

Shree Minerals Limited

NELSON BAY RIVER MINE

TASMANIAN DEVIL MONITORING STRATEGY

VERSION 03

EPBC 2011/5846

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Mining Title / Leases: 3M/2011
Approval: EPBC 2011/5846
TDMS Commencement Date: August 2013
Name of Leaseholder: Shree Minerals Limited
Name of Mine Operator: Shree Minerals Limited

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03	06/08/13	Revise report in lieu of comment recieved from SEWPAC	J. St Clair	August 2013	S.Loyalka

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CONTENTS

1. INTRODUCTION.....	1
2. MONITORING STRATEGY.....	8
2.1 Monitor, Detect and Report any Incidences of DFTD	9
2.2 Monitor the Denning/Lay-Ups within the FHPZ.....	9
2.3 Monitor the General Condition of the FHPZ	10
2.4 Data Management, Analysis and Notifications	11
2.5 Reporting	11
2.6 Monitoring Period.....	11
2.7 Costs.....	11

1. INTRODUCTION

Shree Minerals is developing a new magnetite and hematite mine and mineral processing operation on mining lease 3M/2011, adjacent to Nelson Bay River, off Wuthering Heights Road, approximately 7 km northeast of Temma, in northwest Tasmania.

Figure 1 shows the current preliminary design layout of the mine site.

The project's approval process required the preparation of a Development Proposal and Environmental Management Plan for State and local government assessment and an Environmental Impact Statement (EIS) for assessment under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

State approvals were issued on 21 August 2012 and the Commonwealth Environment Minister, the Hon. Mark Butler, approved the project under the EPBC Act on 29 July 2013, subject to conditions (EPBC2011/5846).

This purpose of this document is to address Condition 13 of the Minister's approval, which requires the preparation of Tasmanian devil monitoring strategy.

The person taking the action must engage a suitably qualified or experienced expert to prepare a Tasmanian devil monitoring strategy. The strategy must:

- a. be consistent and compatible with any relevant strategies of the Commonwealth or Tasmanian Governments or Save the Tasmanian Devil Program;
- b. provide for the placement and maintenance of at least ten (10) infrared monitoring cameras at locations relevant to the action;
- c. provide for monitoring the condition of any formally managed habitat areas, such as the fauna habitat protection zone described in the project's environmental impact statement;
- d. include measures for the detection and prompt reporting of Devil Facial Tumour Disease;
- e. include protocols for regular data retrieval and recording; and
- f. be supported by adequate funding and other resources.

The strategy must be approved by the minister prior to commencement of the action, and must be implemented.

The document has been prepared by suitably qualified and experienced experts in consultation with Mr Nick Mooney, a recognised Tasmanian devil and wildlife expert, and the Save the Tasmanian Devil Program (STDP).

Flora and fauna surveys of the mine site were undertaken to inform the Environmental Impact Statement (EIS) that was prepared for the EPBC assessment. The findings of those surveys were described in the EIS and are shown here in **Figure 2**, updated with the current preliminary design of the mine layout.

Numerous records of Tasmanian devil (*Sarcophilus harrisii*) occur within 5 km of the mine area and scats were located at a latrine site on exploration tracks within the mine lease. The mine site and areas adjacent to it offer both foraging and denning opportunities for Tasmanian devils.

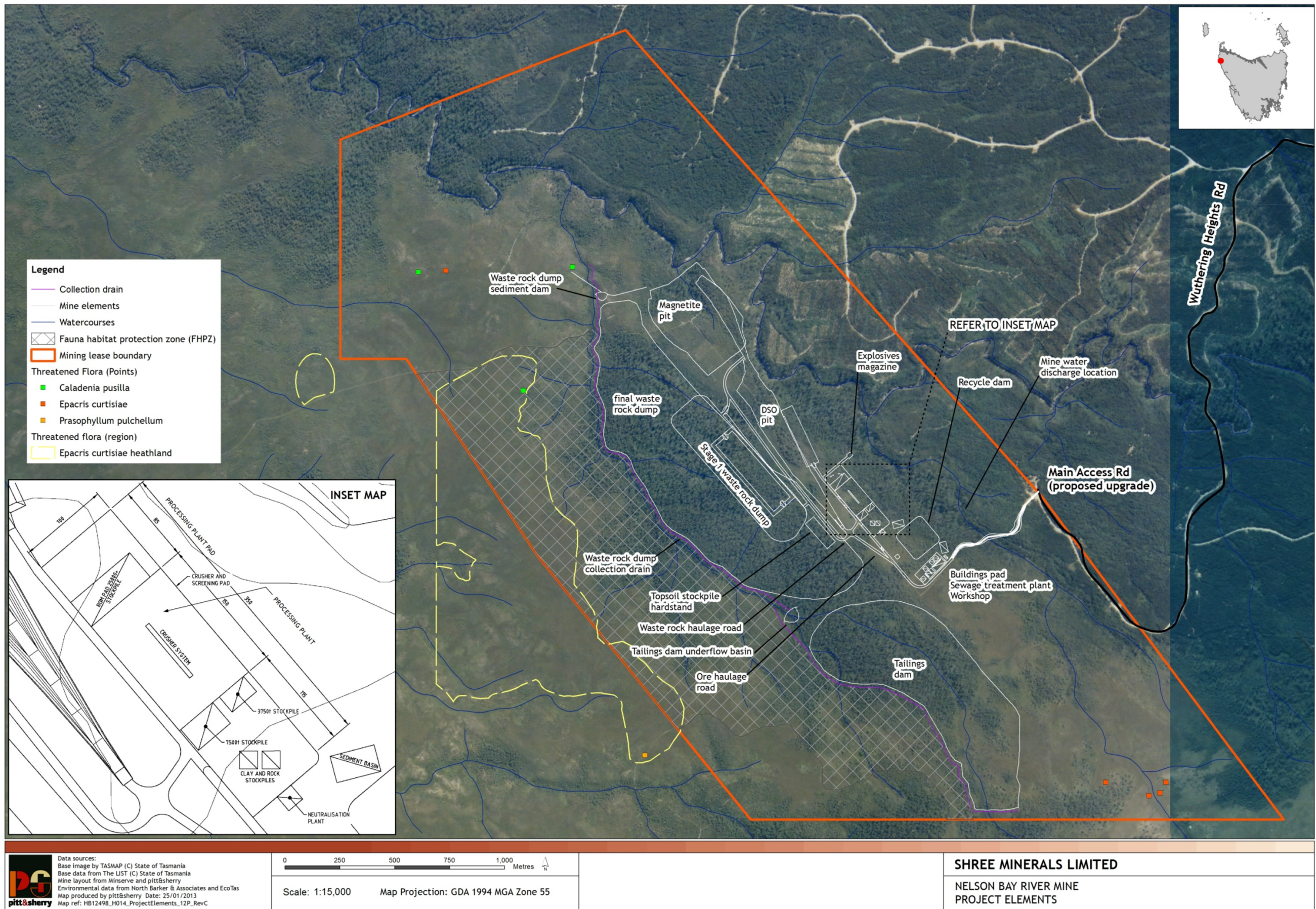


Figure 1
Current preliminary design layout of the mine

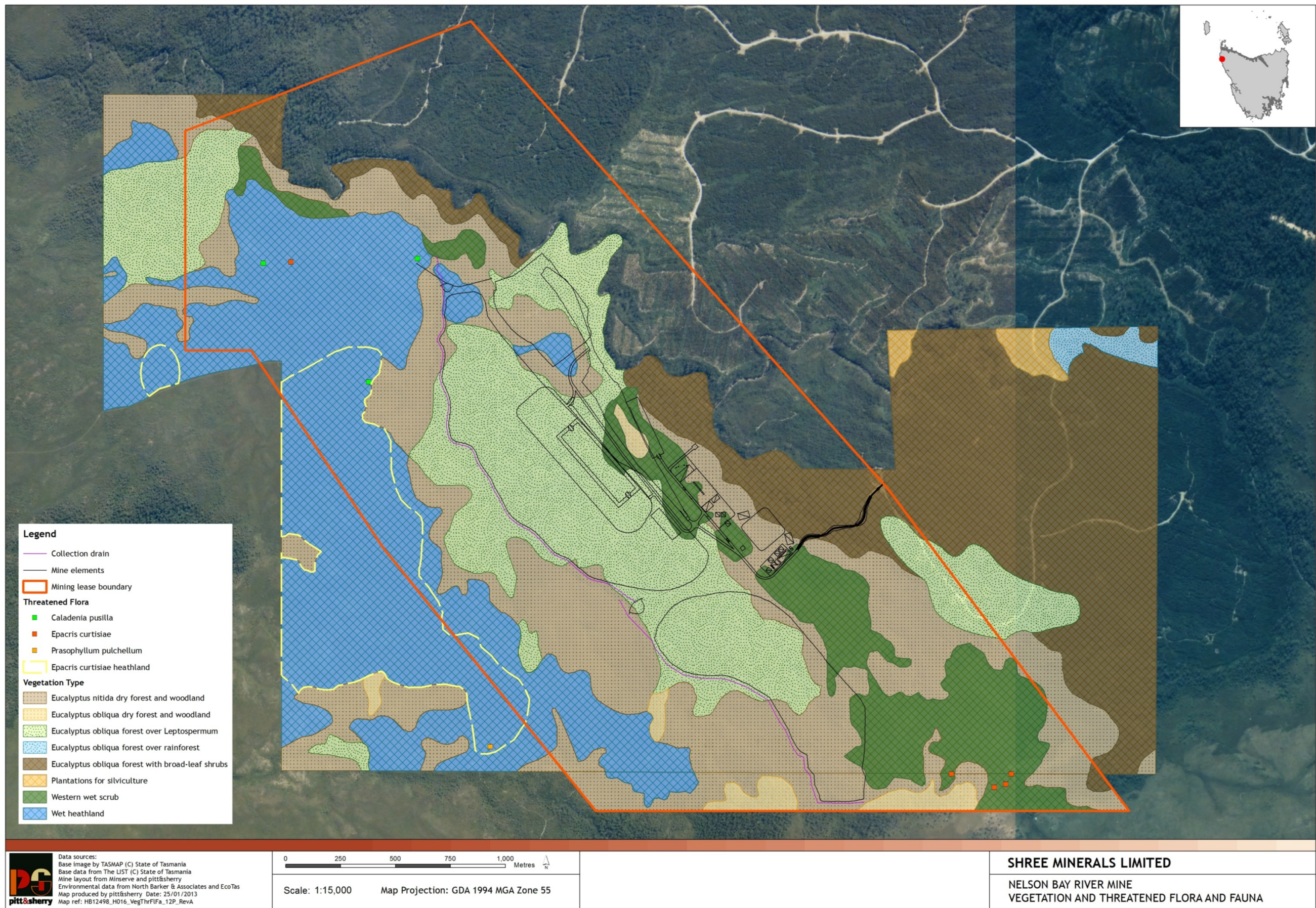


Figure 2
 Vegetation communities and threatened flora observations from the site surveys

The EIS made the following conclusions in relation to Tasmanian devils:

“There is a potential impact on shelter dens from vegetation clearing at any time and potential impact on breeding (natal or maternal) dens if clearing occurs during the breeding season. There is a potential impact from increased roadkill risk when crossing roads or when feeding on roadkill due to the increase in road traffic because of the mine. Based on conservative assumptions about devil densities on the site, clearing of vegetation for the mine could displace up to 1 to 2 devils. Without mitigation, and without Devil Facial Tumour Disease (DFTD) (not recorded in the general area), product transport could increase the devil roadkill on the region’s roads by 3 per year (and 8 in year 1). Confining product transport to daylight hours would reduce these risks to 0.6 and 1.6 kills per year respectively.” (Page 145 of the EIS)

Pre-clearing surveys for occupied dens, the creation of new denning opportunities and roadkill mitigation measures were considered warranted and were committed to in the EIS and the EPBC approval includes a number of conditions relevant to devils.

The safeguards and mitigation measures for devils described in the EIS are summarised as follows.

Roadkill minimisation

The commitments comprise:

- Speed limit reduction on roads
- Removal of roadkill from roads
- High risk roadkill area mapping
- Education of employees
- Transport hour restrictions; and
- Provision of a mandatory worker transport bus.

The EIS also committed to reporting any observed devil roadkill to the STDP.

Pre-clearance surveys for dens

To mitigate against the potential impact on devils, to all practical extents vegetation clearance will be scheduled for outside the breeding season. The breeding season for devils is defined as the post-pouch period in which imps (young devils) are left in or based at the natal den while still dependent on their mother. However, the breeding season is not fixed and devils can be using dens at any time.

Pre-clearance surveys will take place prior to each stage of clearing commencing to identify any occupied devil dens/lay-ups. These surveys will be conducted by a suitably qualified or experienced expert. Because devils use different dens/lay-ups at different times, timing the surveys to closely precede clearing is important. If surveys were undertaken too early, the survey findings could not be relied upon – dens found to be occupied during the survey might no longer be so and potential dens found to be unoccupied during the survey might have since become occupied.

In addition to identifying the dens actually in use, the preclearance surveys will determine the amount, quality and type of devil denning opportunities within the area to be cleared.

Habitat protection during vegetation clearing operations

During vegetation clearing, a temporary 50 m wide buffer will be established around any occupied maternal dens found in the pre-clearance surveys. The buffer will encompass all structural elements of the surrounding forest and will remain unless and until the den has been confirmed to have been vacated. Only after the den has been confirmed to be vacated (which may take up to 3 to 4 months, depending on timing relative to the breeding season) will the vegetation clearing be completed.

In accordance with condition 4 (a-d) EPBC 2011/5846 the following minimum management prescriptions will apply to protect fauna habitat at Nelson Bay River Mine:

- a. Masked owl nests (a minimum 50 metre exclusion zone where access or works are not allowed, other than for monitoring purposes, until the identified nest is vacated);
- b. Spot-tailed quolls (a minimum 50 metre exclusion zone where access or works are not allowed, other than for monitoring purposes, until the identified nest is vacated);
- c. Tasmanian devil dens (a minimum 50 metre exclusion zone where access or works are not allowed, other than for monitoring purposes, until the identified nest is vacated); and
- d. Wedge-tailed eagle nests (cessation of all access or works at the mine site, other than for monitoring purposes, until the identified nest is vacated).

Establishment of suitable habitat within the Fauna Habitat Protection Zone

A Fauna Habitat Protection Zone (FHPZ) will be established in the western part of the lease, west of West Creek (shown in **Figure 3** which also shows the current preliminary design layout of the mine).

The FHPZ encompasses 154 ha of the following habitats:

- Thick scrub along West Creek encompassing *Eucalyptus obliqua* forest with broad-leaf scrub and *Eucalyptus nitida* dry forest and woodland; and
- Wet heathland.

The FHPZ boundaries have been delineated so as to be readily identifiable on the ground and readily manageable, being West Creek on the east, the lease boundary on the west and existing tracks at the north and south. The linear extent of the FHPZ parallels the maximum extent of the rock dump and tailings dam.

The FHPZ will be clearly identified on operational site maps and with site signage as an area to be protected from disturbance, other than that consistent with the purposes of the zone, such as the creation of den/lay-up opportunities, monitoring and weed and fire management.

The FHPZ will be within the mining lease and will therefore be protected from interference by third parties.

The purpose of the FHPZ is to provide local refugia for any fauna displaced by the clearance of approximately 152 hectares of vegetation to the east of West Creek. Importantly, the clearance of that 152 ha will not occur in one campaign but rather

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progressively over the first few years of the mining operation. Displacement of any devils will therefore be gradual and progressive.

The creation of new dens/lay-ups for devils will achieve at least the quantum and quality of the pre-existing natural opportunities identified during the pre-clearance surveys described above.

Denning and shelter opportunities for devils will be created inside the FHPZ by the establishment of windrows (piles of soil, green timber and other vegetation) within the 30 m buffer separating West Creek and the waste rock dump collection drain (Figure 4). The windrows will be created as close as possible to the waste rock dump collection drain to avoid damage to existing vegetation.

The design and establishment of denning and shelter opportunities for devils will be undertaken by a suitably qualified expert who has had experience in survey and research of wild devil dens and establishing denning and shelter opportunities for wild and captive devils.

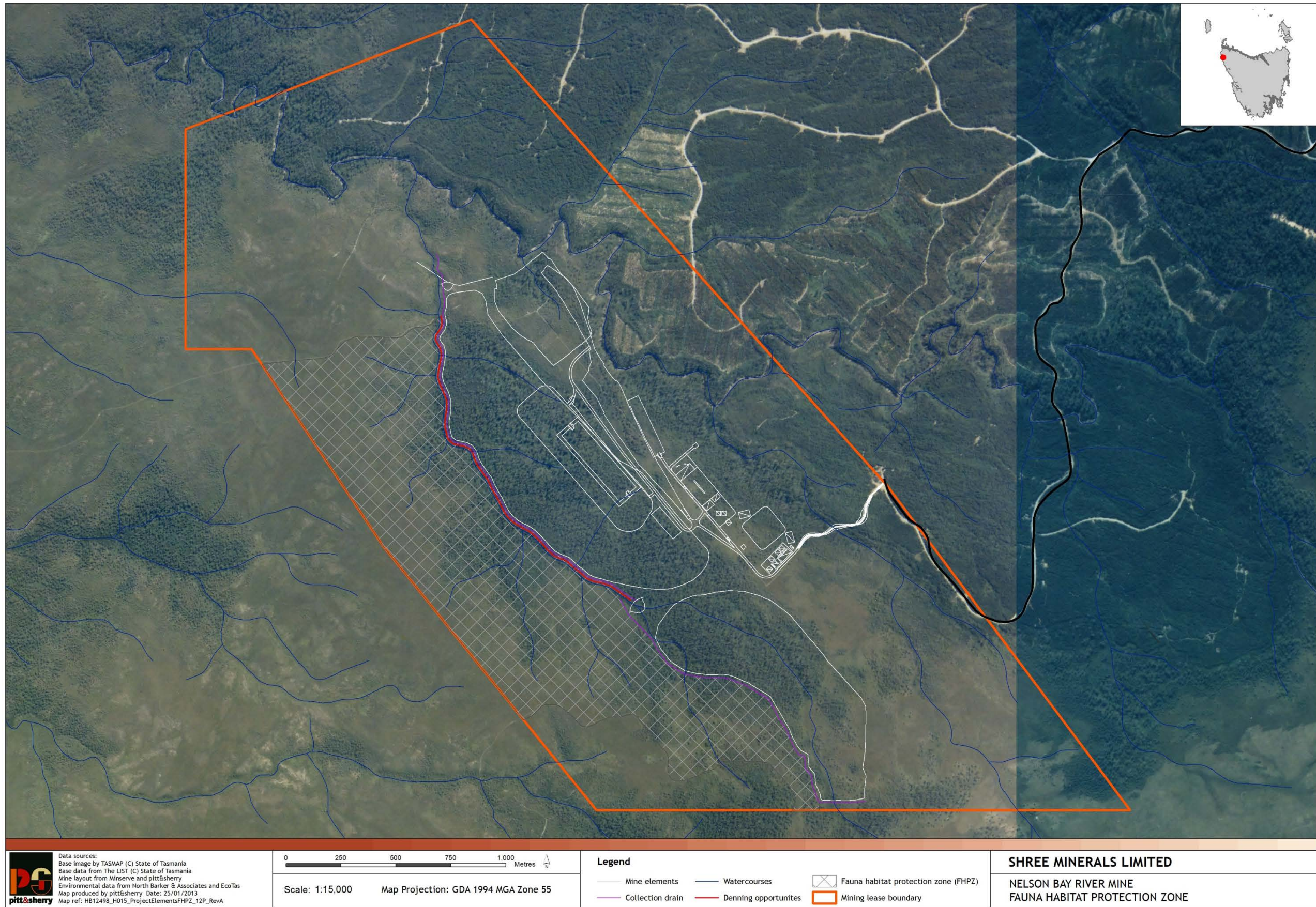


Figure 3
Fauna Habitat Protection Zone (FHPZ)

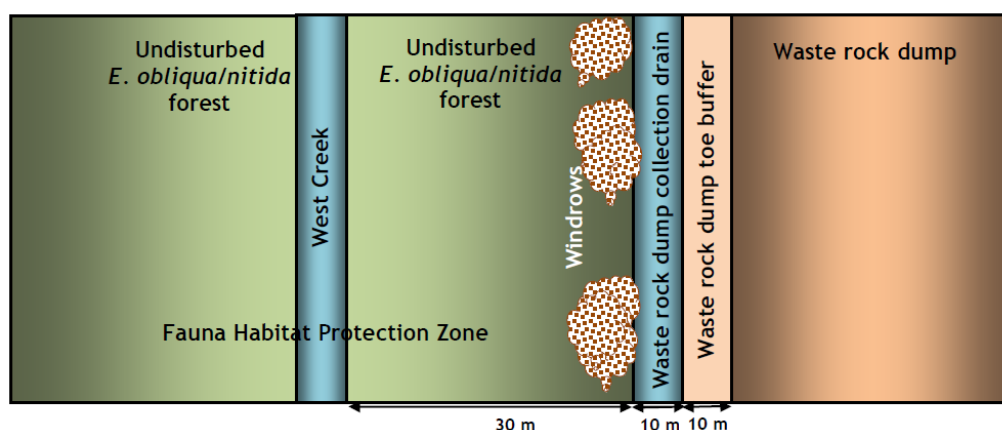


Figure 4

Schematic arrangement of the location of windrows within the Fauna Habitat Protection Zone

Mr Nick Mooney, a recognised Tasmanian devil expert, has provided assistance with the development of this strategy and has advised that, as a general guide, the denning opportunities should be constructed at a well-drained site using 3 to 5 m long lengths of tree trunks larger than 50 cm in diameter pushed into a settled pile at least 25 m long, 10 m wide and 4 m high, preferably including pushed topsoil also. A 1 m (at least) thick layer of branches, bark and off-cuts should then be placed on top and around all sides of the pile.

Materials for the creation of windrows will be sourced from the forest materials cleared for the waste rock dump and tailings dam and will include large trees placed specifically to create suitable denning hollows and to create good fauna shelter.

Mr Mooney will be engaged by Shree Minerals to undertake the preclearance surveys and to provide on-ground advice on the construction of the denning opportunities.

The FHPZ and the denning opportunities created within it will form a prime focus of the monitoring strategy.

2. MONITORING STRATEGY

The objectives of this Tasmanian Devil Monitoring Strategy are to:

- Monitor, detect and report any incidences of Devil Facial Tumour Disease (DFTD) within the mine lease boundary or observed on any roadkill recorded on the transport route;
- To capture and report data in a manner that is compatible (to inform/useable by) relevant Commonwealth and State Strategies, particularly those by the Save the Tasmanian Devil Program;
- Monitor the denning/lay-ups within the FHPZ; and
- Monitor the general condition of the FHPZ.

Should new strategies become relevant (i.e. within the life of the mine) then strategies contained herein will be revised and updated accordingly.

2.1 Monitor, Detect and Report any Incidences of DFTD

The following will be undertaken in order to effectively monitor and detect any incidence of DFTD within the mine lease boundary:

- Eight dedicated DFTD camera traps will be deployed as soon as practicable at locations within the mine lease boundary. Cameras will be of a similar make and model to those used by the STDP;
- The eight camera traps will remain operational and serviced for the entire life of the mine. An additional two cameras will be kept on site as backup when cameras are required to be taken out of duty for service and repair, and these additional cameras may be deployed opportunistically elsewhere on the site too;
- Locations for camera traps will be determined by a suitably qualified expert who has had previous experience in determining locations of camera traps to detect DFTD and who has been confirmed as appropriate with the STDP;
- The setting up of camera traps will be carried out by a suitably qualified expert who has had previous experience in setting up camera traps to detect probable DFTD in devils;
- Locations for camera traps within the mine lease boundary may change over time. An adaptive approach will be undertaken in order to target devil hotspots that may be identified and to take into account changes in the landscape as result of the mine;
- Approaches and protocols for setting up camera traps to target DFTD will be updated as necessary and will be similar to the standard approaches and protocols used by the STDP;
- Camera traps will be checked and serviced weekly by a designated officer employed by Shree Minerals. The designated officer will be trained by an experienced person on how to check and service the relevant brand and model of camera;
- If a road killed or injured devil is found it will be reported directly to the STDP to obtain advice on appropriate further action;
- Any Tasmanian devil roadkill recorded on the transport route suspected of have DFTD will be photographed and the location of the roadkill reported to the STDP;
- To capture and report data in a manner that is compatible (to inform/useable by) relevant Commonwealth and State Strategies, particularly those by the Save the Tasmanian Devil Program;

The setup, monitoring and reporting is compatible with the current STDP. All cameras deployed within the site will be infrared.

2.2 Monitor the Denning/Lay-Ups within the FHPZ

The following will be undertaken in order to monitor denning / layups within the FHPZ:

- Preclearance surveys by a suitably qualified or experienced expert will determine the amount, quality and type of devil denning/lay-up opportunities within the area to be cleared. This information will also be documented in accordance with condition 4 of the EPBC approval;

- The creation of new denning/lay-up opportunities for devils will achieve at least the quantum and quality of the pre-existing natural opportunities identified during the pre-clearance surveys;
- Due to the staged approach of clearing, the creation of new denning/lay-up opportunities cannot occur until some clearing and roading has occurred to gain access to the 30 m buffer separating West Creek and the waste rock dump collection drain (see **Figure 4**);
- The design and establishment of new denning/lay-up opportunities will be undertaken by a suitably qualified expert who has had experience in survey and research of wild devil dens and establishing denning and shelter opportunities for wild and captive devils;
- Six camera traps will be deployed as soon as practicable to monitor denning/lay-up opportunities within the FHPZ. The emphasis for camera traps will be on the new denning/lay-up opportunities which have been created. However, it may take time for these opportunities to settle and become attractive for devils. In the interim, other denning/layups in the FHPZ will be monitored
- The six camera traps in the FHPZ will remain operational and serviced for the entire life of the mine;
- Locations for camera traps will be determined by a suitably qualified expert who has had previous experience in determining dens/layups in the wild;
- The setting up of camera traps will be carried out by a suitably qualified expert who has had previous experience in setting up camera traps around dens/layups;
- Locations for camera traps within the FHPZ may change over time. An adaptive approach will be undertaken in order to target a variety of denning/layup opportunities;
- Camera traps will be checked and serviced weekly by a designated officer employed by Shree Minerals. The designated officer will be trained by an experienced person on how to check and service the relevant brand and model of camera.

All cameras deployed within the site will be infrared.

2.3 Monitor the General Condition of the FHPZ

The following will be undertaken in order to monitor the vegetation condition of the FHPZ:

- A baseline Vegetation Condition Assessment (VCA) will be undertaken of the FHPZ within 6 months of commencement of mine operations;
- The VCA will be carried out by a suitably qualified or experienced expert. The VCA will be in accordance with the standard procedures as outlined in:

Michaels, K. (2006), A Manual for Assessing Vegetation Condition in Tasmania, Version 1.0. Resource Management and Conservation, Department of Primary Industries, Water and Environment, Hobart;
- The VCA will establish a condition score for the FHPZ; and
- Subsequent VCAs of the FHPZ will be carried out every two years.

2.4 Data Management, Analysis and Notifications

The following will be undertaken in order to effectively manage data and notifications:

- All camera data will be downloaded on a fortnightly basis by the designated officer employed by Shree Minerals. The original data will be stored and backed up by Shree Minerals;
- A copy of the data will be sent by Shree Minerals to a suitably qualified expert who has had experience in sorting camera images specifically to detect signs of DFTD in devils;
- The expert will sort through the images and if signs of apparent DFTD are detected, Shree Minerals will be advised immediately and Shree Minerals will then alert the STDP immediately; and
- The expert will prepare monthly correspondence to Shree Minerals documenting the DFTD findings of the camera images. Shree Minerals will forward this correspondence (and the sorted camera data) to the STDP.

2.5 Reporting

All information will be added to the EPBC species register (established under condition 12 of the EPBC approval).

Shree Minerals will also ensure that all data from this monitoring strategy is entered onto the Natural Values Atlas.

Annual reporting by Shree Minerals to Department of Sustainability, Environment, Water, Population and Communities will include the following:

- Progress on the implementation of the identified objectives;
- Identification of any DFTD within the mine lease boundary;
- Emerging trends within the local devil population;
- Effectiveness of new denning/layup opportunities created within the FHPZ;
- VCA scores and any management undertaken actions undertaken within the FHPZ; and
- Changes to the monitoring program and justification for these changes.

This report will also be made available to the Save the Tasmanian Devil Program (STDP) and be published on the Shree Minerals website.

2.6 Monitoring Period

Monitoring will be for life of the mine (estimated 10 years).

2.7 Costs

Shree Minerals will provide all necessary funding to ensure that this strategy is implemented.