EL15/2012
Avoca
Year 2 Annual Exploration Report for the Period 17/12/2013- 16/12/2014

Authors:

Daryl Nunn

Chris Creagh

Imperial Coal Pty Ltd

15A Tate Street

Albion, Queensland

4010

Abstract

EL15/2012 Avoca lies in the Fingal-Avoca Coal District in North Eastern Tasmania where coal has been mined since the 1880's from both opencut and underground mines exploiting coal seams hosted in the Triassic Upper Parmeener Supergroup of the Tasmanian Basin. Within EL15/2012, Imperial is exploring for modest size open-cut and larger underground thermal coal resources that are of sufficient quality to meet export coal specifications.

This report summarises the second year exploration program undertaken by geological consultants Global Ore Discovery (Global Ore) on behalf of Imperial. In this reporting year desktop analysis included land access notifications, cross section interpretation, financial analysis, legislation reviews and drillhole planning and permitting. Field work focussed on identification and mapping of sites for drilling, land holder liaison and meetings with DPIPWE in regards to Geoconservation sites.

Key findings were:

- Drilling should aim to intersect shallow coal in the lower elevations within the Avoca Tenement Area.
- A number of Geoconservation sites potentially constrain any development operations that could be undertaken in the Imperial Tenure in the Fingal Valley including in EL15/2012. These issues could directly impact on the potential viability of any discovery within the EL and as such Imperial have not undertaken drilling activities, as originally planned.

Due to the identification of the Geoconservation sites, Imperial have not been able to complete the Program of Works as originally planned. Imperial have applied to the department for a suspension of license conditions, to allow the project and the Geoconservation sites to be re-assessed. If this assessment is favourable, and pending macromarket conditions, Imperial will move the project forward through initial exploration drilling.

The Year 3 exploration proposal includes six holes consisting of 320m of reverse circulation and 160m of diamond drilling, coal quality testing, land access agreements, cultural heritage, exploration target modelling, and planning and design and permitting of the year four program.

Contents

Table of Figures

1. Introduction

The Fingal-Avoca District in North Eastern Tasmania was identified by Imperial Coal Pty Ltd (Imperial) through an Australian wide evaluation aimed at identifying high quality, under explored coal provinces. Coal has been mined from the Fingal-Avoca District since the 1880's from both opencut and underground mines, exploiting coal seams hosted in the Triassic Upper Parmeener Supergroup of the Tasmanian Basin. Currently, Cornwall Coal Company (a subsidiary of Cement Australia) is mining coal from the district and in September 2013, Hardrock Coal Mining Pty Ltd was granted a mining licence to extract coal from an underground mine development beneath the Fingal Tier.

Imperial's preliminary analysis of the open-file geological and geophysical datasets identified three core areas within the Fingal-Avoca district to undertake further exploration for coal resources. Applications were submitted to Mineral Resources Tasmania in in the first quarter of 2012 for three licences, including EL15/2012, which is the subject of this report.

EL15/2012 'South Avoca' covers an area of 246 sq.km and is approximately 1km due south of Avoca Township (Figure 1). The Esk Main Road passes through the northwestern extent of EL15/2012, and is accessible from the east via Royal George Road and Old Coach Road. Rail infrastructure parallels Esk Main Rd and provides a valuable link to the export port of Bell Bay near Launceston some 150km to the north.

Within EL15/2012 Imperial is exploring for modest size opencut and larger underground thermal coal resources that are of sufficient quality to meet export coal specifications. This report summarises the first year exploration program undertaken by geological consultants Global Ore Discovery (Global Ore) on behalf of Imperial during the period 17/12/2013 to 16/12/2014.

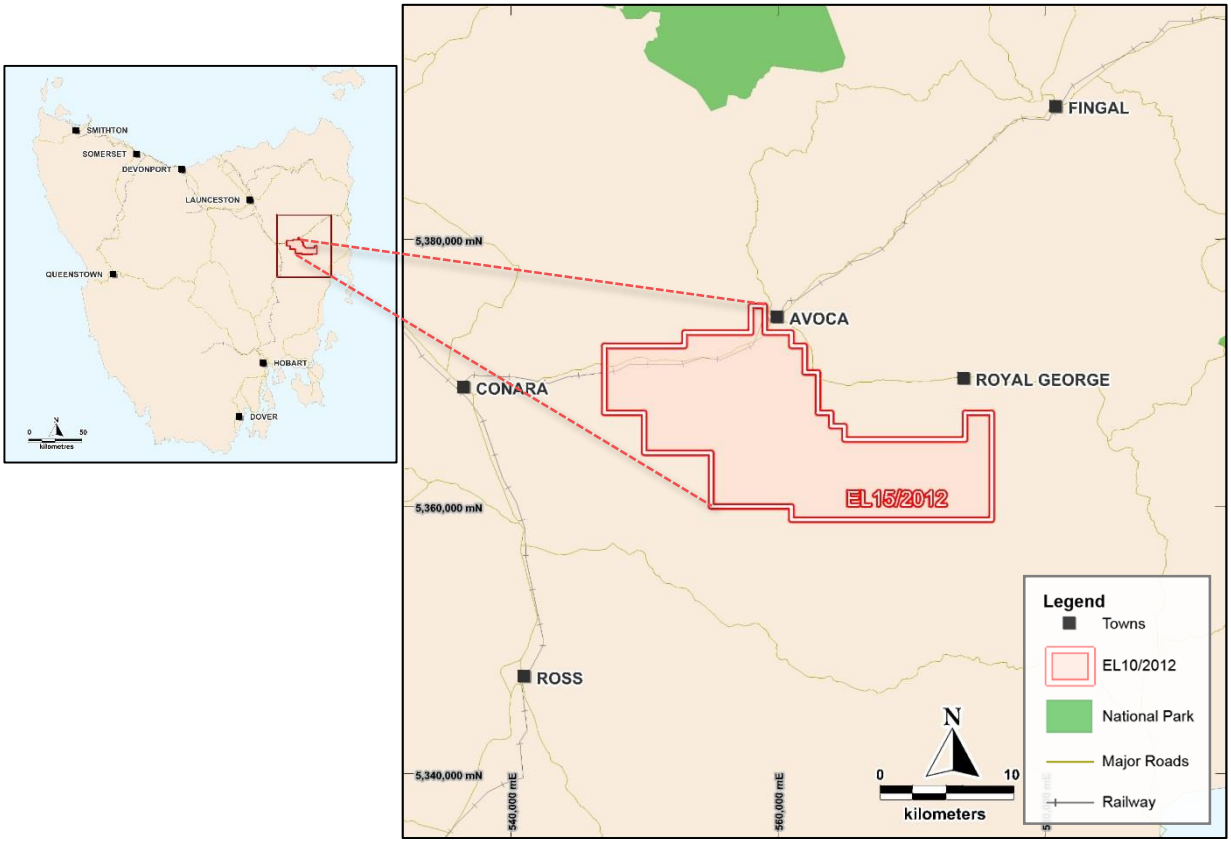


Figure 1 - Location overview of South Avoca EL15/2012

2. Review of Previous Work

Imperial's first year exploration involving remote sensing, historic drillhole review, field mapping, and sectional interpretation has increased the geological understanding of coal occurrences in EL15/2012. Key aspects of this work included:

- ASTER processing and field follow-up program
- Mapping of the outcropping coal including new coal outcrops
- New understanding of the potential for shallow coal (potentially open pittable) from water bore intercepts.

Due to significant vegetation coverage at the time of acquisition, ASTER imagery was of limited use in remote mapping of the stratigraphy but was useful in determining the potential windows of outcropping sediments in large heavily vegetated expanses.

Mapping by Imperial located 2 new coal outcrops/subcrop including coal within a dam spoil spatially coincident to intercepts in water bores of coaly material up to 1.5m. This discovery provides confirmation of the coal intercepts in water bores and provides evidence of the potential for shallow coal discoveries in this area, which has not been tested by historic coal exploration drilling.

The first pass sectional interpretation of the historic drilling through the dolerite in the south of the licence and around the Fenhope mine area to the north, integrated with new field geological and structural mapping, suggests that block faulting may preserve the Upper Parmeener Supergroup in the St Pauls River Valley floor south of Avoca. Additionally, historic coal quality testing of AV1 indicates that there is potential in this area for PCI coal with results from a 1.46m wide seam returning CSN values of 1, energy of 28.15 MJ/Kg and VM of 24.8% (The Shell Company, 1979).

3. Exploration Completed during the reporting period

Preliminary Economic Modelling

The Triassic Upper Parmeener Supergroup Coal Measures that occur within the licence area have been shown by previous explorers to potentially contain significant resources of thermal coal. There is no known occurrence of metallurgical or PCI coal within the licence area. Thermal coal has the lowest value of the three product types described.

The exploration licence contains a significant area that is overlain by a thick sequence of Jurassic dolerite, which is responsible for the steep topography in the southern extents of the project. As a consequence, the areas covered by dolerite are difficult and expensive to explore and are amenable to underground mining only.

All exploration activities must be dictated by potential economic or strategic outcomes. These potential outcomes vary through time depending on circumstances that are forecast or that prevail at the time. The economic outlook for thermal coal over the foreseeable future does not warrant the level of investment required to define a significant underground resource that can only be recovered via an expensive capital and operating cost underground mine.

Any mining operation is dictated by the quality of the resource, the cost of mining and processing the resource, infrastructure required for providing power, water and transport of product to customers, and most significantly, the value of the commodity when sold. The project area has excellent

infrastructure within easy reach, with power and rail within a short distance from potential operational areas, and access to a deep water shipping port at Bell Bay.

A rational decision was made to direct all immediate exploration activities into determining the potential of the licence area to contain an economically viable open-cut thermal coal resource that occurred beyond the base of the Jurassic dolerite. An economic model was developed for a potential open cut mining operation within the Fingal Valley that produced 2 million tonnes per year of washed coal suitable for export to Asian customers for power generation. There are no markets available for coal in Tasmania outside of those already being supplied by Cornwall Coal, which has been operating in Tasmania under various guises for over 100 years.

The economic model was developed over a 15 year mine life, which included all exploration, development and capital expenditure. The model included the construction of a wet coal processing plant and utilisation of the existing TasRail Fingal-Bell Bay rail network and access to TasPorts Berth 2 at the Port of Bell Bay. Local contractor mining rates were used in the model.

To aid in deriving some of the parameters in the economic model collection of important infrastructure data was carried out by an investigative team from Imperial Coal. This investigative team undertook site visits and discussion with key personnel at the TasPorts Bell Bay facility, existing/potential coal mine operators in Tasmania and Melbourne, and desktop research into the potential capacity of the rail system to service any further coal transportation.

The Bell Bay Port is currently a 24hour operation with shipping movements that are tide limited and the largest capacity cargo ships are Panamax (60-80,000 DWT). Given this an estimated maximum potential capacity of a berth supplying a single ship that enters port on a high tide and leaves on the next high tide (1 ship per 24 hours) is around 10-20Mt/annum. At the time of the inspections a paved Berth (Berth 2) was potentially available for use with a stockpile capacity of around 160kt. Further industrial land was available in the port lands for additional stock piles, which would require a conveyor system to the loading docks. An unused woodchip loader could potentially be retrofitted to handle the coal loading, however detailed engineering studies would be required to confirm that this is the case. Additional rail of approximately 1km would be required to be built for the current rail termination to deliver coal to any loading facilities at Berth 2.

Imperial's Fingal Valley project lies approximately 180km away from Bell Bay Port by Rail. Desktop research undertaken on the Tasrail indicates that currently coal is transported 2-3days a week from Cornwalls Fingal Operation (~160,000tpa). In 2012-2013, $100 million was spent on rail upgrades, with another $120 million expected between 2013 and 2018. In 2013 a new locomotive fleet was purchased and this was expected to increase capacity by up to 90%. Based on the capacity of the rail line to Bell Bay with the current freight amounts from Cornwalls operations at Fingal and expected increase rates of freight from Hardrock's Fingal Tier operation, Imperial estimates if it was to export 2million tonnes per annum through Bell Bay using the current rail network that 2-3 additional rail sidings would be required to meet the demand.

Using the information gathered Imperial modelled two key metrics for an open-cut mine; the FOB price of the product and the stripping ratio of the operation. Modest price and exchange rate forecasts were used based on information collected from leading International and Australian based trading companies. The maximum stripping ratio that an open-cut mine within the Fingal valley could economically tolerate was 4:1 (4BCM's waste to 1 tonne of ROM coal).

The target area for the near-term drilling exploration program within the licence was generated based on identification of shallow coal that may fall within this stripping ratio.

Work Approval Programme

The preparation for MRT of the Work Approval Programme for the proposed drilling programme was carried out by Imperial Coal and Donato Environmental Services. Donato Environmental Services carried out all the mandatory searches and analyses of the publicly available databases for matters of ecological and cultural significance. Donato Environmental Services then spent 2 days in the field carrying out a visual inspection of the proposed work areas and noted any relevant observations for inclusion in the proposal.

The final location of the proposed drillholes was a two part process. Initial sites were located close to the planned locations, utilising areas that had been cleared by farming operations. Final drillhole locations were determined following a site inspection of all the proposed drill sites by a representative of Donato Environmental Services. A report is attached in **Error! Reference source not found.**.

As part of the Donato analysis of ecological and cultural significance it was discovered that Imperial's Avoca project in the Fingal Valley was significantly compromised by a Geoconservation Site (Geosite 2833). This site, known as the Castle Cary Structure Landform covers the area of interest identified by Imperial Coal for proposed drilling activities. The geosite is a listed site in the Tasmanian Geoconservation Database (TGD) with the following description provided:

'Extensive block faulted structure having good topographic expression as long fault line escarpments in the Eastern Tiers. The structure of this feature is poorly known south of Lake Leake, and regional geological mapping is required to confirm its location and extent in that area' Report to Forestry Tasmania by C. Sharples, 1995), and: *'Escarpment forming the southern end of Badajos Tier, at the northern end of Lake Leake, extends from Rassarden region south to the Buckland area. Areas of best topographic expression occur in the Lake Leake region (Snow Hill, Ferrars Tier, Wingys Tier and Badajos Tier).*

The entire area defined as the geosite covers approximately 450 km and covers a number of towns including Avoca (Figure 2). During a review of the drill sites, no evidence of escarpments was noted, with the entire area of interest being relatively flat, agricultural land, with no exposed rock formations.

Information provided by various Departments indicates that this Geoconservation site should not be a significant impact on drilling activities, however it is less clear how this site would impact on any future mining activities in the EL15/2012 given that it overlaps with a significant proportion of the target area for exploration. In order to give certainty to Imperial moving forward with exploration a suspension of licence conditions has been sought so that Imperial can seek a reassessment of Geosite 2833.

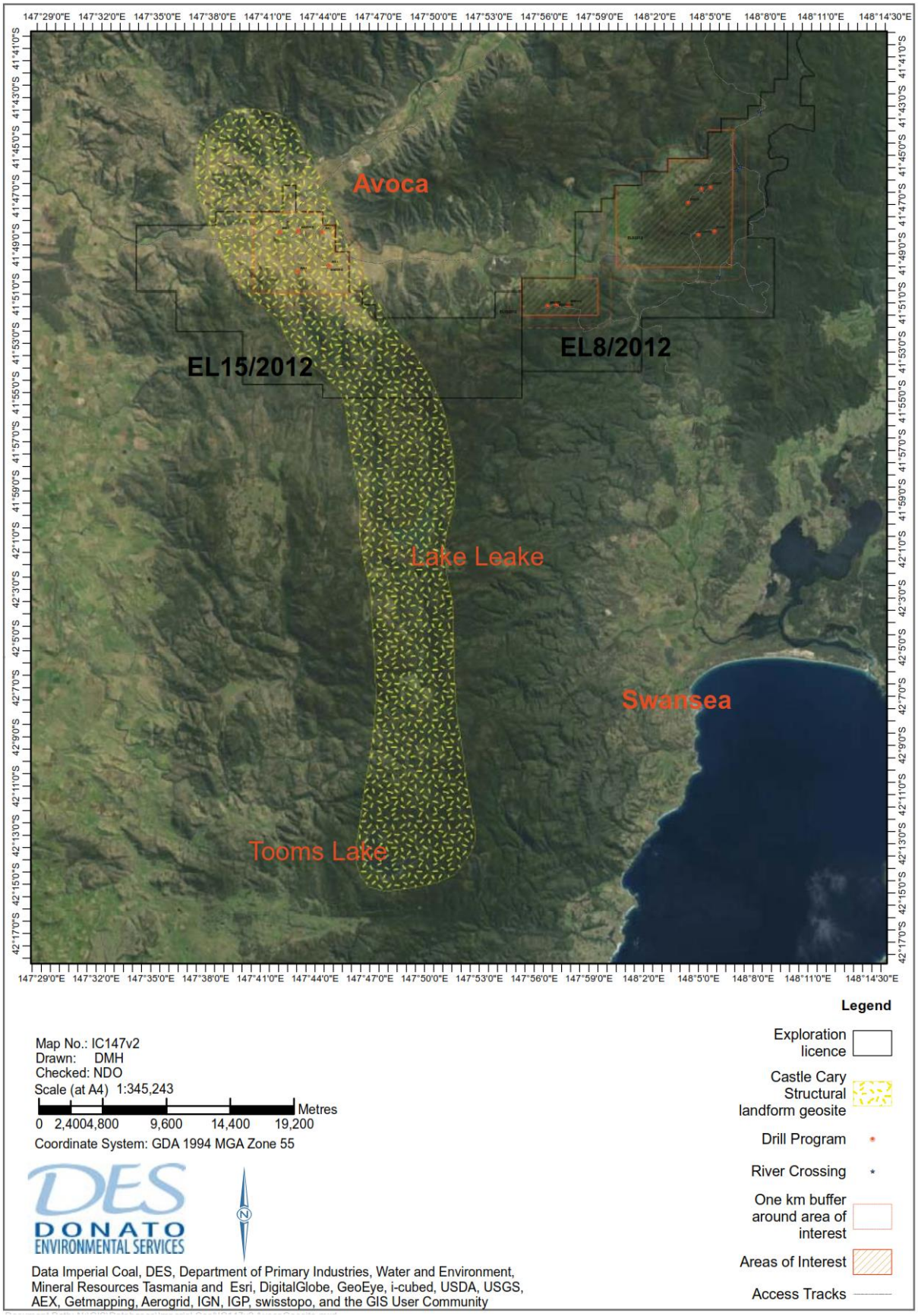


Figure 2 Location of Geosite 2833, proposed drillholes from Donato Report see Appendix 1.

4. Discussion of Results and Conclusions

EL15/2012 is prospective for export thermal coal resources within the Upper Parmeener of the Tasmania Basin. Little to no exploration has been conducted for coal in the area since the 1990's with the bulk of exploration being a few drillholes through the dolerite in the 1990's. Imperial is exploring EL15/2012 for shallow, modest-size opencut and larger export thermal underground coal resources.

Imperial's 2nd year exploration involved financial analysis of a 2Mt/yr opencut export thermal coal operation sourcing from a multipit scenario of which any discovery on EL15/2012 could potentially provide feed to. Drillholes have been planned in areas where previous water bores have intersected coal and where field mapping by Imperial in Year 1 has identified outcropping coal in dam excavations.

Environmental analysis undertaken as part of the Exploration drilling program planning and approvals process indicate that the area targeted for shallow coal is significantly impacted by Geosite 2833 which although does not provide an immediate impact to exploration may be a impediment to any mine development in the future if exploration is successful.

5. Environment

None – See Donato Environmental Report (**Error! Reference source not found.**) for additional information on Environmental matters that may be of issue for further exploration in the Licence.

Expenditure

Imperial has not met the expenditure that was expected on the licence due to not undertaking the drill program. This drill program is anticipated to be undertaken if the Geosite 2833 is reassessed and deemed not to be an impediment to any future opencut mining.

Table 1 Expenditure statement for EL15/2012

	Annual Expenditure	
1A. Geology	$	3,631.30
1B. Geochemistry	$	-
1C. Geophysics	$	-
1D. Remote Sensing	$	-
2A. Gridding	$	-
2B. Drilling	$	2,137.50
3. Land Access Costs	$	5,307.98
4. Rehabilitation	$	-
5. Feasibility Study	$	1,353.78
6. Other (fees, surveys etc)	$	7,027.85
7. Administration Costs	$	1,974.25
TOTAL	$	21,432.66

References

Bacon, C.A. 1991. The Coal Resources of Tasmania. Division of Mines and Mineral Resources, Geological Survey Bulletin, 64.

Sharples C 1995 Geoconservation in forest management - principles and procedures. Tasforests 7: 37-50

The Shell Company (Anonymous). 1979. Exploration licence 18/77, Avoca (north of 5350000 mN), Six monthly progress report for period ending 26th January 1979. MRT openfile report: 79_1334.

Keywords

Coal Black

Coal General

Fingal Coal Field

Avoca

Water Bores

Upper Parmeener

Lower Parmeener

Tasmanian Basin

ASTER

EL15/2012

Appendix 1. Donato Environmental Report

Donato Environmental Services
ABN: 68083 254 015
Mobile: 0417 819 196
Int'l mobile: +61 417 819 196
Email: ddonato@rbe.net.au

Environmental desktop study of exploration lease EL15/2012 – Avoca, Fingal Valley, Tasmania

Report to:

Imperial Coal

June 2014

V1

REPORT

Pangolin Associates

DES

Disclaimer

This report has been prepared and produced by Donato Environmental Services (ABN 68083 254 015) in good faith. However, Donato Environmental Services accepts no liability (including liability of negligence) and takes no responsibility for any loss that a user of this report or any third-party may suffer or incur as a result of reliance or use, as stated or inferred in this report, and in particular for:

- any errors, misinterpretations or omissions in the report;
- any inaccuracy in the information and data on which this report is based or contained in this report; and
- any interpretations, recommendations or opinions stated in, or which may be inferred from, this report.

Citation

Overdevest, N. D., Madden-Hallet, D. M. and Donato, D. B., 2014. Environmental desktop study of exploration lease EL15/2012 – Avoca, Fingal Valley Tasmania. Imperial Coal, Report V1, Donato Environmental Services, Darwin.

Distribution

Receivers	Copies	Date Issued	Contact Name
Imperial Coal	Version 1	20 June 2014	Chris Creagh

Background

Imperial Coal Pty Ltd (Imperial Coal) holds three tenements for coal in the Fingal Valley in northeast Tasmania. These tenements, Avoca (EL15/2012), Merrywood (EL8/2012) and Silkstone (EL10/2012) cover a combined area of 520 km^2 and are shown in Figure 1. Historic and active coal mining operations exist in tenure adjacent to Imperial Coal's exploration tenements including the active Duncan Mine. Historic exploration drilling has been conducted within these leases by previous tenement holders indicating prospective thermal coal resources. Results from these historic drilling programs have been used to help define the currently proposed coal exploration program to be conducted by Imperial Coal. One of these tenements, exploration lease (EL) 15/2012, known as Avoca, is located from approximately 4 km south of the Avoca township and covers an area of 246 km^2. The area of interest for the current proposed coal exploration activities is located in the north-eastern corner of the lease and contained entirely within privately owned land.

Exploration activities in Tasmania are governed by Mineral Resources Tasmania (MRT) under the *Mineral Resources Development Act 1995 (*MRD Act). A Mineral Exploration Code of Practice has been developed and is approved under section 204 of the MRD Act. Compliance with this Code is a standard licence condition for all explorers. Prior to exploration drilling taking place, a work program must be submitted to MRT for approval. As part of the approval process, land managers and other relevant government bodies are invited to comment on the program. The work program must include details of the activities to be undertaken as well as potential impacts to flora, fauna, archaeological sites and mitigation measures to be implemented to minimise impacts. Proposed rehabilitation methods should also be provided within the work program.

As part of the work program approval process, Imperial Coal engaged Donato Environmental Services (DES) to undertake an environmental desktop study to be submitted as part of the work program approval. Specifically, the desktop study was to include details on:

- land tenure and status of the area of interest;
- current land use of the area of interest;
- soil descriptions that may be affected by earthmoving operations;
- vegetation that may be affected;
- rare or threatened species or communities known from within the area of interest;
- sites of historic or archaeological significance; and
- any other environmental constraints.

This report provides the findings of this desktop study as well as observations of field conditions as reviewed during a site visit in May 2014 by DES. Management and precautions to be taken to limit any potential impacts are provided and recommended methods for rehabilitation are also included. This report covers exploration activities

on the Avoca lease only. Specific reports covering exploration activities on the Merrywood and Silkstone leases are provided separately.

Proposed drilling program

Imperial Coal is currently proposing to undertake exploration drilling for coal (thermal) within the Avoca exploration lease (EL15/2012). An area of interest within the lease has been defined and a drilling program developed to target this area. Figure 2 shows the area of interest and proposed drill holes. Six drill holes are proposed at five sites. Drilling will consist of two diamond drill holes and four open-hole drill holes. These sites, denoted as AVA1, AVA3, AVA8, AVA9 (open hole sites) and AVADDH12 and AVADDH13 (diamond drill hole sites) are shown on Figure 2 and photographs of each site is provided in Appendix A. It should be noted that AVA9 and AVADDH12 are located at the same drill site and as such only five drill sites in total will be required as part of the current work program. Specific details of the drilling program are provided in the main work program approval application (provided by Imperial Coal).

Each drill site will encompass a hard-stand area of approximately 25 m by 25 m (excluding access tracks). This area will allow safe access and operations during drilling activities while limiting disturbance to the extent feasible. Wherever possible, above-ground tanks will be used to contain and re-circulate water encountered during drilling activities. Where it is not possible to locate tanks on site, sumps approximately 2 m long by 1 m wide and 0.5 m deep will be constructed downstream of the drill hole. For open-hole drill sites, one tank or sump will be required while for diamond drill hole sites, three sumps or tanks will be required. Drilling activities will be short term with open-hole drilling completed in approximately one day (depending on conditions encountered during drilling) and approximately ten days for diamond drill holes (again dependent on conditions). Drilling will be conducted during day time only, and no night drilling will be conducted. Drillers will be based in towns close to the site and no camps will be required. Rehabilitation of the sites will be conducted as soon as practical at the completion of drilling activities.

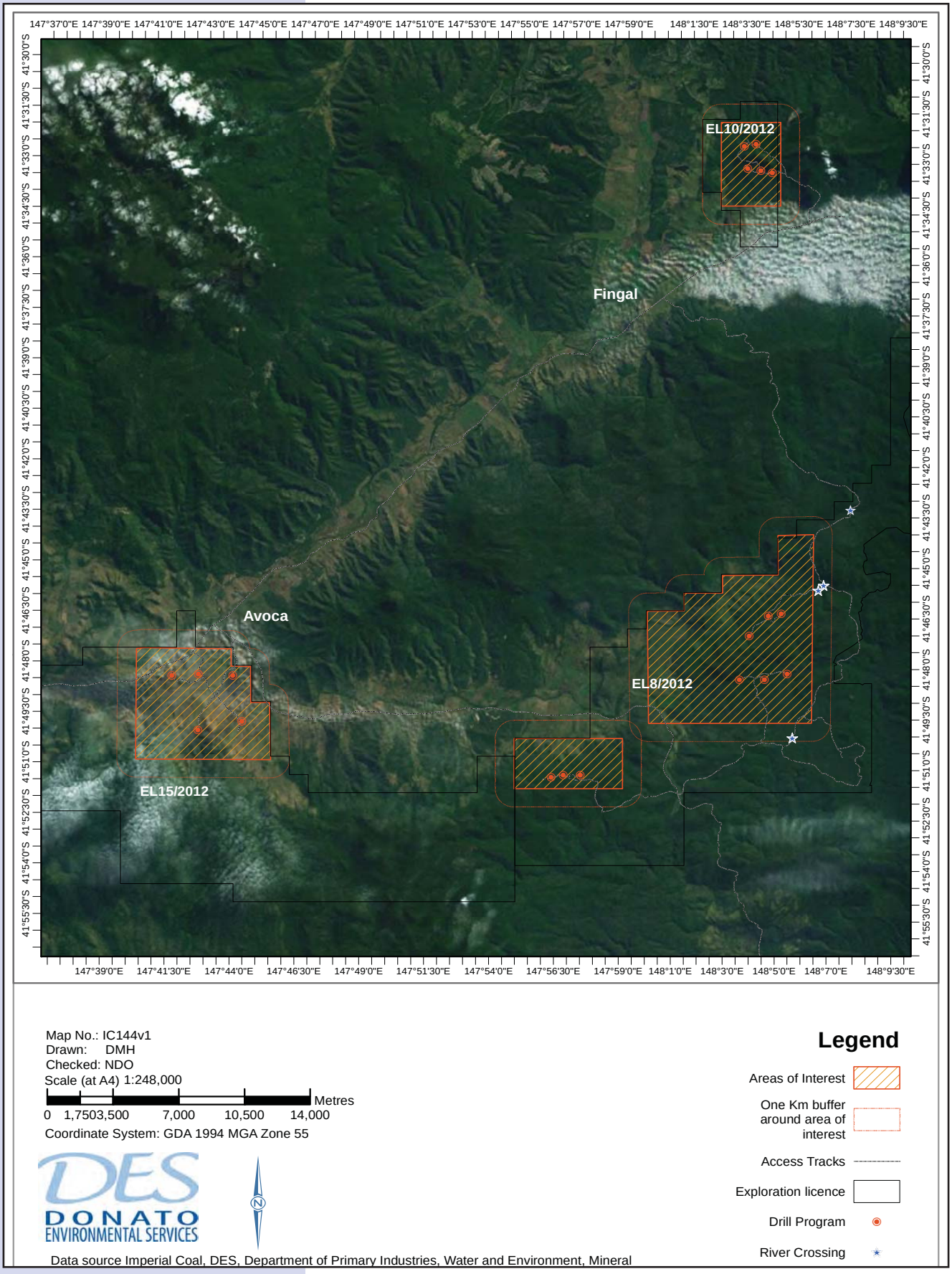


Figure 1. Imperial Coal Pty Ltd exploration tenements in the Fingal Valley, Tasmania

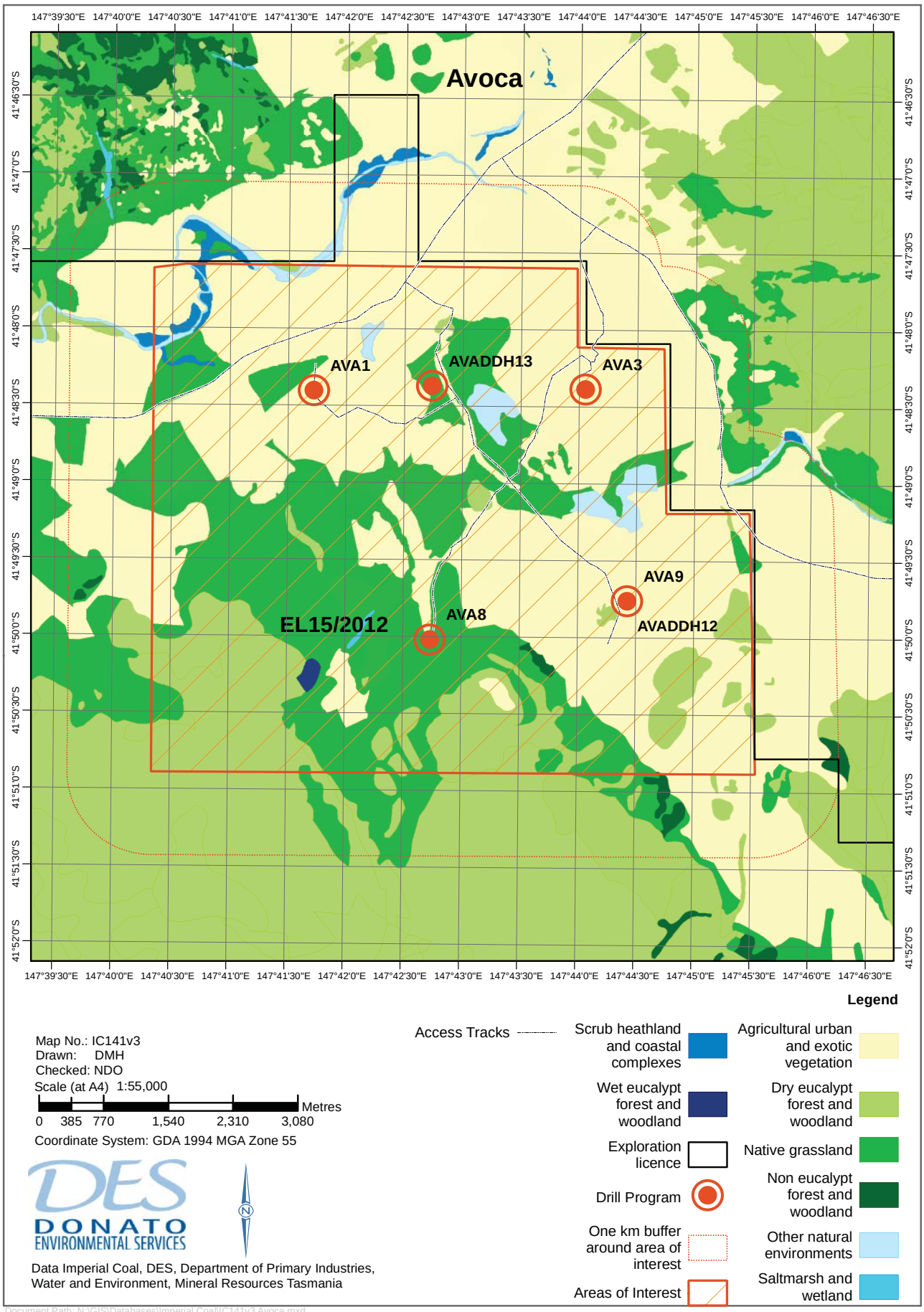


Figure 2. Imperial Coal's Avoca tenement, Exploration Lease 15/2012

Methodology

Information presented in this report is primarily derived through desktop surveys. Database searches were carried out to obtain available information on flora and fauna species, soils, land tenure and any other environmental matters of significance both on a state and federal level in the area of interest. Searches specific to threatened flora and fauna included:

- Department of Primary Industries Parks, Water and Environment databases (Natural Values Atlas and the land information system Tasmania (List)) within and extending to 1 km beyond the boundary of the area of interest (as shown on Figure 2);
- other databases such as the Atlas of Living Australia: Tasmania, within and extending to approximately 1 km beyond the boundary of the area of interest;
- an EPBC protected matters search within and extending to 1 km beyond the boundary of the area of interest;
- other relevant databases and online publications such as, but not limited to, Natural Resource Management (NRM) North Tasmania.

Searches specific to threatened fauna included:

- Birdlife Australia database – search was performed for the overall tenement areas

Other searches specific to Important Bird Areas; RAMSAR wetlands, vegetation types, heritage, geoconservation, soils, reserves, covenants, private reserves, land status and use included, but not limited to:

- an EPBC protected matters search within and extending to 1 km beyond the boundary of the area of interest;
- Birdlife Australia database search within and extending to 1 km beyond the boundary of the area of interest;
- Department of Primary Industries Parks, Water and Environment Natural Values Atlas Tasmanian Vegetation database (Natural Values Atlas and the List) within and extending to 1 km beyond the boundary of the area of interest; this database was searched for vegetation associations within the area of interest;
- an EPBC protected matters search within and extending to 1 km beyond the boundary of the area of interest;
- reserves, covenants and private reserves such as those owned by, but not limited to, Tasmanian Land for Conservation and Wildlife Trust were determined via the Natural Values Atlas and personal communication (pers. com. D. Madden-Hallett, DES); and
- general literature and databases such as, but not limited to, the Australian Soils database, Mineral Resources Tasmania database, the Natural Values Atlas database, the List, Australian Heritage database, Tasmanian Heritage Register, National Land and Water Resources Audit Atlas, Environment Protection Agency Tasmania

and Australian Rivers and Natural Resource Management (NRM) North Tasmania.

A field visit of the area of interest including each proposed drill site location was conducted from 19 to 21 May 2014 inclusive, by Noëlle Overdevest (DES) and Chris Creagh (Imperial Coal Pty Ltd). The site visit included reviewing accesses to each drill site and identifying any environmental issues associated with drilling activities (including location of sites and access). Opportunistic observations of wildlife and flora within the vicinity of the drill sites and accesses were conducted and documented. Photographs of all sites were taken to show relative location of site, extent of clearing (if required) and environment directly adjacent to the drill sites. All drill site locations were marked with a GPS for later mapping. Specific mitigation measures to avoid and minimise potential environmental impacts were identified as part of site observations and where required, drill sites were adjusted to avoid or minimise any clearing required. No specific flora or fauna surveys were conducted as part of the site visit.

Results

Land tenure, status and current use

The area of interest for the current work program is shown in Figure 2. Although forested areas are present in the south-eastern portion of EL15/2012, the area of interest and all drill sites are located entirely on private freehold land. The area is currently used for cropping and grazing. All drill sites are located on previously cleared land (as shown in photographs in Appendix A) and access is via existing farm tracks. No impacts to current land use practices have been identified as a result of the proposed drilling activities. Consultation with the landholder has been conducted and will continue prior to and during activities. Timing of drilling activities will be discussed with the landholder and conducted in a manner which minimises disruptions to agricultural activities.

Soils

A review of soil types within the area of interest was conducted using the Natural Values Atlas and the List database system. Although specific soil testing data of the drill sites and access tracks was not available, soils within the region are classed as dermosols, derived from undifferentiated Cainozoic sediments, alluvial gravel, sand and clay; Holocene alluvial deposits, marsh and swamp deposits; Aeolian deposits and locally derived sands. The results of the database search indicated that there is a low to very low potential for acid sulphate soils to be encountered at the proposed drill site locations. Establishment of the drill sites may necessitate levelling of the drill pad. Soils will be removed and stockpiled (conserved) next to the site prior to levelling and compacting the pad. On completion of drilling activities and as part of rehabilitation activities, these soils will be returned over the disturbed area and the area lightly scarified to promote infiltration and revegetation.

Vegetation

A search of vegetation types within the Avoca exploration lease was conducted over the area of interest including a 1 km buffer around this area. The vegetation types identified from this search is provided in Table 1 and shown in Figure 2. During the site visit a review of vegetation types along access tracks and drill sites was also conducted. As shown in the photographs provided in Appendix A, vegetation within the Avoca area of interest has largely been cleared and replaced with crops and pasture species. Vegetation at the proposed drill sites was limited to grasses and weeds (thistles). No trees or shrubs were present on, or in direct vicinity of the drill sites or existing tracks. Preparation of the drill sites will require removal of these grasses and weeds and removal of the topsoil. These materials will be stockpiled adjacent to the pad during drilling activities and re-spread over the site on completion of drilling. Care will be taken to minimise the spread of weeds as part of rehabilitation activities.

Table 1. Vegetation types identified for the area of interest (List)

Vegetation type	Vegetation community	Occurrence at drill sites and/or access tracks (DES field observations)
Sphagnum peatland		Absent
Native Grassland	Lowland grassland complex Lowland grassy sedgeland Lowland *Poa labillardierei* grassland	Absent
Dry eucalypt forest and woodland	*Eucalyptus amygdalina* forest and woodland on dolerite *Eucalyptus amygdalina* forest and woodland on sandstone *Eucalyptus amygdalina* inland forest and woodland on Cainozoic deposits *Eucalyptus amygdalina* coastal forest and woodland *Eucalyptus pauciflora* forest and woodland on dolerite *Eucalyptus rodwayi* forest and woodland	Absent
Non eucalypt forest and woodland	Bursaria; Acacia woodland and scrub	Absent
Agricultural, urban and exotic vegetation	Agricultural Land Weed infestation Regenerating cleared land	Present, dominant

Vegetation type	Vegetation community	Occurrence at drill sites and/or access tracks (DES field observations)
Other Natural environments	Sand, Mud	Absent
	Water, Sea	
Scrub heathland and coastal complexes	Eastern riparian scrub	Absent
Saltmarsh and wetland	Freshwater aquatic sedgeland and rushland	Absent

Rare or threatened species or communities

A review of potential rare or threatened species and communities as listed under the *Environmental Protection and Biodiversity Conservation* (EPBC) Act (federally-listed) and the *Threatened Species Protection (*TSP*) Act 1995* (state-listed) was conducted. The search was conducted within and extending to 1 km beyond the boundary of the area of interest (as shown in Figure 2). The findings of this search are summarised in Appendix B.

Under the EPBC Act, three listed threatened ecological communities were recorded as possibly occurring or relating to the defined search area. None of these communities, *Eucalyptus ovata - Callitris oblonga* forest (vulnerable under the EPBC Act), Alpine Sphagnum bogs and associated ferns (endangered under the EPBC Act) and Lowland Native Grasslands of Tasmania (critically endangered under the EPBC Act) were observed during the site visit. As shown on Figure 2, the Lowland Native Grasslands of Tasmania community may occur at drill sites AVA8 and AVADDH13. Although a specific flora assessment of the sites was not conducted, opportunistic observations and a review of the conditions determining the presence of the listed Lowland Native Grasslands of Tasmania communities indicates it is unlikely to be present due to the disturbed nature of the sites, the presence of weed and other introduced species) and the percentage of native groundcover not meeting the requirements of these ecological communities. The Avoca area of interest has been severely modified through long-term farming practices and consequently little to no native vegetation remains in the immediate vicinity of the proposed drill sites and access tracks. Adjacent land may contain these communities (particularly native grassland and the *Eucalyptus ovata – Callitris oblonga* forests) however no drilling activities will occur in these adjacent areas and therefore no impact is expected should these communities be present.

Under the EPBC Act, 12 avian species and three mammal species were listed as possibly occurring or relating to the defined search area (Table 2). No fauna species listed under the TSP Act were recorded for the search area. A search of the Birdlife Australia database was conducted as a combined search of the three Imperial Coal tenements (not specifically Avoca). This search indicated that 88 avian species had been recorded from surveys for the area. Of the 12 avian species listed

under the EPBC Act, five (Australasian Bittern, Swift Parrot, Gould's Petrel, Fork-tailed Swift and White-throated Needletail) have not been recorded for the area and consequently are considered unlikely to occur within the vicinity of the drill sites. Of the remaining seven species, only one (Wedge-tailed Eagle) was observed opportunistically during the site visit with two individuals observed flying in the area of drill site AVA3 and roosting on nearby cleared rises. Drilling activities are unlikely to impact on this species due to the short-term nature of drilling activities, a lack of nearby nest sites and that no additional clearing is required. Of the remaining species (determined to possibly occur within the Avoca area of interest), no impact is expected as a result of the proposed drilling activities due to the short-term nature and small scale of drilling activities and no additional clearing taking place.

The three listed mammal species (Tasmania Devil, Spotted-tail Quoll, and Eastern Barred Bandicoot) are unlikely to occur within the vicinity of the drill sites due to a lack of habitat availability (that is trees, shrubs and groundcover) and protection from predators. The presence of human activity associated with farming activities would also limit the likelihood of these mammals being present. One amphibian (Southern Bell Frog, listed as vulnerable under the EPBC Act) was recorded from the searches. It is unlikely to occur in the vicinity of the drill sites due to its dependence on water (does not tolerate dry conditions).

As expected, a number of introduced species (listed as key threatening processes under state and national legislation), have been identified as likely to occur or relate to the area of interest (Domestic Cat, Brown Hare, European Rabbit and Red Fox). This is expected due to the highly modified ecosystem, the provision of resources (food and shelter) and is considered typical of rural/farming cropping and grazing operations. Drilling activities are unlikely to have an impact on these species due to the short-term nature of drilling activities. All rubbish generated on site (for example food wastes) will be disposed of in sealed bins and removed from site as soon as possible to prevent attracting introduced species to the sites.

Flora species of conservation significance listed under the EPBC Act and TSP Act is provided in Appendix B. Although no specific field surveys were conducted for threatened flora species during the site visit, it is unlikely that the listed species will occur within the vicinity of the Avoca drill sites. As mentioned, the sites are located on extensively cleared farming land with little to no native vegetation present. No additional clearing will be conducted and access will be via existing tracks. No impact to any listed flora species is expected as a result of the proposed drilling activities.

Table 2. Fauna species listed under the EPBC Act

Species name	Common Name	EPBC Act	EPBC Act migratory	EPBC protected matters species or species habitat	Likelihood of occurrence at drill sites and/or access tracks
Litoria raniformis	Southern Bell Frog	Vu		Likely	Unlikely[3]
Dasyurus maculatus maculatus	Spotted-tail Quoll	Vu		Known	Unlikely[3]
Perameles gunni gunnii	Eastern Barred Bandicoot	Vu		Likely	Unlikely[3]
Sarcophilus harrisii	Tasmanian Devil	En		Likely	Unlikely[3]
Aquila audax fleayi	Wedge-tailed Eagle	En		Likely[4]	Likely[1]
Botaurus poiciloptilus	Australasian Bittern	En		May occur	Unlikely[2]
Lathamus discolor	Swift Parrot	En	M	May occur	Unlikely[3]
Pterodroma leucoptera leucoptera	Gould's Petrel	En		May occur	Unlikely[2]
Tyto novaehollandiae castanops	Masked Owl	Vu		Known	Possible
Apus pacificus	Fork-tailed Swift		MM, M	Likely	Unlikely[2]
Haliaeetus leucogaster	White-bellied Sea-Eagle		MT, M	Known	Possible
Hirundapus caudacutus	White-throated Needletail		MT, M	Known	Unlikely[2]
Myiagra cyanoleuca	Satin Flycatcher		MT, M	Known	Possible
Ardea alba	Great Egret		MW, M	Likely	Unlikely[2]
Ardea ibis	Cattle Egret		MW, M	Likely	Possible
Gallinago hardwickii	Latham's Snipe		MW, M	May occur	Unlikely[3]

[1] – Recorded by DES during site assessment. Recorded in Birdlife Australia atlas for search area

[2] – Not recorded from surveys listed in Birdlife Australia database (for combined search area of all Imperial Coal tenements)

[3] – Unlikely based on lack of suitable habitat available in Avoca area of interest

[4] - Breeding habitat likely

Vu - Vulnerable

En - Endangered

M - Marine

MM - Migratory marine

MW - Migratory wetlands

MT - Migratory terrestrial

Sites of historic or archaeological significance

A desktop assessment for sites of Aboriginal heritage was conducted by Aboriginal Heritage Tasmania (AHT). Results from this assessment indicate that a number of Aboriginal heritage sites may be present within the Avoca exploration lease (entire area and not just the defined area of interest). Five of these sites may be located within proximity of the proposed drill sites. Imperial Coal will investigate the nature of these sites prior to commencing exploration activities and if necessary, alter the positions of the drill sites. Further information regarding the assessment, including a plan showing the approximate location of the identified sites is provided in Appendix C.

Other environmental constraints

A search for matters of national environmental significance and other matters protected under the EPBC Act and a search of the Register of the National Estate (RNE) was conducted for the area of interest of the Avoca EL. From these searches, seven listed sites were recorded. Of these, two are natural sites and five are historic sites (see Appendix B). The historic sites are registered sites and are all buildings (church, parish hall, house, rectory and outbuildings) located in and around the township of Avoca. None of these sites occur within the area of interest and will not be affected or impacted upon by the proposed drilling program. The two natural sites, the Avoca Regional Reserve and the St Pauls River Riparian vegetation remnant are listed as indicative places and are located 4.3 km east and 4.5 km southeast of the Avoca township respectively. The Avoca Regional Reserve is outside of the Avoca exploration lease and will therefore not be impacted by the proposed drilling operations. The St Pauls River Riparian vegetation remnant is located adjacent to and outside the eastern boundary of the Avoca exploration lease. Consequently no impacts to this reserve will occur as a result of the proposed drilling operations.

A review of the Tasmania geoconservation sites database indicated the presence of one geosite within the Avoca exploration lease. The site, Castle Cary Structure Landform (geosite identification number 2833) is a listed site and described as:

'Extensive block faulted structure having good topographic expression as long fault line escarpments in the Eastern Tiers. The structure of the feature is poorly known south of Lake Leake, and regional geological mapping is required to confirm its location and extent in that area' (Report to Forestry Tasmania by C. Sharples, 1995), and:

'Escarpment forming the southern end of Badajos Tier, at the northern end of Lake Leake, extends from Rassarden region south to the Buckland area. Areas of best topographic expression occur in the Lake Leake region (Snow Hill, Ferrars Tier, Wingys Tier and Badajos Tier).

The entire area defined as the geosite covers approximately 450 km^2 and covers a number of towns including Avoca (Figure 3). During a review of the drill sites, no evidence of escarpments was noted, with the entire area of interest being relatively flat, agricultural land, with no exposed rock formations. As stated in the assessment report (generated from the Tasmanian heritage database), the site is listed as a least concern site with only large scale quarrying of escarpment slopes listed

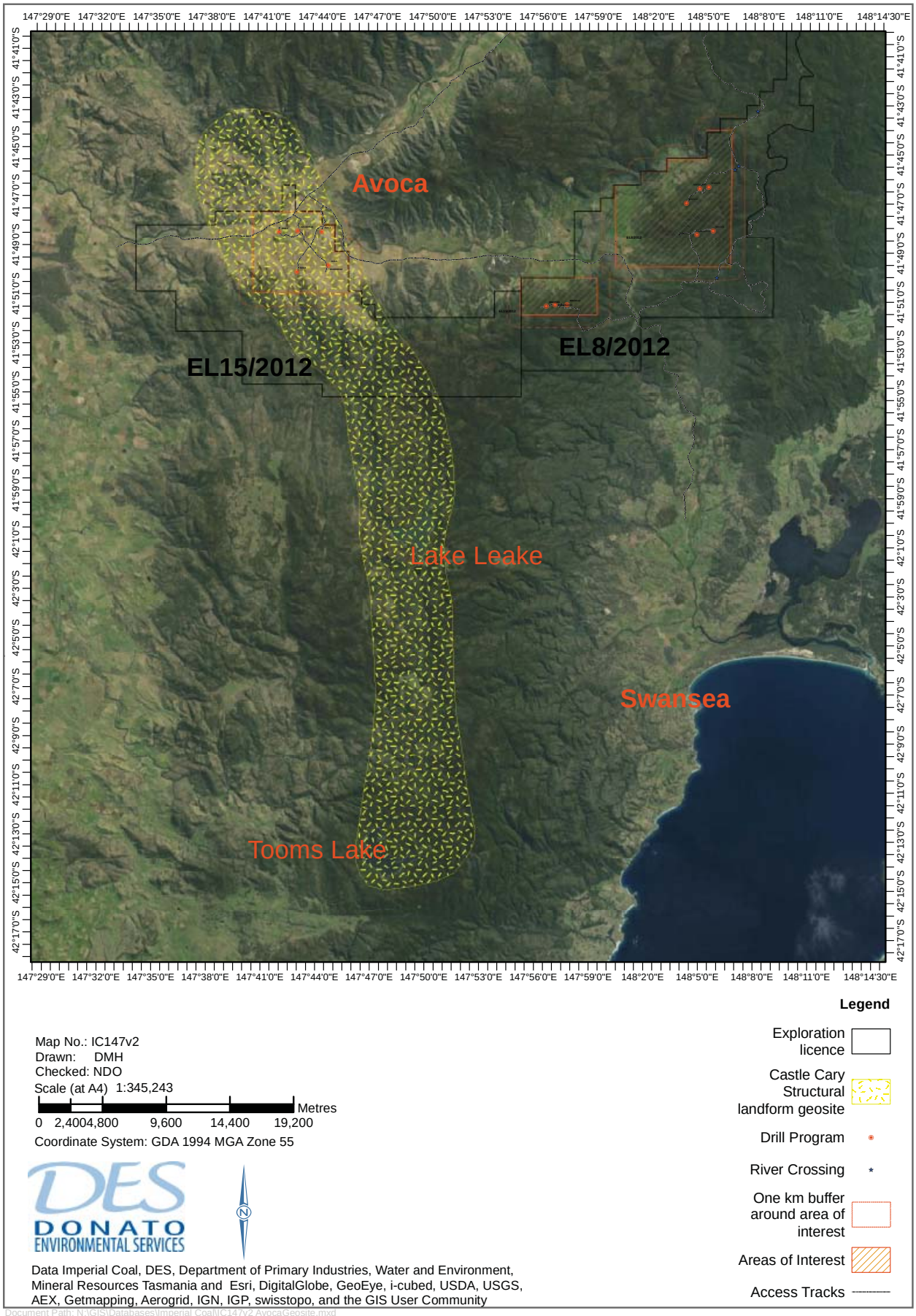


Figure 3. Avoca exploration lease showing proposed drill holes and location of Castle Cary geoconservation site

as likely to degrade the value of this geosite. No impact by the proposed drilling program to the geosite is considered likely due to the location of the proposed drill sites and the small scale of drilling activities.

Discussion

Management and mitigation measures

No other environmental constraints were identified during the desktop and field searches. Minimal environmental impacts are considered likely as a result of the proposed drilling program due to the lack of native vegetation and habitats available for native fauna. Drilling activities will be small scale and short-term thereby minimising potential environmental impacts. All drilling operations will be located on freehold land currently used for grazing and cropping. Consequently, the area has been extensively cleared and no additional clearing will be required. Only minimal ground disturbance works (for example levelling of drill pads, construction of sumps and diversion drains and maintenance of tracks) will be required.

Small farm dams are located within the Avoca area of interest and are used by the landholder for cropping and grazing activities. No drilling activities will occur within the vicinity of these farm dams. Sumps (or tanks) will be used to contain drill fluids and water encountered during drilling. Although bunding and diversion drains are not considered necessary for any of the proposed drill sites due to their locations on relatively level ground with minimal catchment areas, they will be used where necessary. Drilling activities will be coordinated to avoid wet periods, however in the event that high rainfall events are encountered during drilling, temporary diversion drains and/or bunding around the sites will be implemented to ensure no off-site releases of water and divert clean water around the site. Adequate freeboard on all sumps (or tanks) will be maintained to ensure adequate capacity is available during rain events. Water required for drilling activities will be imported to site or obtained via agreement with the landholder.

All exploration activities, including preparation and rehabilitation of drill sites will be conducted in accordance with the MRT's Mineral Exploration Code of Practice and is considered adequate for the works proposed. All contractors will be provided with a copy of the approved work program and maps showing where activities are to occur. Contractors will be made aware of their obligations to comply with the Code of Practice and adopt standard industry practices to minimise environmental impacts. Standard industry practices for exploration drilling will be conducted and include, but is not limited to:

- limiting vehicle movements during wet conditions to minimise damage to access tracks;
- on-going liaison with landholders to discuss site access, drilling activities and appropriate rehabilitation criteria;
- washing down of vehicles prior to access site to prevent the introduction and spread of weeds;
- minimising the volume of hydrocarbons and chemicals held at

the drill site. Any hydrocarbons and chemicals will be stored and handled in accordance with material safety data sheets and appropriate bunding provided (taking into consideration rainfall);

- maintaining spill clean-up materials on the drill site and used in the event of spills;
- all wastes generated through drilling and ancillary activities will be contained in closed bins (to prevent attracting introduced animals) and removed from site. Wastes will be recycled to the extent possible and wastes not able to be recycled will removed and disposed of appropriately;
- drilling will occur during daytime periods only to minimise potential impacts (for example noise) to landholders;
- inspections of drill sites and operations will be conducted by senior personnel (contract or Imperial Coal) throughout the drilling program to ensure compliance with the approved work program and Mineral Explorations Code of Practice; and
- drill sites will be sited on flat areas, on slight elevations where possible to limit catchment areas and inundation during heavy rainfall.

Rehabilitation

All drilling activities will be short-term with most open holes completed within a day and diamond drill holes completed within ten days (site conditions dependent). Given the short-term nature of drilling activities and the location of sites away from native vegetation and wildlife habitat, impacts to the environment will be minimised and rehabilitation conducted as soon as possible following completion of drilling. As part of initial drilling preparation works, discussions will be held with the landholder to discuss timing of rehabilitation and rehabilitation objectives and expectations. Following drilling activities, the land will continue to be used for grazing and cropping and therefore this land use will form the objectives of the rehabilitation criteria. All rehabilitation activities will be conducted in close consultation with the landholder.

Rehabilitation will be conducted in accordance with the Mineral Explorations Code of Practice and as a minimum will include:

- removing all sample bags, drill core and other waste materials at completion of drilling activities;
- all drill collars will be secured and drill holes no longer required for future exploration activities will be sealed. Temporary caps will be used where holes are required for future activities;
- any sumps constructed will be emptied and backfilled with excavated materials;
- any topsoil removed from the drill pads as part of site preparation works will be spread over the site and scarified to promote regrowth; and

- inspections will be conducted following rehabilitation to ascertain that the sites are stable and no further works (for example maintenance) is required.

Conclusion

All proposed drilling activities will occur on previously cleared land and access will be via existing tracks. Consequently minimal impact to the environment is considered likely to occur. No listed species will be impacted by the proposed drilling activities due to the short-term and small scale of activities and no extant native habitats exist within the vicinity of the proposed drill sites. Conducting all activities in accordance with the Mineral Explorations Code of Practice and best practice and the approved work program are considered adequate to minimise potential environmental impacts.

Appendices

APPENDIX A

Appendix A. Drill site photographs

Plate 1. Location of drill site AVA1 (open-hole drill hole)

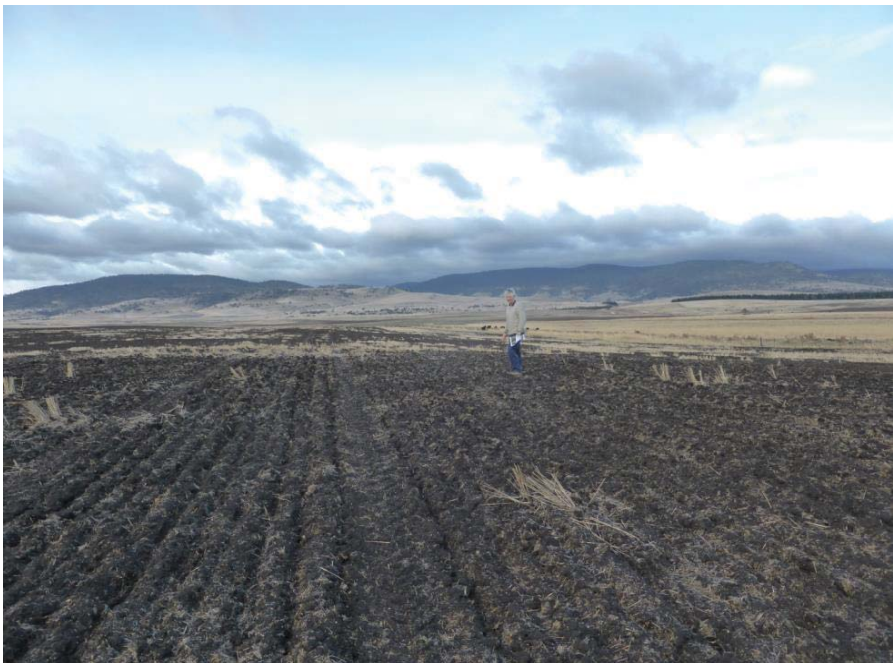


Plate 2. Location of drill site AVA3 (open-hole drill hole)

APPENDIX A

Plate 3. Location of drill site AVA8 (open-hole drill hole)

Plate 4. Location of drill site AVA8 showing access track in background

APPENDIX A

Plate 5. Location of drill site AVA9 (open-hole) and AVADDH12 (diamond drill hole)

Plate 6. Location of drill hole AVADDH13 (diamond drill hole)

APPENDIX B

Appendix b. Desktop Study Results

Table 1. Protected Matters

Common Name	EPBC Act	EPBC protected matters species or species habitat	Nature conservation Act 2002 (Schedule 3A)	Threatened Ecological Communities	Register of the Natinal Estate (RNE)	State and Territory reserves	Natural Values Atlas (NVA)	DW-PIPE: List	Geoconservation Site	DES Likelihood of occurrence within Avoca proposed drill sites	Soils
St Pauls River Riparian Vegetation Remnant					Indicative						
Avoca State Reserve						x					
Castle Cary Structure Landform (2833)									State listed		
Avoca Regional Reserve					Indicative						
Eucalyptus ovata - Callitris oblonga forest	v	Likely	x	Yes			x			Unlikely	The community is associated with dolerite, argillaceous, metamorphosed mudstone and siliceous substrates, including granites and sandstones
Eucalyptus amygdalina inland forest and woodland on Cainozoic deposits			x				x	x		Unlikely	
Alpine Sphagnum Bogs and Associated Fens	e	May occur	x	Yes						Unlikely	
Lowland Native Grasslands of Tasmania	cr	Likely		Yes						Unlikely	
Riparian Scrub			x				x	x		Unlikely	

e = endangered
v = vulnerable
cr = critically endangered
x = listed

APPENDIX B

Appendix b. Desktop Study Results

Table 2. Fauna species of conservation significance

Species Name	Common Name	EPBC Act	EPBC protected matters species or species habitat	EPBC protected matters species or species habitat	EPBC protected matters Breeding	Threatened Species Protection Act 1995	Invasive species	Natural Values Atlas (NVA)	DW-PIPE: List	Other Databases and literature	DES Likelihood of occurrence within Avoca proposed drill sites
Litoria raniformis	Southern Bell Frog	v		Likely						x	Unlikely
Dasyurus maculatus maculatus	Spotted-tail Quoll	v		Known				x	x	x	Unlikely
Perameles gunni gunnii	Eastern Barred Bandicoot	v		Likely							Unlikely
Sarcophilus harrisii	Tasmanian Devil	e		Likely				x	x	x	Unlikely
Felis catus	Domestic Cat			Likely			x				Likely
Lepus capensis	Brown Hare			Likely			x				Likely
Mus musculus	House Mouse			Likely			x				Likely
Oryctolagus cuniculus	European rabbit			Likely			x				Likely
Vulpes vulpes	Red Fox			Likely			x				Likely
Aquila audax fleayi	Wedge-tailed Eagle	e			Likely			x	x	x	Likely
Botaurus poiciloptilus	Australasian Bittern	e		May occur							Unlikely
Lathamus discolor	Swift Parrot	e	M	May occur							Unlikely
Pterodroma leucoptera leucoptera	Gould's Petrel	e		May occur							Unlikely
Tyto novaehollandiae castanops	Masked Owl	v		Known				x	x		Possible
Apus pacificus	Fork-tailed Swift		MM, M	Likely							Unlikely
Haliaeetus leucogaster	White-bellied Sea-Eagle		MT, M	Known				x	x		Possible
Hirundapus caudacutus	White-throated Needletail		MT, M	Known							Unlikely

e = endangered
v = vulnerable
m = migraotry
x = listed
MT = migratory terrestrial
MM = migratory marine

APPENDIX B

Appendix b. Desktop Study Results

Table 2. Fauna species of conservation significance (continued)

Species Name	Common Name	EPBC Act	EPBC protected matters species or species habitat	EPBC protected matters species or species habitat	EPBC protected matters Breeding	Threatened Species Protection Act 1995	Invasive species	Natural Values Atlas (NVA)	DW-PIPE: List	Other Databases and literature	DES Likelihood of occurrence within Avoca proposed drill sites
Myiagra cyanoleuca	Satin Flycatcher		MT, M	Known							Possible
Ardea alba	Great Egret		MW, M	Likely							Unlikely
Ardea ibis	Cattle Egret		MW, M	Likely							Possible
Gallinago hardwickii	Latham's Snipe		MW, M	May Occur							Unlikely
Alauda arvensis	Skylark			Likely			x				Likely
Anas platyrhynchos	Mallard			Likely			x				Likely
Carduelis carduelis	European Goldfinch			Likely			x				Likely
Carduelis chloris	European Greenfinch			Likely			x				Likely
Columba livia	Rock Pigeon			Likely			x				Likely
Passer domesticus	House Sparrow			Likely			x				Likely
Streptopelia chinensis	Spotted Turtle-Dove			Likely			x				Likely
Stumus vulgaris	Common Starling			Likely			x				Likely
Turdus merula	Common Blackbird			Likely			x				Likely

MT = migratory terrestrial
MW = migratory wetlands
M = migratory
x = listed

APPENDIX B

Appendix b. Desktop Study Results

Table 3. Flora species of conservation significance

Species Name	Common Name	EPBC Act	EPBC protected matters species or species habitat	EPBC protected matters species or species habitat	EPBC protected matters Breeding	Threatened Species Protection Act 1995	Invasive species	Natural Values Atlas (NVA)	DW-PIPE: List	Other Databases and literature	DES Likelihood of occurrence within Avoca proposed drill sites
Triptilodiscus pygmaeus		x								x	Unlikely
Senecio psilocarpus		x				e				x	Unlikely
Vittadinia gracilis						r		x	x		Unlikely
Barbarea australis	Native Wintercress	e		Likely		r					Unlikely
Lepidium hyssopifolium	Basalt Pepper-cress	e		Likely		r					Unlikely
Colobanthus curtisiae	Curtis Colobanth	v		Likely		r					Unlikely
Epacris exserta	South Esk Heath	e		Known		e					Unlikely
Epacris moscaliana		e				r		x	x		Unlikely
Bertya tasmanica ssp. tasmanica	Tasmanian Bertya	e		Known		e		x	x		Unlikely
Glycine latrobeana	Clover Glycine	v		Likely							Unlikely
Lycopus australis		x				e				x	Unlikely
Lythrum salicaria		x								x	Unlikely
Acacia axillaris	Midlands Mimosa	v		Likely		v		x	x	x	Unlikely
Rumex bidens						r		x	x		Unlikely
Pomaderris elachophylla		x				v				x	Unlikely
Pomaderris phylicifolia ssp. phylicifolia						r		x	x		Unlikely
Spyridium lawrencei	Small-leaf Spyridium	e		Likely		v		x	x		Unlikely

e = endangered
r = rare
v = vulnerable
x = listed

APPENDIX B

Appendix b. Desktop Study Results

Table 3. Flora species of conservation significance (continued)

Species Name	Common Name	EPBC Act	EPBC protected matters species or species habitat	EPBC protected matters species or species habitat	EPBC protected matters Breeding	Threatened Species Protection Act 1995	Invasive species	Natural Values Atlas (NVA)	DW-PIPE: List	Other Databases and literature	DES Likelihood of occurrence within Avoca proposed drill sites
Stenanthemum pimeleoides	Spreading Stenanthemum	v		May occur		v					Unlikely
Boronia gunnii	Gunn's Boronia	v		May occur		r					Unlikely
Boronia hippopala	Velvet Boronia	v		May occur		v					Unlikely
Carex tasmanica	Curly Sedge	v		Likely							Unlikely
Dianella amoena	Matted Flax-lily	e		Known		r		x	x		Unlikely
Caladenia anthracina	Black-tipped Spider-orchid	cr		Likely							Unlikely
Caladenia caudata	Tailed Spider-orchid	v		May occur						x	Unlikely
Callitris oblonga	Pygmy Cypress-pine	v		Likely							Unlikely
Callitris oblonga ssp. oblonga	South Esk Pine	e		Known		v		x	x		Unlikely
Prasophyllum incorrectum	Golfers Leek-orchid	cr		Likely							Unlikely
Pterostylis commutata	Midland Greenhood	cr		Likely							Unlikely
Pterostylis wapstrarum	Fleshy Greenhood	cr		Likely		e					Unlikely
Pterostylis ziegeleri	Grassland Greenhood	v		May occur							Unlikely
Rytidosperma popinensis	Roadside Wallaby Grass	e		May occur							Unlikely
Austrostipa nodosa						r		x	x		Unlikely

e = endangered
r = rare
v = vulnerable
cr = critically endangered
x = listed

APPENDIX B

Appendix b. Desktop Study Results

Table 3. Flora species of conservation significance (continued)

Species Name	Common Name	EPBC Act	EPBC protected matters species or species habitat	EPBC protected matters species or species habitat	EPBC protected matters Breeding	Threatened Species Protection Act 1995	Invasive species	Natural Values Atlas (NVA)	DW-PIPE: List	Other Databases and literature	DES Likelihood of occurrence within Avoca proposed drill sites
Chrysanthemoides monilifera	Bitou Bush			Likely			x				Unlikely
Cytisus scoparius	Broom			Likely			x				Unlikely
Genista monspessulana	Montpellier Broom			Likely			x				Unlikely
Lycium ferocissimum	African Boxthorn			Likely			x				Unlikely
Rubus fruticosus aggregate	European Blackberry			Likely			x				Unlikely
Salix spp.	Willows except weeping, pussy and Sterile Pussy Willow			Likely			x				Unlikely
Ulex europaeus	Gorse			Likely			x				Unlikely

x = listed

APPENDIX C

Appendix C. Aboriginal Heritage Assessment

N Overdevest

From: Smith, Emily (Heritage) <Emily.Smith@heritage.tas.gov.au>
Sent: Friday, 13 June 2014 1:15 PM
To: N Overdevest
Subject: RE: Avoca search request
Attachments: A3 Map.jpg

Follow Up Flag: Follow up
Flag Status: Flagged

Good Afternoon Noelle,

I have attached a map of the exploration lease area showing the heritage we have listed on the Tasmanian Aboriginal Site Index (TASI). However, it is very important to understand the context in which this information sits:

Firstly, these 30 odd points by no means represent the total distribution of Aboriginal heritage in the area. Rather, they merely denote that which has been identified through prior survey and assessment for various developments (such as the Esk Main Road upgrade and fibre optic cable installation). Conversely, the areas which show no heritage on the map do not necessary indicate an absence of heritage, but rather the fact that no assessment has been undertaken there.

Secondly, a dot on the map can represent a range of site types and sizes, from a single isolated artefact to very large and extensive quarry sites and/or artefact scatters. Therefore, simply avoiding a dot on the map does not guarantee that the heritage is being avoided.

The lastly, some of our data is very old (up to 30 years) and therefore the site location information can vary in accuracy depending upon factors such as the date of recording, equipment used and the skills of the recorder. As a result, site location information held by AHT may be between 250m to 10m from the site location on the attached map. So again, simply avoiding a dot on the map does not guarantee that the heritage is being avoided.

The area surrounding Avoca is clearly culturally rich, and therefore AHT's recommendation that the proponent undertake a heritage assessment was based on our determination that not only were the drill sites very close to existing heritage, but also that there is a high potential for unrecorded sites to exist within EL15/2012. By engaging an archaeologist, the proponent can ensure their obligations under the *Aboriginal Relics Act 1975* are met, as the consultant will be able to identify, with some degree of certainty, whether the proposed mining actions will impact heritage, and then offer mitigation advice.

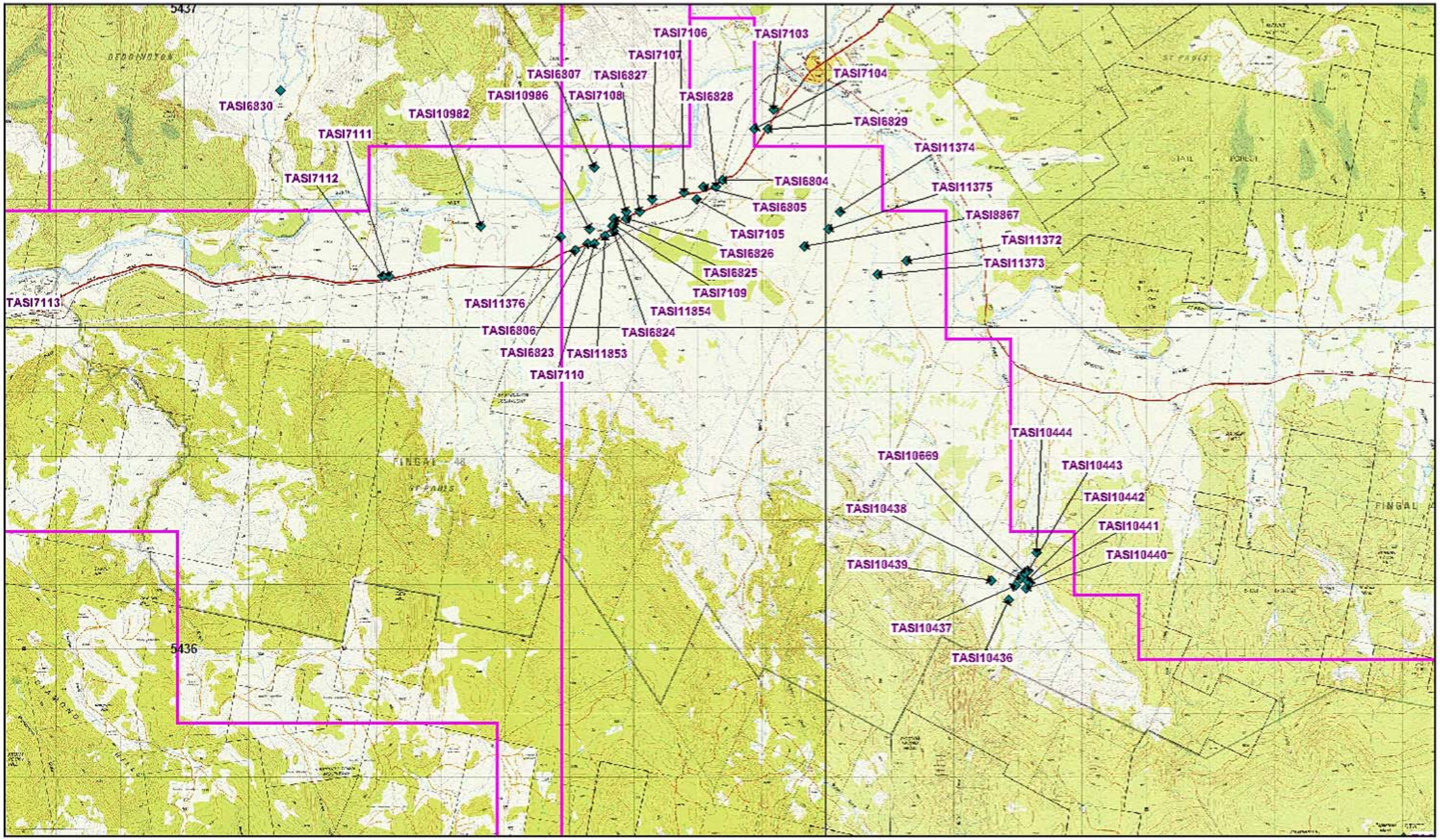
If you have any further queries, please don't hesitate to contact me.

Regards,

Emily Smith
Archaeologist
Aboriginal Heritage Tasmania
Department of Primary Industries, Parks, Water and Environment
5th Floor, Marine Board Building, 1 Franklin Wharf
GPO Box 44, Hobart, TAS, 7001

p 03 6165 3159
e emily.smith@heritage.tas.gov.au

www.aboriginalheritage.tas.gov.au



N

GDA94 - Zone 55

EL15/2012 Desktop Assessment

TASI Search

Produced by Emily Smith - Aboriginal Heritage Tasmania

Printed on: 13/08/2014

From: N Overdevest [mailto:noverdevest@tpg.com.au]
Sent: Wednesday, 11 June 2014 4:59 PM
To: Smith, Emily (Heritage)
Subject: RE: Avoca search request

Hi Emily,

Thanks for the information on the Avoca desktop Aboriginal heritage assessment.
Is it possible to get further details on these sites, specifically their approximate locations within the lease area searched? It is a large lease and if it at all possible, my client will look at adjusting the drilling program to avoid the sites. However without knowing in which parts of the lease the 30 sites occur it is hard to evaluate the feasibility of the program itself and what adjustments can be made.

I would appreciate any information you could provide regarding the findings.
Thanks in advance,
Noëlle

Noëlle Overdevest
Senior Ecologist
Donato Environmental Services
0457 116 832

From: Smith, Emily (Heritage) [mailto:Emily.Smith@heritage.tas.gov.au]
Sent: Tuesday, 10 June 2014 3:46 PM
To: N Overdevest
Subject: RE: Avoca search request

RE: ABORIGINAL HERITAGE DESKTOP ASSESSMENT

EL15/2012 Avoca

Dear Noelle,

Aboriginal Heritage Tasmania (AHT) has completed a search of the Tasmanian Aboriginal Site Index (TASI) regarding the proposed drilling of exploration holes at EL15/2012 near Avoca, and can advise that there are a number of Aboriginal heritage sites (30) recorded within this boundary, including artefact scatters and isolated artefacts. An Aboriginal heritage investigation is therefore required to identify whether the proposed project or related infrastructure will impact on any Aboriginal heritage and to offer mitigation advice. This investigation must be undertaken jointly by a Consulting Archaeologist and Aboriginal Heritage Officer.

AHT does not provide recommendations as to the use of a particular heritage practitioner; however to assist you in engaging a consultant, a *Register of Consulting Archaeologists* and an *Aboriginal Heritage Officer Contact List* containing the names and contact details of consultants who are prepared to work in Tasmania, along with a *Consultancy Brief* template can be found on AHT's website www.aboriginalheritage.tas.gov.au. This template forms the basis for the work to be carried out and will help define the survey requirements for both you as the proponent as well as the consultant. It also sets out AHT's expectations regarding Aboriginal heritage investigations and reporting standards.

Please be aware that all Aboriginal heritage investigations throughout Tasmania must meet AHT's *Guide to the Aboriginal Heritage Assessment Process*. A copy of the Guide and further relevant information regarding the Aboriginal heritage assessment process can be found on AHT's website

www.aboriginalheritage.tas.gov.au. Any assessment that does not meet the *Guide to the Aboriginal Heritage Assessment Process* will be deemed unacceptable and returned. An unacceptable investigation or report will not be able to form the basis for a request for a permit under the *Aboriginal Relics Act 1975*. It is your responsibility to ensure that the consultant you engage is able to follow the guide. It is therefore strongly advised that you seek referee reports on the capacity of the consultant to do the work required.

Once the Aboriginal heritage investigation has been completed a copy of the report must be forwarded to AHT for review/comment.

If you have any queries please do not hesitate to contact AHT.

Kind Regards,

Emily Smith
Archaeologist
Aboriginal Heritage Tasmania
Department of Primary Industries, Parks, Water and Environment
5th Floor, Marine Board Building, 1 Franklin Wharf
GPO Box 44, Hobart, TAS, 7001

p 03 6165 3159
e emily.smith@heritage.tas.gov.au

www.aboriginalheritage.tas.gov.au

From: N Overdevest [mailto:noverdevest@tpg.com.au]
Sent: Friday, 30 May 2014 11:48 AM
To: Aboriginal (Heritage)
Subject: Aboriginal heritage desktop assessment requests

Hi,

Please find attached requests for three aboriginal heritage assessments.
Maps are provided defining the search area and additional details provided in the completed forms. Should you require any further details, please do not hesitate to contact me via email or the number provided.

Kind regards,

Noëlle Overdevest
Senior Ecologist
Donato Environmental Services
0457 116 832

CONFIDENTIALITY NOTICE AND DISCLAIMER