsed by Mr Richard Hill and retained on Department of Industry and Resources File No. E2753/200301;

10. *"Letter - Missouri Waste Rock Dump"* dated 3 May 2005, signed by Mr Bruce Morrin, General Manager Operations and retained on Department of Industry and Resources File No. E2752/200301;
11. *"Addendum to Original Notice of Intent in Application to Commence Mining in the Siberia Project Area on Mining Leases 24/39, 24/290, 24/352 and Mining Lease Application 24/633"* (NOI 5069) dated 28 July 2005 signed by Mr Bruce Morrin and retained on Department of Industry and Resources File No. E2753/200302;
12. *"Low Impact Mining Notice of Intent - Scraping and Detecting on Mining Lease 24/290"* dated 4 August 2005 and signed by Robert Gardner (NOI 5074) and retained on Department of Industry and Resources File No. E0193/200401;
13. Mining Proposal titled: *"Low Impact Mining Activities - Scraping and Detecting on Mining Lease 24/290"* dated 31 March 2006 and signed by Jonathan Downes, Siberia Mining Corporation Limited (MP 5291) and retained on Department of Industry and Resources File No. E0193/200401;
14. Mining Proposal titled: *"Low Impact Mining Operations - Notice of Intent on Mining Lease 24/290"* dated 2 November 2006 and signed by John Mill - Project Manager Davyhurst (MP 5534) and retained on Department of Industry and Resources File No. E0193/200401
15. *"Mining Proposal for Davyhurst Gold Project on Mining Leases 16/220, 16/268, 24/290, 24/352, 30/42, 30/44, 30/63, 30/72, 30/73, 30/74, 30/108, 30/131, 30/132 and 30/137 (MP 5692)"* dated 10 May 2007, signed by Allan Quadrio and retained on Department of Industry and Resources file E0175/200404;
16. Programme of Work titled *"Low Impact Mining Activities - Scraping and Detecting on Mining Lease 24/290"* dated 9 July 2007 and signed by John Davis (EXP 7130), and retained on Department of Industry and Resources file 11823/02vol02;
17. Programme of Work titled *"Low Impact Mining Activities - Scraping and Detecting on Mining Lease 24/290"* dated 1 June 2007 and signed by Mr Peter Davies (EXP 7253), and retained on Department of Industry and Resources file No. 11823/02; and
18. *"Programme of Work entitled: Low Impact Mining Operation for Scraping and Detecting on M24/290"* (Reg ID 27542) dated 15 July 2010 signed by Hank Schreurs and Robert Mitchell and retained on Department of Mines and Petroleum File No. T1399/200801

4.10.3 Approvals

EGL will consult the following departments regarding the approvals listed in the aforementioned sections and the legislation below:

Rights in Water and Irrigation Act 1914

DoW
- 5C Licence to Take Groundwater

Mining Act 1976

DMP
- Project Management Plan;
- Dangerous Goods Site Licence; and
- Gold Extraction Exemption Order 1993.

The Site will operate under the Gold Extraction Exemption Order 1993, *Environmental Protection Act 1986* i.e. Works Approval to Dewater >50,000t and Prescribed Premises licencing.

5.0 Environmental Impacts and Management

A summary of the environmental impacts and management measure have been provided in the table below.

Table 15: Environmental Impacts Register

Environmental Impact	Management Commitment Implementation	Timelines	Performance to Date (to be filled at AER Stage)
Dust generation	Employ dust suppression measures	Water truck and grader available during all haulage activities	Record in NPI
Waste disposal	Ensure no controlled items are placed in the landfill and covered with waste at regular intervals to prevent windblown rubbish.	Weekly inspections of landfill	Record in AER
Fauna deaths		Reporting to DMP within 24 hours	Record in AER
Saline water	Ensure pipelines are within V drains and monitored, any spill is to be reported to the DMP and DER	Daily Inspections, Report spills within 24 hours	Record in AER
Hydrocarbon contamination	Refuel at refuelling bay, Remove and treat contaminated material,	Weekly inspections of work areas	Record in AER
Noise & air pollution	Ensure compliance with EP Noise Regulations, noise attenuating present and in working order, pre-start inspections on vehicles, National Pollution Inventory Reporting if triggered	Equipment Inspection prior working at site, maintain community complaints register	Maintain register Record in NPI

5.1 Land Clearing

The proposed additional clearing area detailed in this addendum of 24 ha has been provided in Figure 5, then additional survey by Jenny Borger Botanical Consulting over 55 ha including areas not included in the original ecological survey was conducted by Plantecology (2015) over 106.9 Ha.

The recent survey focused upon the proposed campsite (see Appendix A) and found that "*no significant conservation values associated with the site. No Priority or Threatened Flora were recorded in the survey area, nor were any Threatened or Priority Communities identified. The proposed clearing is unlikely to impact conservation values in the region or contribute to land degradation."*

A Native Vegetation Clearing Permit pursuant to the Environmental Protection Act 1986 for 66 ha was obtained, Purpose Permit Number 6968/2 (28 May 2016 to 28 May 2021), see Appendix D. An amendment for 96 ha within a clearing envelope of 203.66 ha has been submitted to the native vegetation branch.

An assessment of the ecological values of the site is set out below against each of these principles. The majority of the clearing proposed within this application are relevant to that survey and report.

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity

Camp Site

A Level 1 flora and vegetation survey was conducted on the 14th and 17th February 2017. The majority of the vegetation was found to be in good to very good condition, with no areas within the proposed disturbance areas meeting the requirements of an excellent condition rating (Keighery 1994) due to the level of disturbance to the site. The vegetation within the proposal has had impacts from mining and pastoral activities for a long period of time (most likely over 100 years) which has resulted in a loss of vegetation structure and, potentially, species. Pre-European vegetation mapping places the area within Vegetation association 468 - medium woodland; salmon gum and goldfields blackbutt, which has a mapped extent of 8,632 ha.

A total of forty eight species were recorded from the survey area and included two weed species The most well represented families were Fabaceae (8 species – 6 *Acacia* and 2 *Senna*); Scrophulariaceae (8 *Eremophila*); Myrtaceae (7 *Eucalyptus)* and Chenopodiaceae (5 species - *Atriplex* 2, *Enchylaena* 1, *Maireana* 1, *Sclerolaena* 1).

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia

Camp Site

Six habitat types were recorded in the application area, with moderate to high levels of ground disturbance in the proposed impact area. A number of older trees/ mallee were present within Vegetation type 6 – *Eucalyptus* woodlands which may have nesting holes. The woodland area extends further to the north and west. There were low levels of litter and fallen timber which would support fauna, with much of the fallen timber in the woodland area most likely used during historic mining operations for firewood. Levels of fallen timber were higher on the rocky hill which will not be impacted. Signs of mallee fowl activity were looked for during the vegetation survey; however no signs (observations of birds, foot prints, active or recently active mounds) were noted. The vegetation associations are well represented outside the proposal area. The proposed area of disturbance is unlikely to have significant impact on habitat for indigenous fauna.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora

No threatened or priority flora were recorded within the proposal. No threatened flora have been recorded in the local area. Two priority species – *Atriplex lindleyi* subsp. *conduplicata* and *Rumex*

crystallinus – were recorded within 25 km at Rowles Lagoon; however the described vegetation and habitat are not present within the application area. The current condition of the vegetation, with ongoing disturbance, is unlikely to support threatened flora.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.

No Threatened Ecological Communities were recorded within the Site.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Camp Site

The application area falls with the Murchison Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 100% of the pre-European vegetation remains (Shepherd 2009), although this does not take into account passive clearing through pastoral grazing. The pre-European vegetation association mapped as occurring within the proposal is not restricted, with a mapped extent of 8,632 ha. The surrounding area has not been extensively cleared. Remnant vegetation in the area has been variously impacted through pastoral and mining activities, but the recent acquisition of ex-pastoral lease – Credo Station will provide similar habitat which will be managed for conservation purposes.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Camp Site

There are minor ephemeral water courses with a small catchment area present within the proposal, which drain in easterly and northerly directions. Vegetation present within these areas has been highly impacted through historic mining and pastoral activities and is not representative of wetland or watercourse vegetation.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Camp Site

The proposal area is small (7 ha) and will be located in an area which will mostly have a low risk of erosion due to low gradient and good vegetation and surface rock cover on the adjacent hills providing a stable land surface. The access road intersects with the Davyhurst – Siberia Road within an area that has a high level of disturbance (Vegetation type 1). There is some regrowth present, however, for the purpose of road safety, taller vegetation which may reduce visibility will either need to be removed or trimmed, and it would be recommended to replace these species with low to medium shrubs which will provide ground cover to stabilize the area.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

The nearest conservation reserve is the Clear and Muddy Lakes Nature Reserve approximately 30 km south of the Site. It is unlikely that clearing within the Site will impact on that reserve.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

The Site is located in the headwaters of an unnamed catchment that holds no permanent water features. There is also an absence of defined water courses at or near the Site to impact upon with the nearest feature in excess of 30km away.

The groundwater in the area as predominantly hyper saline (>30,000 mg/L TDS), ranging between about 30,000 and 170,000 mg/L TDS. The land clearing is unlikely to cause any deterioration to these existing water quality values.

Drainage systems within and near the proposal are ephemeral, generally not holding water for long periods of time. The area of clearing is unlikely to have an impact on groundwater quality, as the region supports mainly intact vegetation, with no extensive cleared areas. The average annual evaporation rate is approximately 2600 mm which far exceeds the average annual rainfall (254 mm at Menzies) (BOM 2017), so recharge to the groundwater would be expected to be minimal, thereby reducing the likelihood of raised saline water tables.

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

The site is located within the semi-arid zone with a mean annual rainfall of around 250 mm and annual evaporation rate of approximately 2600 mm from which there is likely to be little surface flow during normal seasonal rains. Occasional rain events which could cause flooding occur irregularly, and flooding could last for a few days, but it is unlikely that the proposal would lead to an increase in incidence or intensity of flooding due to the area of clearing, and small catchment area.

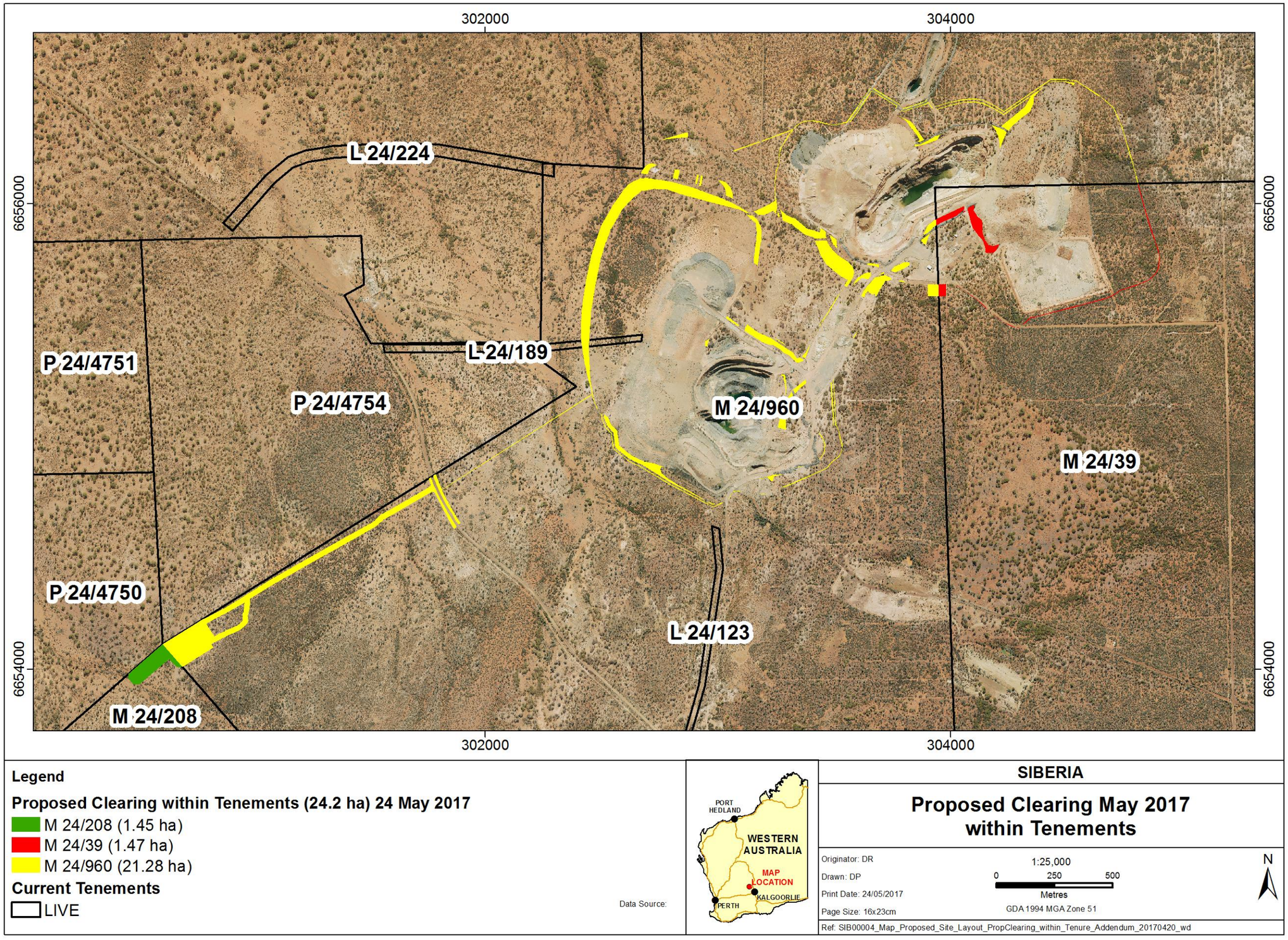


Figure 8: Proposed Clearing

5.2 Water

The dewatering activities will be licenced through a DoW Issued *5C Licence to Take Ground Water* as per REG ID 58635. In addition to DMP Environment Branch, any discharge to the environment will be reported immediately to the DER as an Unauthorised Discharge. Dewatering activities will also be reported to the DoW as per the Licencing Conditions.

The ARI events for the region have been assessed against the catchment areas to provide guidelines on water management. The pits will be protected from water ingress with appropriate bunding at pit ramps and pit crests.

5.3 Flora, Fauna and Ecosystem

To ensure flora, fauna and ecosystems are maintained no clearing activities will be undertaken without the issue of an internal clearing permit (Site Disturbance Permit) signed by the Company's Registered Manager.

Vehicles will remain on designated roads (Figure 3) and employees will be limited to operational areas. To limit the potential for weeds all ground disturbing equipment will be washed down and inspected for soil and seed bearing material prior to mobilising around the operational areas.

5.3.1 Fauna Management

Should any fauna deaths result from the operations it will be reported to the DMP. Any significant species sighted or found dead is be reported to DPaW via the nominated form and reporting procedure.

It will be a requirement to fill any steep-walled holes or shafts that may capture macro-fauna such as kangaroos, wallabies and Chuditch. There will be suitable fauna egress to allow fauna to escape for traps such as dams, plastic liners etc.

The Mine may also assist with regional dog, fox and cat eradication programs, including participating in existing eradication programs run by the local pastoralist, the Department of Agriculture, Department of Parks and Wildlife or community groups. The Company will also look to implement programs at the Site where the opportunity presents.

Waste management will be conducted so as not to encourage the growth or influx of feral predator or feral rodent populations. This includes always disposing of food in a responsible manner.

5.3.2 Flora Management

Mining activities will be managed to prevent an increase in potential risk of fire, this will be done by; ensuring fire equipment is available, emergency management procedures are in place, participating in regional fire management activities and establishing fire breaks where necessary.

Where possible the objective is to limit clearing and fragmentation of native vegetation as much as possible. Plan to clear any disturbed areas, rather than the natural bushland. Reduce the amount and extent of tracks as much as possible.

A weed management program is to be applied to the Site with the following activities:

- Stay on established roads;
- Avoid driving off the road in areas known to contain weeds;

- Do not drive through infested areas;
- Ensure clothing and footwear are free of mud and seeds before stepping in vehicles;
- All staff and contractors to wash down vehicles, machinery and equipment suspected of carrying weed seed;
- All staff and contractors to wash down machinery and implements before proceeding into clean areas;
- Keep roads and buffer zones free of weeds; and
- Where possible work infested areas separately and clean down prior to moving.

5.4 Topsoil and Soil Profiles

In the event of any new ground disturbance activity, growth medium shall be stripped from the approved area at depth. The depth is dependent on plant growth analysis. The stripped growth medium is to be stockpiled at a designated location, preferably on far from its intended use or where it may require double handling. On completion of the stockpiling, the site and volume of the stockpiles will be mapped.

Growth medium stripping and stockpiling should preferably (not limited to) be undertaken during the dry and relatively still conditions to minimize dust generation and compaction of the growth medium. Compaction can result in anaerobic conditions within the stockpiles causing sterilization of a significant proportion of the seed stock within the stockpile.

The growth medium stockpile slopes shall be made stable when complete through reshaping the stockpile and/or re-vegetating its slopes.

5.5 Domestic and Industrial Waste Products

Domestic and industrial waste will be recycled wherever possible.

Non-recyclable inert industrial waste will be placed in designated locations within the on-site waste disposal facility and buried with overburden as required. The proposed landfill will be established within the Missouri or Sand King waste landform and consist of a trench that will be covered with the advancing waste dump. The location of landfill trenches if dug are to be recorded annually in the AER.

Recyclable industrial waste (which may include steel construction material and remnant processing equipment) will be transported to Perth / Kalgoorlie as appropriate by an appropriate scrap metal merchant or similar.

Sewage will be treated in accordance with the requirements of the Shire of Kalgoorlie-Boulder. All systems installed will be registered with the Shire prior to use as per the Public Health Act requirements.

All controlled wastes will be transported and disposed of in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004*. The Company will ensure the use a carrier licensed to transport that type of controlled waste on a road. It will ensure packaged controlled waste is in a container that is fit for safe transport.

Hydrocarbon contaminated soil will either be managed at the approved Davyhurst bioremediation pad (M30/255) or a facility is to be established upon the Missouri Landform as per REG ID 58635.

5.6 Waste Rock and Tailings Management

The waste rock and tailings management description provided in REG ID 58635 remains valid.

5.7 Hydrocarbon Management

The hydrocarbon management description provided in REG ID 58635 remains valid.

5.8 Dangerous Goods and Hazardous Substances

The dangerous goods and hazardous substances management details provided in REG ID 58635 remains valid.

5.9 Atmospheric Pollution and Noise

5.9.1 Dust

The dust management details provided in REG ID 58635 remains valid.

Additionally the site water cart will also be used to maintain the camp access road.

5.9.2 Gaseous Emissions Including Greenhouse Gases

The gaseous emissions management details provided in REG ID 58635 remain valid.

5.9.3 Noise

The noise management details provided in REG ID 58635 remain valid.

5.10 Environmental Monitoring Program

The environmental monitoring details provided in REG ID 58635 remain valid with the addition of landfill and waste items in Table 16.

Table 16: Environmental Monitoring Program

Type of Monitoring	Monitoring Frequency and Duration	Details
Waste management	Monthly recording of waste and recyclables generated from the site	Reported annually in the AER during operations
Site landfill visual inspection	Weekly inspection when operational by site staff to ensure compliant use	Develop check sheet to assess compliance. i.e. controlled items, windblown litter, waste appropriately covered etc.
Mapping location of landfill trenches	When trenches are dug and old ones covers	Mapped and reported annually in AER

6.0 Social Impacts

6.1 Heritage

The heritage management details provided in REG ID 58635 remain valid.

6.2 Land Use and Community

The land use and community management details provided in REG ID 58635 remain valid.

Copies of the letters outlining the amendment have been sent to the stakeholders and are provided in Appendix C.

6.3 Social Environment

The social details provided in REG ID 58635 remains valid.

6.4 Workforce induction and training

- The induction and training details provided in REG ID 58635 remain valid.

7.0 Mine Closure

Effective and progressive mine closure planning is a prerequisite for the creation of safe, stable and non-polluting landforms suitable for the agreed post mining land use. Planning for mine closure and is to be incorporated into the Site's design, construction and is to be conducted as a life-of-mine (LoM) process. In general, mine closure works aim to:

- provide a framework for closure planning of the project and to identify issues that need to be addressed as the closure planning process continues;
- ensure compliance with the requirements of all relevant environmental legislation and conditions of any applicable licence, approval or permit;
- allocate adequate funding and resources to ensure timely and effective site decommissioning and closure;
- provide specific closure and rehabilitation management and mitigation procedures for Site personnel;
- rehabilitate the Site to a safe and stable condition;
- minimise the footprint of operations upon closure;
- determine the optimum strategies for effective closure and rehabilitation; and
- progressively rehabilitate disturbed areas during the mine life.

EGL commits to undertaking the following closure commitments:

1. undertake the research, investigations and trials presented in the mine closure plan over periods of up to five years;
2. integrate the rehabilitation of historical land disturbance into future mining plans as far as practicable;
3. design future landforms to effectively manage water i.e. from the upper surface and down slopes to reduce erosion;

4. install target ecosystems (analogues) in undisturbed vegetation and/or successful historic rehabilitation which are representative of agreed post closure landforms;
5. ongoing stakeholder consultation with key stakeholders will be undertaken as required to determine any infrastructure to remain post closure, in particular roads, power lines and bore fields;
6. prepare a topsoil management plan detailing an inventory of all available suitable rehabilitation materials, including material type and volumes to prioritise the use of available topsoil and other rehabilitation materials; and
7. adequate financial provisions will be available for closure, based on realistic estimations of closure costs.

A more detailed explanation of mine closure activities related to this proposal can be found in the MCP submitted with REG ID 58635.

7.1 Post Mining Land Use

Consistent with REG ID 58635, EGL anticipates the post mining land use for Siberia will revert back to the pre-existing land use of land under rehabilitation for the Siberia Town Common, Vacant Crown Land and pastoral use on Mt Burgess.

Immediately following decommissioning, the appropriate land use will be 'mine site rehabilitation' for some time until ecosystems have demonstrated to be sufficiently resilient to satisfy closure objectives to the level outlined in the completion criteria. This has been discussed during stakeholder discussions held during the development of the 2017 MCP for the site.

The accommodation camp will be decommissioned and removed at the end of operations in the Siberia area. With addition resource drilling it is expected that the Sand King and Missouri deposits will transfer into underground operations following the open pit mining event.

7.2 Rehabilitation

The rehabilitation details provided in REG ID 58635 remain valid. The updated final landform footprint is provided in Figure 9, only a slight variation in the Missouri has been proposed from REG ID 58635.

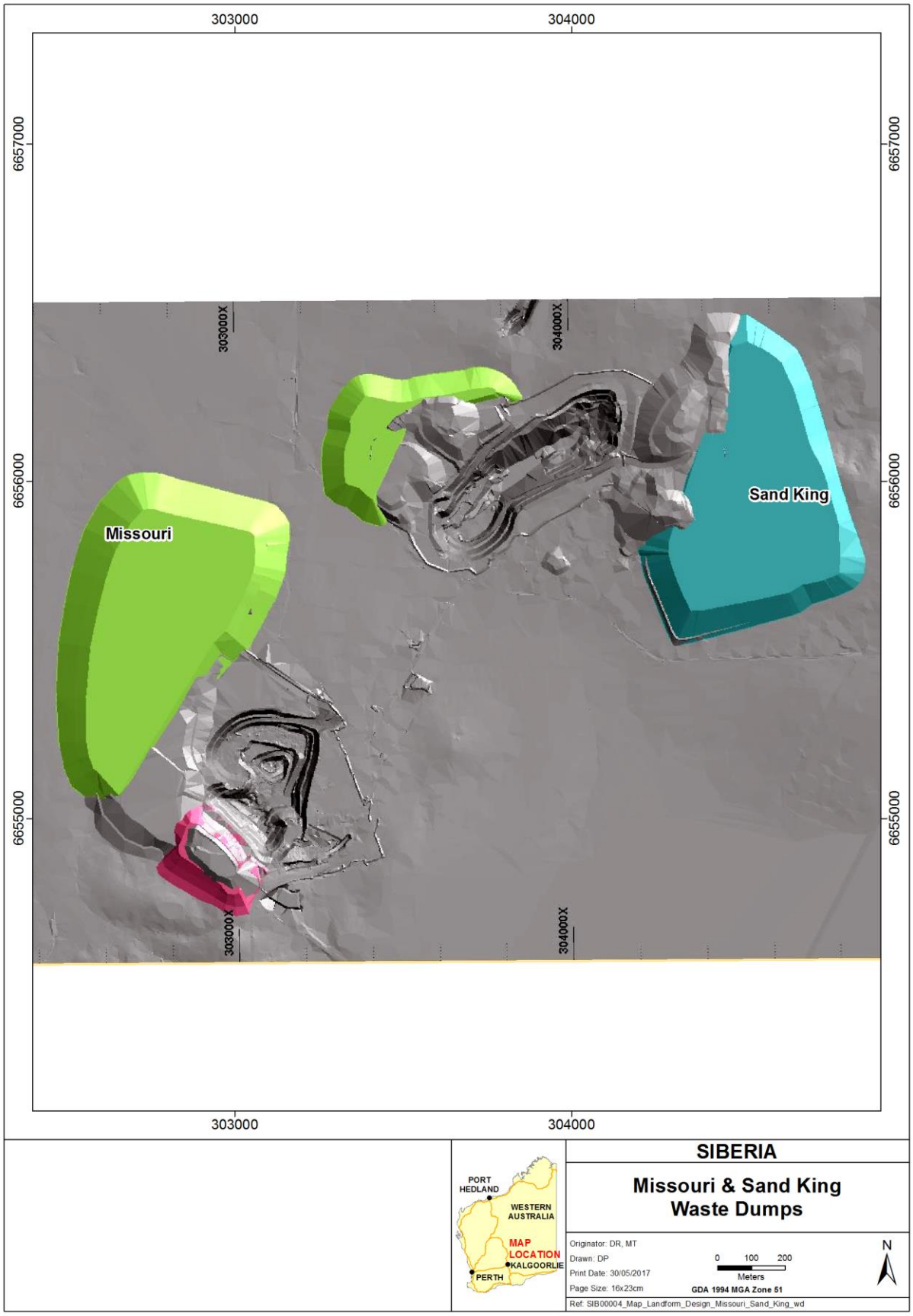


Figure 9 Final Landform Footprint

7.2.1 Infrastructure

Research and Investigation Trials

The following research, investigations and trials will be undertaken as required to assist in closing the knowledge gaps identified in the closure plan:

- assess the volume of contaminated material to dispose of at closure, in particular around the fuel storage facility, process plant, workshops;
- determine the volume of materialto dispose of at closure and an appropriate disposal strategy;
- assess opportunities for salvaging, recycling and re-using any industrial infrastructure features and/ or scrap;
- determine the volume and types of materials to be disposed of and/or buried on site at closure;
- undertake stakeholder consultation to determine whether any third parties have an interest in retaining any infrastructure post closure; and
- if any infrastructure is to be retained, consult with the relevant stakeholder.

Decommissioning

The following closure and decommissioning tasks will be undertaken as required within 6 months of mining ceasing for the Industrial Infrastructure domain:

- remove all industrial infrastructure as detailed in the mine decommissioning plan;
- if required, remove any contaminated soil and dispose of appropriately;
- where possible, re-establish surface water flows and drainage lines, as per surface water management plan without compromising the integrity of the landform features;
- load, haul and place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the Topsoil Management Plan;
- as required, seed rehabilitated surfaces with provenance seed mix; and
- deep rip rehabilitation areas along the contour.

7.2.2 Groundwater

Research and Investigation Trials

The following research, investigations and trials will be undertaken as required to assist in closing the knowledge gaps identified in the closure plan:

- develop a detailed demolition plan with scheduled removal of groundwater infrastructure including pipelines and bores and power generation;
- continue discussions with key stakeholders regarding end land use of the bores and pipelines to determine any interest in retaining any of the groundwater infrastructure;
- ensure legal requirements and processes for transfer of disturbance liability have been properly executed; and
- undertake an audit to assess the condition and rehabilitation requirements of groundwater infrastructure.

Decommissioning

The following closure and decommissioning tasks will be undertaken as required when mining options have been exhausted and approaching tenement relinquishment for the Groundwater Infrastructure domain:

- disconnect all services including power;
- remove, break up or bury concrete pads;
- decommission bores in accordance with regulatory requirements, plug, cap and deregister if required;
- remove groundwater infrastructure including bores and pipelines to be detailed in the demolition and decommissioning plan i.e. all above ground pipelines and pumps to be flushed prior to removal, underground pipelines to remain in place post closure;
- all above ground pipelines and pumps flushed and removed from site (underground pipelines will remain in place, post closure);
- if required, remove any contaminated soil and dispose of appropriately;
- remove all rubbish including old couplings and dispose of in a designated landfill;
- wherever possible, re-establish natural surface water flows and drainage lines, without compromising the integrity of the landform features;
- remove access tracks;
- deep rip rehabilitation areas along the contour;
- place topsoil or a suitable growth medium (i.e. rock mulch) to thickness specified within the Topsoil Management Plan; and
- seed rehabilitated surfaces with provenance seed mix as required
- close-out abandonment bunds.

7.3 Strategic Framework for Mine Closure

The MCP attached to REG ID 58635 remains relevant and was prepared in accordance with:

- the *Guidelines for Preparing Mine Closure Plans* (Department of Mines and Petroleum (DMP) and Environmental Protection Authority (EPA) 2016);
- the *Principles of the Strategic Framework for Mine Closure* (ANZMEC and MCA 2000);
- the *Mine Closure and Completion Handbook* (Department of Industry, Tourism and Resources 2006); and
- *Mine Safety and Inspection Regulations 1995*.

Planning for mine closure and rehabilitation needs to be undertaken in an effective and progressive manner in order to prevent and minimise adverse long term environmental, social and economic impacts. Principle closure objectives are for rehabilitated mines to be (physically) safe to humans and animals, (geo-technically) stable, (geo-chemically) non-polluting/non-contaminating, and capable of sustaining an agreed post-mining land use.

7.4 Submission of Mine Closure Plan Documents

The MCP provided with REG ID 58635 remains valid, the camp infrastructure will be rehabilitated in accordance with the industrial infrastructure and roads sections.

8.0 Bibliography

Aquaterra (2003), *Hydrogeological Report – Siberia Project*. A report prepared for Siberia Mining Corporation, 14 October 2003.

Borger, J (2017) Vegetation and Flora Survey of the Proposed Siberia Camp. A report Prepared for Eastern Goldfields Limited, April 2017.

Coffey Environments Pty Ltd (2007) *February 2007 Groundwater Monitoring Report, Sand King Borefield (GWL 154498)*, Project Ref: ENVIBURW10348AB, prepared for Davyhurst Gold Pty Ltd, 22 March 2007.

Monarch Gold (2007) *Mining Proposal for Davyhurst Gold Project Mining Leases M16/220, M16/268, M24/290, M24/352, M24/546, M30/042, M30/044, M30/063, M30/072, M30/073, M30/074, M30/108, M30/131, M30/132, M30/137* retained on Department of Mines and Petroleum File No. MP1905 (P Tille, 2006)

Tille, P. (2006) *Soil landscapes of Western Australia's rangelands and arid interior.* Resource Management Technical Report 313. Department of Agriculture and Food, Western Australia.

Watts, C. H. S. and W. F. Humphreys (2004). *Twenty six new Dytiscidae (Coleoptera) of the genera Limbodessus Guignot and Nirripirti from underground waters in Australia.* Transactions of the Royal Society of South Australia 130: 123-185.

Appendix A Flora and Fauna Report – Siberia Camp Site

Vegetation and Flora Survey of the Proposed Siberia Camp

for Eastern Goldfields Limited

Surveyed by Jennifer Borger[1] and Daniel Radovic[2]

1. Botanical Consultant

29 Andrew Street, Kalamunda WA 6076

M: 0427998403

E: jjborger1@westnet.com.au

ABN: 29 082 526 297

2. Senior Environmental Advisor

Eastern Goldfields Ltd

L1/ 24 Mumford Place, Balcatta WA 6021

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1. Background

Eastern Goldfields Ltd (EGS) propose to commence mining operations at the Missouri and Sand King sites at Siberia, located thirty two kilometres (km) south east of Davyhurst, and seventy six km north west of Kalgoorlie. The proposal is located on unallocated crown land (UCL) within the boundary of Mt Burgess Station pastoral lease.

Currently the Siberia site is serviced by the existing infrastructure at Davyhurst and EGS plan to construct a camp closer to the proposed Siberia mining operation. The camp is planned for the western side of the Davyhurst – Siberia Road at the northern end of mining tenement M24/960. Initially two sites were considered (Figure 1), with one located north of Sand King (Option 1), and one west of the Davyhurst – Siberia Road (Option 2). It was decided prior to the survey commencing to develop the western site (the proposal). Following the initial survey of the proposal 2 on February 14th 2017, it was decided to change the layout slightly to avoid a rocky hill. The camp location will now be constructed within a woodland area in the northwest corner of M24/960, with the waste water disposal site in the northern corner of M24/208. The variation to the proposal was surveyed on the 17th February 2017. The placement of the variation is shown in Figure 5.

Several historic mining operations have been undertaken in the area, with pits and waste dumps present on the eastern side of the road, and numerous exploration sites and access tracks located throughout the area, including the proposed camp location. It is also likely that there have been some historic pastoral impacts, particularly within the woodland areas to the west and plains closer to the road. Harvesting of sandalwood (*Santalum spicatum*) is also likely to have occurred, and may account for some of the access tracks through the area.

The proposal will include an access road from the Davyhurst – Siberia Road, a camp area and waste water treatment site. Level 1 flora and vegetation surveys were conducted on the 14th and 17th February 2017 in accordance with the EPA Guidance Statement No. 51 "Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia" (EPA 2004) and includes desktop research followed by on-ground surveys of the sites.

The aims of the survey were to:

- Describe and map vegetation types and determine whether there were any threatened or priority vegetation communities present
- Record any conservation significant flora and sandalwood
- Record any signs of mallee fowl (*Leipoa occellata*)
- Note the presence of weeds

Figure 1: Location of Siberia with Missouri and Sand King mining tenements; and Burgess Station

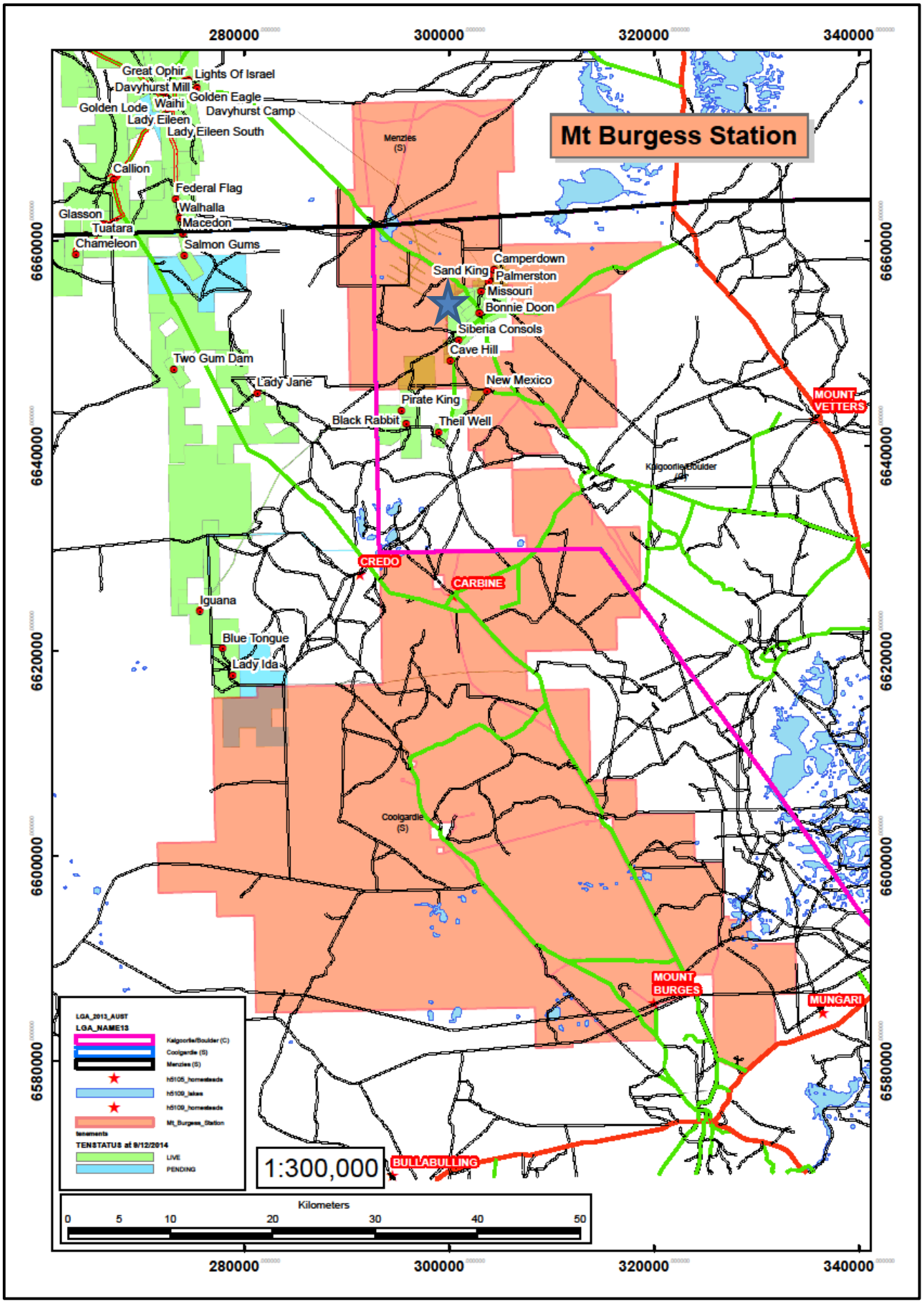
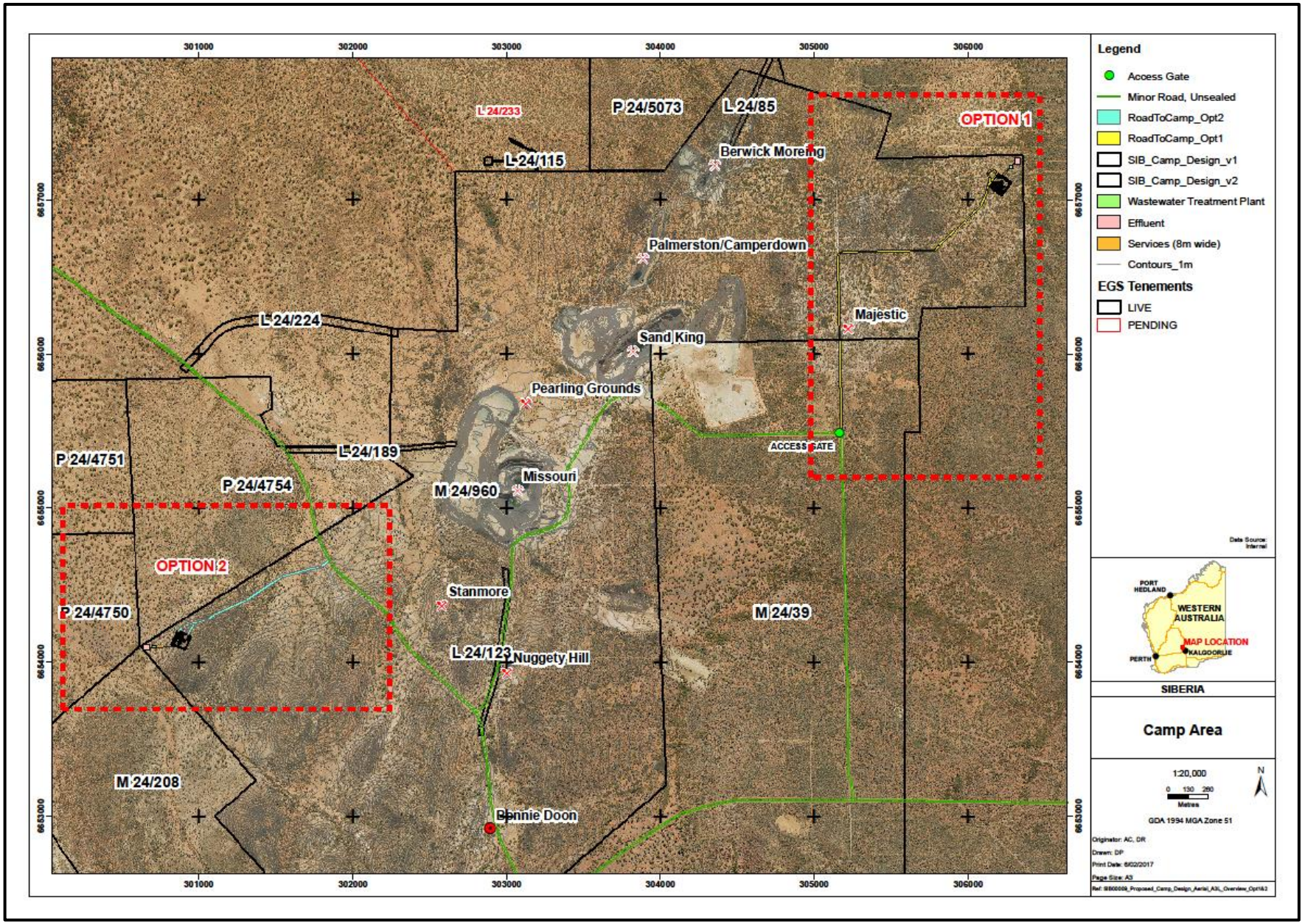


Figure 2: Location of the proposed camp sites, with option 2 selected as the preferred site.



2. Environment

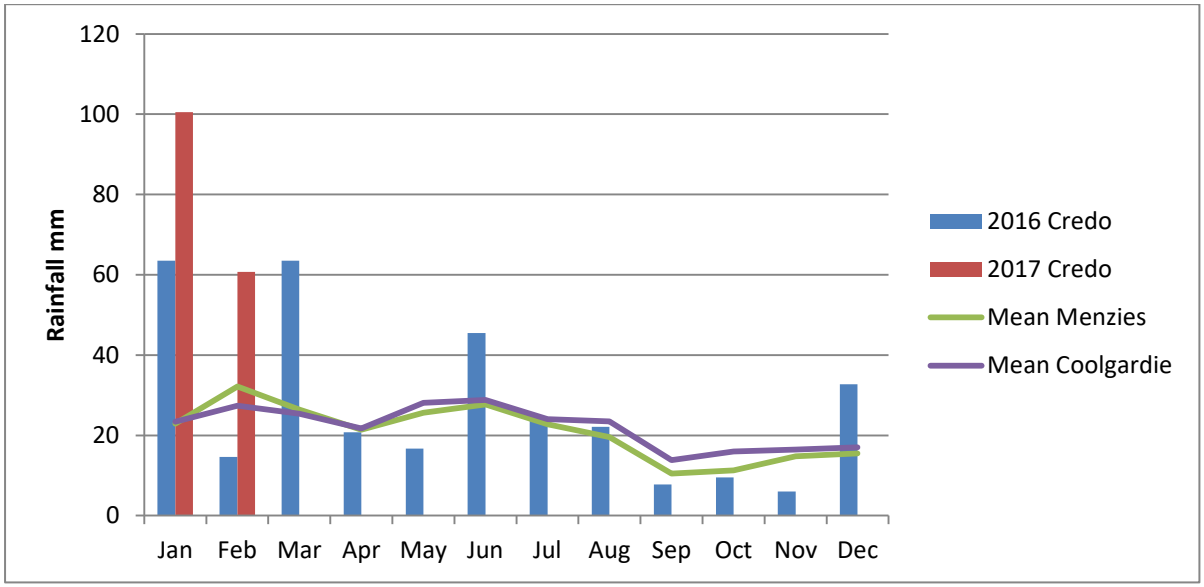
2.1 Landform, hydrology and geology

Land system (LS) mapping was undertaken by the Department of Agriculture Western Australia (Pringle et al 1994). The proposal is located within Land system 265 Mx43 – gently undulating valley plains and pediments; some outcrop of basic rock. The region is located on mostly undulating plains with low rocky outcrops, with paleodrainage present as sometimes poorly defined drainage lines which terminate at saline lakes or at the edges of sandplain (Pringle et al). Flow in these systems is intermittent depending on rainfall. In times of high rainfall surface waters flow into Lake Goongarrie, draining east into Ponton Creek, which flows into the Nullarbor Plain. A low rocky greenstone hill is located at the western end of the survey area grading into a low stony ridge, with plains present on the north western side and on the eastern side near the road. A number of small ephemeral drainage lines are present, with drainage to the east and north. No permanent water features or wetlands are present.

2.2 Climate

The Siberia area experiences a semi-arid climate with average annual rainfall recorded at Menzies (Bureau of Meteorology (BOM) Station No. 12052) at 254 mm and 270.7 mm at Coolgardie (BOM Station No. 12018). Mean monthly averages are shown for Coolgardie and Menzies in Figure 3, with monthly totals for Credo Station (BOM Station No. 12259) which has records from 2011 which is an inadequate period for long term averages to be calculated. Rainfall can be unreliable and extensive dry periods of around 4 – 6 months can be expected. The data shows that rainfall in the region in the three months prior to survey has been above average, with significant falls recorded prior to commencing the survey. Summers are generally hot and dry with maximum temperature averaging around 34 – 35^{0}C (December to February). Winters are mild with cool nights, with average maximum temperature in June and July around 17^{0}C.

Figure 3: Monthly rainfall totals received at Credo Station for 2016 and 2017, and long term averages at Menzies (60 km NNE) and Coolgardie (85 km S)



2.3 Vegetation and flora

Recent mapping of the Interim Biogeographic Regionalisation for Australia (IBRA) places Callion within the Coolgardie (COO) IBRA region. The Coolgardie bioregion covers an area of 129,117 km2 and is divided into three subregions; Mardabilla (COO 01), Southern Cross (COO 02) and Eastern Goldfields (COO 03) (Thackway and Cresswell 1995). The proposal is located in the Eastern Goldfield subregion (COO 03). This subregion is characterised by gently undulating plains with low hills and ridges of Archaean greenstones in the west and in the east by a horst (raised fault block) of Proterozoic basic granulite. Tertiary soils dominated by calcareous earths overlay eroded gneisses and granites. In the western half, a series of large playa lakes indicate the remnants of an ancient major drainage line (Cowan 2001). The survey area is close to the boundary of the Murchison IBRA region.

Table 1: Conservation significant flora recorded within 30 km of Siberia (NatureMap 2017); likelihood of occurrence in proposed disturbance areas

Rating	Scientific Name	Described Habitat	Possibility of occurrence
P1	*Ptilotus procumbens*	Spreading, procumbent (trailing along the ground) annual herb; gravelly plain; broad flats; Red clay/ gravelly sandy loam; flowers Sept – Nov	L
P2	*Rumex crystallinus*	Annual herb; arid & semi-arid areas; very few collections; found at edge of Rowles Lagoon in ti-tree thicket	N
P3	*Acacia eremophila var. variabilis*	Shrub; sandy or sandy loam soils Widespread	N
P3	*Alyxia tetanifolia*	Apocynaceae; sandy clay, loam, concretionary gravel; drainage lines; near lakes; flowers May to June, Nov	L
P3	*Atriplex lindleyi* subsp. *conduplicata*	Short lived annual or perennial herb; crabhole plains; Rowles Lagoon	N
P3	*Eutaxia rubricarina*	Variety of habitats, more commonly on flats and valley floors; recorded flowering August and October	L
P3	*Gnephosis intonsa*	Herb; variety of habitats; quite a few collections south of Great Eastern Highway. Flowers Sep – Oct	L – M
P3	*Homalocalyx grandiflorus*	Yellow sand; sandplains Flowers Oct – Dec	N
P3	*Lepidium fasciculatum*	Erect annual herb to 60 cm, basal leaves pinnatisect to bipinnate with linear dentate lobes; isolated occurrences over wide area in WA; more common in eastern state; very few details on habitat	L
P4	*Eucalyptus jutsonii* subsp. *jutsonii*	Mallee; 4 – 7 m high; bark rough over most stems; red to pale orange deep sands; undulating areas and on dunes	N

The vegetation is described as mallee, *Acacia* thickets and shrub-heaths on sandplain, with dwarf shrublands of samphire adjacent to salt lakes, and surrounded by *Eucalyptus* woodlands. These woodlands are included in the Great Western Woodlands, which cover approximately 16 million hectares. The site is mapped as pre-European vegetation association 468 - medium woodland; salmon gum and goldfields blackbutt, which has a mapped extent of 8,632 ha.

A search of databases (NatureMap, FloraBase DPaW 2017) resulted in ten threatened and priority taxa recorded within 30 km which are presented in Table 1, with likelihood of occurring within the

survey area based on recorded habitat. Specimens of the priority taxa were studied at the WA Herbarium (DPaW) prior to travelling to site. Five taxa are either herbs or opportunistic species which depend on rainfall. Current and historic grazing impacts from stock or feral goat and rabbits have resulted in very low levels of ground cover (mostly < 1%) in much of the area. Conservation code descriptions are presented in Appendix 5. A Bush Blitz vegetation survey (Gibson & Langley 2012) was undertaken within Credo Reserve (ex-pastoral lease), in 2011 from which three priority taxa were recorded – *Atriplex lindleyi* subsp. *conduplicata, Gnephosis intonsa* and *Lepidium fasciculatum.* Credo Reserve covers an area of approximately 90 km x 25 km and includes the Clear and Muddy Lakes Nature Reserve (R7634) and Rowles Lagoon Conservation Park (R4274). *Santalum spicatum*, a registered species, has been recorded in several areas, mostly along drainage lines, or associated with rock outcrops.

2.4 Threatened and priority ecological communities

No threatened or priority ecological communities (TEC, PEC) are recorded near the survey area.

3. Methodology

A map (Figure 4) of the proposal (Option 2) was provided by EGS with the locations of the access route, camp area and waste water treatment plant and effluent location and surveyed on the 14th February 2017. Following the initial survey an alternative site was selected (Figure 5) with the access route placed further north and infrastructure located further west. Areas not covered in the initial visit were surveyed on the 17th February. Vegetation and flora were recorded and the area was also searched for mallee fowl mounds. Disturbances and condition (Table 2; Keighery 1994) of the vegetation were also recorded and existing and potential threats. Locations of *Santalum spicatum* were recorded by GPS. Flora not identified in the field was later identified from specimens and photographs.

Table 2: Vegetation condition descriptions (Keighery 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species
Very good	Vegetation structure altered, obvious signs of disturbance
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species

Figure 4: Proposed access route (Option 2), camp and wastewater treatment plant

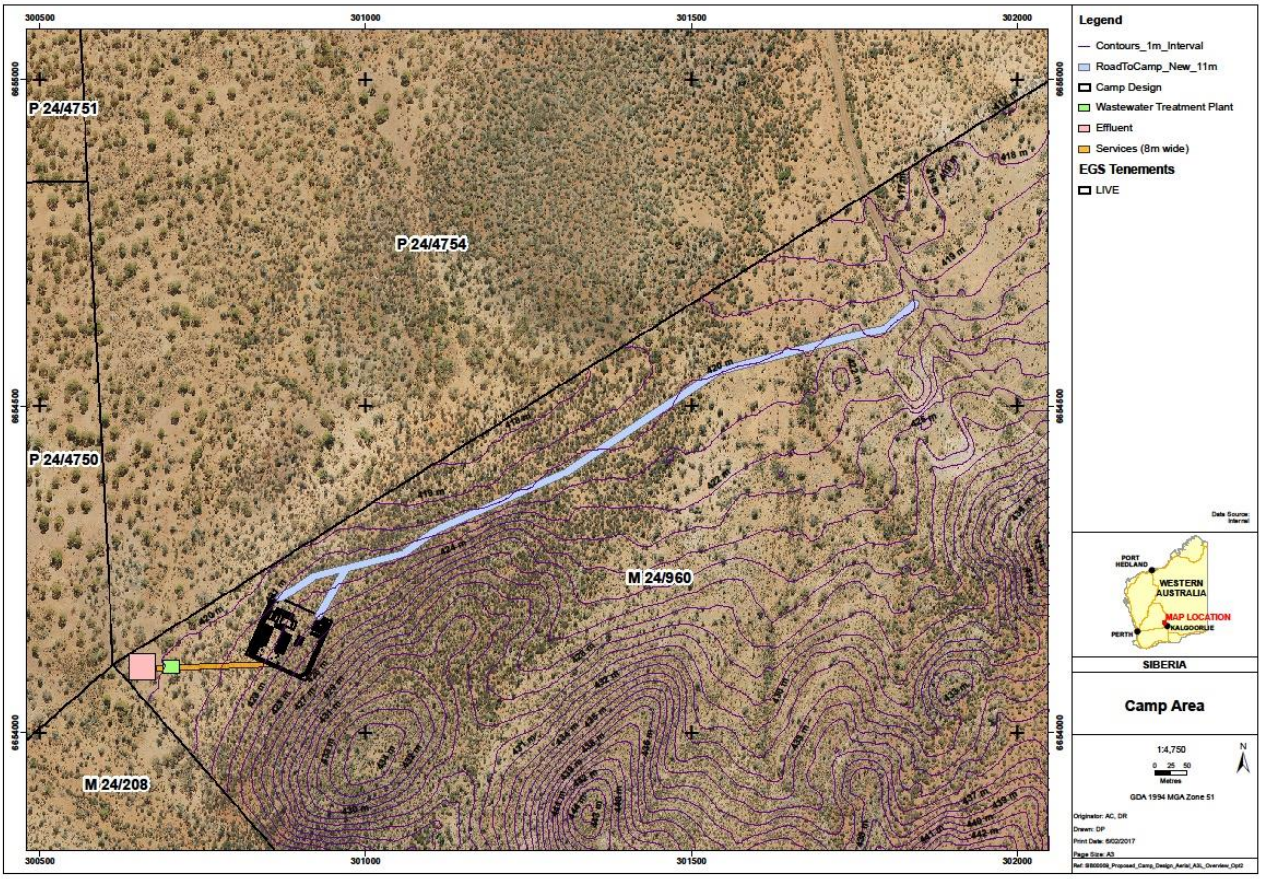
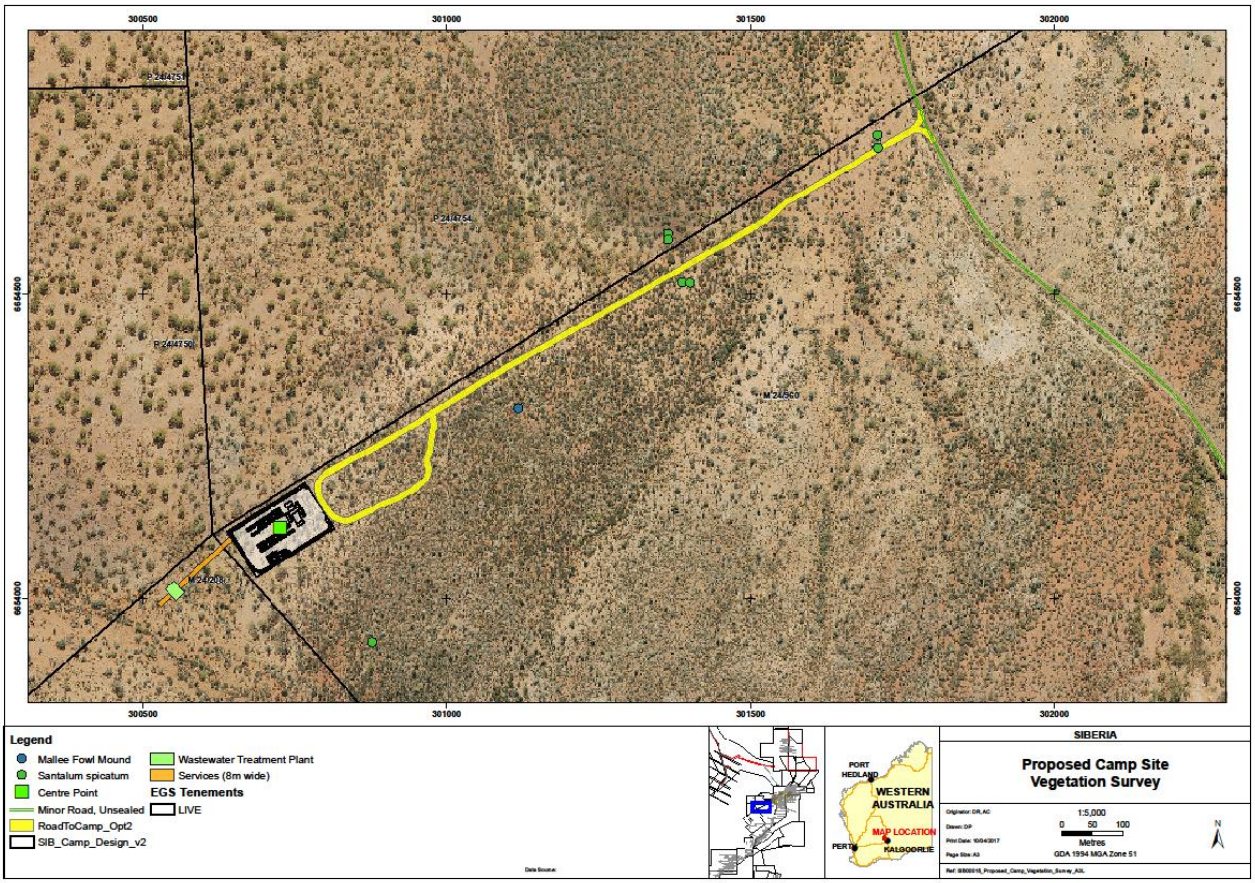


Figure 5: Finalized location of proposed works with sandalwood and mallee fowl mound locations.



4. Results

A total of forty eight species were recorded from the survey area and included two weed (*) species – *Salvia verbenaca** which was germinating; and *Nicotiana glauca**. Both weeds were recorded near the Davyhurst – Siberia Road in a heavily disturbed area. The most well represented families were Fabaceae (8 species – 6 *Acacia* and 2 *Senna*); Scrophulariaceae (8 *Eremophila*); Myrtaceae (7 *Eucalyptus)* and Chenopodiaceae (5 species - *Atriplex* 2, *Enchylaena* 1, *Maireana* 1, *Sclerolaena* 1). Six vegetation types were determined (Figure 7; Table 3) which are further described in section 4.2. Seven sandalwood trees were recorded (Figure 5). Six were recorded within or near drainage lines with two just north of the tenement boundary and one on the rocky hill south of the proposed camp. Waypoints of the sandalwood locations are presented in Appendix 2.

One mallee fowl mound was recorded (GPS 301118E/ 6654313N) on the lower midslope of the hill

Figure 6: Mallee Fowl Mound

The mound was a Profile 1: typical crater with a raised rim, which is the typical shape of an inactive (dormant) mound. This mound would be classified as extinct, due to the presence of mature shrub vegetation (*Dodonaea lobulata*) within the crater, and isolated *Ptilotus obovatus* low shrubs on the outer rim.

4.1 Vegetation condition

Condition of the vegetation varied within the proposal with the most disturbed area closest to the Davyhurst – Siberia Road. This area (mapped as Vegetation type 1) supported an open low woodland to isolated trees of *Casuarina pauper* and *Alectryon oleifolius* with semi mature regrowth and large areas of cleared land supporting forbs and isolated young shrubs. There were some areas of land surface disturbance through excavation and a number of disused tracks. Germinating *Salvia*

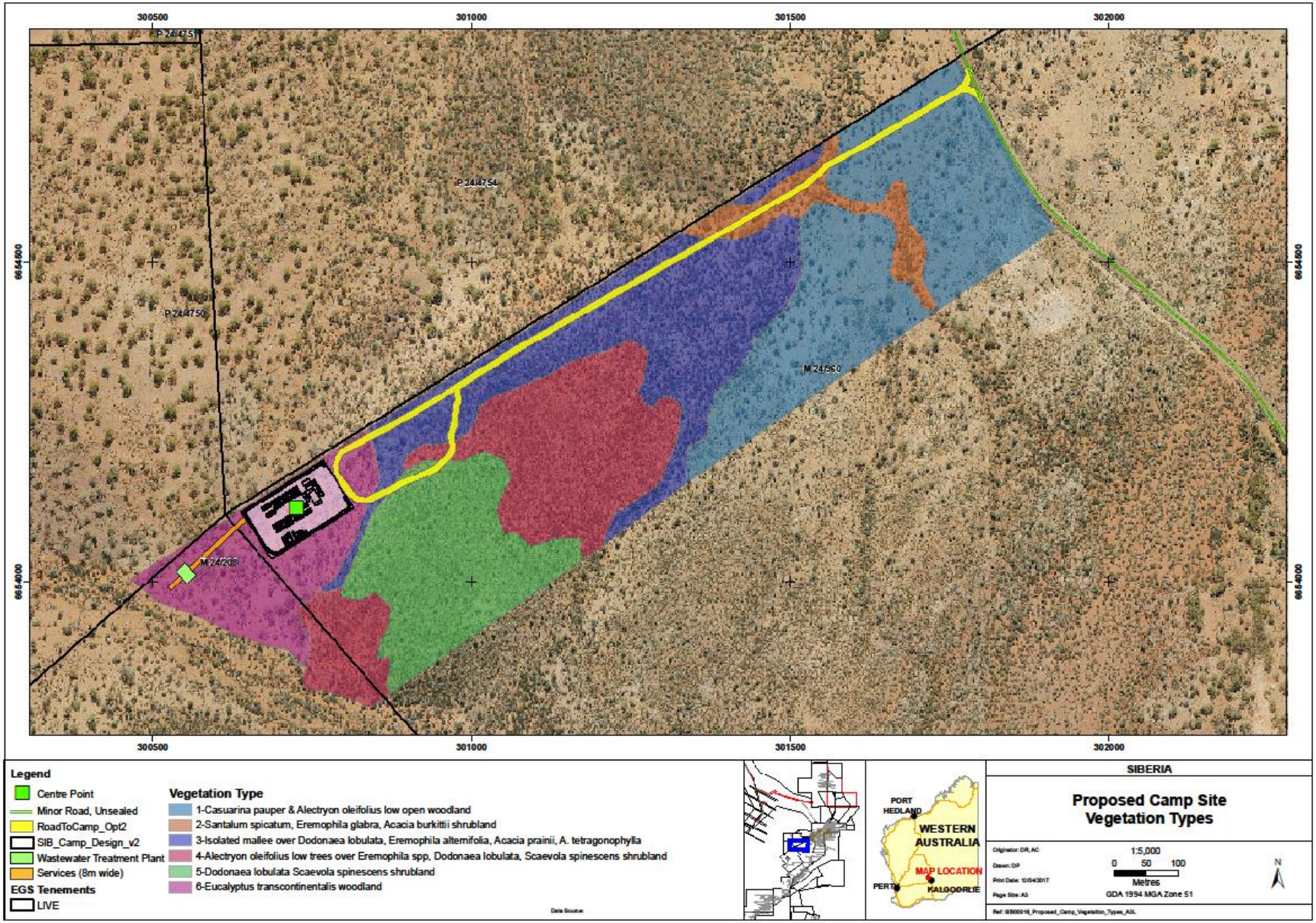
*verbenaca** was common in this area. Several tracks were present through much of the area with varying levels of erosion. Vegetation in the least disturbed condition was within Vegetation type 5 – *Dodonaea lobulata* and *Scaevola spinescens* shrubland on mid to upper slopes of a low rocky hill.

4.2 Vegetation types

Table 3: Summary of Vegetation types

Type	Landform	Description
1	Plain	*Casuarina pauper* and *Alectryon oleifolius* subsp. *canescens* low open woodland to isolated trees over *Acacia ramulosa* var. *ramulosa, Pittosporum angustifolium* tall open shrubland over *Eremophila* and *Acacia* species open shrubland
2	Drainage lines Plain, lower slopes	*Santalum spicatum, Eremophila glabra* subsp. *glabra, Acacia burkittii, Dodonaea lobulata* shrubland to tall shrubland over *Solanum nummularium, Enchylaena tomentosa, Atriplex vesicaria, Ptilotus obovatus* low sparse shrubland
3	Lower to midslopes of rocky hills	*Eucalyptus leptopoda* subsp. *subluta, E. concinna, Casuarina pauper* isolated low mallee or trees over *Dodonaea lobulata, Eremophila alternifolia, Acacia prainii, A. tetragonophylla* open to sparse shrubland over *Ptilotus obovatus, Senna artemisioides* subsp. *filifolia, Dodonaea lobulata, Atriplex vesicaria* open shrubland
4	Midslopes of rocky hill	*Grevillea juncifolia* subsp. *temulenta, Alectryon oleifolius* or *Casuarina pauper* low isolated trees over *Eremophila species, Dodonaea lobulata, Acacia burkittii, A. ramulosa, Senna artemisioides* subsp. *filifolia* shrubland over *Ptilotus obovatus* isolated low shrubs
5	Rocky hill mid to upper slopes	*Casuarina pauper* isolated low trees over *Dodonaea lobulata, Scaevola spinescens, Acacia burkittii* shrubland to open shrubland over *Ptilotus obovatus* low open shrubland
6	Plain Moderate level of disturbance	*Eucalyptus salmonophloia, E. transcontinentalis, E. clelandii* woodland over *Eremophila decipiens* subsp. *decipiens* isolated tall shrubs over *Scaevola spinescens, Maireana sedifolia, Eremophila scoparia, E. glabra* subsp. *glabra* open shrubland over *Ptilotus obovatus, Scaevola spinescens, Senna artemisioides* subsp. *filifolia* low open shrubland over *Sclerolaena diacantha* low isolated forbs

Figure 7: Vegetation types recorded in the proposal area with final location of the proposed works. A summary of the vegetation types is presented in Table 3.



4.2.1 Vegetation type 1

Casuarina pauper, *Alectryon oleifolius* subsp. *canescens* low open woodland to isolated trees over *Alectryon oleifolius* subsp. *canescens, Acacia ramulosa* var. *ramulosa, Pittosporum angustifolium* tall open shrubland over *Eremophila oldfieldii* subsp. *angustifolia, E. alternifolia, Acacia tetragonophylla, A. hemiteles, A. murrayana, Senna artemisioides* subsp. *filifolia, S. artemisioides* subsp. x *artemisioides, Scaevola spinescens, E. longifolia* open shrubland over *Atriplex vesicaria, Solanum lasiophyllum, Rhyncharrhena linearis, Senna artemisioides* subsp. *filifolia* low sparse shrubland over *Sida spodochroma, S. calyxhymenia, Salvia verbenaca** and *Monachather paradoxus* open forbland with germinating grasses; regenerating grass tussocks

Figure 8: Vegetation type 1

Landform: Plain; gently sloping with drainage to the north

Condition: degraded to good with moderate to high levels of disturbances

Disturbances: historic clearing, land surface disturbances – surface removal - ?gravel extraction/ mining exploration, vehicle tracks, grazing; weeds; erosion – mostly sheet erosion which is still active in much of the area.

Weeds: *Nicotiana glauca*, Salvia verbenaca**

Figure 9: *Sida spodochroma* (L); regenerating *Monachather paradoxus* grass tussock (R)

4.2.2 Vegetation type 2

Santalum spicatum, Eremophila glabra subsp. *glabra, Acacia burkittii, Dodonaea lobulata, Casuarina pauper* tall shrubland with isolated low trees over *Acacia burkittii, Eremophila glabra* subsp. *glabra, Bertya dimerostigma, Rhyncharrhena linearis, Senna artemisioides* subsp. x *artemisioides* shrubland to tall shrubland over *Solanum nummularium, Enchylaena tomentosa, Atriplex vesicaria, Ptilotus obovatus* low sparse shrubland

Other species: *Eremophila decipiens* subsp. *decipiens, Pittosporum angustifolium*

Figure 10: Vegetation near the drainage lines, with an old track with sedimentation on the right

Landform: Plain; drainage line; low cover of litter except under patches of vegetation; low cover of fallen timber

Condition: good to very good

Disturbances: Old tracks with varying levels of rilling and sheet erosion; sedimentation; likely historic grazing; timber removal

4.2.3 Vegetation type 3

Eucalyptus leptopoda subsp. *subluta, E. concinna, Casuarina pauper, Pittosporum angustifolium* isolated low mallee or trees over *Dodonaea lobulata, Eremophila alternifolia, Acacia prainii, A. tetragonophylla, A. ramulosa* var. *ramulosa* open to sparse shrubland to isolated tall shrubs over *Ptilotus obovatus, Senna artemisioides* subsp. *filifolia, Dodonaea lobulata, Atriplex vesicaria, Casuarina pauper, Eremophila granitica, Scaevola spinescens, Olearia muelleri* open shrubland
Ground cover < 1%

Figure 11: Vegetation type 3; *Eremophila granitica* in the foreground

Landform: Lower to midslopes of low hills

Land surface: reddish brown clay loam; surface rock 20 – 30 %; fallen timber 5 – 10 %

Condition: good to very good

Disturbances: Access tracks, slight erosion – mostly sheet erosion; likely historic timber removal

4.2.4 Vegetation type 4

West: *Grevillea juncifolia* subsp. *temulenta*, *Casuarina pauper* tall open shrubland over *Eremophila scoparia*, *Dodonaea lobulata, Acacia burkittii, Eremophila decipiens* subsp. *decipiens, E. glabra* subsp. *glabra, Senna artemisioides* subsp. *filifolia, Scaevola spinescens* shrubland

East: *Casuarina pauper, Eremophila decipiens* subsp. *decipiens, Alectryon oleifolius* subsp. *canescens* isolated low trees or tall shrubs over *Acacia burkittii, A. ramulosa* var. *ramulosa* isolated tall shrubs over *Dodonaea lobulata, Scaevola spinescens, Senna artemisioides* subsp. *filifolia* open shrubland over *Ptilotus obovatus* isolated low shrubs

Other species: *Eremophila granitica, Olearia muelleri, Atriplex nummularia*

Figure 12: Vegetation type 4, with mallee fowl mound

Landform: low hill; mid slopes

Land surface: red clay loam; surface rock 20 – 40 %; fallen timber 2 – 5 %

Condition: very good

Disturbances: isolated old tracks, more common on the western side; possibly some historic timber removal

4.2.5 Vegetation type 5

Casuarina pauper, Santalum spicatum isolated low trees to low open woodland over *Dodonaea lobulata, Scaevola spinescens* shrubland to open shrubland

Casuarina pauper isolated low trees over *Acacia burkittii* tall shrubland over *Dodonaea lobulata, Scaevola spinescens, and Senna artemisioides* subsp*. filifolia* shrubland over *Ptilotus obovatus* low open shrubland

Other species: *Santalum spicatum*

Figure 13: Vegetation type 5 on midslopes. The surface was very rocky which has resulted in a very low level of erosion. Ground cover was isolated to bare.

Landform: Rocky hill mid to upper slopes

Land surface: red clay loam; surface rock: 40 – > 60 % (greenstone, dolerite); fallen timber 10 – 15 %

Condition: very good to excellent; low level of disturbance; minor erosion; low diversity of perennial species; almost no groundcover

4.2.6 Vegetation type 6

Eucalyptus salmonophloia, E. transcontinentalis, E. clelandii, E. loxophleba subsp. *supralaevis* woodland over *Eremophila decipiens* subsp. *decipiens* isolated tall shrubs *over Scaevola spinescens, Maireana sedifolia, and Eremophila scoparia, E. glabra* subsp. *glabra* open shrubland over *Ptilotus obovatus, Scaevola spinescens*, and *Senna artemisioides* subsp. *filifolia* low open shrubland over *Sclerolaena diacantha* low isolated forbs

Other species: *Casuarina pauper, Alectryon oleifolius* subsp. c*anescens, Exocarpos aphyllus, Eucalyptus sheathiana*

Figure 14: Vegetation type 6 – *Eucalyptus* woodlands on undulating plains. An access track is visible on the left side of the photo.

Landform: Plain

Land Surface: reddish clay loam with ironstone gravel; surface rock 10 – 20 %; litter 5 – 20 %, with significant areas under the trees, mallee and shrubs; fallen timber 1 – 5 %;

Condition: very good

Disturbances: Old access tracks – several in area with minor rilling and sheet erosion; historic clearing of the understorey either through mining or pastoral activities. Some regeneration has occurred, and the vegetation was generally healthy. A few old camp sites and rubbish were also present in the area. Low levels of sheet erosion over the vegetated area were noted, which do not appear to be too recent. There was a good cover of litter and fallen timber providing some protection to the land surface. Diversity in the ground cover/ low shrub stratum is low, and some Chenopod shrubs (e.g. *Maireana, Sclerolaena*) may be absent through long term pastoral impacts.

5. Discussion

The vegetation was in a healthy condition following recent rain, with many species flowering, including those in the *Eremophila* and *Acacia* genera. No threatened or priority taxa were recorded, and no vegetation communities representative of TEC or PEC were present. The area had moderate to high levels of disturbance, particularly on the plain adjacent to the Davyhurst – Siberia Road, and in the western area where the proposed camp will be located. The location of the proposal was changed to allow safer access to the road, and to avoid the low rocky hill area. The access route will be located close to minor ephemeral water courses, for which culverts and/ or floodways will be installed to mitigate any obstruction to water flow. These drainage lines have a small catchment area, being located near the top of the catchment. One extinct mallee fowl mound was located south of the disturbance area and will not be impacted. The placement of the access route may impact on Sandalwood.

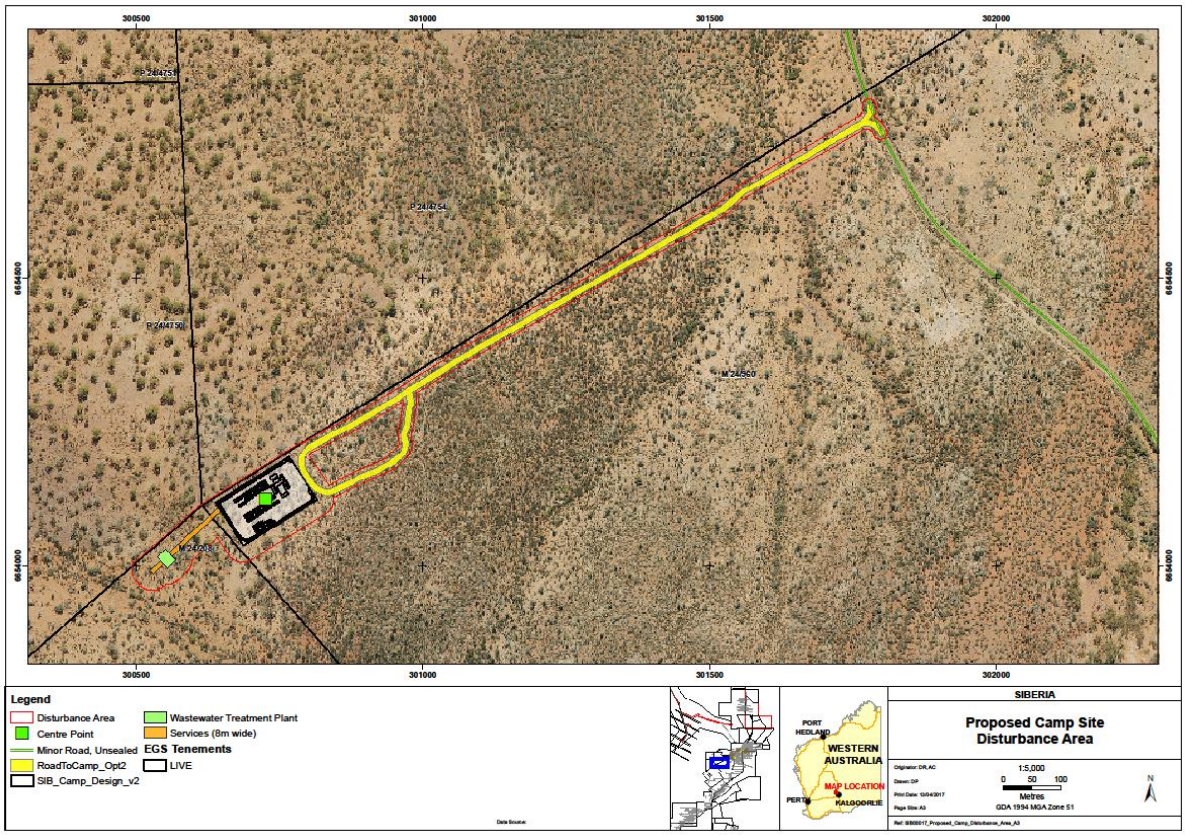
Weeds were present in Vegetation type 1, with *Salvia verbenaca** being common and widespread through the region. Isolated plants of *Nicotiana glauca** were located near the road, but not in the area which will be impacted. This weed is also common in the area, particularly in disturbed areas (e.g. waste dumps) at Missouri and Sand King, east of the site.

The access road intersects with the Davyhurst – Siberia Road within an area that has a high level of disturbance (Vegetation type 1). There is some regrowth present, however, for the purpose of road safety, taller vegetation which may reduce visibility will either need to be removed or trimmed, and it would be recommended to replace these species with low to medium sized plants which will provide ground cover to stabilize the area. Recommended species are presented in Table 4. *Senna artemisioides* and *Atriplex nummularia* are well suited to the area and fast growing providing good cover. Taller species (highlighted) should be placed further back from the road. Outback Ecology (2007) undertook surveys in the Missouri and Sand King areas and recorded *Maireana triptera*, *M. tomentosa* and *Atriplex bunburyana* on a similar landform which could also be used in the rehabilitation area.

Table 4: Species which can be used for rehabilitation in the area adjacent to the access road intersection with Davyhurst – Siberia Road

Species	Habit	Height m
Atriplex bunburyana	Shrub	0.3 – 1.3
Atriplex nummularia	Shrub	1 – 3
Atriplex vesicaria	Shrub	0.3 – 1
Dodonaea lobulata	Shrub	0.5 – 3
Maireana sedifolia	Shrub	0.3 – 1
Maireana tomentosa	Shrub	0.1 – 0.6
Maireana triptera	Shrub	0.2 – 0.6
Monachather paradoxus	Tufted perennial grass	0.2 – 0.5
Olearia muelleri	Shrub	0.4 – 1.5
Senna artemisioides subsp. *filifolia*	Shrub	0.7 – 3
Sida spodochroma	Prostrate perennial herb	0.05 – 0.3
Solanum lasiophyllum	Shrub	0.2 – 1
Solanum nummularium	Shrub	0.2 – 1

Figure 15: Disturbance area (7.0 ha) within red boundary



Information from the surveys will be used to address the Ten Clearing Principles in Table 5.

Table 5: Potential project impacts at the proposed Siberia Camp measured against the Department of Environment & Regulation 10 Clearing Principles (EPA 1986)

Clearing Principle		Comment
1	Native vegetation should not be cleared if it comprises a high level of biological diversity.	**Proposal is unlikely to be at variance with this principle** A Level 1 flora and vegetation survey was conducted on the 14th and 17th February 2017. The majority of the vegetation was found to be in good to very good condition, with no areas within the proposed disturbance areas meeting the requirements of an excellent condition rating (Keighery 1994) due to the level of disturbance to the site. The vegetation within the proposal has had impacts from mining and pastoral activities for a long period of time (most likely over 100 years) which has resulted in a loss of vegetation structure and, potentially, species. Pre-European vegetation mapping places the area within Vegetation association 468 - medium woodland; salmon gum and goldfields blackbutt, which has a mapped extent of 8,632 ha. A total of forty eight species were recorded from the survey area and included two weed species The most well represented families were Fabaceae (8 species – 6 *Acacia* and 2 *Senna*); Scrophulariaceae (8 *Eremophila*); Myrtaceae (7 *Eucalyptus)* and Chenopodiaceae (5 species - *Atriplex* 2, *Enchylaena* 1, *Maireana* 1, *Sclerolaena* 1).
2	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia.	**Proposal is unlikely to be at variance with this principle** Six habitat types were recorded in the application area, with moderate to high levels of ground disturbance in the proposed impact area. A number of older trees/ mallee were present within Vegetation type 6 – *Eucalyptus* woodlands which may have nesting holes. The woodland area extends further to the north and west. There were low levels of litter and fallen timber which would support fauna, with much of the fallen timber in the woodland area most likely used during historic mining operations for firewood. Levels of fallen timber were higher on the rocky hill which will not be impacted. Signs of mallee fowl activity were looked for during the vegetation survey; however no signs (observations of birds, foot prints, active or recently active mounds) were noted. The vegetation associations are well represented outside the proposal area. The proposed area of disturbance is unlikely to have significant impact on habitat for indigenous fauna.
3	Native vegetation should not be cleared if it includes, or is necessary, for the continued existence of rare flora	**Proposal is unlikely to be at variance with this principle** No threatened or priority flora were recorded within the proposal. No threatened flora have been recorded in the local area. Two priority species – *Atriplex lindleyi* subsp. *conduplicata* and *Rumex crystallinus* – were recorded within 25 km at Rowles Lagoon; however the described vegetation and habitat are not present within the application area. The current condition of the vegetation, with ongoing disturbance, is unlikely to support threatened flora.

Table 5 continued

4	Native vegetation should not be cleared if it compromises the whole or part of, or is necessary for the maintenance of a threatened ecological community	**Proposal is not at variance with this principle** No threatened ecological communities are recorded in or near the proposal.
5	Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	**Proposal is not at variance with this principle** The application area falls with the Murchison Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 100% of the pre-European vegetation remains (Shepherd 2009), although this does not take into account passive clearing through pastoral grazing. The pre-European vegetation association mapped as occurring within the proposal is not restricted, with a mapped extent of 8,632 ha. The surrounding area has not been extensively cleared. Remnant vegetation in the area has been variously impacted through pastoral and mining activities, but the recent acquisition of ex-pastoral lease – Credo Station will provide similar habitat which will be managed for conservation purposes.
6	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland	**Proposal unlikely to be at variance with this principle** There are minor ephemeral water courses with a small catchment area present within the proposal, which drain in easterly and northerly directions. Vegetation present within these areas has been highly impacted through historic mining and pastoral activities and is not representative of wetland or watercourse vegetation.
7	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area	**Proposal unlikely to be at variance with this principle** There are no conservation areas nearby. Disturbance at the site will not impact on drainage to Rowles Lagoon Nature Reserve.

Table 5 continued

8	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation	**Proposal unlikely to be at variance with this principle** The proposal area is small (7 ha) and will be located in an area which will mostly have a low risk of erosion due to low gradient and good vegetation and surface rock cover on the adjacent hills providing a stable land surface. The access road intersects with the Davyhurst – Siberia Road within an area that has a high level of disturbance (Vegetation type 1). There is some regrowth present, however, for the purpose of road safety, taller vegetation which may reduce visibility will either need to be removed or trimmed, and it would be recommended to replace these species with low to medium shrubs which will provide ground cover to stabilize the area.
9	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water	**Proposal is unlikely to be at variance with this principle** Drainage systems within and near the proposal are ephemeral, generally not holding water for long periods of time. The area of clearing is unlikely to have an impact on groundwater quality, as the region supports mainly intact vegetation, with no extensive cleared areas. The average annual evaporation rate is approximately 2600 mm which far exceeds the average annual rainfall (254 mm at Menzies) (BOM 2017), so recharge to the groundwater would be expected to be minimal, thereby reducing the likelihood of raised saline water tables.
10	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding	**Proposal is unlikely to be at variance with this principle** The site is located within the semi-arid zone with a mean annual rainfall of around 250 mm and annual evaporation rate of approximately 2600 mm from which there is likely to be little surface flow during normal seasonal rains. Occasional rain events which could cause flooding occur irregularly, and flooding could last for a few days, but it is unlikely that the proposal would lead to an increase in incidence or intensity of flooding due to the area of clearing, and small catchment area.

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Appendix 1: List of taxa recorded in the survey area (* denotes alien species)

Family	*Scientific Name*
Amaranthaceae	*Ptilotus obovatus*
Apocynaceae	*Rhyncharrhena linearis*
Asteraceae	*Olearia muelleri*
Casuarinaceae	*Casuarina pauper*
Chenopodiaceae	*Atriplex vesicaria*
Chenopodiaceae	*Atriplex nummularia*
Chenopodiaceae	*Enchylaena tomentosa*
Chenopodiaceae	*Maireana sedifolia*
Chenopodiaceae	*Sclerolaena diacantha*
Euphorbiaceae	*Bertya dimerostigma*
Fabaceae	*Acacia burkittii*
Fabaceae	*Acacia hemiteles*
Fabaceae	*Acacia murrayana*
Fabaceae	*Acacia prainii*
Fabaceae	*Acacia ramulosa* var*. ramulosa*
Fabaceae	*Acacia tetragonophylla*
Fabaceae	*Senna artemisioides* subsp*. filifolia*
Fabaceae	*Senna artemisioides* subsp. x *artemisioides*
Goodeniaceae	*Scaevola spinescens*
Lamiaceae	*Salvia verbenaca**
Malvaceae	*Sida spodochroma*
Malvaceae	*Sida calyxhymenia*
Myrtaceae	*Eucalyptus clelandii*
Myrtaceae	*Eucalyptus concinna*
Myrtaceae	*Eucalyptus leptopoda* subsp. *subluta*
Myrtaceae	*Eucalyptus loxophleba* subsp*. supralaevis*
Myrtaceae	*Eucalyptus salmonophloia*
Myrtaceae	*Eucalyptus sheathiana*
Myrtaceae	*Eucalyptus transcontinentalis*
Pittosporaceae	*Pittosporum angustifolium*
Poaceae	*Monachather paradoxus*
Proteaceae	*Grevillea juncifolia* subsp*. temulenta*
Santalaceae	*Exocarpos aphyllus*
Santalaceae	*Santalum acuminatum*
Santalaceae	*Santalum spicatum*
Sapindaceae	*Alectryon oleifolius*
Sapindaceae	*Dodonaea lobulata*
Scrophulariaceae	*Eremophila alternifolia*
Scrophulariaceae	*Eremophila clarkei*
Scrophulariaceae	*Eremophila decipiens* subsp*. decipiens*
Scrophulariaceae	*Eremophila glabra* subsp*. glabra*
Scrophulariaceae	*Eremophila granitica*

Scrophulariaceae	*Eremophila longifolia*
Scrophulariaceae	*Eremophila oldfieldii* subsp. *angustifolia*
Scrophulariaceae	*Eremophila scoparia*
Solanaceae	*Solanum lasiophyllum*
Solanaceae	*Solanum nummularium*
Solanaceae	*Nicotiana glauca**

Appendix 2: Location of Sandalwood

Scientific Name	Easting	Northing	No.
Santalum spicatum	301710	6654741	1
Santalum spicatum	301709	6654762	1
Santalum spicatum	301364	6654600	1
Santalum spicatum	301364	6654590	1
Santalum spicatum	301388	6654520	1
Santalum spicatum	301401	6654519	1
Santalum spicatum	300877	6653928	1

Appendix 3: Conservation code descriptions (DPaW 2016)

T: Threatened Flora (Declared Rare Flora — Extant)
Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedule 1 under the Wildlife Conservation Act 1950).

1: Priority One: Poorly-known taxa
Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

2: Priority Two: Poorly-known taxa
Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.

3: Priority Three: Poorly-known taxa
Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

4: Priority Four: Rare, Near Threatened and other taxa in need of monitoring
1. **Rare**. Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
2. **Near Threatened**. Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
3. Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Appendix B Department of Aboriginal Affairs Tenement Search

Search Criteria

No Registered Aboriginal Sites in Mining Tenement - M 24/208

Disclaimer

The *Aboriginal Heritage Act 1972* preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

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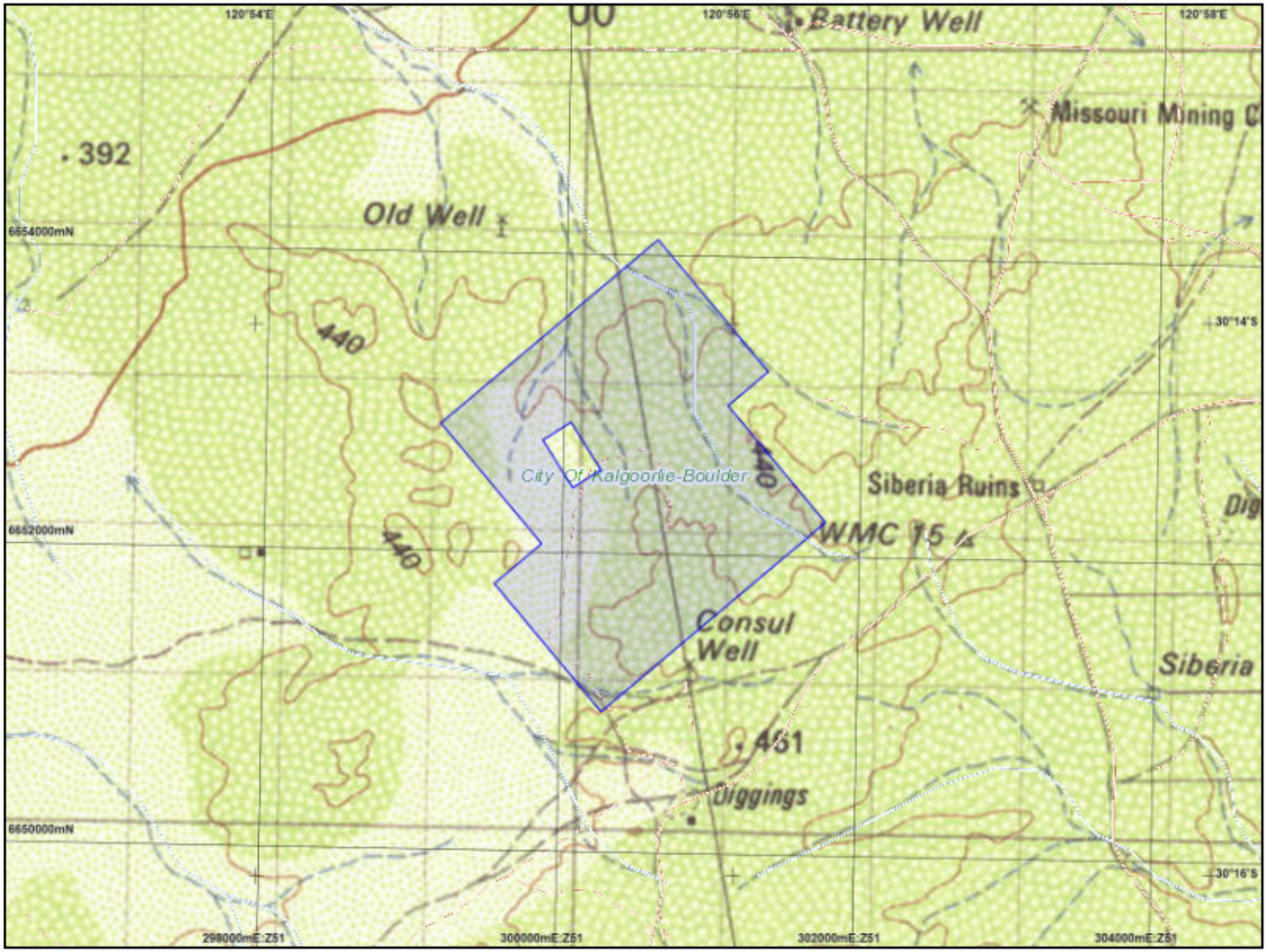
List of Registered Aboriginal Sites with Map

No Results



Legend

Selected Heritage Sites

- Registered Sites
- Aboriginal Community Occupied
- Aboriginal Community Unoccupied
- Town
- Search Area

Search Criteria

No Registered Aboriginal Sites in Mining Tenement - L 24/224

Disclaimer

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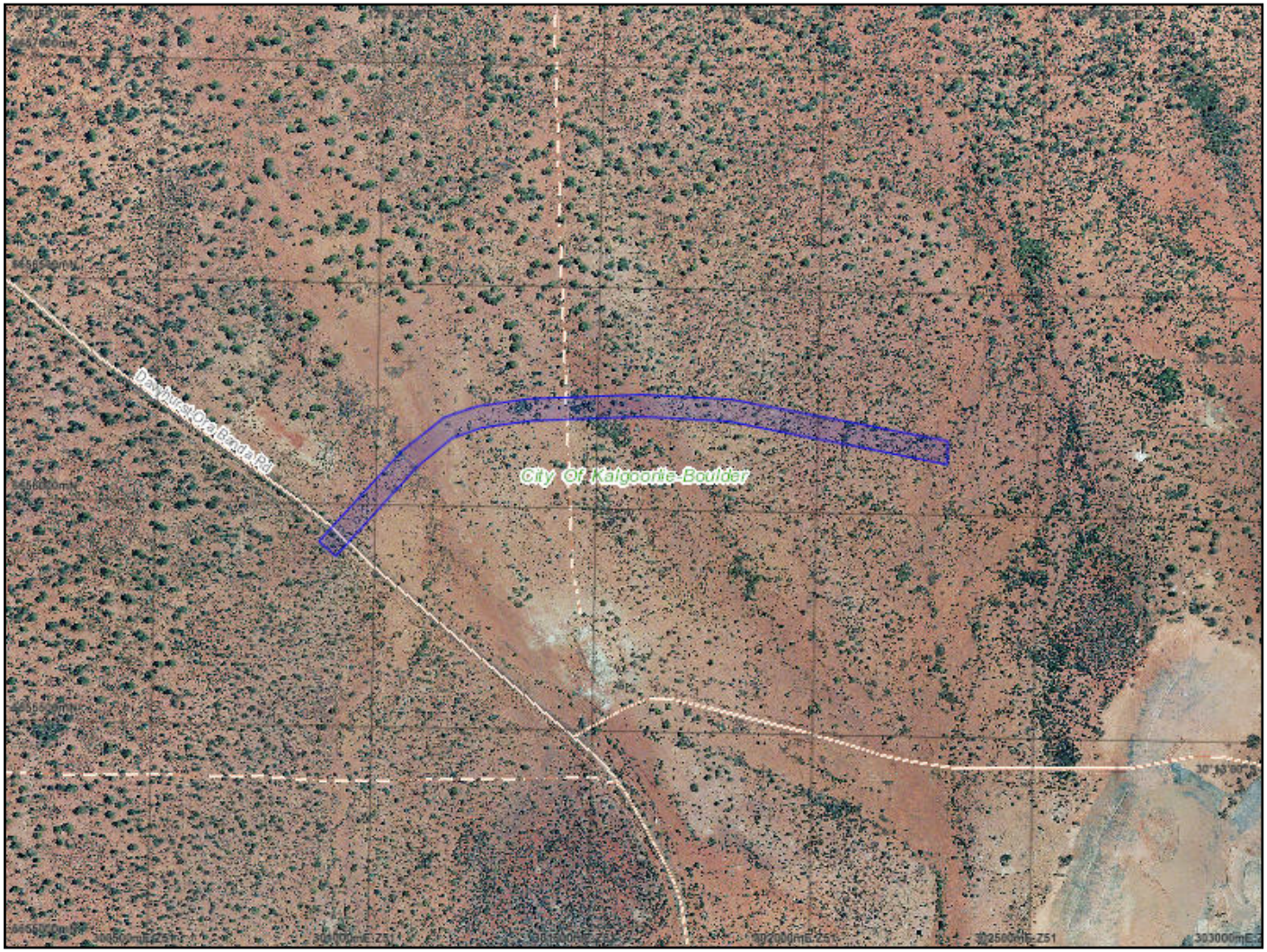
List of Registered Aboriginal Sites with Map

No Results

Aboriginal Heritage Inquiry System

Aboriginal Sites Database



Legend

Selected Heritage Sites

- Registered Sites
- Aboriginal Community Occupied
- Aboriginal Community Unoccupied
- Town
- Search Area

Search Criteria

No Registered Aboriginal Sites in Mining Tenement - M 24/39

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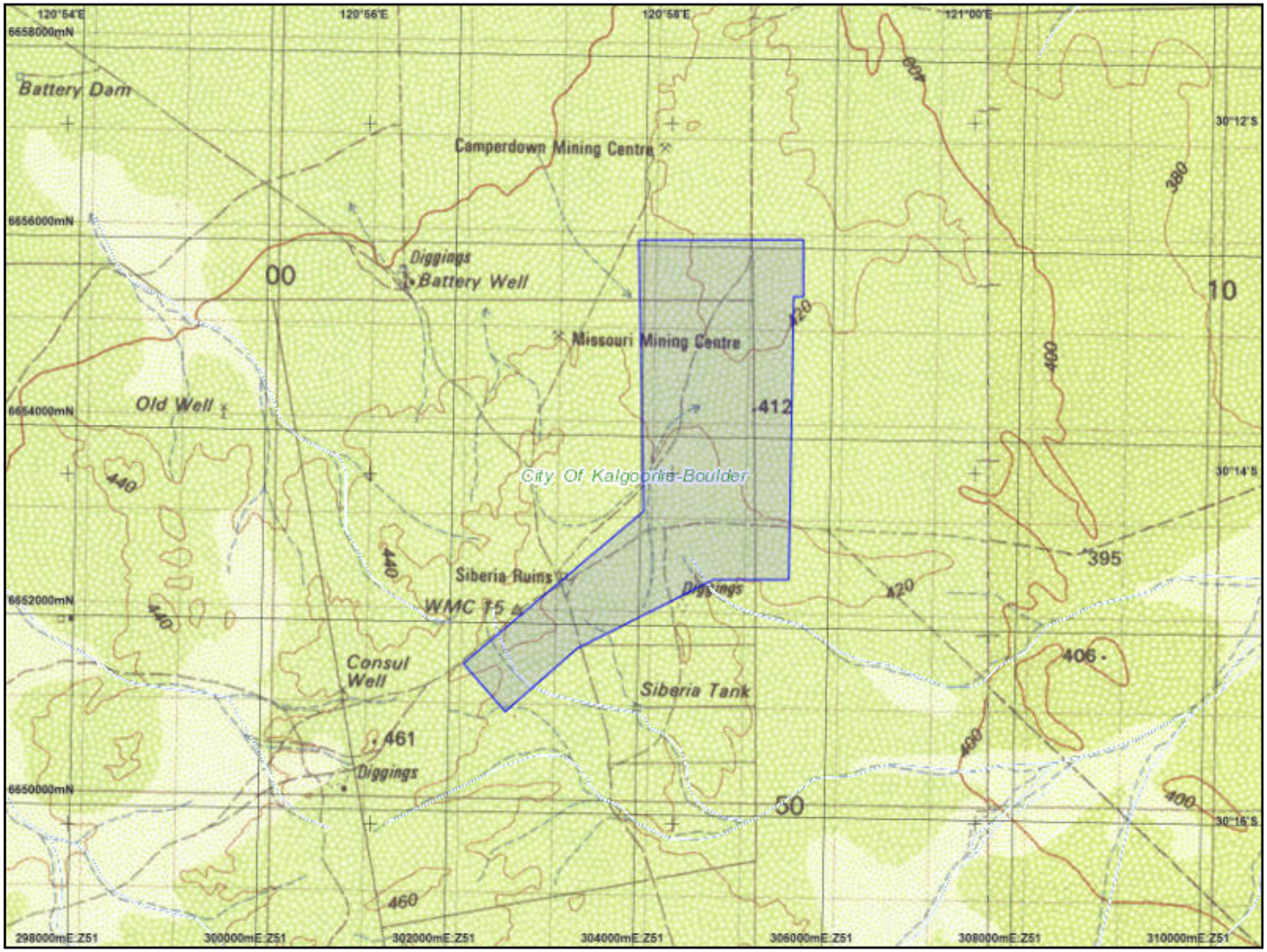

Legend

Selected Heritage Sites

- Registered Sites
- Aboriginal Community Occupied
- Aboriginal Community Unoccupied
- Town
- Search Area

Search Criteria

No Registered Aboriginal Sites in Mining Tenement - M 24/960

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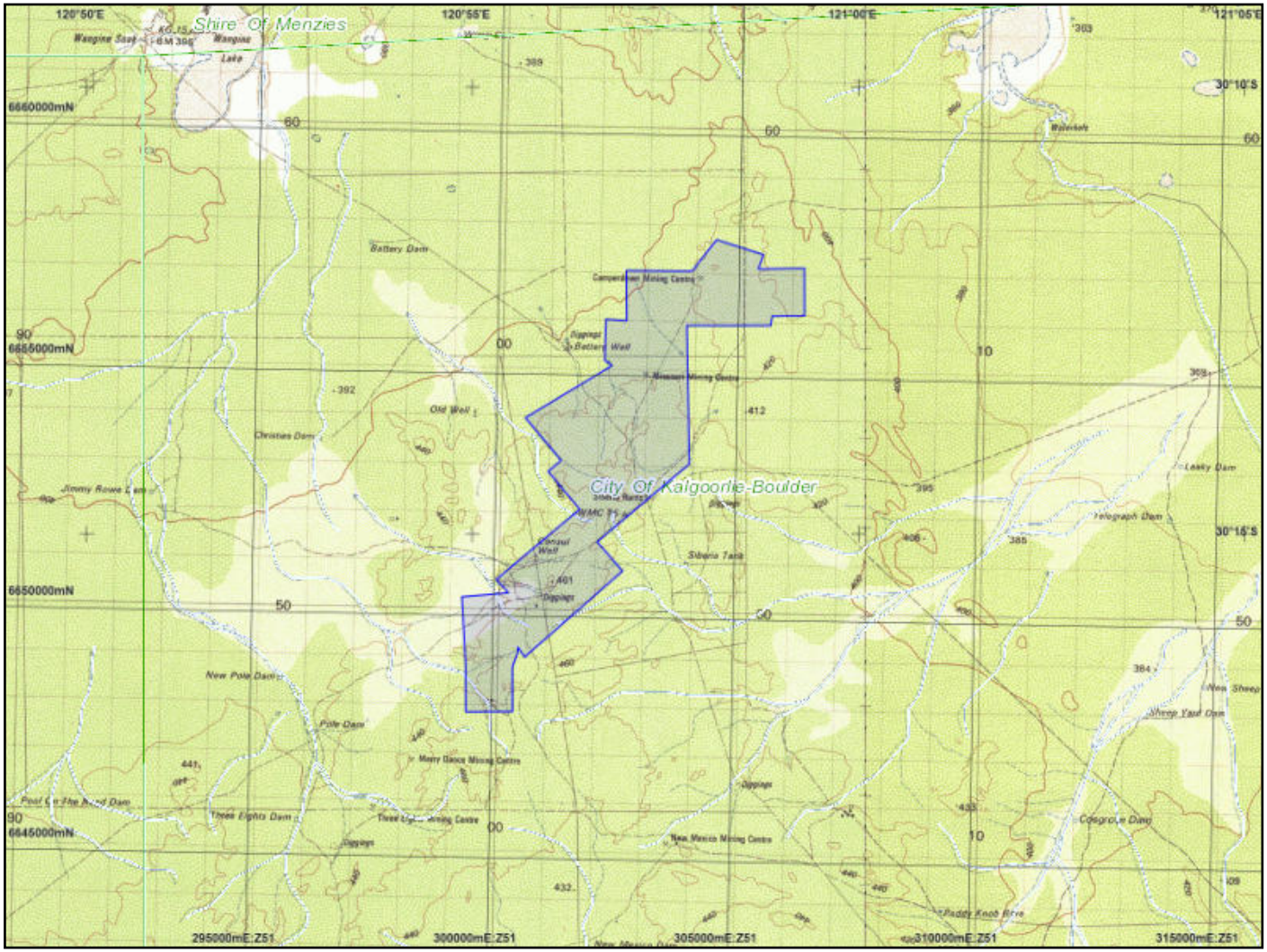


Legend

Selected Heritage Sites

- Registered Sites
- Aboriginal Community Occupied
- Aboriginal Community Unoccupied
- Town
- Search Area

Appendix C Stakeholder Letters

City of
KALGOORLIE-BOULDER

Ref: MJP: DW #Core: 2646267

10 April 2017

Brett Moser
Goldfields Area Manger
Qube Bulk
PO Box 10837
Kalgoorlie WA 6430

Dear Brett

Permit to Operate Heavy Vehicles on Various City Roads

I refer to your recent enquiry seeking approval to operate heavy vehicles up to and including a RAV Tri Dive Category N. 10.3 (up to 53.5m) on the roads listed below with the approved listed combination types.

LGA: 605 (City of Kalgoorlie-Boulder)

1. Siberia – Canegrass Road (6056118) SLK 24.1
2. Ora Banda – Davyhurst Road (6055064) SLK 19.51 to SLK 34.4

The City approves your request subject to compliance with the following conditions:

Conditions

1. Main Roads approval to be obtained and copies of any permits and this written approval from the City are to be carried in the vehicle at all times and be produced when requested by Main Roads or Local Government representatives.
2. This approval is subject to all operators of the above listed vehicles carrying this written approval from the City of Kalgoorlie-Boulder when using the roads nominated above. This approval waives the City's CA07 condition on these roads for the duration of this approval.
3. This approval is for RAV Category N. 10.3 Accredited Mass Management Scheme, with 23.5t on tri axel groups.
4. Permit holders are to comply with Main Roads WA (MRWA) Operating Conditions for restricted vehicle access including mass, width and length limits, and configurations.
5. In the event that road closures are activated due to bad weather or for any other reason, all vehicle movements on the subject roads will cease until the road closures are lifted by the City of Kalgoorlie-Boulder.
6. Vehicles are to abide by MRWA road speed limits for heavy vehicles.
7. This approval will be valid for a 24 month period from the advised commencement date of the proposed cartage operations being 10 April 2017. Should an extension be required, an application must be made prior to the expiry date and will be dependent on the condition of the roads at that time. Consideration will be given to the number of vehicles and oversized vehicle combinations when making future inspections of the roads used.

8. Qube Bulk are required to carry out a maintenance regime on the gravel section of Siberia – Canegrass and Ora Banda – Siberia roads as detailed below:
    - Operation of water cart for 6 hours per day while carting ore and a maintenance grader is to be used for 2 days per week while hauling ore on these roads.
9. Qube Bulk must use a traffic management system during the maintenance grading work in accordance with AS1742.3. The grading is to be carried out to the satisfaction of the City's Chief Operations Officer or his representative.
10. The City reserves the right to revoke this permit:
    i. In the event of the permit holder breaching any of its conditions;
    ii. If the named used roads are showing excess wear and tear from the high use;
    iii. The permit holder's vehicles create a safety concern, particularly with respect to speed, dust generation and road condition.

If you require further information or clarification regarding this matter, please contact Mr Murray Percasky, Team Leader Roads & Transport on 9021 9615 or via email Murray.Percasky@ckb.wa.gov.au.

Yours sincerely

Darren Wallace
Manager Infrastructure & Open Spaces

MENZIES

Take a look around!

Ref: 6528

Brett Moser
Qube Bulk
PO Box 10837
KALGOORLIE WA 6430

Email brett.moser@qube.com.au

Dear Brett

PERMIT TO OPERATE HEAVY VEHICLES ON SHIRE ROADS.

I refer to your recent application seeking approval to operate heavy vehicles up to and including a RAV prime mover, trailer combination to Category 10 configuration on the below listed roads with the approved listed Combination types.

Shire of Menzies

AMMS Network – Tri Drive Quad Road Train (to 53.5m)

Coolgardie North Road from Riverina mine to Davyhurst mine

The Shire approves your request subject to the following conditions:

Conditions.

1. This is subject that all operators must carry this written approval from the Local Government Authority (Shire of Menzies) permitting use of the above named roads.

2. Riverina to Muline turnoff – speed limit 60 klometres per hour

3. Riverina to Muline turnoff – Signs indicating road train operating in the area.

4. Permit holders are to comply with Main Roads WA Operating Conditions for restricted vehicle access including mass, width and length limits, and configurations.

5. In the event that road closures are activated due to bad weather or for any other reason, all vehicle movements on the subject roads will cease until the road closures are lifted by the Shire of Menzies.

6. Vehicles are to abide by MRWA road speed limits for heavy vehicles unless otherwise stated on this permit.

7. The approval will be valid from the advised commencement date of the proposed cartage operations being Friday 31 March 2017. Consideration will be given to the number of vehicles and oversized vehicle combinations when making future inspections of the roads used.

8. The Shire reserves the right to revoke this permit in the event of the permit holder breaching any of its conditions or if the named used roads are showing excess wear and tear from the high use.

It is understood that all operators must carry written approval from the Local Government Authority permitting use of the road and if requested, this letter will be produced when requested by Main Roads or Local Government Representatives.

If you require further information from the Shire regarding this matter please contact our office on Phone (08) 9024 2041 or e-mail admin@menzies.wa.gov.au

Yours sincerely

Rhonda Evans

Rhonda Evans
Chief Executive Officer

28 March 2017

Appendix D Permit to Clear Native Vegetation (CPS 6968/2)

GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	6968/2
Duration of Permit:	From 28 May 2016 to 28 May 2021
Permit Holder:	Siberia Mining Corporation Pty Ltd

The Permit Holder is authorised to clear native vegetation subject to the following conditions of this Permit.

PART I - CLEARING AUTHORISED

1. Land on which clearing is to be done
Mining Lease 24/39
Mining Lease 24/290
Mining Lease 24/352
Miscellaneous Licence 24/224
Prospecting Licence 24/4182

2. Purpose for which clearing may be done
Clearing for the purpose of mineral production and associated activities.

3. Area of Clearing
The Permit Holder must not clear more than 66 hectares of native vegetation. All clearing must be within the area cross-hatched yellow on attached Plan 6968/2.

4. Application
This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

PART II – MANAGEMENT CONDITIONS

5. Weed control
When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the introduction and spread of *weeds*:

(i) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
(ii) ensure that no *weed*-affected soil, *mulch*, *fill* or other material is brought into the area to be cleared; and
(iii) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

PART III - RECORD KEEPING AND REPORTING

6. Records to be kept

The Permit Holder must maintain the following records for activities done pursuant to this Permit:

In relation to the clearing of native vegetation authorised under this Permit:

(i) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
(ii) the date that the area was cleared;
(iii) the size of the area cleared (in hectares); and
(iv) purpose for which clearing was undertaken.

7. Reporting

(a) The Permit Holder shall provide a report to the Director Operations, Environment, Department of Mines and Petroleum by 31 July each year for the life of this permit, demonstrating adherence to all conditions of this permit, and setting out the records required under Condition 6 of this permit in relation to clearing carried out between 1 July and 30 June of the previous financial year.

(b) Prior to 28 May 2021, the Permit Holder must provide to the Director Operations, Environment, Department of Mines and Petroleum a written report of records required under Condition 6 of this Permit where these records have not already been provided under Condition 7(a) of this Permit.

DEFINITIONS

The following meanings are given to terms used in this Permit:

fill means material used to increase the ground level, or fill a hollow;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

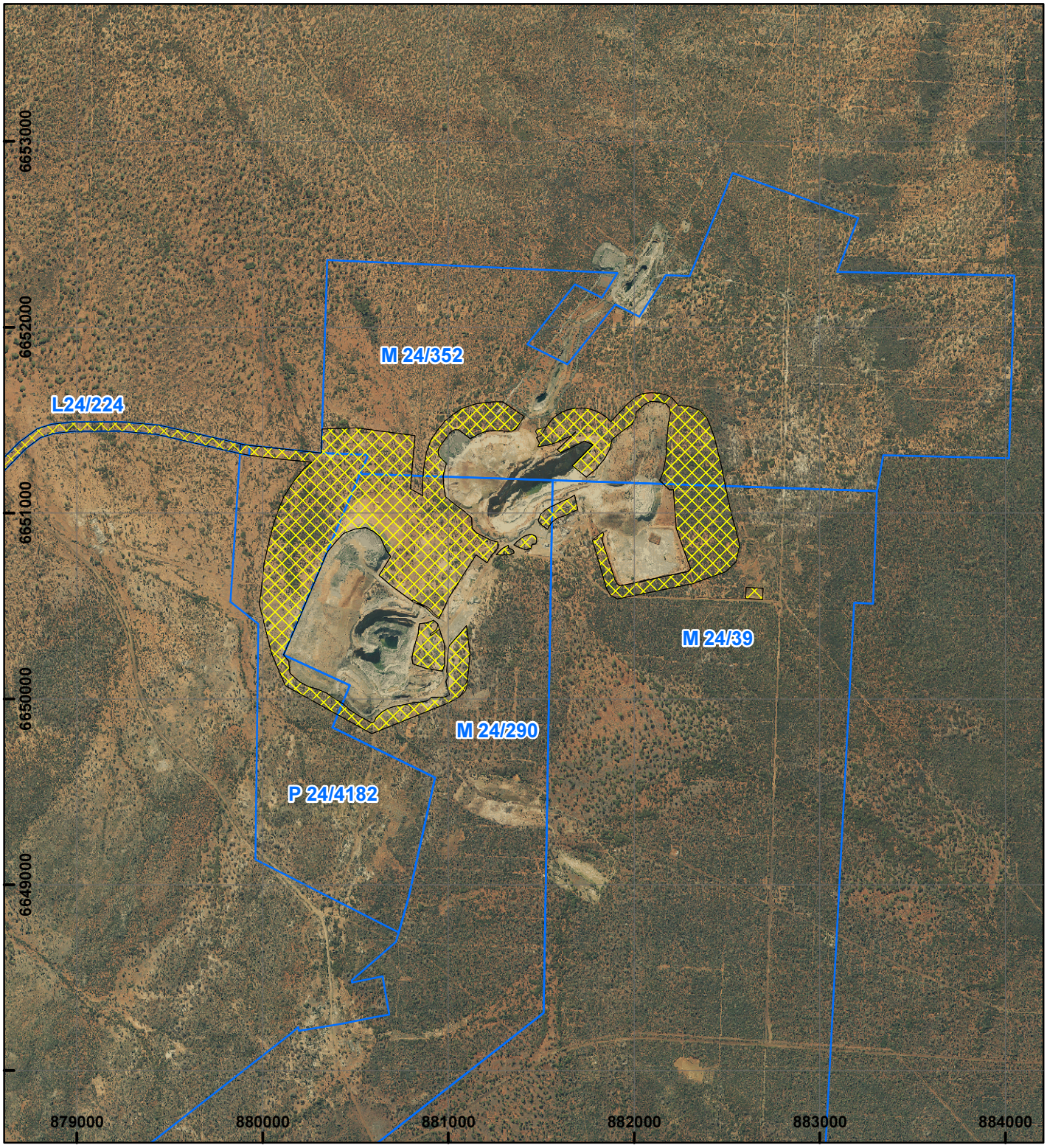
weed/s means any plant -
(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or
(b) published in a Department of Parks and Wildlife Regional Weed Rankings Summary, regardless of ranking; or
(c) not indigenous to the area concerned.

_____

Marnie Leybourne | Director Operations
Operations, Environment
29 September 2016

Officer with delegated authority under Section 20
of the *Environmental Protection Act 1986*

PLAN 6968/2



LEGEND

- Mining Tenements
- Clearing Instruments
  Areas Approved to Clear

N

0 1 Km

Scale 1:30,000
(Appoximate when reproduced at A4)

Geocentric Datum Australia 1994

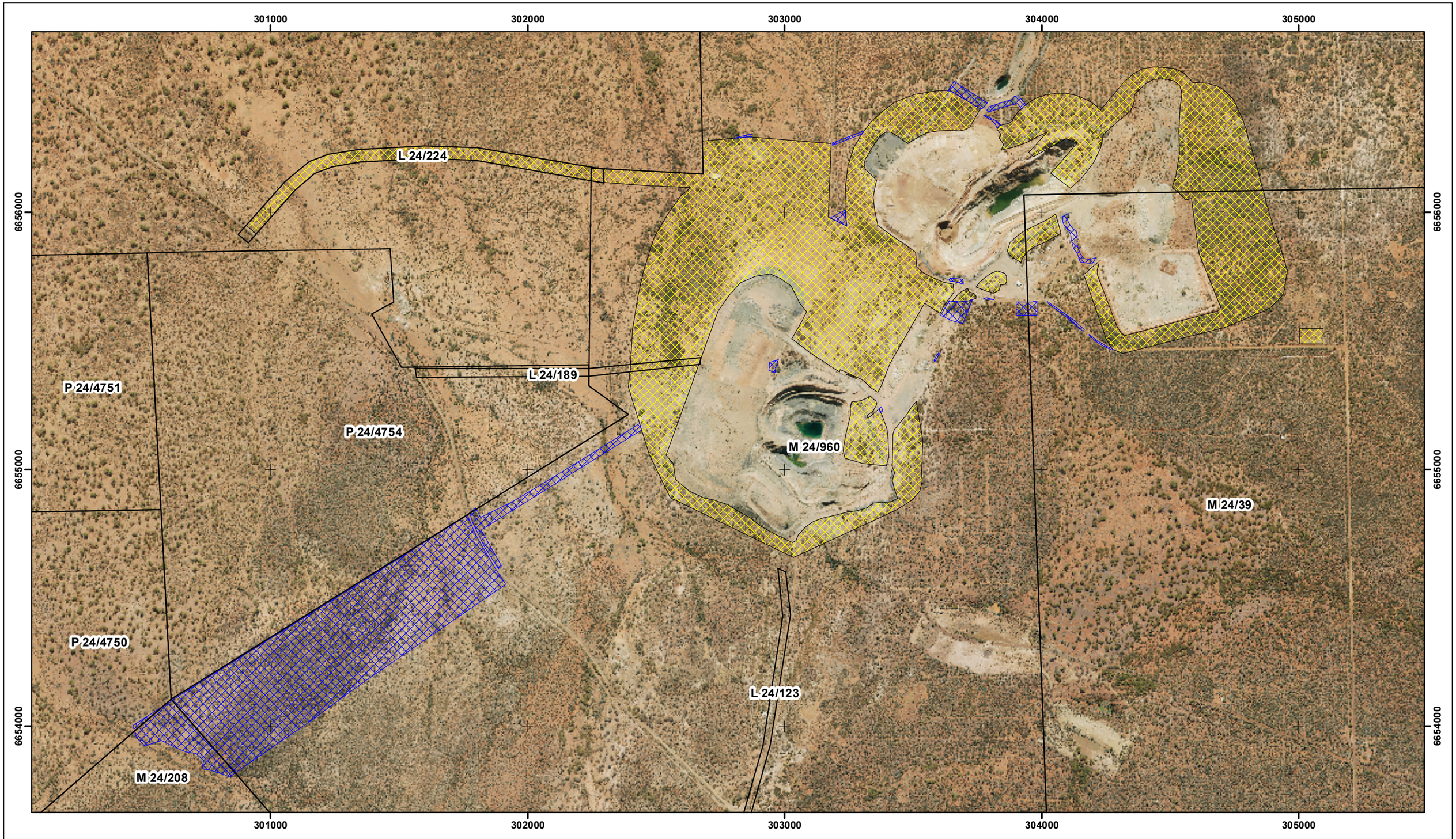
Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

MARNIE LEYBOURNE

Date 29 / 09 / 2016

Officer with delegated authority under Section 20 of the Environmental Protection Act 1986

Information derived from this map should be confirmed with the data custodian acknowleged by the agency acronym in the legend.



Legend

- Proposed Clearing Permit Amendment (54.51 ha)
- Clearing Permit Granted - Permit Number 6968/2 (149.15 ha)

EGS Tenements

- LIVE

Data Source:

SIBERIA MINING CORPORATION PTY LTD

Approved Clearing Permit & Proposed Amendment (May 2017)

Originator: DR
Drawn: DP
Print Date: 15/05/2017
Page Size: A3

1:13,750
0 200 400
Metres
GDA 1994 MGA Zone 51

N

Ref: SIB00004_Map_Proposed_Site_Layout_ClearingPermitApplication_20170515_A3

Appendix E Bore Water Quality Certificate of Analysis

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EP1612518**	Page	: 1 of 6
Client	: **CARNEGIE GOLD PTY LTD**	Laboratory	: Environmental Division Perth
Contact	: DANIEL RADOVIC(easgol)	Contact	: Customer Services EP
Address	: 24 MUMFORD PLACE BALCATTA 6021	Address	: 10 Hod Way Malaga WA Australia 6090
Telephone	: ----	Telephone	: +61-8-9209 7655
Project	: Ground Water	Date Samples Received	: 30-Dec-2016 14:00
Order number	: ----	Date Analysis Commenced	: 30-Dec-2016
C-O-C number	: ----	Issue Date	: 18-Jan-2017 10:49
Sampler	: ----		
Site	: ----		
Quote number	: EP/716/16		
No. of samples received	: 8		
No. of samples analysed	: 8		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Jeremy Truong	Laboratory Manager	Perth Inorganics, Malaga, WA
Tyrone Cole	Inorganics Preparation Supervisor	Perth Inorganics, Malaga, WA

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EG020 : LOR has been raised due to possible matrix interference.
- EA015H (Total Dissolved Solids): TDS for sample 'SKWB02' biasing high due to possible sample matrix interferences.
- EA015H (Total Dissolved Solids): TDS for sample 'SKWB06' biasing low due to possible sample matrix interferences.
- Ionic Balance out of acceptable limits for sample "SKWB06" due to analytes not quantified in this report.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SKWB02	SKWB03	SKWB04	SKWB05	SKWB06
				Client sampling date / time	29-Dec-2016 07:45	29-Dec-2016 08:00	29-Dec-2016 09:05	29-Dec-2016 10:30	29-Dec-2016 10:45
Compound	CAS Number	LOR	Unit		EP1612518-001	EP1612518-002	EP1612518-003	EP1612518-004	EP1612518-005
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		2.96	7.21	6.88	7.10	7.08
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		64700	48300	34900	15600	2030
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		50200	35300	24100	10300	581
EA065: Total Hardness as CaCO3									
Total Hardness as CaCO3	----	1	mg/L		10300	8380	5750	2580	156
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		<1	435	411	624	537
Total Alkalinity as CaCO3	----	1	mg/L		<1	435	411	624	537
ED040F: Dissolved Major Anions									
Silicon as SiO2	14464-46-1	0.1	mg/L		109	42.2	46.6	54.2	6.4
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		3640	3580	1820	994	4
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		23300	16900	11300	4660	279
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		481	174	143	130	36
Magnesium	7439-95-4	1	mg/L		2210	1930	1310	549	16
Sodium	7440-23-5	1	mg/L		13000	9890	6890	2930	125
Potassium	7440-09-7	1	mg/L		177	194	129	46	25
EG020F: Dissolved Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		175	<0.01	0.06	0.04	<0.01
Antimony	7440-36-0	0.001	mg/L		<0.010	<0.005	<0.005	<0.001	<0.001
Arsenic	7440-38-2	0.001	mg/L		0.010	<0.005	<0.005	<0.001	<0.001
Beryllium	7440-41-7	0.001	mg/L		0.015	<0.005	<0.005	<0.001	<0.001
Barium	7440-39-3	0.001	mg/L		0.032	0.042	0.009	0.002	0.004
Cadmium	7440-43-9	0.0001	mg/L		<0.0010	<0.0005	<0.0005	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L		0.030	<0.005	<0.005	0.004	0.010
Cobalt	7440-48-4	0.001	mg/L		0.247	0.009	0.008	0.002	<0.001
Copper	7440-50-8	0.001	mg/L		<0.010	<0.005	<0.005	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L		0.077	0.011	<0.005	0.003	0.002

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SKWB02	SKWB03	SKWB04	SKWB05	SKWB06
				Client sampling date / time	29-Dec-2016 07:45	29-Dec-2016 08:00	29-Dec-2016 09:05	29-Dec-2016 10:30	29-Dec-2016 10:45
Compound	CAS Number	LOR	Unit		EP1612518-001	EP1612518-002	EP1612518-003	EP1612518-004	EP1612518-005
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Manganese	7439-96-5	0.001	mg/L		**0.262**	**0.257**	**0.072**	**0.021**	**0.082**
Molybdenum	7439-98-7	0.001	mg/L		<0.010	<0.005	<0.005	**0.004**	<0.001
Nickel	7440-02-0	0.001	mg/L		**0.951**	**0.023**	**0.026**	**0.006**	**0.002**
Selenium	7782-49-2	0.01	mg/L		<0.10	<0.05	<0.05	<0.01	<0.01
Tin	7440-31-5	0.001	mg/L		**0.015**	<0.005	<0.005	<0.001	<0.001
Vanadium	7440-62-2	0.01	mg/L		<0.10	<0.05	<0.05	<0.01	<0.01
Zinc	7440-66-6	0.005	mg/L		**0.234**	**0.129**	<0.025	**0.007**	**0.008**
Boron	7440-42-8	0.05	mg/L		**9.87**	**4.36**	**3.45**	**1.74**	**0.10**
Iron	7439-89-6	0.05	mg/L		**7.93**	<0.25	<0.25	<0.05	**0.19**
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	**0.02**	**0.01**	**0.13**	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	**0.10**	**11.2**	**14.6**	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	**0.12**	**11.2**	**14.7**	<0.01
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		**733**	**560**	**365**	**165**	**18.7**
Total Cations	----	0.01	meq/L		**776**	**603**	**418**	**180**	**9.19**
Ionic Balance	----	0.01	%		**2.84**	**3.67**	**6.78**	**4.55**	**34.0**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Client sample ID	SKWB07	SKWB08	SKWB10	----	----
			Client sampling date / time	29-Dec-2016 10:00	29-Dec-2016 08:30	29-Dec-2016 07:15	----	----
Compound	CAS Number	LOR	Unit	EP1612518-006	EP1612518-007	EP1612518-008	--------	--------
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**5.36**	**7.31**	**6.67**	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**3600**	**53200**	**58600**	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**2090**	**39000**	**42900**	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**304**	**10300**	**7920**	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	**3**	**519**	**138**	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**3**	**519**	**138**	----	----
ED040F: Dissolved Major Anions								
Silicon as SiO2	14464-46-1	0.1	mg/L	**16.0**	**45.8**	**48.9**	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**88**	**3000**	**2720**	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**1150**	**19200**	**21700**	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**26**	**174**	**369**	----	----
Magnesium	7439-95-4	1	mg/L	**58**	**2400**	**1700**	----	----
Sodium	7440-23-5	1	mg/L	**562**	**11600**	**12400**	----	----
Potassium	7440-09-7	1	mg/L	**23**	**232**	**207**	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	**0.24**	<0.10	<0.10	----	----
Antimony	7440-36-0	0.001	mg/L	<0.001	<0.010	<0.010	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.010	<0.010	----	----
Beryllium	7440-41-7	0.001	mg/L	<0.001	<0.010	<0.010	----	----
Barium	7440-39-3	0.001	mg/L	**0.119**	**0.029**	**0.022**	----	----
Cadmium	7440-43-9	0.0001	mg/L	**0.0002**	<0.0010	<0.0010	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.010	<0.010	----	----
Cobalt	7440-48-4	0.001	mg/L	**0.014**	<0.010	<0.010	----	----
Copper	7440-50-8	0.001	mg/L	**0.002**	<0.010	<0.010	----	----
Lead	7439-92-1	0.001	mg/L	**2.58**	<0.010	**0.010**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	SKWB07	SKWB08	SKWB10	----	----
				Client sampling date / time	29-Dec-2016 10:00	29-Dec-2016 08:30	29-Dec-2016 07:15	----	----
Compound	CAS Number	LOR	Unit		EP1612518-006	EP1612518-007	EP1612518-008	--------	--------
					Result	Result	Result	----	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Manganese	7439-96-5	0.001	mg/L		**0.449**	<0.010	**0.420**	----	----
Molybdenum	7439-98-7	0.001	mg/L		<0.001	<0.010	<0.010	----	----
Nickel	7440-02-0	0.001	mg/L		**0.035**	**0.036**	**0.042**	----	----
Selenium	7782-49-2	0.01	mg/L		<0.01	<0.10	<0.10	----	----
Tin	7440-31-5	0.001	mg/L		<0.001	**0.015**	**0.014**	----	----
Vanadium	7440-62-2	0.01	mg/L		<0.01	<0.10	<0.10	----	----
Zinc	7440-66-6	0.005	mg/L		**0.240**	<0.050	<0.050	----	----
Boron	7440-42-8	0.05	mg/L		**0.21**	**5.66**	**5.17**	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	<0.50	<0.50	----	----
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L		<0.0001	<0.0001	<0.0001	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		**0.04**	<0.01	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		**7.59**	**4.63**	**1.11**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		**7.63**	**4.63**	**1.11**	----	----
EN055: Ionic Balance									
Total Anions	----	0.01	meq/L		**34.3**	**614**	**672**	----	----
Total Cations	----	0.01	meq/L		**31.1**	**717**	**703**	----	----
Ionic Balance	----	0.01	%		**4.93**	**7.68**	**2.29**	----	----