Mine Work Plan

[DMS1-01100-EN-REP-0001]

October 2024

Donald Rare Earth and Mineral Sands Project

Mining Licence 5532

Donald Mineral Sands Pty Limited

ABN (87 087 469 707)

Version History

Version	Version Date	Details	Prepared by	Approved	
				Name/Position	Signature
1	September 2023	Final for ERR submission	DMS Grounded Resource Advisory	J Reid (GM Sustainability)	
2	May 2024	Revised for ERR comments	DMS Aecom	J Reid (GM Sustainability)	
3	October 2024	Minor update	DMS Aecom	J Reid (GM Sustainability)	

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Abbreviations / Glossary

Term	Description
ANC	Acid Neutralising Capacity
AHD	Australian Height Datum
AMD	acid mine drainage
ANCOLD	Australian National Committee on Large Dams
bcm	Bank cubic metres
CEP	Community Engagement Plan
CHMP	Cultural Heritage Management Plan
closure	Refers to the period of decommissioning, rehabilitation earthworks and the monitoring period prior to completion criteria being met.
CMA	Catchment Management Authority
CRG	Community Reference Group
CUP	concentrate upgrade plant
DEECA	Department of Environment Energy and Climate Action (Vic)
DCCEEW	Department of Climate Change, Energy the Environment and Water (Cwlth)
DEPI	Department of Environment and Primary Industries (Vic) (now DEECA)
DJSIR	Department of Jobs, Skills, Industry and Regions (Vic)
DELWP	Department of Environment Land Water and Planning (Vic) (now DEECA)
DITR	Department of Industry, Tourism and Resources (Cwlth)
DMS	Donald Mineral Sands Pty Ltd
DoH	Department of Health
DTP	Department of Transport and Planning (Vic)
EE Act	Environment Effects Act 1978
EES	Environment Effects Statement
EPA Victoria	Environment Protection Authority Victoria
EP Act	Environment Protection Act 2017
ERC	Environmental Review Committee
ERR	Earth Resources Regulation
EVC	Ecological Vegetation Community
FoS	Factor of Safety
GED	General Environmental Duty
GDE	groundwater dependent ecosystems
GHG	greenhouse gas
GWMWater	Grampians Wimmera Mallee Water Authority
H:V	horizontal to vertical ratio

Term	Description
ha	hectare(s)
HM	heavy mineral
HMC	heavy minerals concentrate
IBC	Intermediate bulk containers
in-pit tailings deposition	Deposition of tailings in pit void
ITR	Independent Technical Review
kbcm	kilo bank cubic metres
LP	Loxton-Parilla Sand
m	metre(s)
ModCod	modified co-disposal
MOU	Memorandum of Understanding
MRSD Act	Mineral Resources (Sustainable Development) Act 1990
MUP	mining unit plant
NAF	non-acid forming
NEPM	National Environment Protection Measures
PCRZ	Public Conservation and Recreation Zone
PM_{10}	particles with a diameter of 10 micrometres or less
$PM_{2.5}$	particles with a diameter of 2.5 micrometres or less
Post Closure	Defined as the period after project completion when tenements have been relinquished back to the state and/or stakeholder(s).
Project completion	Defined as the period after closure when the criteria for rehabilitation completion have been certified.
REE	rare earth element
REEC	rare earth element concentrate
RMP	Risk Management Plan
ROM	run-of-mine
sensitive receptor	members of the public; land, property and infrastructure; and the environment in the vicinity of the works which may be impacted by a mining hazard
t	tonne(s)
TDS	total dissolved solids
tph	tonnes per hour
TS	Total Sulphur
TSF	tailings storage facility - the facility used prior to the establishment of mining blocks (voids) that will accommodate 'in-void' tailings deposition
VHM	valuable heavy mineral

Term	Description
WCP	wet concentrator plant
WIM	Wimmera Industrial Minerals- mineral sands deposit

1. INTRODUCTION

This work plan relates to Phase 1A of the Donald Rare Earth and Mineral Sands Project (Donald Project) being developed by Donald Mineral Sands Pty Ltd (DMS) for the resource within mining licence 5532 (MIN5532), a wholly owned subsidiary of Astron Limited (Astron). The Donald Project deposit area is approximately 50 km long and 8 km wide, located in the Wimmera Region of Victoria, 320 km northwest from Melbourne (Figure 1). Figures are embedded in this document for quick reference and attached to Attachment A.

1.1. PROJECT DEVELOPMENT HISTORY

The Donald deposit was originally part of the Wimmera Industrial Minerals (WIM) deposit explored by CRA Exploration (Rio Tinto) in the 1980s. This deposit forms part of one of the largest undeveloped mineral sands deposits in the world. However, in 1998 Rio Tinto decided the fine-grained deposit was uneconomic and relinquished the exploration licences. GDM Pty Ltd acquired the exploration licences in December 1999 and undertook further investigations. In November 2003, Astron acquired the exploration rights for the Donald deposit and following its own feasibility investigations concluded that it was economic to develop, because of the improved zircon prices and advances in processing methods.

From 2005 to 2008 DMS prepared and exhibited its environmental effects statement (EES) for the Project, resulting in a positive Ministerial Assessment.

In 2010 DMS acquired MIN5532 that overlapped with the 2008 EES project area. This work plan relates to an area within MIN5532, referred to as the work plan area (Figure 2) and forms Phase 1A of the mine development, with further mining planned to be developed within MIN5532 (within the area already assessed under the 2008 EES). Future phases of mining will follow the *Mineral Resources (Sustainable Development) Act 1990* (MRSD Act) work plan variation process.

Since then, DMS has made substantial investments in market engagement, engineering planning, and design to ensure selection of processing and separation technologies aligns with project and market requirements. Through these efforts, DMS has continually refined and optimised the project, aligning it with emerging rare earth markets, and securing several essential approvals including:

- Commonwealth approval and approval variations: in 2009 DMS received *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval for the Project which was assessed under the bilateral agreement between the Commonwealth and Victoria. In 2016 and 2018 approval variations were acquired to extend the period of effect of the approval (now 2042), contemporise the conditions and to revoke conditions relating to species no longer expected to be impacted by the Project.
- Water rights: in 2011, DMS acquired water rights to a headworks growth water entitlement of 6.975 gigalitres (GL) from Grampians Wimmera Mallee Water (GWMWater).
- Cultural heritage: in 2014, a Cultural Heritage Management Plan was approved for an area within MIN5532, within which the nominated work plan area sits wholly (see Figure 1).
- *Radiation Act 2005* Management Licence: in 2016 the Management Licence was issued for the Project, which in 2020 was renewed to 2023.

In December 2021, Astron, as the holding company of DMS, was invited to address why mining work had not yet commenced within MIN5532 by reference to the criteria in section 38(2A) of the *Mineral*

Resources (Sustainable Development) Act 1990 (MRSD Act). In April 2022, Earth Resources Regulation (ERR) Victoria accepted that on review of Astron's account, there had been exceptional circumstances precluding the approval of the work plan for the Donald project, thus satisfying the requirements of the MRSD Act. In summary, market perceptions and financing hesitancy surrounding fine-grained mineral sands deposits like our project, caused by geological definition and metallurgical separation challenges, resulted in significant execution delays.

To inform the work plan, DMS updated its impact assessments and completed designs for tailings storage, which are included as supporting documents with the work plan submission. The updated impact assessment documentation (including the revised Radiation Management Plans) includes the following:

- Donald Project Definitive Feasibility Design (ATCW, 2024a)
- GoldSim Water Balance Report 2024 (ATCW, 2024b)
- Tailings Storage Facility Conceptual Closure Design Report (ATCW, 2024c)
- Tailings Storage Facility Detailed Design (ATCW, 2024d)
- Radiation Environmental Impact Assessment (RCA, 2023)
- Biodiversity Assessment (EHP, 2023)
- Air Quality Assessment Report (AECOM, 2023a)
- Noise and Vibration Assessment Report (AECOM, 2024a)
- Technical Memorandum: Fate and Transport of Anionic Polyacrylamide in Tailings Storage Facilities (AECOM, 2024b)
- Letter of Addenda to Biodiversity Assessment (AECOM, 2024c)
- Greenhouse Gas Assessment Technical Report (Greenbase, 2023)
- Geochemistry Assessment (RGS, 2023)
- Groundwater Impact Assessment Report (CloudGMS, 2023)
- Landscape and Visual Impact Assessment Review (LandformArchitects, 2023)
- Radiation Management Plan (DBH, 2024)
- Radioactive Waste Management Plan (DBH, 2023b)
- Strategic Soil Results for Management Zones (Precision, 2023)
- Transport Radiation Management Plan (DBH, 2023c)

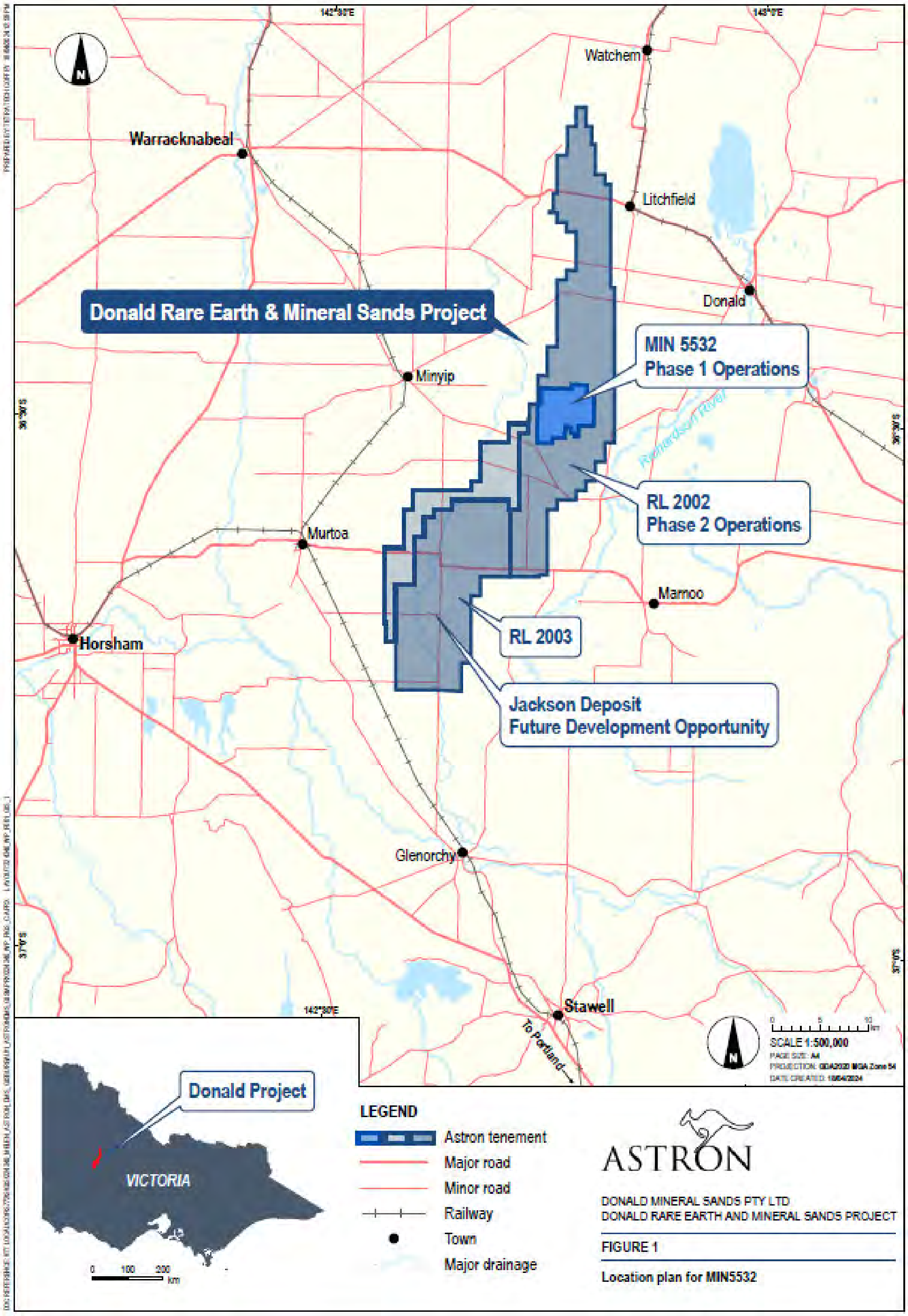
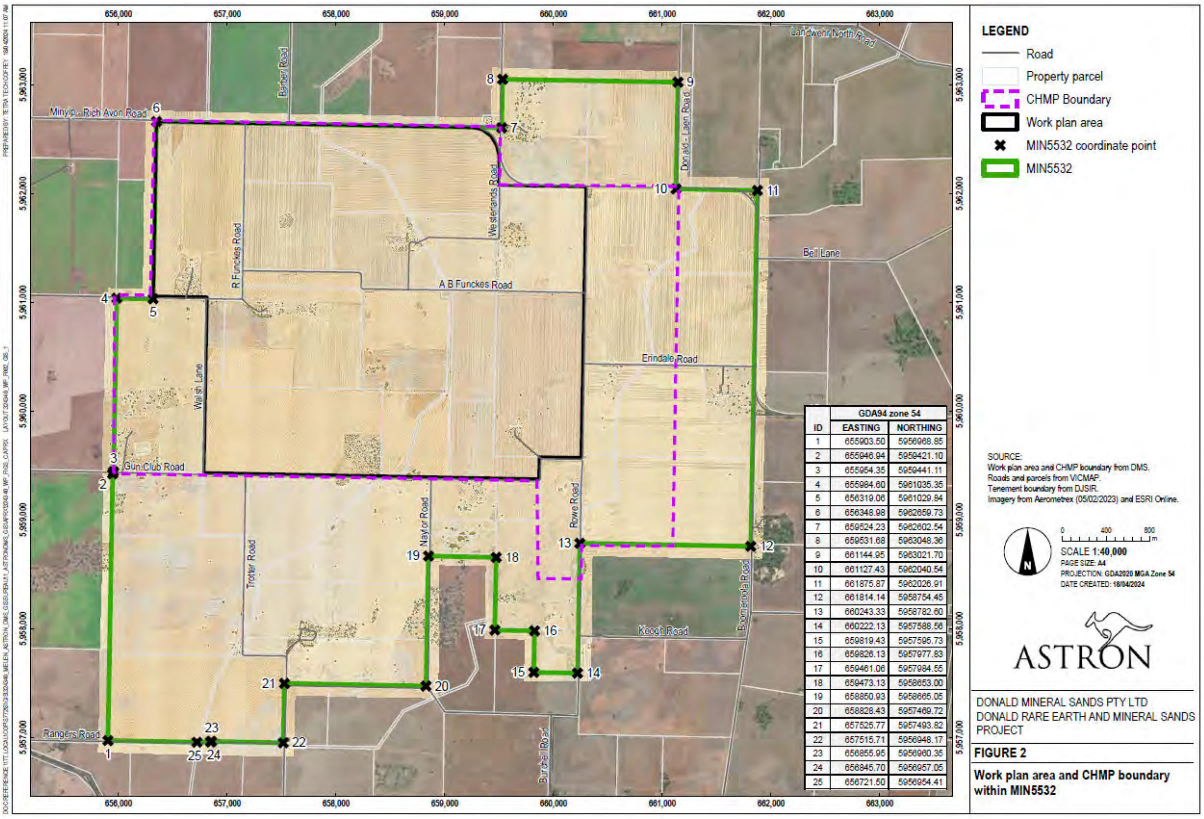


Figure 1 - Location plan for MIN5532



ID	GDA94 zone 54	
	EASTING	NORTHING
1	655903.50	5956968.85
2	655946.94	5959421.10
3	655954.35	5959441.11
4	655984.60	5961035.35
5	656319.06	5961029.84
6	656348.98	5962659.73
7	659524.23	5962602.54
8	659531.68	5963048.36
9	661144.95	5963021.70
10	661127.43	5962040.54
11	661875.87	5962026.91
12	661814.14	5958754.45
13	660243.33	5958782.60
14	660222.13	5957588.56
15	659819.43	5957595.73
16	659826.13	5957977.83
17	659461.06	5957984.55
18	659473.13	5958653.00
19	658850.93	5958665.05
20	658828.43	5957469.72
21	657525.77	5957493.82
22	657515.71	5956948.17
23	656855.95	5956960.35
24	656845.70	5956957.05
25	656721.50	5956954.41

Figure 2 - Work plan area and CHMP boundary within MIN5532

1.2. PROJECT OVERVIEW

Victoria's Murray Basin hosts several conventional, coarse-grained mineral sands deposits. The Donald Project will develop the Donald deposit, the first fine-grained or WIM-style deposit to progress to production. Technological advances in processing technologies, much of it sponsored through DMS's work, now presents the opportunity for this new form of resource to be commercially developed.

The Donald Project is a tier-1 rare earth and mineral sands resource located within the Murray Basin near the towns of Minyip and Donald, 300 kilometres (km) north-west of Melbourne (see Figure 1). The total resource size of over 2.4 billion tonnes (t) of ore at a grade of 4.8% heavy minerals (HM), is significant on a global scale, therefore development of the Project is planned in phases.

Ore mined from the Donald Project contains critical mineral elements of zirconium, titanium and rare earth elements, neodymium and praseodymium.

The Donald Project will develop in stages. Phase 1A will develop within a defined work plan area (~1,143.4 hectares (ha)) in MIN5532 (~2800 ha) (this work plan). The area comprises arable, mixed-use land which will be either leased and/or acquired from landowners before mining activities are commenced. Mining will be followed by progressive rehabilitation.

The work plan area comprises the extraction area, processing facilities and required infrastructure in which the mine will be constructed and operated. The work plan area supports mining for over 19 years, at a mining rate of 7.5 million tonnes per annum (Mtpa).

Operations will involve a truck and shovel open-pit mine, from which ore is sent to a mining unit plant (MUP) and wet concentrator plant (WCP), which are both designed to produce a heavy mineral concentrate (HMC). Rare earth minerals are then separated from the HMC to produce two product streams, a Rare Earth Element Concentrate (REEC) and an HMC, in a concentrate upgrade plant (CUP).

Product loadout facilities on the mine site will load the HMC into specialised (half-height) shipping containers, which are sealed and transported offsite to a port by road and rail, and the REEC will be packed in sealed drums that will be washed before loading into shipping containers for transport offsite by road. Key mining and production metrics are listed in Table 1.

Table 1 - Key Mining and Production Metrics

Metric	Measure
Ore mining rate	7.5 Mtpa
Mine life	~19 years
HMC	~250,000 tpa
REEC	~9,000 tpa

2. RELEVANT LEGISLATION AND PROJECT APPROVALS

Local, state and federal government legislation is applicable to the development of the Project within the work plan area.

2.1. LOCAL LEGISLATION

The work plan area within MIN5532 occupies land managed by Yarriambiack Shire Council classified as Farming Zone (FZ) under the council's planning scheme. The Project is exempt from a planning permit to use or develop land for mining under Clause 52.08-2 of the local planning scheme on account that an EES and assessment has been prepared under the *Environment Effects Act 1978* (EE Act) (see also Section 2.2.1).

2.2. STATE LEGISLATION

The following section presents relevant state legislation as it applies to Project activities within the work plan area.

2.2.1. MINERAL RESOURCES (SUSTAINABLE DEVELOPMENT) ACT 1990

The MRSD Act establishes the legal framework to ensure that any risks posed by minerals exploration, extractive industries and mining to the environment, or to land, property or infrastructure are identified and eliminated or appropriately managed.

DMS obtained its mining licence under Section 15 of the MRSD Act. Subject to other statutory requirements being satisfied, the mining licence, entitles the licence holder to carry out mining on the relevant land, explore for minerals, construct any facilities specified in the licence, and do anything else that is incidental to that mining.

Under the MRSD Act, authorisation of mining work is granted by a work plan (this document for the Donald Project) approved by the Head of ERR within the Department of Environment, Energy and Climate Action (DEECA). DMS must submit this work plan to ERR, and include a rehabilitation plan, risk management plan and community engagement plan. ERR must satisfy itself that the following are in place prior to construction starting on MIN5532:

- A rehabilitation bond.
- Public liability insurance.
- Any relevant landholder consent/compensation agreements.
- All other necessary consents or approvals under the MRSD Act or any other relevant Act.

The MRSD Act exempts the licensee from obtaining certain other permits (such as planning approvals or mining works within land covered by the licence), if an EES for the work has been prepared and assessed in accordance with the EE Act.

2.2.2. ENVIRONMENT PROTECTION ACT 2017

The *Environment Protection Act 2017* (EP Act) provides a legislative framework for the protection of the environment in Victoria, having regard to the principles of environment protection. The EP Act is the Principal Victorian statute dealing with the protection of the environment from pollution and the management of waste. It is administered by the Environment Protection Authority (EPA) Victoria.

The EP Act provides a framework for developing, implementing, and enforcing policies and standards to:

- Encourage waste avoidance, reduction and re-use
- Control emissions of waste into the atmosphere, water and on land
- Impose sanctions against those who have polluted

The *Environment Protection Amendment Act 2018* (the Amendment Act) amends the EP Act and came into effect in July 2020. The key focus of the Amendment Act is on prevention of harm to human health and the environment.

The general environmental duty is the cornerstone of the EP Act (Section 25) and is a continuing duty. It requires that a "*person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable*."

2.2.3. ENVIRONMENTAL EFFECTS ACT 1978

The EE Act applies to works that the Victorian Minister for Planning determines are capable of having a significant effect on the environment. For the purpose of environmental impact assessment under the EE Act, the meaning of 'environment' is taken to include the physical, biological, heritage, cultural, social, health, safety and economic aspects of human surroundings, including the wider ecological and physical systems within which humans live.

In 2005 the DMS project was referred to the Minister for Planning requesting a decision on whether an EES was required for DMS Project. The Minister for Planning determined that an EES was required to assess the potentially significant environmental effects of the Project. DMS subsequently prepared an EES which was publicly exhibited in January 2008.

The EES was exhibited for six weeks, and total of 34 submissions were received. Seven submissions were received from government departments/agencies, three from local government, two from interest groups and 22 from individuals. A public hearing of the Inquiry was held and a report was prepared for the Minister.

In November 2008 the Minster responded to the overall recommendation of the inquiry stating that that *'that the DMS Project be approved under the relevant legislation, subject to the measures and further processes recommended in this Assessment.'*

2.2.4. WATER ACT 1989

The *Water Act 1989* governs the management of water resources and regulates works on and disturbance to defined waterways and groundwater resources. The Water Act defines water entitlements and establishes the mechanisms for managing Victoria's water resources, including water that is set aside to support environmental functions and ecosystems.

Groundwater will be pumped out of the surface aquifer (dewatering), to enable mining to occur below the current level of the water table. A Groundwater Extraction Licence is therefore required to remove groundwater from near the ore body, which needs to be applied for under Section 51 of the Water Act.

The Project also requires a water supply of up to 3 gigalitres (GL) per year for processing the ore, that will be sourced from groundwater and surface water supplies. The raw water supply will be drawn from the Company's GWMWater Headworks Water allowance of 6.975 GL (currently stored in Taylors Lake, outside Horsham).

2.2.5. FLORA AND FAUNA GUARANTEE ACT 1988

The *Flora and Fauna Guarantee Act 1988* (FFG Act) is the primary legislation dealing with biodiversity conservation and sustainable use of native flora and fauna in Victoria.

Given the Project has a favorably assessed EES, subsequent approval of this work plan in accordance with the MRSD Act, will mean a permit to 'take' listed and/or protected flora species or listed vegetation communities in areas of public land, will not be required for activities within the work plan area.

2.2.6. RADIATION ACT 2005

The principal framework for the regulation of radiation protection of people and the environment for the Donald Project is stipulated in the Victorian *Radiation Act 2005* and the Radiation Regulations 2017 outline the requirements. The legislation defines the levels of prescribed radioactive substances for their application and contains provisions relating to the limits on occupational and public exposures arising from the mining and processing operations. The Radiation Act is administered in Victoria by a radiation section within the Department of Health.

Under Regulation 6, the prescribed activity concentration for natural Uranium (U-nat) + natural Thorium (Th-nat) combined, is 1 becquerel (Bq) per gram. Based on the estimated activity concentrations, the final products including HMC and REEC are classified as prescribed radioactive material under Regulation 6, and therefore the Radiation Act is applicable for the Project. The Donald Project is deemed a radiation practice and has been issued a Radiation Act Management Licence (Licence No. 300066740) to cover the radiation safety related aspects of Project operations, in accordance with the provisions of the regulations. As is standard, the licence was issued with conditions imposed by the Department of Health.

2.2.7. HERITAGE ACT 2017

The purpose of the *Heritage Act 2017* is to provide for the protection and conservation of the cultural heritage of Victoria. The Act creates a framework to identify the most important non-Aboriginal heritage in Victoria and regulates changes to those places. The Act also creates offences and other enforcement measures to protect and conserve heritage. DMS is required to obtain Heritage Act Consents for the management of its (five) known sites and has recently received advice from Heritage Victoria about the manner in which to do so.

2.2.8. ABORIGINAL HERITAGE ACT 2006

The *Aboriginal Heritage Act 2006* works primarily to provide for the protection of Aboriginal cultural heritage in Victoria. The Act allows different organisations, groups and bodies to connect and better enforce and preserve policies regarding Aboriginal Heritage. The Aboriginal Heritage Regulations 2018 give effect to the Act. Under Section 49 of the Victorian *Aboriginal Heritage Act 2006*, an Aboriginal Cultural Heritage Management Plan must be prepared for any project for which an EES has been required.

DMS has established and maintains a good working relationship with the Barengi Gadjin Land Council (BGLC), representing Traditional Owner custodians of the lands encompassing MIN5532. The Cultural Heritage Management Plan for the project (Landskape, 2014), approved in 2014, was developed with the integral involvement of the BGLC. DMS continues to engage with the BGLC to ensure cultural heritage is appropriately protected.

The Cultural Heritage Management Plan prepared for the Project and endorsed in 2014 will apply to activities conducted in the work plan area.

2.3. FEDERAL

The following discussion describes how the Commonwealth legislation relates to Project activities within the work plan area.

2.3.1. ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The EPBC Act is the Commonwealth Government's environmental legislation that provides a legal framework to protect and manage nationally and internationally significant flora, fauna, ecological communities and heritage places defined in the Act. These protected matters are typically referred to as ‘Matters of National Environmental Significance.’

Project approval under the EPBC Act was received in 2009 and the period of effect of the approval was extended to 2042 through an application for a variation to the approval. A key matter in the approval conditions is the offsets required in relation to the endangered Buloke Woodlands that will be impacted by the project. DMS is working with the Department of Climate Change, Energy, the Environment and Water (DCCEEW) to address the conditions.

2.3.2. NATIVE TITLE ACT 1993

The Native Title Act 1993 establishes a framework for the protection and recognition of Native Title. The Act gives Indigenous Australians who hold Native Title rights and interests—or who have made a Native Title claim—the right to be consulted and, in some cases, to participate in decisions about activities proposed to be undertaken on the land.

Based on the 2005 federal consent determination (Federal Court File No. VID6002/1998), there are no native title rights or interests overlapping the Project area.

2.4. CURRENT APPROVAL STATUS

Following the positive Ministerial Assessment of the 2008 EES, DMS obtained a number of permits and licences for the project to proceed, refer Table 2.

Table 2 - Approvals / Licences currently held by DMS

Year	Approval / License Granted	Expiry
2009	EPBC Act approval (approval was varied twice)	2042
2010	Mining License (MIN 5532) granted	2030
2011	Water supply rights purchased (6.975Glpa bulk water entitlement), with option to extend	2039
2014	Cultural Heritage Management Plan (CHMP)- QAAV management plan number 11572 approved for work plan area of MIN 5532	Not applicable
2015	Radiation license obtained (#300066740)	December 2026
2016	Heavy Mineral Concentrate (HMC) export license obtained (will require renewal)	Expired

3. PROJECT LOCATION

Land within the local area to the Project was largely cleared around the turn of last century to support dryland agriculture, both livestock and crops. The past 25 years have seen a significant shift towards continuous cropping, stubble retention, minimum tillage and controlled traffic of agriculture across the Wimmera. This has been in response to the available range of crops; equipment suited and manufactured to facilitate these methods; herbicides, fungicides and insecticides of great specificity; market opportunities and the general community attitudes to change and innovation. Cropping is the predominant land use within MIN5532 (and the work plan area) with small numbers of grazing sheep.

The work plan area is mainly freehold agricultural land. Dryland agriculture and light industry associated with the production and processing of crops (e.g., wheat, barley, field pea, lentils) and other farm products (oats, hay, lucerne and sheep for meat and wool) are the dominant industries in the region. The purpose of the Farming Zone in the planning scheme, which applies to nearly the entire work plan area, is to protect the ongoing use of these areas for agriculture through encroachment from incompatible uses such as dwellings, lifestyle properties and uses with higher amenity expectations of surrounding areas. Areas of Crown land within the work plan area are limited to roads that intersect or run within the work plan area and the water channels.

Either side of the work plan area a Public Conservation and Resource Zone runs along Dunmunkle Creek (to the west) and the Richardson River (to the east) with the primary purpose of protecting and conserving the natural environment and their natural processes. Other larger patches of bushland to the northeast and southwest are conservation reserves designated Crown land for reserve management (see receptors R1 and R27 on Figure 3A).

There are no known contaminated sites within the work plan area and a search on *Victoria Unearthed* site indicates no known historical potentially contaminated sites in the area. Recent soil sampling conducted in 2023 also provided no indication of issues of contamination. Notwithstanding this outcome, the use of the land for traditional agricultural pursuits may have resulted in isolated instances of elevated chemical concentrations associated with standard farming practices.

4. LAND TENURE

Land tenure within the work plan area includes private and Crown land, with some private land owned by DMS. Affected property management requirements detailed in Section 10 relates to land within and surrounding the work plan area, accounting for the mining footprint and outcomes of the environmental impact assessments.

4.1. LAND OWNERSHIP

Land within and surrounding the work plan area is typically freehold (Figure 3A) and tightly held within families and passed on from generation to generation. The properties owned by DMS were purchased between 2010 and 2012, with further land acquired outside and adjacent to the work plan area up until 2019[1].

The work plan area comprises of around 20 titles totaling 1,143.4 ha of land. DMS owns four (4) of those titles, equating to a total of 329 ha, and currently leases that land to local farmers for agricultural use. The remaining freehold titles are held by two landowners who each operate their own farms.

Further discussion regarding dwellings on these properties is provided in Section 6.3.

[1] Note that at the time of updating the work plan in May 2024, contract of sale was also finalised for the property northeast of the work plan area, relating to sensitive receptor, R12.

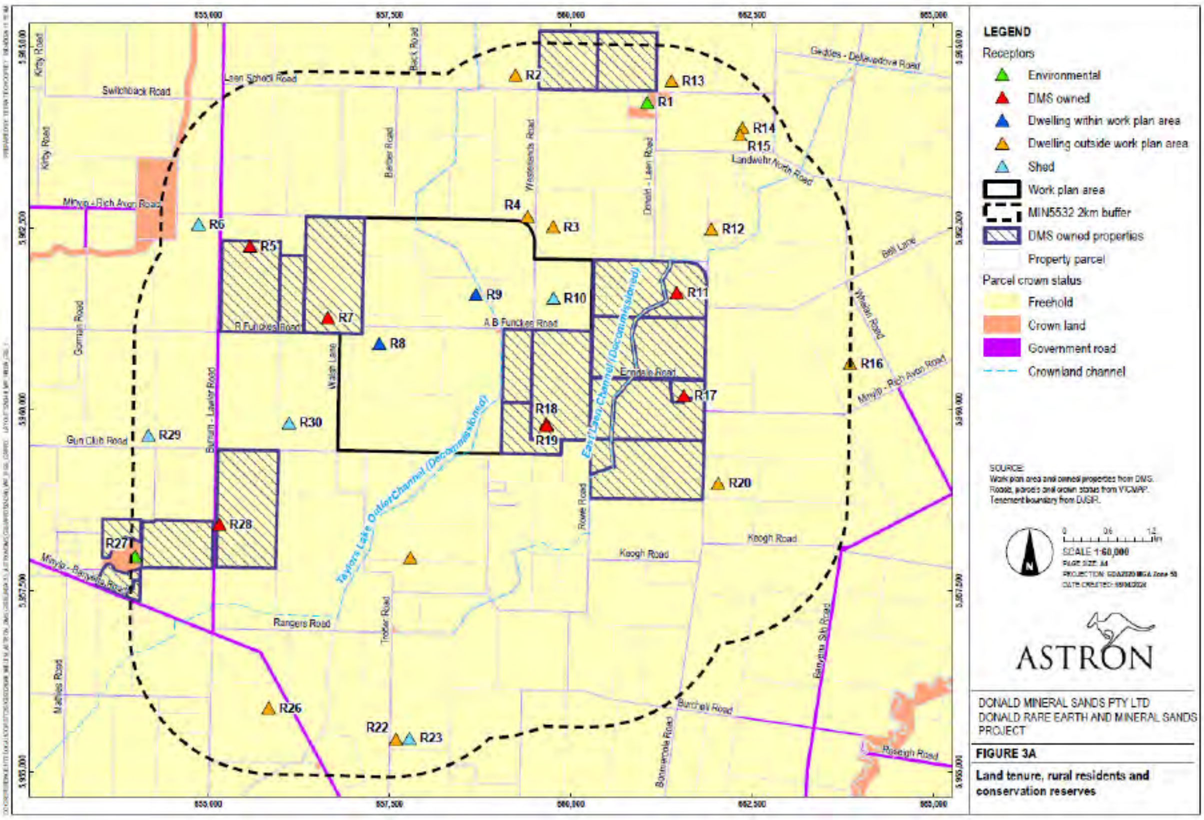


Figure 3A - Land Tenure Rural Residents and Conservation Reserves

4.2. CROWN LAND WITHIN THE WORK PLAN AREA

Two parcels of Crown Land within the work plan area are shown in Table 3. These parcels formed part of the decommissioned open channel Wimmera Mallee Water Supply System. GWMWater have formally stated in writing that the channels are no longer required for water supply purposes (Attachment B). Local roads within the work plan area (Figure 3B) are managed by Yarriambiack Shire Council. In discussion with DEECA it is understood that these roads return to Crown Land if the Council's closure and discontinuance process (that includes public exhibition of the proposal) is successful (see Section 6.4 for further discussion regarding the proposed roads for which closure is proposed).

Table 3 - Crown land parcels within the work plan area

Parcel	Registered Proprietor / Administrator
CA 11A Sec A, Parish of Rich Avon West	DEECA
CA 21A Sec A, Parish of Rich Avon West	DEECA

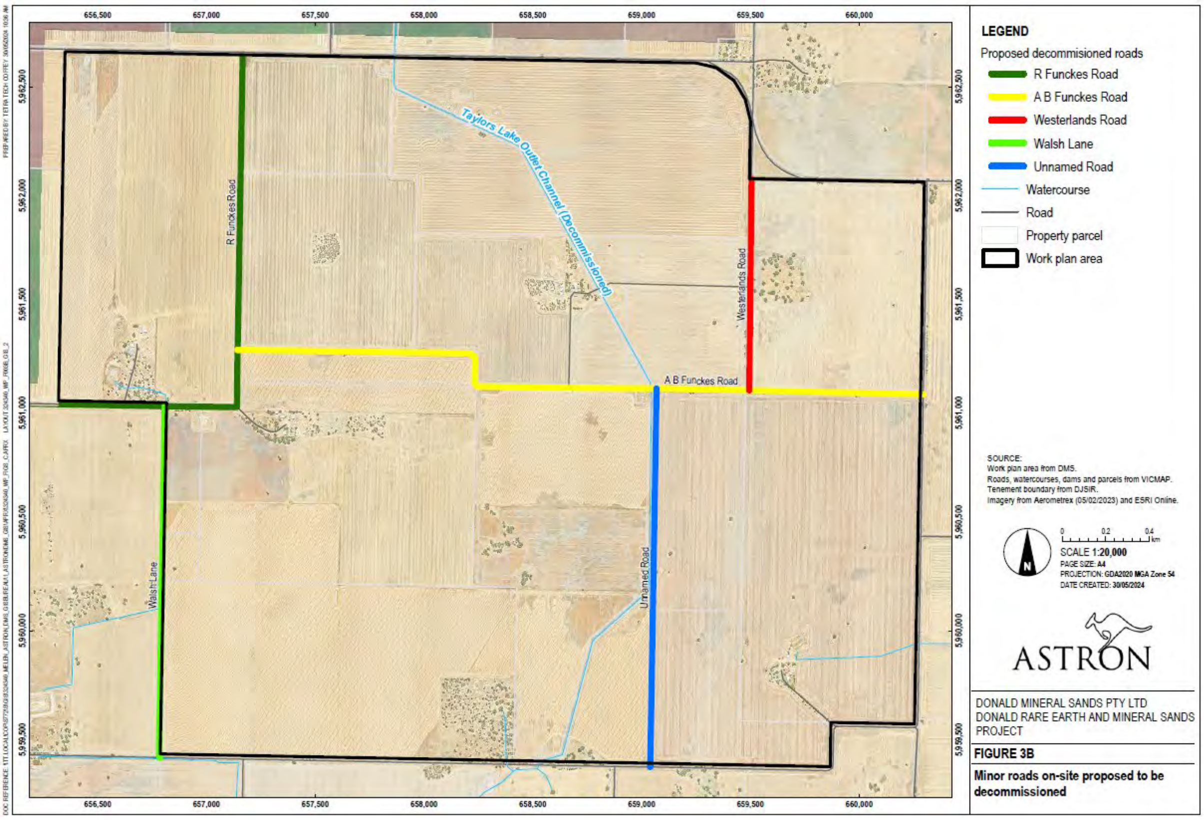


Figure 3B - Minor roads on-site proposed to be decommissioned

5. GEOLOGICAL INFORMATION

5.1. REGIONAL GEOLOGY

The Murray Basin is a low-lying, saucer-shaped intracratonic depression containing thin, flat-lying Cainozoic sediments, located in southeastern Australia. It extends approximately 850 km from east to west and 750 km from north to south, covering an area of 320,000 km^2 of southwestern New South Wales, northwestern Victoria and south–east South Australia.

A Tertiary succession of freshwater, marine, coastal and continental sediments deposited HM in the basin. Much of the sedimentary sequence is the result of repeated marine incursions from the south-west, with the latest transgression-regression event resulting in deposition of the Late Miocene to Late Pliocene Loxton Sand (formerly called the Parilla Sand or Loxton-Parilla Sand).

The Loxton Sand was deposited in shallow-marine, littoral and fluvial conditions and comprises fine to coarse grained, commonly moderately well sorted sand with minor clay, silt, mica and gravel and is the host sequence to all the known HM sand deposits in the Murray Basin. These deposits are of two principal types; the coarser grained “strandline” occurrences and the finer grained “WIM-style” accumulations. The strand-style deposits occur along the seaward face of ancient shorelines and are the result of concentration and winnowing in a littoral environment. These deposits are consistent with the present (and ancient) east and south-west Australian coastlines and are characterised by one or more relatively narrow (100 m to 500 m) composite lenses from 2 m to 12 m in thickness and frequently very persistent along any specific mineralised shoreline. These deposits are generally associated with relatively coarse, clean sand and gravel, consistent with any modern active beach environment.

The WIM-style deposits, named after the Wimmera area of the Murray Basin by CRAE Pty Ltd, consist of a solitary or composite broad, lobate sheet-like body of considerable areal extent, highly sorted and associated with fine grained, micaceous sand. These deposits are thought to represent accumulations formed below the active wave base in a near shore environment, possibly representing the submarine equivalent of the strand style deposits. The WIM style deposits are typically considerably larger in tonnage and lower in grade than strandline deposits.

In the late Pliocene or early Pleistocene ages, the Murray Basin was closed by uplift in the south-west. Major lakes formed and deposited a thick sequence of sediments dominated by clay. The onset of arid climate conditions about 500,000 years ago added an extensive system of playa lakes and aeolian sands to the cover sequence of the central and northern Murray Basin. Quaternary to Recent aged river systems helped create the present-day surface geology and geomorphology. The mineral sand deposits are buried beneath Quaternary and Tertiary aged fluvial sediments.

Below the Geera Clay, the Renmark Formation consists of silt and sand units with pyrite and carbonaceous (lignitic-rich) matter.

5.2. LOCAL GEOLOGY

The oldest rocks in the project area are a series of medium grade (Low to middle greenschist facies) metamorphic sediments of the St Arnaud Group. These are at depths ranging from 40m to 75m as determined by a few drill holes to basement rocks. Unconformably overlying the basement rocks are the medium grained sands (with occasional gravels) of the Eocene aged Renmark Formation. These are essentially clean quartz sands with wood and seed fragments overlain by carbonaceous (occasionally lignitic) clays. The sands often contain crystalline masses or concretions of marcasite and are commonly water saturated. The late Oligocene to middle Miocene Geera Clay conformably overlies the Renmark Group as a dark green to black marly clay with shell fragments and rare shark's teeth. The HM in the Donald Project area has been concentrated mainly within the lower units (LP2 and LP3) of the unconformably overlying Loxton Sand. HM concentrations occur immediately above the Geera Clay and decrease in grade towards the top of the fine-grained Loxton Sand. A medium to coarse-grained sand unit (the Loxton Sand LP1) overlies the fine-grained unit (LP2).

Minor amounts of iron oxides within the HM concentrations can form iron-cemented or indurated sandstone, developed as horizontal layers within the deposit. The top of the HM deposit is often seen as a similarly developed cemented zone less than 1m thick. The HM occurs as very fine laminae within clayey silt and sand. These laminae have been shown to be gently dipping imbricated laminae within horizontal bands of sediment, indicating deposition within an offshore deep-water ripple bed environment.

North to south trending discrete higher-grade zones have formed within the greater deposit presenting a focus for the initial stages of the mining operation. To the west, the mineralisation deepens and overburden increases. On the southerly margins, the fine-grained silty sand ore disperses in an east to west direction following silty clay units which are interpreted as wash out zones that tend to contain no HM.

The Loxton Sand is overlain by heavy (slaking) clays of the Shepparton Formation. These widespread brown clays commonly show mottling due to hydrated iron oxides with local developments of haematitic pisolites or nodules. "Stringer" sands of the Woorinen Formation develop as discontinuous or meandering channels up to 3m in thickness within the Shepparton Formation clays.

The drill hole geology shows that the top of the Loxton Sand is reached at around 9m depth depending on local topography such as sand dunes. The Loxton Sand is seen as a fine to medium grained sand at the base of the Shepparton Formation — a hard or silica cemented horizon (possibly the Karoonda Surface, a weathering profile created by a sea level hiatus) is seen a few metres into this sand, which can indicate the start of the very fine sand to silt zone of the Loxton Sand unit (LP2). The lower portion of the Loxton Sand is often below the water table.

The Geera Clay is usually encountered at depths ranging from 18 to 30 m.

The generalised project area stratigraphy is shown in Figure 4. Geological logging during drilling programs conducted by Zirtanium Ltd and DMS has conformed to this system with logging from 2004 onward also differentiating the interpreted depositional facies (LP1, LP2, and LP3) within the Loxton Sand.

- **LP1:** Fine to very coarse friable quartz sands and minor silty, clay and gravel beds representing dunal, foreshore and surf zone sediments.
- **LP2:** Near-shore, very fine silty micaceous quartz sands, minor clays and gravels, representing sediments deposited below the wave base that show friable laminated and truncated HM mineralised beds. LP2 is the principal fine-grained HM target throughout the Murray Basin and contains the majority of the mineralisation in the Donald Deposit.
- **LP3:** Represents deep water sedimentation containing higher silt and clay material than LP2. The depositional facies logging system has been used to geologically domain the deposit for resource modelling. HM content is generally highest within the LP2 domain.

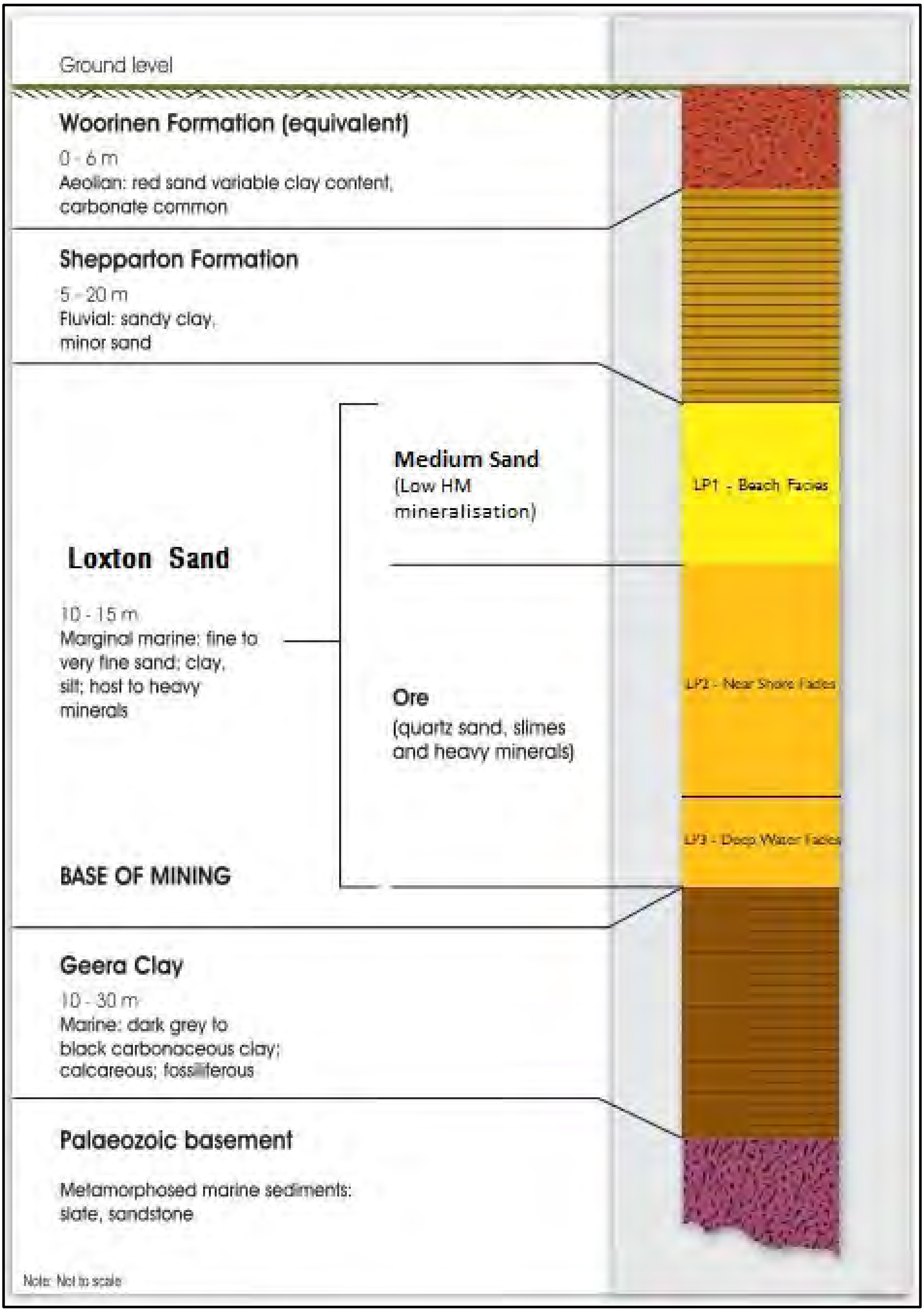


Figure 4 - Typical Geological Stratigraphy on MIN5532

5.3. ADVERSE GEOLOGICAL STRUCTURES AND CONDITIONS

There are no regional scale structures or faults affecting the Donald Project area as HM deposition post-dates the majority of Victoria's structural activity. Localised and intermittent zones of induration are known to exist within the Donald deposit likely associated with oxidation during sedimentation hiatuses and fluctuations in the water table level. These zones of induration will be further delineated during grade control drilling but are not expected to be a significant obstacle in mining the deposit.

5.4. MINERAL RESOURCE DESCRIPTION AND RESERVES

The Donald Project includes some of the world's largest zircon and HM deposits with a currently updated total Mineral Resource estimate of 2.63 billion tonnes of sand at an average grade of 4.6% HM.

The MIN5532 mining license area Mineral Resource of 525Mt @ 4.0% total HM is classified as 394Mt Measured, 110Mt Indicated and 20Mt Inferred (Astron, 2022) and provides the geological basis for Phase 1 of the Project. Only Measured (394Mt) and Indicated Mineral Resources (110Mt) within MIN5532 were considered for the Ore Reserve estimate.

The Ore Reserve estimate for MIN5532 was updated by AMC Consultants in March 2023 using the Mineral Resource Estimate of December 2022. The MIN5532 mining license area Ore Reserve of 309Mt @ 4.4% total HM (Astron, 2023a) provides the basis for the 2023 DFS. The work plan area (Phase 1A) is a subset of this reserve.

The recently completed DFS completed to an AACE Class 2 estimate standard provides confidence that the project will represent a financially robust investment, significantly de-risked by the selection of conventional mining excavation techniques, extensive metallurgical test work and engineering evaluation as well as advanced regulatory approvals (Astron, 2023b).

6. EXISTING ENVIRONMENT

With most of the land in the local Wimmera region being cleared for farming, native vegetation in the area is limited to scattered patches within paddocks or along road-side verges. This is the case for the work plan area.

6.1. SOILS AND LANDFORMS

The natural topography of the work plan area slopes from south to north with ~4 m fall over a 3 km horizontal distance (0.13%), or ~1 m fall over a 400 m horizontal distance (0.25%). Surface elevations range from reduced level (RL) 126 m to RL132 m (Figure 5). There are numerous low sandy rises up to 5 or 6 m high, which can give the impression of an undulating landscape.

Soils systems in the work plan area commonly occur throughout the Wimmera, namely those derived from the fluvial sediments of the Shepparton Formation and from aeolian sediments. The soils are nearly all alkaline, some excessively so with a pH greater than 9.

Acid-forming soils are not considered an issue. No sulphide minerals have been recorded in the Parilla Sand within MIN5532 (CNS, 2008) and red staining, indicative of oxidising conditions, is common.

The following soil systems are found within MIN5532:

- Murra Warra
- Kalkee (Unit 1 and Unit 2)
- Donald

Descriptions of each soil system are provided in the following sections. In both the Kalkee and Murra Wurra soils, there are high levels of soluble salts present at relatively shallow depths. Saline soils are present, with salinity generally increasing with depth. Soil disturbance could contaminate non-saline surface soils with saline soil or groundwater, reducing the soil's ability to sustain vegetation.

Murra Warra

This is the most widespread soil system and extends over 63% of the work plan area. The topsoil is thin (100 to 150 mm), is self-mulching and is approximately neutral in pH. It overlies hard, sodic subsoil, and like the underlying overburden, has a high level of soluble salts and boron; in some sites, at toxic levels within 1 m of the surface.

Native vegetation supported by this soil system is mainly Plains Woodland (803) and Plains Savannah (806) ecological vegetation classes (EVCs). Trees in the Plains Woodland EVC comprise grey box, yellow box, yellow gum and buloke, while the Plains Savannah EVC contains no eucalypts, only buloke and slender cypress pine.

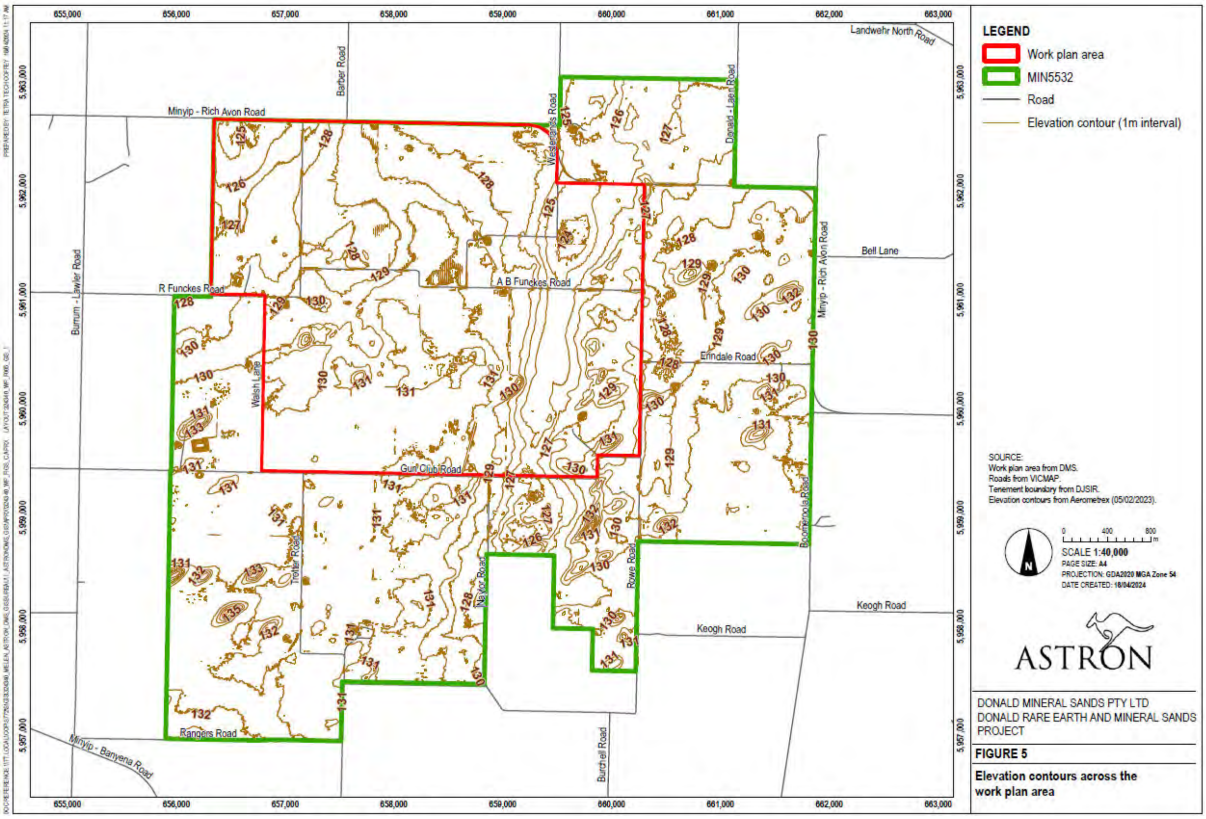


Figure 5 - Elevation Contours Across the Work Plan Area

Kalkee

The extent of the Kalkee soil system is limited and it covers approximately 17% of the work plan area but is superior for agricultural purposes. The vertosols formed from the Shepparton Formation alluvial sediments are the classic self-mulching cracking clay soils of the Wimmera. The soil profile is deep and can exceed 1.5 m. It is uniformly fine grained, with neutral to alkaline topsoil and becoming more alkaline with depth, commonly exceeding pH 9. Minor amounts of hard carbonate may be present, and gypsum is common. Two variants are present, mapped as K1 and K2 (Badawy, 1984). In the latter, the soil colour tends to be more brown or red than grey, in comparison with K1 soils. Analyses presented by Badawy (1984) show similar alkalinity and soluble salt levels for both K1 and K2 variants. Limited analyses for the current study show that the level of salts in the subsoil and underlying material are somewhat higher in the K1 form. Boron is at toxic levels at quite shallow depths in both units.

The dominant EVC is Plains Savannah, with buloke being the dominant overstorey.

Donald

The aeolian landforms consist of distinct dunes and lake-lunette clusters, in which the lakes and swamps are small and the lunette dunes commonly indistinct. Soils are hard alkaline red and mottled duplex soils on all dunes, with heavier clay soils in the lakes/swamps of the lunettes. Carbonate is common throughout the profile. Predictably, the more permeable soils of the Donald soil system are lower in soluble salts and boron than the other soils of the mining licence, and, in some areas, boron levels were below detection level (5 parts per million (ppm)) down to 4 m. Where the topsoil is the sandy loam of the Donald soil system that overlies Murra Warra clay, there are moderate levels of soluble salts and toxic levels of boron in the uppermost 2 m.

A variety of EVCs are found on this soil, but on the sand dunes of the mine site, the most common is Low Rises Woodland, with buloke and slender cypress pine.

The red aeolian sand of the Donald soil system appears to have formed in recent geological times and this means that the underlying clay soil, developed on the Shepparton Formation, is now a 'fossil' soil, which will be exposed when the sand is removed during mining. This material will be nutrient poor as a cropping soil, being relatively high in soluble salts including boron, low in soil biota and compacted to some degree by the overlying sand. It should therefore be kept separate and is probably best used for the rehabilitation of areas where native vegetation is to be planted, as the indigenous species are much more tolerant of less fertile soils than exotic crops. Alternatively, as mining develops it may be treated as overburden.

Table 4 - Summary of the Soil System Types Within the Donald Project

Soil System Type	Characteristics
Murra Warra (63% of Work Plan Area)	• Form in low undulating plains • Form from fluvial sediments of Shepparton Formation • Thin 100 – 150 mm • Neutral pH • Overlies hard, sodic subsoil • [B] = 6.6 to 42 ppm
Kalkee	• Form in low undulating plains

Soil System Type	Characteristics
(17% of Work Plan Area)	• Vertosols (good for agriculture) • Form from aeolian sediments of Shepparton Formation • Thick, 1.5 m+ • Neutral to alkaline pH (e.g., pH 9+) • Contains calcium carbonate and gypsum • [B] = <5 ppm to 57 ppm
Donald (20% of Work Plan Area)	• Associated with small lakes/swamps and lunette dunes • Hard red mottled duplex soils and heavy clay soils • Higher permeability than other soil types • [B] = <5 ppm to 10 ppm

6.2. CLIMATE

The work plan area is within the semi-arid climatic zone of southern Australia and has a Mediterranean to continental climate (i.e., cool wet winters and warm to hot dry summers). The average annual rainfall is approximately 400 mm, with rain falling on an average of 98 days per year. The average summer and winter temperatures are 13ºC to 30ºC and 4ºC to 13ºC respectively.

Table 5 lists three Bureau of Meteorology (BoM) weather monitoring stations currently operating within 70 km of the Project.

Table 5 - BoM Monitoring Stations within 70 km of the Project

Name	Number	Location	Data Available
Donald	078072	• Latitude: 36.36 °S • Longitude: 143.00 °E • 25km north east of project	• Commenced 1966 • Only rainfall data has been collected from 2000
Longerenong	079028	• Latitude: 36.67°S • Longitude: 142.30 °E • 45km south west of project	• Commenced 1860 • Temperature, rainfall, wind speed and wind direction
Kellalac (Warracknabeal)	078018	• Latitude: 36.32 °S • Longitude: 142.42 °E • 35km north west of project	• Commenced 2016 • Temperature, rainfall, wind speed and wind direction

The nearest weather monitoring station to the Project with long term hourly data is the BoM station at Longerenong (station 79028), approximately 45 km to the southwest of the Project. Climate data from the station is summarised in Figure 6 (temperature and rainfall):

- Morning winds are strongest in summer and lightest in winter.
- Afternoon wind speeds are fairly consistent throughout the year.
- Mean temperatures range from about 4ºC on winter mornings to around 30ºC on summer days.

- Total rainfall amount is fairly low year-round, with winter and spring seeing slightly higher rainfall than summer.

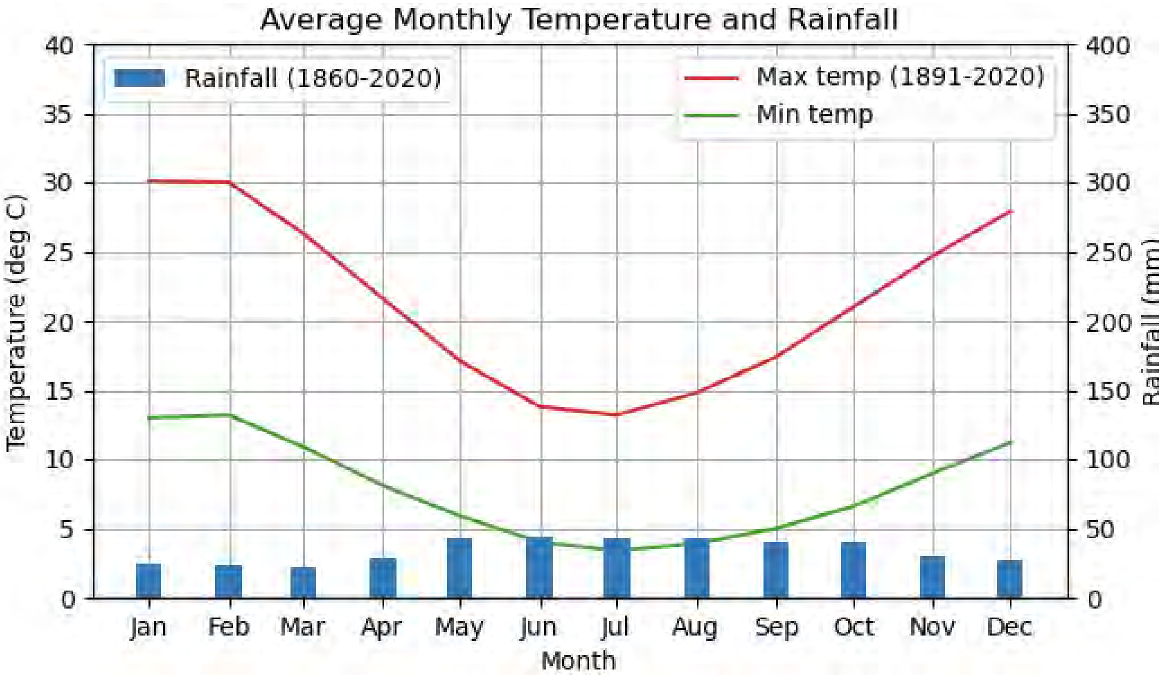


Figure 6 – Meteorological data from the Longerenong Weather Station (#079028)

6.3. COMMUNITIES AND RURAL RESIDENCES

The mining licence area is located near to the intersection of the Yarriambiack, Northern Grampians and Buloke Shires within a broadacre agricultural region where wheat, barley, canola, legumes and pulses are typically grown, with scattered rural residential properties throughout the area. Sheep grazing commonly occurs on feed crops and crop stubbles. The closest town is Minyip located 14 km to the east of the mine (Figure 7). The townships of Donald, Murtoa, Rupanyup and Warracknabeal are all within 45 km by road. All the towns surrounding the mine typically have small and ageing populations with median ages typically above the State average whilst median incomes are below the State average. The regional centre of Horsham is approximately 65 km to the southwest.

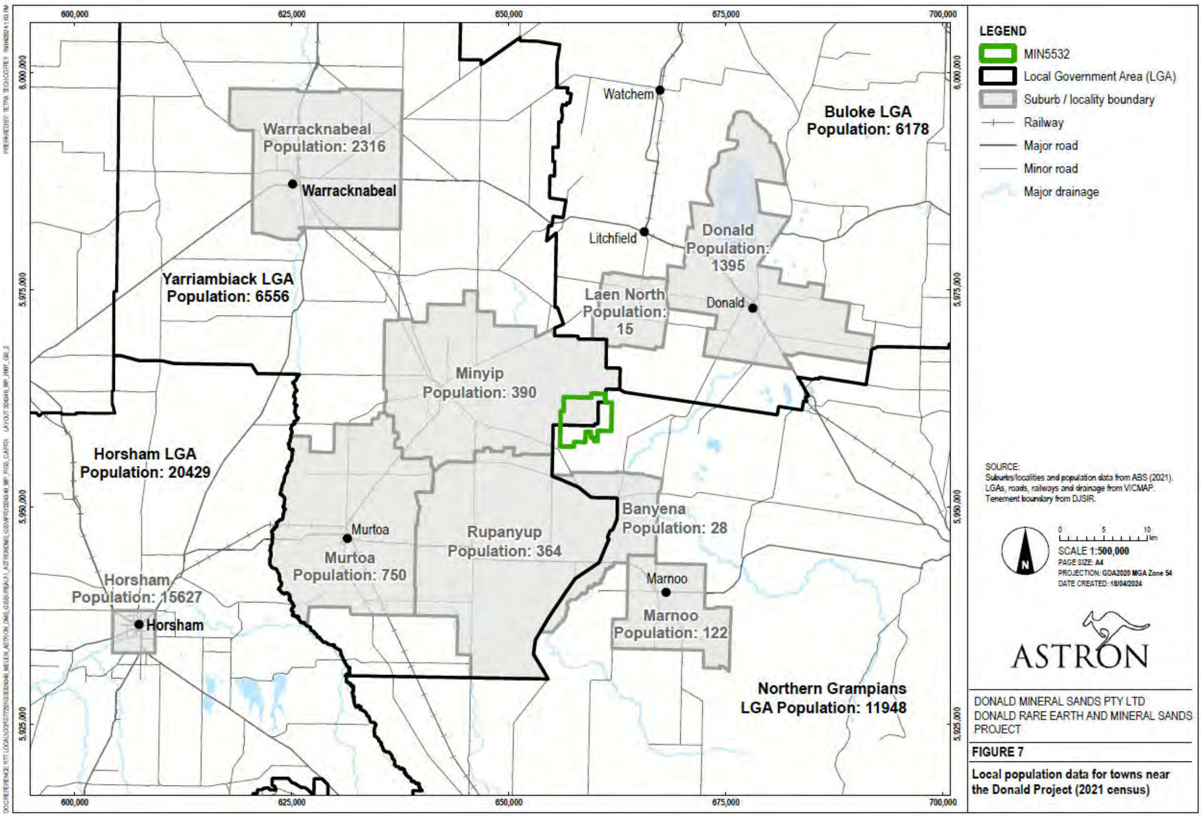


Figure 7 - Local Population Data for Towns near the Donald Project (2021 Census)

DMS has focussed strongly on community engagement throughout development of the project, as described in the Community Engagement Plan.

6.4. PUBLIC INFRASTRUCTURE AND FACILITIES

The work plan area is bordered by the public rural roads as shown in Figure 8A. These roads include Minyip-Rich Avon Road which creates the northern boundary (4,200 m), commencing approximately 1,200 m east of Burrum Lawler Road. The eastern boundary is created by Rowe Road (2,500 m), to the point where it intersects with Gun Club Road. The southern boundary is formed by Gun Club Road (3,700 m) to its intersection with Walsh Lane. The western boundary is formed by Walsh Lane (1,600 m) to its intersection with R. Funckes Road. The boundary follows R. Funcke Road (500 m) to the property boundary which runs north (1,600 m) back to Minyip Rich-Avon Road.

Local unsealed roads within the work plan area will be decommissioned prior to mining, and after agreement is reached with the landowner. To achieve this, a request must first be made to Yarriambiack Shire Council for the proposed 'closure and discontinuance' of these roads. We understand from recent discussions with DEECA, that if successful, these roads then return to Crown Land. The local roads within the work plan area (see Figure 3B) include:

- R. Funckes Road (1,900 m)
- AB Funckes Road (3,300 m)
- Westerlands Road (960 m)
- Unnamed Road (1,700 m)

To reduce the risk of unauthorized mine access from the public, it may also be useful to have Walsh Lane (1,600 m), that sits adjacent to the work plan area, also closed. This option will only be pursued if amenable to Council and DEECA and following the necessary processes.

Approval to discontinue and dispose of the roads will be sought from Yarriambiack Shire Council.

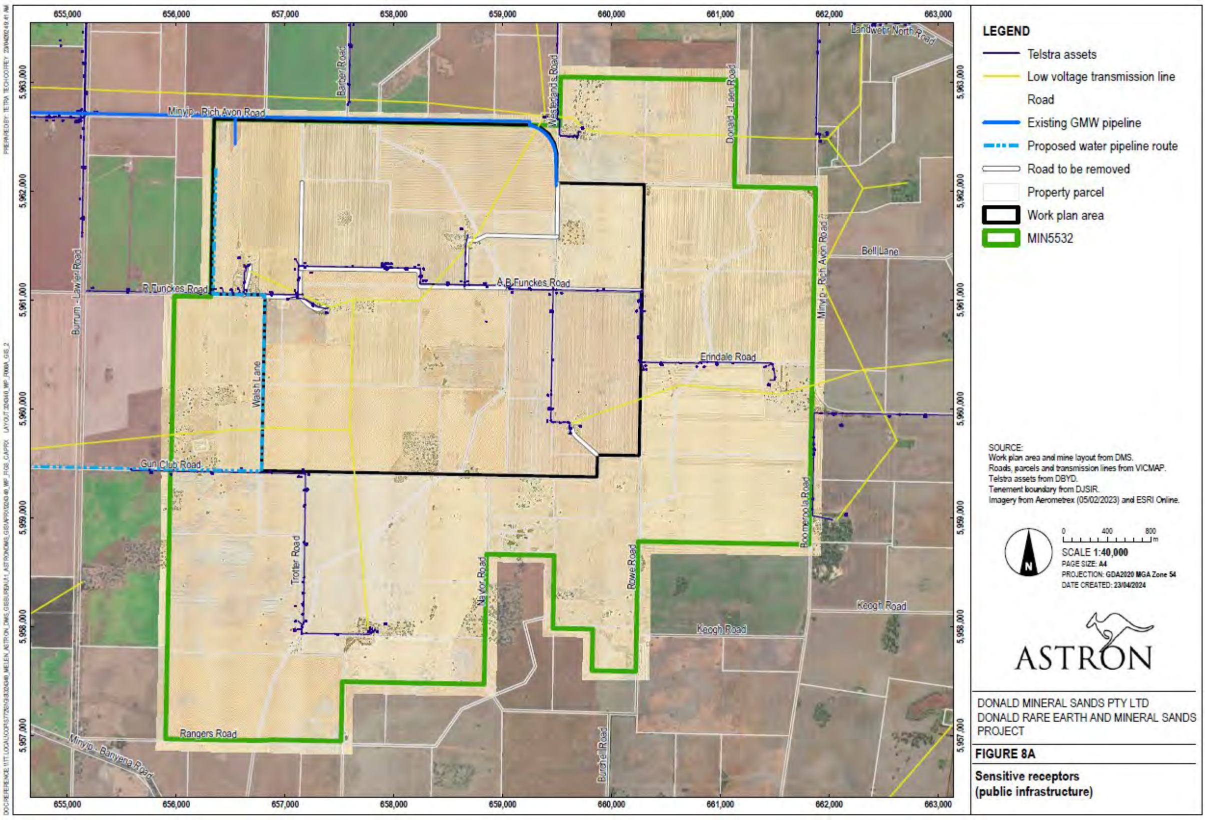


Figure 8A - Sensitive Receptors (Public Infrastructure and Facilities)*

Other existing infrastructure in the work plan area includes Telstra cables, low voltage transmission lines and water supply pipelines as shown in Figure 8A.

This infrastructure will be decommissioned with approval from the relevant authorities, Telstra, Powercor and GWMWater.

Advice on the process to be followed once agreement is reached with affected landowners has been supplied by Powercor and GWMWater regarding the affected assets.

6.5. HISTORIC HERITAGE

Three non-indigenous historic heritage sites are present in the work plan area. Two of the sites are of low historical significance and one is of moderate historical significance. Of these, four including the site of moderate historic significance, will be disturbed by mining activities. One historic heritage site is located 1.7 km east of the work plan area (denoted Funcke 3).

Historical heritage sites, including sites to be retained, are shown in Figure 8B. Heritage Victoria advised (September 2023) that an updated assessment of the current condition and historic archaeological values of the subject sites is required to inform any Consent of site management decisions.

Updated site assessments will assist Heritage Victoria in providing any necessary conditions that may be included with a Heritage Act Consents that is issued.

Approval to damage historical heritage sites will be in place from Heritage Victoria prior to any ground disturbance.

It may be timely for a broader survey of the proposed Donald Mineral Sands Project area to be conducted to identify any currently unrecorded historical archaeological sites and DMS will commit to undertake the required action to achieve the necessary actions to achieve our Consents under the Heritage Act for known sites in line with the Planning Minister's EES recommendations.

6.6. CULTURAL HERITAGE

DMS has established and maintains a good working relationship with the Barengi Gadjin Land Council (BGLC), representing Traditional Owner custodians of the lands encompassing the work plan area. The Cultural Heritage Management Plan (CHMP) for the project, approved in 2014 (QAAV management plan number 11572), was developed with the integral involvement of the BGLC. DMS continues to engage with the BGLC to ensure cultural heritage is appropriately protected.

[redacted] Permanent protective fences will be erected around each of these sites prior to commencement of works to ensure that activities do not inadvertently impinge on them.

[redacted] which DMS has committed to recovering and storing prior to the commencement of works. DMS are discussing options with BGLC for preserving these scarred trees onsite, possibly at the entrance to the mine. This work will be supervised by a Cultural Heritage Advisor with participation of BGLC.

Finally, a number of Aboriginal cultural heritage places [redacted] DMS has committed to retrieve as many cultural significant items as possible (under supervision by a Cultural Heritage Advisor and with participation of BGLC) from these places to avoid their destruction prior to disturbing these areas.

Cultural Heritage Sensitivity within the vicinity of the work plan and cultural heritage sites to be retained and protected within the work plan area are shown on Figure 8B.

[redacted]

[redacted]

6.7. ECOLOGY

The study area is located within the Wimmera Bioregion and would have once been covered in woodlands variously dominated or co-dominated by Yellow Gum, Buloke, Black Box and Grey Box with large areas of native grassland occurring between the woodlands. Most of the work plan area now comprises cleared land used for dryland agriculture and livestock, which is typical of the Wimmera plains. The following sections describe the flora and fauna surveys.

6.8. FLORA

Existing native vegetation exists as scattered patches or along roadsides. The area is part of the Wimmera Bioregion and in 2023 an assessment (EHP, 2023) was undertaken to review and update the previous ecological data that was obtained as part of the EES to address the three steps of avoid, minimise and offset the proposed removal of native vegetation in accordance with the *Guidelines for the Removal, Destruction or Lopping of Native Vegetation* – DELWP 2017; and to outline any implications associated with changes in the legislative and policy framework.

Vegetation will be retained where possible (Figure 9).

As part of Flora and Fauna management, vegetation No Go Zones have been derived by identifying Tree Protection Zones in accordance with AS 4970-2009 Protection of trees on development sites, and by applying a minimum buffer of 10 metres around Threatened Ecological Communities. A tree protection zone is calculated by multiplying the diameter at breast heigh (DBH) by 12. This is the minimum extent necessary, and a larger area may be required in some instances to facilitate the installation of fencing on the ground. The vegetation No-Go Zones are shown on Figure 9.

The Victorian Minister for Planning's Assessment of the EES included the recommendation that further monitoring for the Green-comb Spider-orchid (*Caladenia tensa*) and Slender Darling-pea (*Swainsona murrayana*) be conducted before, during and after the mining to avoid or minimise impacts on the listed flora species. The absence of these species in targeted surveys in 2016 led to the *EPBC Act* approval condition in relation to these species to be revoked. If these species or suitable potential habitat is identified, an appropriate management system will be implemented.

A summary of the updated ecological values EHP, (2023) and AECOM, (2024c) is summarised in Table 6 below:

Table 6 - Project Area Ecology

Native vegetation	Native vegetation mapped within the work plan area was represented by two EVCs (Figure 9): • Plains Woodland (EVC 803) 7.71 ha; • Plains Savannah (EVC 823) 16.31 ha; • 167 Scattered Trees; and, • 189 Large Trees in patches of vegetation. As part of the project, the following native vegetation will be removed (as assessed under the DELWP, 2017 Guidelines): • 14.744 hectares of native vegetation, • 121 Large Trees scattered and in patches of vegetation. ***All offsets for native vegetation removal will be in place prior to ground disturbance.***
Ramsar Wetlands	There are no Ramsar wetlands within or adjacent to the work plan area
Significant ecological communities	Nationally significant: • Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions State significant: • Semi-arid Northwest Plains Buloke Grassy Woodland Community • Potential for the Victorian Temperate Woodland Bird Community (woodland vegetation within the study area provides potential habitat for bird species and assemblages that make up this community)
Significant flora species	Three State significant flora species listed as Critically Endangered under the FFG Act were observed during the site assessment: • Umbrella Wattle *Acacia oswaldii* • Buloke *Allocasuarina luehmannii* • Buloke Mistletoe *Amyema linophylla* subsp. *orientale* Three flora species listed as 'protected' under the FFG Act in Family/genera Acacia and Asteraceae were also recorded, including: • Gold-dust Wattle *Acacia acinacea* • Golden Wattle *Acacia pycnantha* • Fuzzy New Holland Daisy *Vittadinia cuneata*

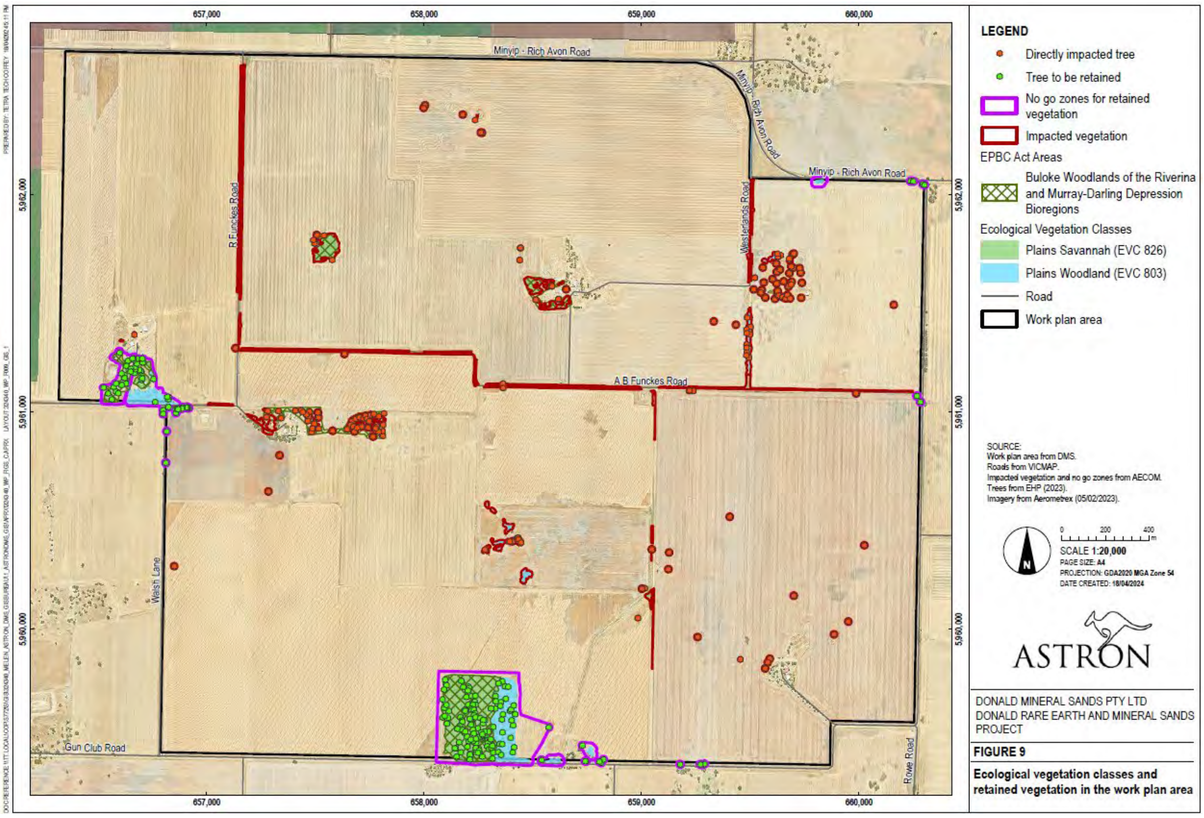


Figure 9 - Ecological vegetation classes and retained vegetation in the work plan area

6.9. FAUNA

A total of 98 fauna species were observed during field surveys conducted for the 2008 EES. Three species were identified as state significant fauna occurring within MIN5532:

- Bush stone-curlew (Burhinus grallarius)
- Brown treecreeper (Climacteris picumnus victoriae)
- Diamond firetail (Stagonopleura guttata)

The Ministers Assessment of the EES concluded that there were not any significant risks to protected threatened fauna species due to the Project. One EPBC Act listed fauna species, Growling Grass Frog, was recorded in the EES study area and formed a condition of the EPBC Licence on the basis that channel farms and dams may support habitat for the species. The irrigation channels through MIN5532 were subsequently removed and in a 2018 variation of EPBC conditions, the condition relating to Growling Grass Frog was revoked.

No state or nationally significant fauna species were observed within the work plan area during the 2023 EHP assessment.

Three fauna habitats were recorded by EHP (EHP, 2023) within the work plan area:

- Woodland vegetation: these areas support an array of small, medium and large hollows, bark fissures and crevices, providing habitat for hollow-dependent fauna species including microbats and hollow-nesting birds such as small parrots.

- Scattered trees: provide an important resource for more mobile tree-dependent fauna species.
- Native and introduced grasslands: likely to be used as a foraging resource by common generalist bird species that are tolerant of modified open areas.

6.10. HYDROLOGY

The work plan area is split between the Wimmera and the Avon–Richardson catchments. It does not contain any defined watercourses or water bodies. There are two redundant and decommissioned domestic and stock supply channels (Taylors Lake Extension Channel and the Laen East Channel) (Figure 10). The closest defined waterways are the Richardson River (4 km to the east) and Dunmunkle Creek (2 km to the west). The closest major water body is Walkers Lake (35 km east). Sheet floodwater flows can occur following major rainfall events.

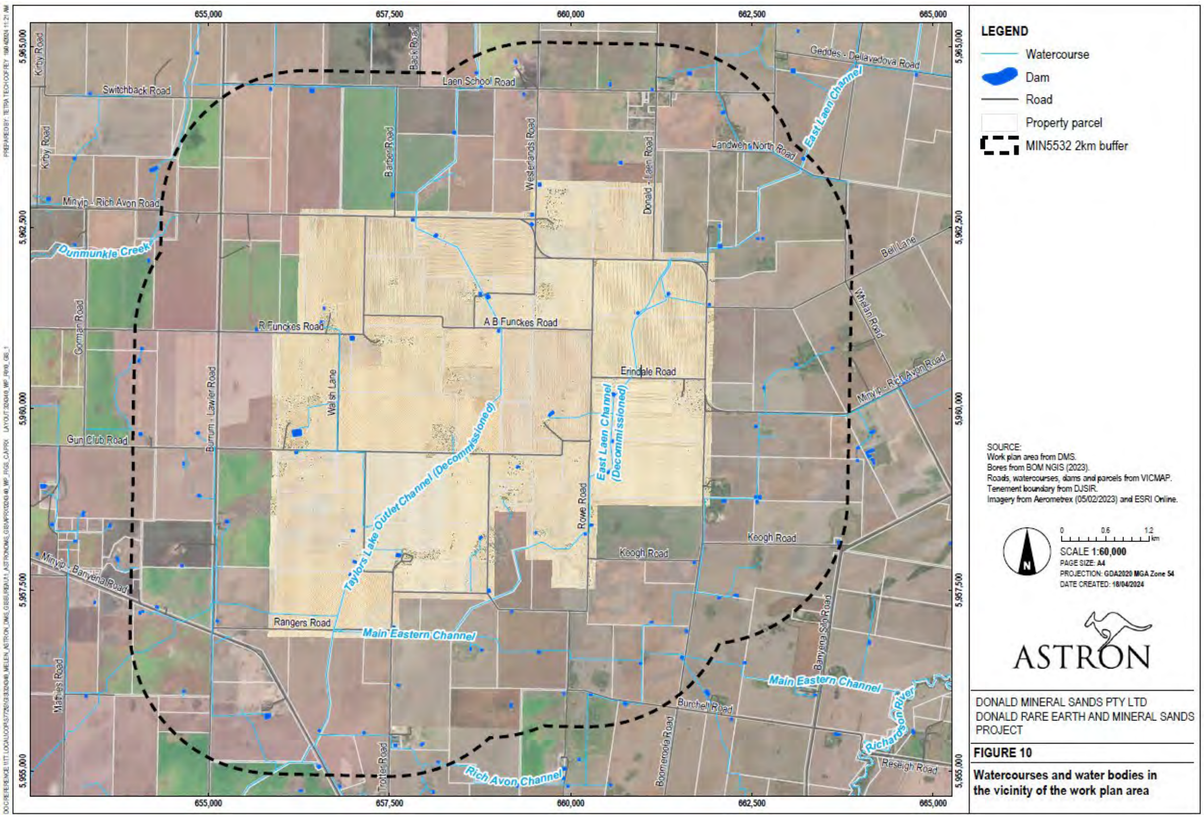


Figure 10 - Watercourses and Water Bodies in the Vicinity of the Work Plan Area

6.11. HYDROGEOLOGY

The regional hydrogeology is generally understood, but on a wider scale only. The main aquifer is the Parilla Sands, an unconfined aquifer with high salinity and low yield. The mineral sand deposits are generally 3 to 12 m below the water table within the Parilla Sands. The regional groundwater salinity varies between 14,000 and 35,000 milligrams per litre (mg/L) total dissolved solids (TDS) and the average local salinity is 16,930 mg/L TDS. In the vicinity of the work plan area, depth to groundwater ranges between approximately 11- 15 metres below ground surface, (generally between 110 and 120 m Australian Height Datum (AHD)) and the regional groundwater flow is north-westerly towards the deeper section of the Murray Basin.

6.12. GROUNDWATER DEPENDANT ECOSYSTEMS

The Bureau of Meteorology (BoM) Groundwater Dependent Ecosystem (GDE) Atlas was used to search GDEs within the Avon and Wimmera River Catchments. The database presents the location of ecosystems that rely on the surface expression of groundwater (aquatic GDEs; such as rivers, wetlands and springs), and those that rely on subsurface groundwater (terrestrial GDEs; such as vegetation ecosystems). The database also classifies the GDEs based on likelihood via the following:

- Regional studies (unclassified, low, moderate, high, known); and
- National assessment (low, moderate, high).

Within 5 km of the work plan area, only two temporary wetlands and marsh/meadows are identified, related to surface water drainage features and topographic depressions. The site to the southwest is classified as having a low potential for reliance on groundwater, the other site to the south is unclassified.

There are several small and isolated potential terrestrial GDEs mapped within a 5 km radius of the Site, but this is based on regional scale mapping of moderate potential GDEs that was not ground-truthed. There is low actual potential for groundwater dependent vegetation, based on the saline watertable in this area (around 17,000 mg/L TDS), and the depth to watertable of around 10 metres. The closest terrestrial vegetation mapped as high potential GDEs include plain woodlands and drainage line woodlands along the Richardson River, approximately 4 km east of the Project (CloudGMS, 2023).

CloudGMS, (2023) considered that any changes in the water table from the mine operations would not impact on such vegetation.

Stygofauna are subterranean invertebrate species that are found to inhabit groundwater systems across Australia. Communities can be entirely dependent on the groundwater systems and are adapted to near steady-state environmental conditions. This makes them particularly vulnerable to disturbances in their groundwater environments, such as groundwater levels, water quality and changes in aquifer pore media (CSIRO 2015).

Specific field investigations have not been undertaken at the Donald Project site to survey the presence of stygofauna, as the site is not considered to be a conducive environment owing to the highly saline groundwater and fine-grained aquifer matrix.

Stygofauna can reside across a range of water quality conditions but are most commonly found within fresh and brackish groundwater systems where EC <5,000 µS/cm. Baseline water quality data determined through previous groundwater monitoring events (AECOM 2024d) indicate the presence of highly saline groundwater beneath the work plan area, with electrical conductivity ranging from 25 - 42,100 µS/cm (median 32,150 µS/cm), significantly higher than of fresh and brackish systems.

Groundwater monitoring data indicate natural pH levels across site range between 5.1 and 7.3, with a median of 6.2, slightly below the reported favourable range of 6.5-8.5 (GHD 2022). Although stygofauna communities are found under a range of pH conditions, they are mostly present under near-neutral pH.

Lithology of the aquifers in groundwater systems is another important factor in the presence of stygofauna, which require large pore spaces (mm in size or greater) to facilitate movement (CSIRO 2015; GHD 2022). The major aquifer systems beneath the work plan area are the Loxton-Parilla Sands

Aquifer, which has a relatively low hydraulic conductivity in proximity to the mine, of 1-5 m/d. The Renmark Group Aquifer System is below the Loxton Parilla Sands, separated by the Gera Clay aquitard. Both aquifer units are typically characterised by fine-grained matrices, which would likely impede stygofaunal passages.

The presence of stygofauna in Victoria is poorly understood and accessible information is heavily influenced by studies from Western Australia, New South Wales and Queensland. However, in this context, it is considered unlikely that stygofauna are present within the vicinity of the mine.

7. SUMMARY OF SENSITIVE RECEPTORS

Sensitive receptors are a key aspect of the existing conditions within which activities will be conducted, described in relation to the environment, members of the public, land, property or infrastructure in the vicinity of the work plan area. Table 7 below summarises the sensitive receptors[2] of relevance to the Project work plan area. Details of the sensitive receptors, their location and proximity to site are summarised in Table 7 and its corresponding figures with further details for each in the subsequent sections.

Table 7 - Sensitive Receptors in Proximity to the Work Plan Area

Receptor category	Description of the sensitive receptors
Community and residential receptors	Sensitive land uses[1] within a 2 km buffer of MIN5532 relate to rural residential properties. Three inhabited residences exist within MIN5532, two of which are within the work plan area. A further eight occupied residences are located outside the work plan area but within the 2 km buffer. An additional nine dwellings exist within the 2 km buffer, as either uninhabited or DMS-owned dwellings. In total there are 20 dwellings within the 2 km buffer, 11 of which are inhabited.
Historic Heritage	Three non-indigenous historic heritage sites occur within the work plan area. One site (Gun Club Road Complex) sits within a protection zone that will not be disturbed. Historic heritage sites in the vicinity of the work plan area include one artefact scatter, located 1.7 km east of the work plan area (denoted Funcke 3).
Aboriginal Heritage	The CHMP for the project, approved in 2014, was developed with the BGLC and covers the entire work plan area. Protection of sites in the work plan area will include [redacted] work plan area sits wholly within the CHMP boundary. There are a number of areas of cultural sensitivity outside the outside of the work plan area, as shown in Figure 8B. These includ [redacted] the work plan area.
Public infrastructure	Public infrastructure including water pipelines, powerlines, communications infrastructure and roads occur within the work plan area as shown in Figure 8A and described in Section 6.4. There are a number of roads adjacent to the work plan area as shown in Figure 3B. All assets within the work plan area will be

[2] On advice from EER, DMS has assessed its sensitive rural residence receptors within 2 km of the mining licence boundary, as opposed to the work plan area.

Receptor category	Description of the sensitive receptors
	decommissioned once agreement with the landowner is reached (see Section 9), and therefore, are not sensitive receptors during mining.
Crown land	Crown Land within the work plan area relates to the decommissioned open channel that was part of the GWMWater's Wimmera Mallee Water Supply System (see Section 4.2).
National parks and conservation reserves	Two conservation reserves exist in proximity to the work plan area: Laen Bushland Reserve (2.1 km northeast of the work plan area) and Burrereo Bushland Reserve (3 km southwest of the work plan area). These are shown as receptors R1 and R27 in Figure 3A.
Biodiversity and ecosystems (vegetation and fauna)	The native vegetation for the project was remapped in 2023. The project contains two EVCs, both of which are endangered within the Wimmera bioregion (EHP, 2023): EVC 803 Plains Woodland; and EVC 823 Plains Savannah. One Threatened Ecological Community (TEC), 'Buloke Woodlands of the Riverina and Murray-Darling Depressions Bioregion' was also identified within the work plan area. The TEC is listed as a Matters of National Environmental Significance (MNES) under the EPBC Act. Two ecological communities of state significance under the FFG Act were identified along with six flora species of State significance (FFG Act-listed). Figure 9 depicts trees that will be protected and those that will be impacted and retained by project activities. The Ministers Assessment of the EES concluded that there were not any significant risks to protected threatened fauna species due to the Project. One EPBC Act listed fauna species, Growling Grass Frog, was recorded in the EES study area and formed a condition of the EPBC Licence on the basis that channel farms and dams may support habitat for the species. The irrigation channels through MIN5532 were subsequently removed and in a 2018 variation of EPBC conditions, the condition relating to Growling Grass Frog was revoked.
Surface water	There are no defined (major) waterways within 2 km of the work plan area. The closest major drainage line is Dunmunkle Creek which is located directly west of the work plan area (Figure 10).
Groundwater	There are no registered groundwater users (irrigation, stock and domestic) within 20 km of the work plan area; the natural groundwater is saline (classified Segment F). Of the identified GDEs within 5 km of the work plan area, there is low actual potential for groundwater dependent vegetation, based on the saline watertable, and the depth to watertable of around 10 m (except in areas of low-lying topography distant from the work plan area). There are no EPA Victoria groundwater restricted use zones (GRUZ) within a 2 km radius of the work plan area.

Note 1: Sensitive land use includes residential premises, childcare centres, pre-schools, primary schools, education centres, or informal outdoor recreation sites.

8. PROJECT DESCRIPTION

8.1. MINING

8.1.1. MINE LAYOUT DESIGN

A key factor influencing the mine layout and design is that the economic ore zone extends across the entire work plan area and even outside the work plan boundary. To minimize ore sterilisation and maximise mineral resource utilisation, the pit design and disturbance area was based on the following constraints:

- Avoidance of culturally significant areas
- Avoidance of environmentally significant areas, including native vegetation to be retained and protected, including vegetation No Go Zones
- Allowance of a 100m buffer zone between the pit crest and work plan area boundary for haul roads, utility infrastructure and surface water management structures
- Allowance for geotechnical (GRZ) offset to exclude any potential impacts on public safety, the environment, land, property and infrastructure
- Offset area for process plant infrastructure
- Offset area for the external tailings storage facility
- Allowance for geotechnically designed pit slopes

Figure 11 shows the general site layout including processing plant area, external Tailings Storage Facility (TSF), pit crest, haul roads, project infrastructure and buffer zones (including from work plan boundary, vegetation 'No-Go Zones') and sensitive receptors near the work plan area boundary.

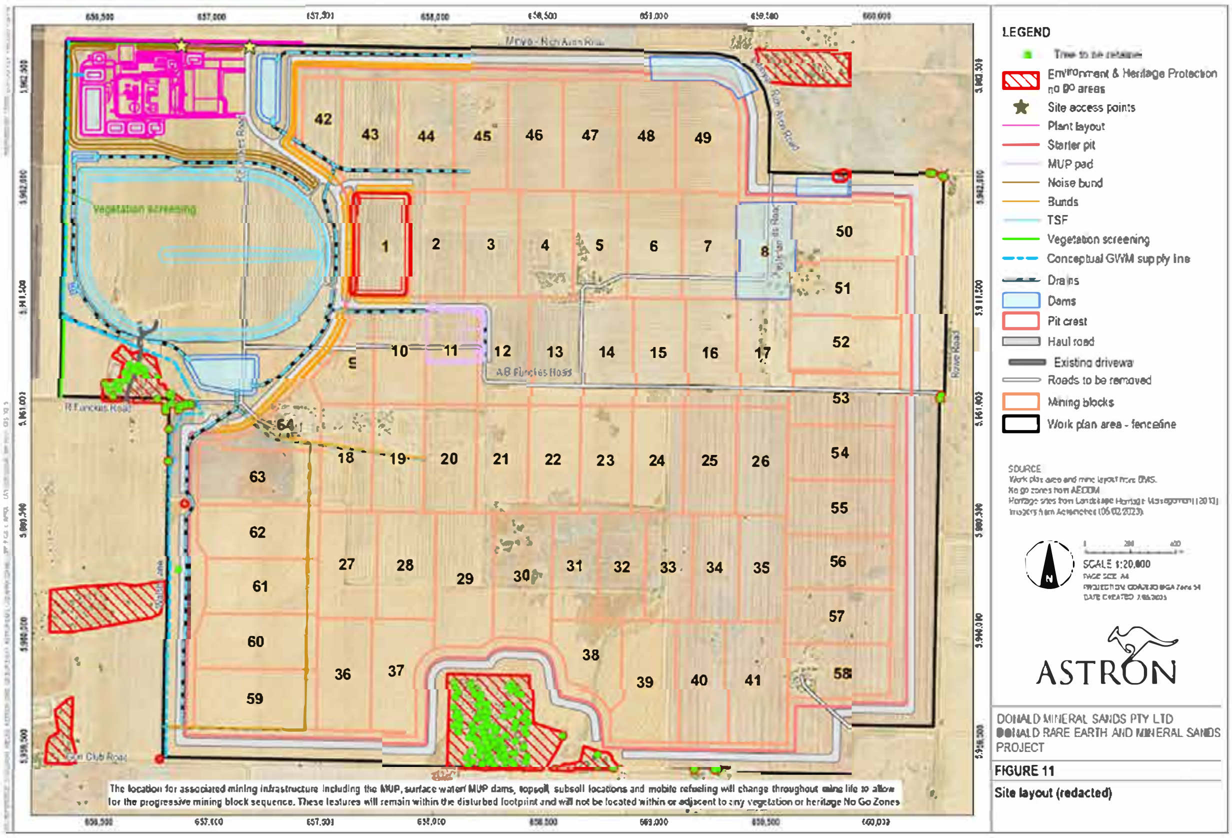


Figure 11 - Site Layout (redacted version to omit Aboriginal Heritage sites)

8.1.2. MINING BLOCK DESIGN

The mining block design is based on detailed mine planning and adjusted to suit the pit boundary and the in-pit mine cell size. Based on the ore reserve optimisation process and application of restraints listed above in Section 8.1.1, the key mine pit design parameters are as follows:

- Minimum depth to floor of pit: 16.5m
- Maximum depth to floor of pit: 26m (equivalent to 103 mAHD), with an average depth of 22 m (i.e., 107 mAHD) across all mine blocks
- Total Width (east/west): 3,265m
- Total Length (north/south): 3,025m
- Each mining block will be 500 m wide and 250 m long.
- Pit slopes: 1V:2.5H

The mining block sequence is shown in Figure 12 below.

Normal mining operations will proceed in a continuous cycle of vegetation clearance, removal of topsoil, sub-soil and overburden, ore extraction, backfilling tailings into the in-pit cells and rehabilitation, which means that the pit will move, but will not continue to increase in size, thereby maintaining the overall disturbed area. Figure 13 below shows this process occurring with mining advancing to the east and the commencement of in-pit tailings occurring to the west.

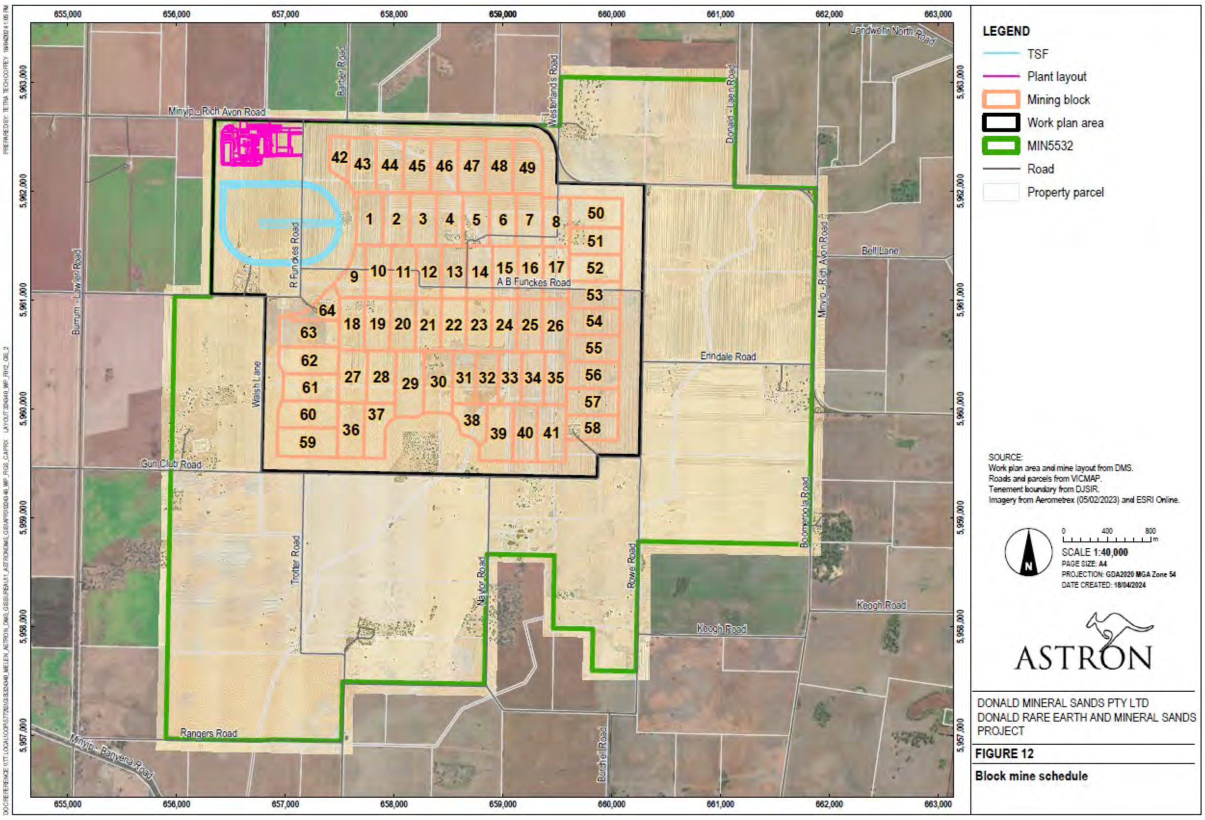


Figure 12 - Block Mine Schedule*

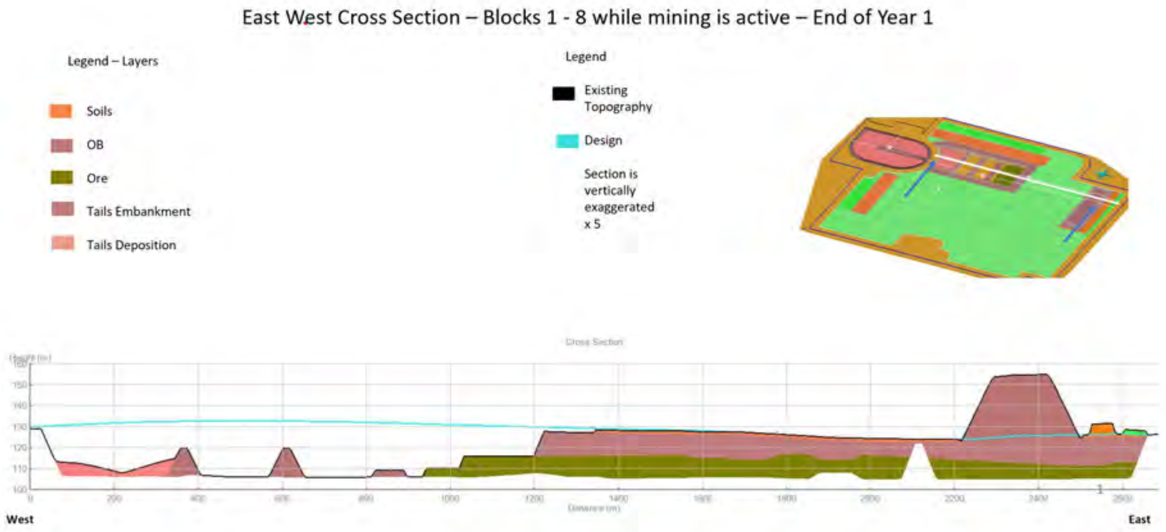


Figure 13 - Mine Cross Section*

8.1.3. DETAILED MINE SCHEDULE

A detailed mine schedule was developed for the work plan area. The schedule includes initial soil and overburden stripping occurring under the process plant, external TSF and surrounding infrastructure as part of construction.

The total mine life extends for 19 years. Average annual ex-pit movements include:

- Topsoil - 0.2 Mt (megatonne)
- Subsoil - 0.7 Mt
- Overburden - 8.0 Mt
- Ore - 7.5 Mt

The processing of 7.5 Mtpa ore is the annual maximum and is expected to be achieved every year apart from year one and probably the last year due to ramp-up and ramp-down of the mining activities.

A life of mine summary of the detailed mine schedule is shown in Table 8.

Table 8 - Detailed Mine Schedule Summary

Mining	Unit	Value
Topsoil	Mt	3.1
Subsoil	Mt	12.6
Overburden	Mt	152.1
Ore	Mt	126
Total HM	%	4.5
Life (approximately)	years	19

8.1.4. OVERVIEW OF MINING METHOD

The mining activities and general sequencing are summarised as follows:

- Initially topsoil and subsoil are cleared for the external TSF footprint, process plant pad, bunds, dams, surface water management structures and contractor infrastructure area.
- The first few mining blocks will involve stripping the topsoil and subsoil prior to mining overburden that will be used for construction of the above-mentioned facilities.
- Spear point dewatering wells are installed around the initial mining blocks six months prior to the commencement of ore mining and the water stored in the process water dam.
- Ore is stockpiled at the ROM and rehandle into the MUP using a front-end loader.
- The MUP screens and slurries the ore which is pumped to the WCP for further processing.
- The external TSF will be used for tailings placement initially and for an expected nine months, until the first in-pit TSF cell is constructed.

- In situ ore bunds will be left in the mining block for the in-pit TSF cells, with overburden used to construct compacted in-pit TSF embankments between progressive mining blocks.
- When sufficient void space is created, a second downstream in-pit TSF embankment is constructed to separate the mining fleet and personnel from the active in-pit TSF cells.
- When the first in-pit TSF cell is ready, tailings will be pumped to the pit from the WCP.
- In situ ore bunds and constructed overburden bunds continue to be established in subsequent in-pit cells and the in-pit TSF cells are filled with tails pumped from the WCP and allowed to consolidate.
- Once tails in the in-pit TSF cell consolidate, overburden is placed on top and contoured to achieve desired landform.
- Steady state mining will allow direct placement of overburden into mining blocks that have been filled with tails and allowed to consolidate / dry out and achieved sufficient structural strength to support equipment.
- Subsoil and topsoil are reclaimed from stockpiles and placed on the overburden.
- Rehabilitation of the in-pit TSF cells is undertaken after the replacement of subsoil and topsoil.

The general mining approach is shown schematically in Figure 14 which depicts the intention to, for example, deposit tailings into Cell 1, have Cell 2 prepared as a buffer cell (void) whilst active mining takes place within Cell 3 (which is typically referred to as a 'mine block' until such time as it is converted to an in-pit tailings 'cell').

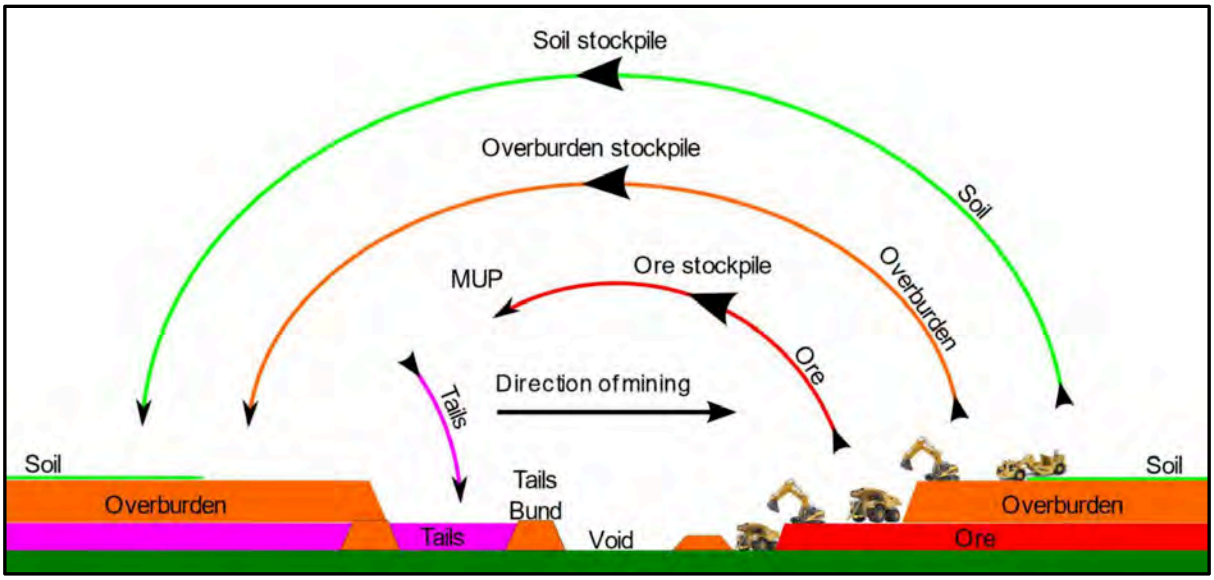


Figure 14 - Schematic Cross-Section of Mining Method

8.1.5. TOPSOIL AND SUBSOIL STRIPPING

Topsoil (top 200 mm) and subsoil (next 800 mm) will be stripped with either tractor-pulled scrapers or scrapers and dozers. The scrapers will collect the soil and travel to a stockpile for storage. The topsoil will be stockpiled on topsoil in various locations within the work plan area at heights of no greater than 2 m.

Similarly, subsoil will be stockpiled on subsoil at a height of no greater than 5 m. Topsoil will also be removed prior to the establishment of a subsoil stockpile, ore stockpile, external TSF, process plant pads, bunds, dams or roads. Both topsoil and subsoil are removed for the overburden stockpiles.

8.1.6. OVERBURDEN MINING

After stripping of topsoil and subsoil is complete, the overburden will be mined with excavators and off-highway haul trucks. The overburden ranges in thickness from 8.5 m to 16.6 m. Mining overburden and ore will occur on at least two benches simultaneously to optimise the production rate of the mining equipment. Temporary haul ramps will be cut and dozed from the surface down to the base of the overburden at a width of 22 m and gradient of 10% (and later to the base of the ore).

After both topsoil and subsoil are removed, overburden stockpiles will be established at various locations within the work plan area at heights of no greater than 30 m.

The proposed mining fleet will consist of excavators matched to appropriately sized off-highway haul trucks. The haul trucks will haul the overburden to one of the following three destinations, depending on the timing of the mining sequence:

- Overburden stockpile
- In the existing mining void for construction of bunds
- In a void covering the tails

A similar fleet will also be used for the rehandle of overburden from the stockpile back to the existing void to cover the consolidated tails.

8.1.7. ORE MINING

After stripping of overburden is complete, the ore will be mined with excavators and appropriately sized haul trucks. The ore ranges in thickness from 5.7 m to 15.2 m and will be mined from at least two benches and temporary haul ramps.

The base of the pit floor will be mined to an economic contour as opposed to a fixed level. Thus, some mineralized, but sub-economic material may be left behind.

Ore is hauled to the run-of-mine (ROM) stockpile adjacent to the MUP on the mine pit crest. At the MUP, a front-end loader will rehandle the ore to feed the MUP. To maintain the 7.5 Mtpa ore production rate, two 135 t front-end loaders will be required.

8.1.8. STOCKPILES

There will be multiple stockpiles required over the mine life, including:

- Topsoil
- Subsoil
- LP1 overburden
- LP2 overburden
- Shepperton overburden

The topsoil and subsoil stockpiles will be located as close to the original pit block from which they are stripped to reduce the rehandle distance when used for final rehabilitation.

Throughout the mine life different overburden material types are required for the construction of in-pit bunds, and backfilling of the pit. Thus, the three material types (LP1, LP2 and Shepparton) are tracked separately and where necessary are also stockpiled separately. There is no LP3 contained within the pit design. This ensures sufficient availability of LP1 and Shepparton material for the construction of the external and internal TSF bunds. The remaining overburden material is prioritised to be directly placed on final dumps, however if not possible it is stockpiled and rehandled at a later period.

During stripping, DMS will separate overburden into saline and non-saline overburden materials, using the water table depth as a general indicator of the interface between saline and non-saline materials. Saline overburden is not expected during the first two years of mining.

Overburden will be monitored during removal to determine whether it is saline (from close to or below the water table) or non-saline. The thickness of non-saline overburden will be recorded at each location. Saline overburden will be returned to the mine void and, at each location, will be covered with non-saline overburden.

8.1.9. DISTURBED AREAS

The location and layout of mine infrastructure have been planned to minimise disturbance of sensitive areas, including native vegetation, historic heritage and cultural heritage. Approximately 1,080 ha (including 14.744 habitat hectares of native vegetation) will be disturbed in total during construction and operation of the mine.

Based on the mine sequence and design, at any given time, approximately 700 ha of the work plan area may be disturbed, including the following approximate areas:

- 150 ha for processing plant and external TSF area
- 112 ha of comprising of nine mining blocks in various stages of stripping, mining, tailings deposition and rehabilitation
- 50 ha of haul roads
- Additional land disturbed for stockpile storage, surface drainage and other mining infrastructure etc.

Given the progressive rehabilitation and moving pit design that is applicable to this type of mining, the disturbance footprint changes throughout the life of the mine and there is no one point in the project where maximum disturbance is anticipated to be met, rather it is achieved regularly throughout the life of the mine as the pit and stockpiles move through the work plan area.

Depending on rehabilitation timeframes, it is anticipated that the disturbed area associated with the active pit includes mining blocks undergoing removal of topsoil, sub-soil and overburden, ore extraction, those receiving backfilling with tailings and rehabilitation. It also accounts for the void space used to separate the mining fleet and personnel from the active in-pit TSF cells. Return of subsoil and topsoil onto mining blocks is driven by tailings consolidation timeframes, which cannot be accurately determined without the further rehabilitation milestone items defined in Table 18 below. Mining will essentially reach a steady state of progression as the mine advances through the work plan area with; three blocks in advance of the active mining being stripped and prepared for mining, three blocks being actively mined, and three blocks being rehabilitated.

8.1.10. OPEN PIT GEOTECHNICAL CONSIDERATION

A pit slope stability assessment was prepared by ATC Williams Pty Ltd (ATCW, 2024a) and was undertaken in accordance with CSIROs Guidelines for Open Pit Slope Design (CSIRO, 2009).

The assumption for the stability analyses was that pit dewatering will be undertaken prior to and during the mining operation. Pit dewatering continues within the operational in-pit cell until such time as the tailings level has surpassed the historic phreatic surface elevation. Key input parameters adopted for the analysis are described in detail in ATCW, (2024a).

The ANCOLD (2019) minimum FoS have been adopted. Based on the stability analyses results, final pit slopes of 2H:1V were selected. The selected pit slopes meet ANCOLD FoS requirements as detailed in Table 9 below.

Table 9 - Pit Slope Stability Results Summary

Case	Description	FoS	Allowable FoS
Long-Term Drained	Excluding equipment	1.55	1.5
Short-Term Undrained	Including equipment	1.56	1.3
Post-Seismic	Excluding equipment	1.25	1.0 – 1.2*

*Lower bound only with confidence in residual shear strength selection

The geotechnical risk zone (GRZ) was calculated based on ERR guidelines (ERR, 2023). The offset distance used for the GRZ was calculated using the provided formula GRZ = D + 3 x D where D = batter height. The deepest section of the pit was determined, and this depth (26m) used in calculating the GRZ for the entire pit giving a GRZ of 104 m.

The GRZ boundary is entirely contained within the work plan area boundary. As such, there are no geotechnical risks to public safety, infrastructure, or land and property. There are a number of locations within the work plan area where retained vegetation falls and protected/ retained heritage features within the GRZ. The detailed design phase of the project will include updating the pit design and subsequently the GRZ to ensure there is no retained vegetation within the GRZ.

A stockpile stability assessment was prepared by ATC Williams Pty Ltd (ATCW, 2024a). The stability assessment included analysis of the planned overburden stockpile and involved conducting two-dimensional slope stability modelling using Slope/W software developed by GEO-SLOPE International.

Various factors were considered for the analyses including the following:

- Stockpile material type (clay or sand),
- Failure extent (local or global failure surfaces), and
- The presence or absence of benches within the stockpile geometry.

Target factors of safety for stockpiles were derived from Guidelines for Mine Waste Dump and Stockpile Design by Mark Hawley and John Cunning (CSIRO, 2017) and are presented in Table 10.

The results of the assessment are summarised in Table 10 and indicate for both short term and long-term conditions target factors of safety are met in all cases with the application of 10 m and 15 m benches for various cases. Detailed assessment, design and input parameters are described in ATCW, (2023a).

Table 10 - Summary of 30 m Overburden Stockpile Stability Analyses

Case	Description	FoS	Allowable FoS
LP1 Stockpile – Long term	1 x 10m bench	1.67	1.5
LP1 Stockpile – Short term	1 x 10m bench	1.41	1.3 – 1.5
LP1 Stockpile – Post seismic	1 x 10m bench	1.16	1.1 – 1.3
Shepparton Stockpile – Long term	1 x 10m and 1 x 15m benches	1.85	1.5
Shepparton Stockpile – Short term	1 x 10m and 1 x 15m benches	1.35	1.3 – 1.5
Shepparton Stockpile – Post seismic	1 x 10m and 1 x 15m benches	1.1	1.1 – 1.3

8.1.11. MOBILE MINING EQUIPMENT

The primary mining fleet consists of conventional equipment including excavators, off-road haul trucks, front-end loaders, graders, dozers, water trucks, compactors, and scrapers. Fleet numbers vary over the life of mine dependent upon material movement volumes, haul distances, seasonal/weather impacts and rehabilitation requirements.

Multiple equipment fleets will be used as part of mining to ensure ongoing mining and rehabilitation can occur. Bulk excavation of overburden and ore will use larger equipment while topsoil and subsoil stripping and rehandle will use smaller equipment with higher levels of accuracy to ensure rehabilitation profiles can be achieved.

Table 11 - Indicative Mining Equipment Requirements

Description	Number
Excavator	4
Haul truck	3 – 7
Front-end loader	3
Dozer	3
Grader	2
Water truck	2
Service truck	1
Soil compactor	1
Lighting plants	6
Scraper	1

8.2. PROCESSING

8.3. PROCESSING OVERVIEW

The process plant includes the following steps:

- Scrubbing at the MUP for disaggregation of the ore prior to pumping as a wet slurry to the WCP.
- At the WCP the slurry is further screened to reject residual oversize before desliming in single stage hydro-cyclones followed by multiple stages of spirals to produce a raw HMC.
- At the CUP, the flotation process separates the raw HMC into REEC (floats) from the HMC (sinks). Each product goes to its respective loadout facility.
- Tailings generated from each stage are cycloned and or thickened before being pumped as a slurry back to a mining void (initial tailings are sent to an external TSF).

8.3.1. MINERAL PROCESSING DESCRIPTION

The process plant has been designed with a nominal 1,000 tonnes per hour (tph) solids (dry basis) ROM ore feed rate equating to a nominal annual plant throughput of 7.5 Mt of ore.

The process plant and supporting infrastructure including dams is represented in Figure 15 below. This infrastructure is built on a hardstand made predominately of mined overburden from the first mining cells, as described in Section 8.1.4 above.

The process plant has earthen bunds, made out of subsoil removed from the dam construction or the first few mining blocks, situated on the northern, western and southern side of the process plant area. The bunds vary in size from 5 m (western and southern bunds) to 2.5 m (northern bund) in height.

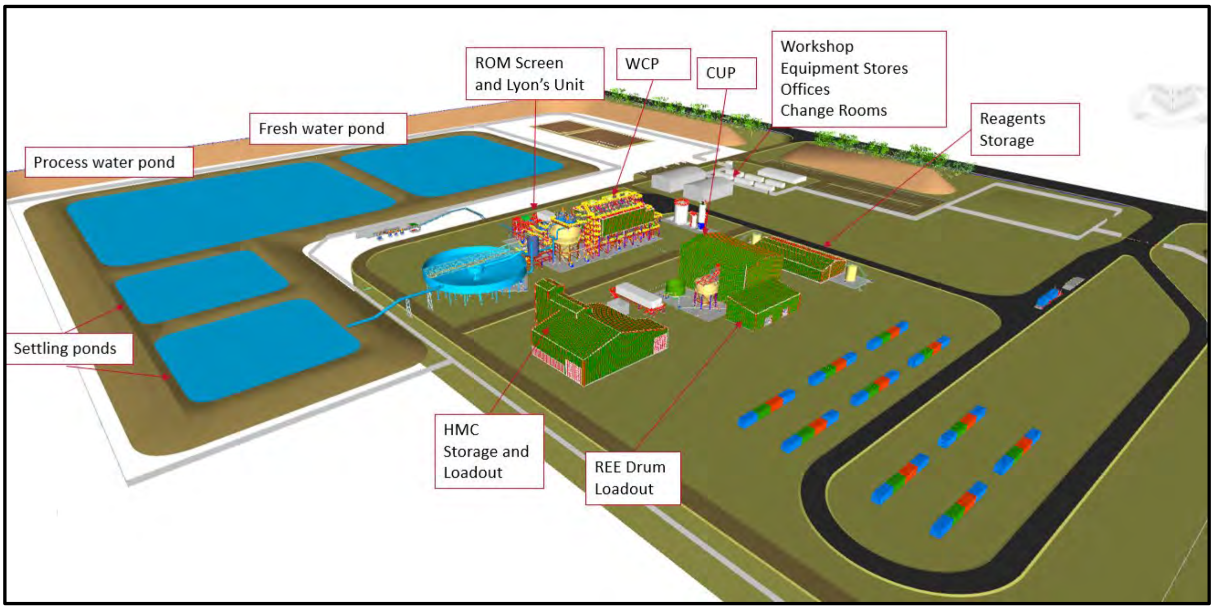


Figure 15 - Process Plant Layout

8.3.2. MINING UNIT PLANT

The MUP, whilst situated at the mining pit crest, is essentially the first step in processing the ore. The MUP is designed to be moved as the mining pit progressively moves around the work plan area.

The role of the MUP is essentially threefold:

- To separate fine mineral sands from lumps of ore (including clay) by adding water and 'scrubbing' the ore to break up the lumps.
- To screen the ore and eliminate (oversize) material too large to warrant further processing (material is initially screened at 350mm with a static grizzly screen to remove large rocks and then at 10mm using a trommel after the scrubber),
- To pump scrubbed and screened ore to the WCP via a slurry pipeline.

The +10mm sand and rocks that are rejected by the MUP are returned to the mining pit or used as road base.

8.3.3. WET CONCENTRATOR PLANT

The WCP is the next section of the process plant, which processes scrubbed and screened -10mm slurried ore pumped from the MUP.

The WCP is a fixed structure, does not move and is situated in the general process plant section of the work plan area, along with the CUP and product handling facilities.

The valuable minerals in mineral sands ores that are targeted for removal from the ore in the processing plant are typically heavier than the other non-valuable minerals, consequently they are often referred to as valuable heavy minerals (VHMs).

The main circuits in the WCP are:

- Feed Preparation Circuit

  - Screen the ore from the MUP to remove coarse (+1mm) ore.
  - Deslime feed material to remove very fine (-20 microns) clay slimes containing negligible amounts of VHM.
  - Dewater (thicken) slimes for discharge to the tailings storage facility with coarse tailings and recover process water for recycling and re-use.
- Spiral Circuit
  - Separate (high density) VHM from (low density) low value tailings material using gravity separation.
  - Dewater coarse tailings for discharge to the mine void along with the slimes.

The MUP coarse scrubber / trommel (-10 mm) undersize is directed to a vibrating screen to remove coarse (+1 mm) material. This coarse fraction typically does not contain any VHM. The +1 mm sand that is rejected by the vibrating screen is used as road base in the process plant area or on haul roads or is returned to the mining pit.

Desliming mentioned above as part of the feed preparation circuit, refers to the process of separating fine slimes particles from the ore. The presence of slimes adversely affects spiral separation and hence they are removed prior to the spiral separation phase to maximise separation efficiency and performance. This is accomplished by adding water to the -1mm material and pumping it under pressure into two clusters of hydrocyclones, drawing off the bulk of the water and slimes. The larger, higher density and value solids are recovered to underflow at a higher solids content of ~60%.

The considerable difference in density between the VHMs and the other minerals in the ore enables the recovery of VHMs using gravity separation, and the most common gravity separation device used in mineral sands is the spiral separator.

Spiral separation occurs when solid particles are carried in a liquid stream (only water is used at the Donald Project), and the stream is subjected to centrifugal and gravitational forces about a central point. The lower density and larger light particles will tend to gravitate to the outside, furthest from the center whilst the heavier particles (VHM) will remain closest to the center.

Each set of spiral separators produces three different streams namely:

- Tails - which is predominately water and lighter slimes (clays)
- Concentrate - which is predominately the VHM
- Middlings - which, as the name suggests, sits somewhere between the tails and concentrate

By passing the ore through a series of spirals, each of which is separating the heavy and light content of the stream, the result is a concentrated stream of raw HMC, containing the VHMs that were mixed throughout the mined ore.

8.3.4. CONCENTRATE UPGRADE PLANT

The CUP is the third major phase in the process of extracting the VHMs from the ore. The main roles of the CUP are:

- Dewatering
- Attritioning
- Final desliming
- Froth flotation

Dewatering cyclones are the first step in the CUP to ensure that the solids content of the slurry going to the attritioner is sufficient for good performance.

The attritioning process uses mechanical agitation in the presence of water mixed with small amounts of dilute acid to clean the surfaces of the minerals in the raw HMC. Attritioning is important, as without it, higher amounts of flotation reagents would be required in the next process stage and the separation of rare earth elements (REE) from HMC would be incomplete.

After attritioning, the HMC is deslimed with cyclones to remove slimes that have travelled along with the VHMs through the WCP as part of the raw HMC.

Froth flotation is the final process in the CUP. Fine bubbles of air are blown through a mildly agitated slurry of deslimed raw HMC. As the air bubbles rise through the slurry, they attach to the REE minerals in the raw HMC and rise to the top of the tank where the froth overflows into a launder, the bubbles pop, and the REEs are released into a water stream.

The CUP is the first-time reagents are used in the process. Until this stage, only water is added to the mined ore to separate out the VHM. For context, ~97% of the ore feed is separated using only water, with the raw HMC making up ~3% of the ore mined. The desliming in the CUP extracts approximately 0.03 % of the ore feed as tails (slimes / clay) and sends this to tails. The balance is either HMC or REEC.

The following reagents are used in the CUP:

- Attritioning reagents
    - Quebracho or tannic acid - this is a naturally occurring, very mild acid derived from certain types of plant matter. It is the chemical that gives many creeks and rivers the brown or tan colour often seen in nature.
    - Dilute sulphuric acid - used to adjust the pH of the water in the attrition tank to slightly acidic to assist removal of any rust and cemented clays.
    - Sodium silicate solution - often referred to as water-glass, this reagent sequesters or collects and binds together the liberated clays and makes the desliming process efficient.
- Conditioning reagents
    - Weak caustic solution - used to adjust the pH of the water in flotation to slightly basic to optimise performance of the depressant and collector reagents.
    - Wheat starch - used as a depressant for the titania-bearing minerals.

  - Oleic acid - a type of fatty acid which is used as a collector for the REE. It is present in some cooking oils to replace saturated fats.

8.3.5. PRODUCT HANDLING

Product handling is the fourth and final major phase in the process plant area.

The main roles of the product handling are:

- Dewatering
- Loadout

The two separated product streams from the flotation process, namely HMC (sinks) and REEC (floats), are pumped to separate dewatering cyclones, with the underflow discharging onto a vacuum belt filter for final dewatering and the overflow (water) streams being returned to the CUP.

The function of the belt filters is to extract as much of any remaining water as possible, whilst in the case of the HMC, also providing a final wash of the solids to remove any residual flotation reagents such as starch.

The dewatered HMC filter cake is discharged via a reversible conveyor belt to one of two stockpiles within a shed with a constructed concrete pad. The HMC is then loaded directly into shipping containers from the indoor stockpile using a front-end loader. The containers are then sealed and loaded onto trucks for transport.

The dewatered REEC filter cake is discharged from the belt filter to the REEC product bin for storage ahead of a drum packaging module. REEC is extracted from the product bin using a table feeder, and then conveyed to the drum packaging module.

The drum packaging module is a fully enclosed and fully automated system that loads empty 200-liter metal drums, fills them with REEC, samples the REEC during drum filling, then seals and washes the drums to ensure no REEC remains on the outside of the sealed drums. The sealed drums are then labelled and loaded into shipping containers to be transported off the mine.

8.4. TAILINGS

Tailings design and management has been prepared in accordance with ERRs guidelines Design and Management of Tailings Storage Facilities (ERR, 2017).

8.4.1. TAILINGS PROCESSING OVERVIEW

The non-valuable solids rejected primarily by the WCP must be treated before they can be placed back in the mine pits or initially into an external TSF. Mainly, the tails need to be dewatered to reduce the time needed for rehabilitation of tails cells and to maximise water recovery.

The dewatering of the tails is done over two phases:

- Coarse or sand tails dewatering
- Slimes thickening

The coarse tails are comprised of the ROM screen oversize and the tails streams from the rougher and mid scavenger spirals which are directed to and combined in the tails cyclone feed sump. From there they are pumped under pressure to the tails dewatering cyclone cluster to remove most of the water from the tails. The tails dewatering cyclones discharge into the tails sump at about 60% solids.

The desliming cyclone and surge bin overflow streams are combined in a high-rate thickener to separate and recover as much water as possible for re-use in the WCP.

Slimes thickening refers to the process in which fine slimes solids are separated in a large tank (+35 m in diameter) from water in a dilute slurry, resulting in a thickened slurry containing a higher percentage of solids. This is done to facilitate recovery of much of the contained water to be reused in the process as possible, reducing overall water consumption, and to provide a cost-effective method to dispose of undesired sands which have no financial value. Flocculant is used in the thickening process to bind together the small particles of solids (slimes / clay).

Dewatered coarse sand tails are combined with the thickener underflow and pumped back to the external TSF or when available, the mine pit. A high dose rate flocculant is added at the discharge (pipe head) of this tailings line to promote the settling of solids in the tailings cells to speed up rehabilitation of the mine pit as well as increasing water recovery from the tails.

8.4.2. TAILINGS TESTING

Laboratory testing was undertaken to identify suitable material parameters for inclusion in the design of the tailings facilities. Representative samples of the tailings were provided to SciDev and ATC Williams in 2022 for laboratory testing.

Additional geochemical testing was undertaken by RGS (RGS, 2023). RGS personnel undertook geochemical screening tests of sonic drill core. The sonic drill holes were selected to cover the spatial extent of the mineral strand. The field pH screening tests were performed on every 1 m interval of core for 5 drill holes (i.e., overburden and ore) according to the EPA Victoria guidelines in accordance with the Industrial Waste Resource Regulations (IWRG, 2009); specifically, the Acid Sulfate Soil and Rock guideline (IWRG 655.1).

The key outcomes of the testing can be summarised as follows:

- Tailings classification – CH
- Initial settled density – 1.28 t/m^3
- Bleed rate – 0.82m3/t (dry tons of tailings)
- Segregation threshold – 55%
- Shrinkage Limit Density – 1.51 t/m^3
- Adopted final settled density for tailings deposition – 1.4 t/m^3 for the external TSF and 1.5 t/m^3 for the in-pit TSF

Key results from the geochemical test work undertaken to identify potential for AMD (RGS, 2023), including soluble metal(loid) and salt release from tailings (sand and slimes) produced from processing of the HM orebody were:

- The total sulfur (TS) content of the samples range from 0.01% TS to 0.06% TS, with a median value of 0.04% TS. Approximately 50% of the TS in the samples is present as sulfide sulfur.

- The acid neutralising capacity (ANC) values for the samples are considered low with a median of 4.4 kg sulfuric acid (H_2SO_4) per tonne.
- The tailings processing waste samples have negligible to low sulfide-sulfur content, low ANC, and are classified as non-acid forming (NAF) (barren) with low to negligible risk of generating saline drainage.
- There is a high factor of safety and low risk of any significant acid generation from these materials.
- The NAF tailings classified by static leach tests were confirmed to be NAF via kinetic leach testing. The amount of potential acidity that could be generated from the samples is expected to be negligible, with all samples having low reactivity.
- The water leach results indicate the risk of generating metalliferous drainage is very low. Concentrations of soluble Boron (B) and Zinc (Zn) may be occasionally above Aquatic Freshwater Ecosystem guidelines (ANZG, 2018).
- Arsenic (As), Gold (Au) and Tellurium (Te) that were shown to be enriched in the solid tailings samples were not readily soluble under the testing conditions.
- Kinetic results from sand and slimes tailings indicate there is a minor risk of generating elevated B and Fluorine (F) concentrations in leachate over time.
- Generally, tailings represented by these samples are likely to generate pH neutral surface runoff and seepage with low/ moderate salinity and generally low concentrations of dissolved metals(loids) (excluding those mentioned above).

8.4.3. TAILINGS MANAGEMENT

8.4.3.1. DEPOSITION MANAGEMENT

Tailings deposition will initially occur within the external TSF until sufficient space is available within the mine pit for the establishment of in-pit tailings cells. Tailings will be deposited via a secondary flocculated sand / slimes mix, i.e., Modified Co-Disposed (ModCod) mixed tailings. The use of flocculant permits the formation of temporary tailings structures that allows water release with relative ease and increases evaporation effects (ATCW, 2024a).

Tailings will be transported via a tailings transport pipe to the discharge location at the TSF. Two spigot manifolds are connected to the tailings pipe. Tailings will be distributed via spigot downpipes spaced approximately 40m apart. These tailings spigot downpipes are connected to the spigot manifolds with knife gate valves. The spigot downpipes will discharge tailings to perforated PVC sleeve pipes installed on the embankment. Refer to drawings 113259.07-203, 113259.07-204 and 113259.07-205 in the tailings design report (ATCW, 2024a) for external and in-pit cell design details.

For both the external and in-pit TSFs, water return will be undertaken via a skid mounted pump located on an access ramp in the decant pond area. The pump can then be relocated up the ramp as the tailings and decant pond level increases.

8.4.3.2. CONSOLIDATION MODELLING

High-level consolidation and evaporative drying modelling work has been undertaken to understand the following:

- Tailings density increases with time and depth.
- Tailings strength gain over time (shear strength estimation).

The model was developed to simulate the likely filling conditions for the in-pit tailings cells which is comparable to the external facility to obtain an order of magnitude estimate of density and shear strength gain with respect to time. The input parameters for initial settled density, specific gravity, initial void ratio, material compressibility and permeability function have been obtained from the tailings testing results (ATCW, 2024a).

The results indicate the following:

- Approximately 1.5 m of tailings consolidation is expected under self-weight alone over a period of approximately 2 years following the end of deposition.
- After one (1) year of surface drying, subsequent to the cessation of full-time tailings deposition, results of the evaporative drying modelling indicates that a crust of greater than 25 kPa strength is predicted to develop to a depth of approximately 3.0 m. Following a further two (2) years of evaporative drying, this depth is expected to increase to approximately 7.5m. This is considered sufficient crust development to support direct placement of capping layers.

8.4.3.3. FLOCCULANT

A program of flocculant test work was conducted on samples of thickened slimes and sand tailings by SCIDEV (SCIDEV, 2021) on the flocculant to be used in operations (Maxiflox 530(M) an anionic polyacrylamide (PAM)). The objectives of the work were to assess the rheological and dewatering behavior of the slimes and a flocculated co-disposal mixture (CDM). The work program assessed the viscosity and yield stress behavior of both the slimes alone and the CDM before secondary flocculation, and the water release, yield stress and compression-permeability characteristics of the CDM after flocculation.

Based on the test results, a flocculant dosage of 155 to 185 g/t should be targeted as this will provide good water release, dewatering and consolidation rates at a lower flocculant dosage, whilst avoiding excessively stiff structure development which could adversely impact spreading and storage utilisation. Ongoing flocculant assessment and optimisation is proposed in the detailed design phase of the project to ensure decant water recovery and flocculant use is optimised.

A technical memorandum has been prepared by AECOM(2024b), which summarises the fate and transport of PAM. The technical memorandum specifies that PAM has limited mobility in the environment and low toxicity. However, PAM may biodegrade to acrylamide and commercial flocculant formulations may also contain trace amounts of this compound, which is mobile in the environment and a known neurotoxin and potential carcinogen. Acrylamide completely degrades to ammonia and acrylic acid within days to months.

Given its rapid degradation, the very low concentrations in commercial PAM, and the low potential for acrylamide to be formed by PAM degradation, acrylamide was considered unlikely to be detected in groundwater in the vicinity of the TSFs where flocculent is used.

AECOM (2024b) concludes there is potential for PAM based flocculant, including Maxiflox 530(M), to cause impact on the environment, as such management practices must be established to ensure regulatory compliance and to minimize risk so far as reasonably practicable.

8.4.4. EXTERNAL TSF DESIGN

The external TSF is to be located south of the process plant as shown in Figure 11. The external TSF has been moved 100 m in a northerly direction avoid impinging on the ecological and cultural heritage no-go zone situated near the southern section of the TSF embankment.

Geotechnical design of the tailings facilities takes into consideration the following aspects, summarised further in the Donald Project design reports (ATCW, 2024a, ATCW, 2024d):

- Location.
- Climate.
- Geological conditions.
- Site hydrology and hydrogeology.
- Seismicity.
- Tailings properties.

A consequence category assessment, based on the ANCOLD guidelines, was undertaken. Based on ANCOLD Guidelines (ANCOLD, 2012 and ANCOLD, 2019), the external TSF has been assigned a consequence category of 'HIGH C' as it is an above ground facility located upstream of the nearby process plant. Adopted design parameters for the external TSF are based on the consequence category assessment and subsequent ANCOLD design criteria.

The storage capacity requirements for the external TSF were determined based on the mining progression and ore extraction rates.

The external TSF capacity requirement is a tailings storage requirement of 4.8 Mt at a settled dry density of 1.4 t/m^3 resulting in a storage volume requirement of approximately 3.41 Mm^3.

Tailings storage capacity is required for continued operation of the process plant. If tailings capacity was not available at any stage of the project, processing would cease until such time as additional tailings capacity is created

The overall dimensions of the TSF are estimated to be approximately 1,100 m x 760 m. The embankments will be constructed using material with a low permeability facing (Shepparton Clay) in the area of the normal operating pond. Embankment crest widths will be 20 m with upstream and downstream slopes being approximately 2H:1V and 2.5H:1V, respectively. The results of the stability analyses completed (static and post seismic) achieve the minimum required ANCOLD Factor of Safety (FoS) or higher.

The external TSF will be founded on low permeability material and hence drainage through the base of the facility will be slow. A seepage collection sump has been included in the design to allow accumulated seepage removal and minimise seepage through the embankment walls. A surface water management system, comprising swale drains located on the northern and western sides of the external TSF and two stormwater ponds, also located on the northern and western sides of the external TSF have been included in the design to capture and manage locally generated stormwater.

The water balance results (ATCW, 2024b) indicate an average operating decant pond of approximately 0.7 m deep. The facility has been sized to consider the required storm storage volumes as defined in the ANCOLD guidelines for a "High C" facility.

A dam break assessment has been undertaken for the external TSF (ATCW, 2024a). The design reports (ATCW, 2024a and ATCW, 2024d) provide additional information regarding design parameters and dam break analysis. The assessment provided an approximate alignment of the diversion bund that will tie-in with the noise bunds surrounding the processing plant (Figure 11).

A closure concept landform has been developed for the external TSF considering the 2008 EES requirements. Final closure landform design (including capping requirements) for the external TSF is detailed in ATCW, (2024c).

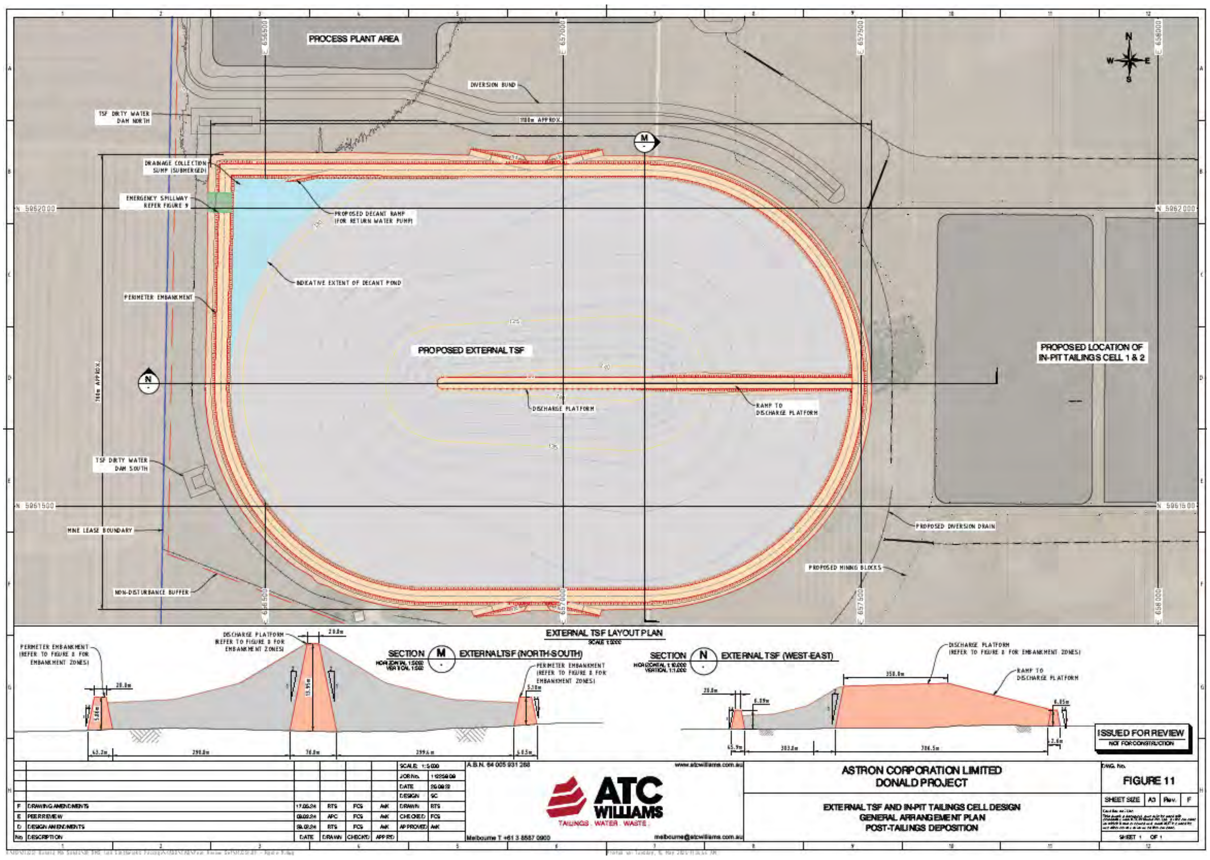


Figure 16 - External TFS design

8.4.4.1. TSF LINING

The external TSF will be founded on the Shepparton clay located immediately below the topsoil and subsoil layers. The Shepparton clay is estimated to be approximately 5 m thick and hence will provide a suitable low permeability foundation to minimise seepage infiltration. The foundation surface will be tyned, moisture conditioned and then compacted in preparation for construction.

The decant pond area of the external TSF is to be lined with a compacted clay liner, comprising Shepparton Clays. Clay lining of the decant area limits embankment seepage and protects the embankment against wave action and erosion. To minimise the erosion of the clay liner from wave action, it is proposed that the outer section of the clay liner be lime stabilised.

The compacted clay liner is nominally 1.5m thick (measured horizontally) and extends approximately 325 m on the northern embankment and 350 m on the western embankment. The embankment clay liner will tie-in with the Shepparton clays at the TSF foundation.

Laboratory test results of remoulded samples indicate that the Shepparton clay will have an estimated permeability of the order of 1 x 10^{-9} to 1 x 10^{-11} metres per second (m/s).

8.4.5. IN-PIT TAILING DESIGN

Once sufficient in-pit void space is available, tailings deposition will take place within the pit. Figure 17 graphically presents the operational philosophy of the in-pit cell configuration. The excavation and operational philosophy presented in Figure 17 will be replicated for all remaining cells. The sizing of the cells / optimisation of cells was based on the overall mine plan and tailings deposition modelling.

The cells will be constructed below the natural ground surface using a combination of in-situ and controlled compacted embankment. The active in-pit cell and the active mining face will be separated by an empty cell.

A consequence category assessment, based on the ANCOLD guidelines, was undertaken. The in-pit TSF cells consequence category is defined as "Significant". Adopted design parameters for in-pit TSFs are based on the consequence category assessment and subsequent ANCOLD design criteria.

Similar to the external TSF, the cross-pit embankments will be constructed using Unit 3a / LP1 material with a 1.5 m thick (measured horizontally) lime stabilised low permeability facing in the areas where the normal operating pond will be located. The embankments will be constructed with a 20 m wide crest with 2.5:1 (H:V) side slopes. The 2.5H:1V slopes are required due to the height of the embankments for the in-pit TSF (in comparison with the external TSF).

It is anticipated that each cell will be operational for approximately 3-4 months. It should be noted that the filling rate will be highly dependent on a number of items including:

- Cell depth (i.e., base of excavation based on depth of mineralisation) where shallower cells will fill up quicker.
- The performance of the thickener (including secondary flocculation performance).
- Tailings deposition operations.

Cross-pit embankments will be constructed via controlled compacted construction techniques. The remaining confining embankments for each cell will be accounted for by leaving an in-situ embankment, i.e., pit wall. This has been included in the design to account for the water table fluctuations as dewatering will be required for mining purposes. The design is based on the requirement that the pit will remain dewatered for at least the active tailings cell, dormant / empty cell and active mining front. Once the deposited tailings elevation has increased sufficiently beyond the historic groundwater elevation, dewatering can cease, if necessary, in the area of the active tailings cell.

Tailings deposition into the in-pit tailing cells will not extend beyond 3 m below the current natural surface to allow sufficient room for rehabilitation. As a result, if a breach of an active tailings cell were to occur, flow from the breach would be accounted for within the one cell void. No in-pit TSF dam break assessments are envisaged to be undertaken as it is deemed not to be required (ATCW, 2024a).

In-pit deposition of tailings within the in-pit TSFs will require permission from EPA to deposit waste to an aquifer (A18 permit). EPA permit approvals will be in place prior to any deposition of tailing in the mine voids. All EPA permit requirements will be adhered to.

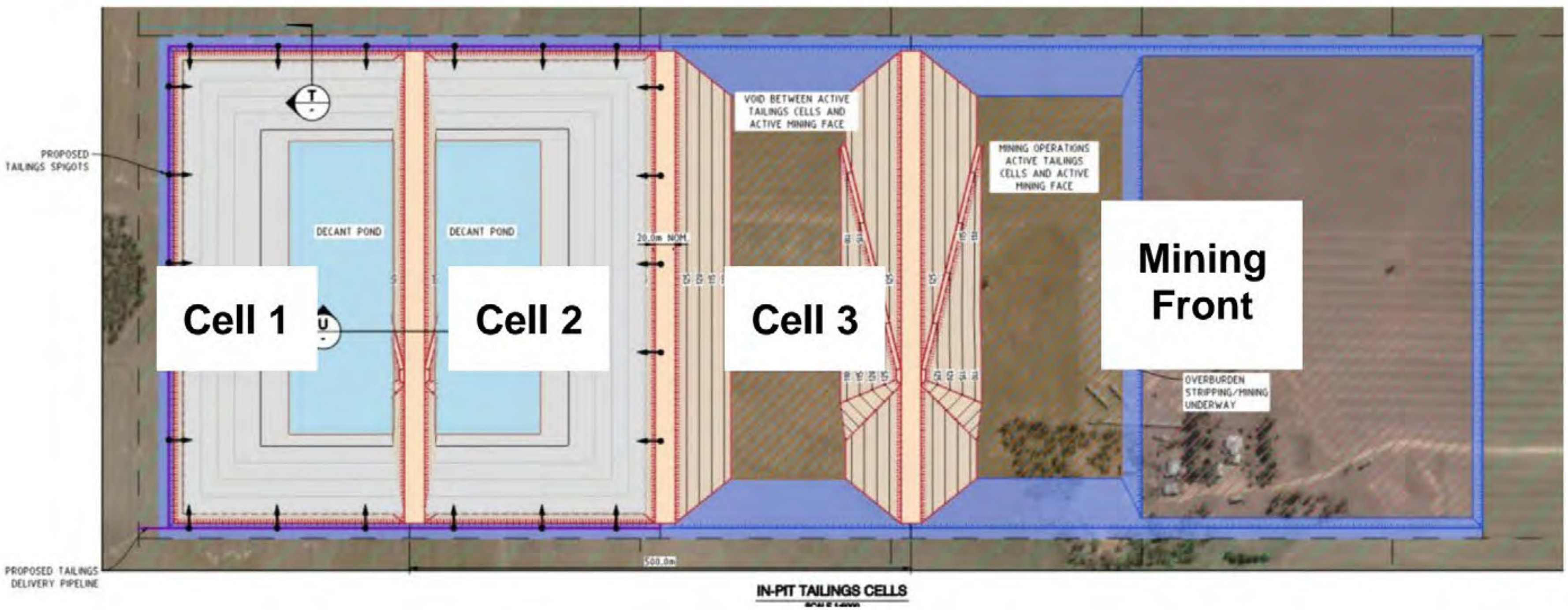


Figure 17 - In-Pit Tailings Disposal Indicative Arrangement

8.4.6. PRODUCTION

Total life-of-mine production is:

- HMC - 3.9 Mdmt.
- REEC - 132 kdmt.

A life of mine production summary is shown in Table 12.

Table 12 - Production Summary

Products	Unit	Value
HMC	Mt (dry)	3.9
HMC	Mt (wet	4.2
REEC	Mt (dry)	0.1
REEC	Mt (wet	0.1

8.4.7. INDEPENDENT PEER REVIEW

DMS commissioned an expert to undertake an independent peer review (IPR) of the external TSF design and supporting information (Osborne,2024). The peer review was conducted in accordance with ANCOLD guidelines. The IPR determined that ATC Williams Pty Ltd has presented a comprehensive TSF design report setting out details of extensive investigations completed as part of the Preliminary Feasibility Study and subsequent work for the project. The design was found to be competently compiled and in general accord with appropriate guidelines for the design of tailings management facilities.

8.5. ROAD AND INFRASTRUCTURE

The construction of the process infrastructure i.e., process plant pad, external TSF, sediment and water storage dams, bunds, water management structures are constructed primarily from materials sourced within the work plan, predominantly the first few mining blocks.

The roads within the process plant area and the structural capping of earthworks to provide sufficient structural integrity will require a certain volume of imported gravel fill. The quantity of imported fill be finalised in the detailed design phase, with every endeavor made to minimize the quantity of imported fill. Fill will be sourced locally from operating quarries.

Haul roads will be constructed of materials found within the workplan area and the ongoing coarse sands extracted during processing of the ore.

8.6. WATER USE AND MANAGEMENT

The surface water management system of the Donald Project involves several interlinked storages, their catchments, the WCP, external TSF, in-pit TSFs and water pumping systems. A schematic of the modelled water management system is provided in Figure 18.

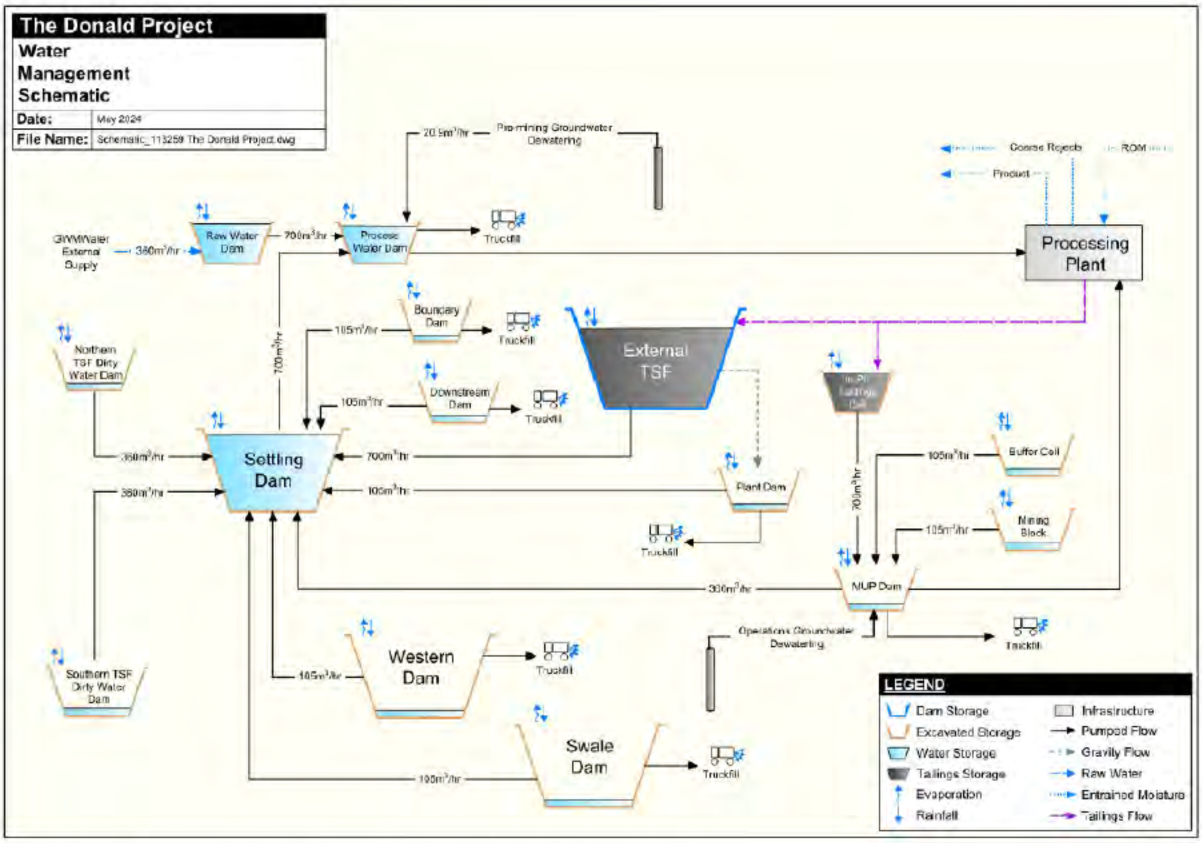


Figure 18 - Project Water Management System Schematic*

The approximate dimensions and required capacities of water management storages are presented in Table 13 as noted in the Water Balance Model Report (ATCW, 2024b). The sizing of the storages was carried out with the aim of achieving no spills during the historical climate record. The potential spill risk of the dams is discussed in the Water Balance Model Report (ATCW, 2024b).

Table 13 - Water Management Storages

Infrastructure	Length (m)	Width (m)	Depth (m)	Capacity (ML)
Boundary Dam	200	100	5.75	175.4
Downstream Dam	100	50	1	9.9
Plant Dam	307	105	5	121.1
Settling Dams (No. 2)	86.1 (each)	61.8 (each)	3.75	16.1
Swale Dam	450	200	6.5	555.2
Western Dam	305.7	183.7	5	286.2
TSF North Dirty Water Dam	116.9	43.2	3.5	22.5
TSF South Dirty Water Dam	44	44	30	7
MUP Tank	42.6	21.9	3.3	3.5

The raw water, process water and the settling dams will be HDPE lined to minimise losses and contain seepage.

Based on the dam design and storage requirements, permits required from Grampians Wimmera Mallee Water to construct and operate a dam, where required, will be in place prior to dam construction and use. Permissions for surface water take and use will also be in place if required.

8.6.1. SITE WATER BALANCE

A global water balance has been developed from the flowsheets and by estimating losses to tailings, evaporation, and other site usage (ATCW, 2024c). Water gain has been estimated from average local area rainfall, inherent ROM moisture and water recovered from tailings consolidation.

Water balance figure include water recovery from tailings which will not be available at the beginning of operations and, as such, water usage will be increased significantly until tailings water can be recovered. For this reason, water storage on site needs to be at a maximum level prior to starting operations. Water usage includes estimates for potable water, dust suppression and other mine requirements.

8.6.2. MINE DEWATERING

Local groundwater, as described in Section 6.11, is required to be dewatered ahead of mining. Groundwater modelling (CloudGMS, 2023) indicates an approach of installing spear-point dewatering holes both along the external extents of the mining blocks and on the mine path. The spear-point dewatering system will reduce the water level to approximately the base of the pit.

The mine design has been developed around the dewatering infrastructure being in place and starting six months prior to mining block one, and then progressively dewatering ahead of mining, and continuing to dewater in-pit tailings until deposition has stopped in each block.

The mine dewatering will provide a dry subgrade required for construction of the controlled compacted embankments as the material left behind after mining operations is likely to include clayey material which is not conducive for construction when saturated.

The deposited tailings will be actively dewatered at the decant area to promote tailings consolidation. The active in-pit TSF cell will remain dewatered until the deposited tailings elevation exceeds the natural groundwater elevation (i.e., level prior to mining operations).

Mine pit and tailings dewatering will consist of two methods:

- Surface decant water recovered using skid-mounted pumps
- Borehole shaft bottom pumps installed into a pre-drilled bore-hole

All extracted water will be stored in the process water pond until operations commence, after which it will be transferred to the mining unit surface pond for use in the MUP and WCP.

Peripheral spier points will continue to extract water even after the placement of tails. This system will provide optimum water recovery from groundwater, reducing the mining operation's freshwater demand.

Permission to Take and Use groundwater from Grampians Wimmera Mallee Water will be in place prior to spearpoint construction and dewatering.

8.6.3. SURFACE WATER MANAGEMENT

The Donald Project has been identified as a no-spill mine and the water balance model has been used to size storages and pumping infrastructure accordingly as described in the GoldSim Water Balance Model Report (ATCW, 2024b). A rainfall event design criteria of 1% AEP has been adopted for design of diversion bunds used to divert surface water flow away from the active mine cells and to ensure runoff in the mine is contained during high rainfall events.

Conditions are dynamically changing over time and the management of water across the site was considered at different stages of the Donald Project. Multiple mine schedule stage plans were proposed at various points in time to ensure surface water management options were thoroughly considered to account for the changes of site conditions.

The proposed water management system for the Donald Project includes several dams, diversion bunds and diversions channels. The water management system was designed in accordance with best practice runoff management and separates the process water circuit with the clean water circuit as depicted in Figure 18. The separation of the two distinct water circuits ensures that:

- Diversion of clean surface water away from disturbed areas, using diversion channels and bunds. These measures are designed to reduce the potential for clean surface water runoff coming into contact with surfaces and materials impacted by the mining process;
- Capture of contact (from disturbed surfaces) water into on-site dams to meet a no-spill commitment and to use the contact water as a first priority for demands; limiting the water supply requirement from GWMWater. This water once diverted to the process circuit water stream is utilised in the processing and is reticulated through the closed processing water circuit, by being constantly recaptured and recycled;

The bunds and channels for both the clean and contact water are required to accommodate and effectively route the surface water flow up to and including the 1% AEP design flow event (GHD, 2007).

Catchment dams are required across the site, at different stages of the project to capture surface water runoff from disturbed areas. The catchment water dams are as follows:

- External TSF
- In-pit Tailings Cells
- Northern TSF Dirty Water Dam
- Southern TSF Dirty Water Dam
- Boundary Dam.
- Downstream Dam.
- Swale Dam.
- Western Dam.
- Plant Dam.

The catchment dams pump water back to the Settling Dams (SDs) for primary settlement, temporary storage and distribution to the Process Water Dam (PWD). The SDs are proposed to function as secondary sediment ponds, to further mitigate the sediment load from the contact water (primary settlement of sediment would take place in the catchment dams).

Detailed design criteria and surface water management infrastructure requirements are provided in detail in the Surface Water Management Plan.

8.6.4. WATER SUPPLY

DMS mining and processing operations will source water as follows:

- Groundwater recovered from ground dewatering activities.
- Surface water recovered from tailings decant ponds and rain fall.
- Make-up raw water supply of approximately 3 GL per annum.

Raw water will be drawn from the GWMWater Headworks Water Allowance in accordance with the contract executed in December 2011. In July 2018 a deed of variation was executed that, inter-alia, extended the term from 2018 for 25 years.

W3Plus Pty Ltd (GWM Water approved and preferred hydraulic consultants) have been engaged by DMS since 2011 to develop various options to transmit the water from Taylors Lake to the mine site. In November 2022, W3Plus provided an engineering report to supply a minimum of 3 GL per annum to the mine, based on an assessment of current (Q4 2022) available spare capacity in the GWMWater reticulation system. GWMWater has since provided in-principal approval of the design and is preparing a Developer Works Agreement for DMS on this basis. The water reticulation design ensures water to surrounding water supply systems is not reduced, due to DMS having its own bulk water entitlement and water supply.

8.7. ANCILLARY INFRASTRUCTURE

The project is located close to major infrastructure including roads and rail. The existing infrastructure in Australia is well developed with some additional upgrade work required. Sealed roads exist on all transport routes, widening and intersection upgrades are required in some areas including a township bypass route for Minyip. In addition to the water supply pipeline (see Section 8.6.4), the Project requires a power supply and a transport route along which to freight its products.

8.7.1. TRANSPORT

The produced HMC will be carried to the Wimmera Intermodal Freight Terminal at Dooen (Figure 19) by truck in half-height shipping containers. The HMC will then be transported by rail to the Port of Geelong. Half-height shipping containers will be sealed during transport to prevent loss of material.

Before being put into twenty-foot equivalent unit containers, the extracted REEC will be packaged in 450 kg drums. The containers will then be transported by truck to a domestic customer or the Port of Melbourne or Adelaide, where they will be placed directly onto a ship bound for overseas.

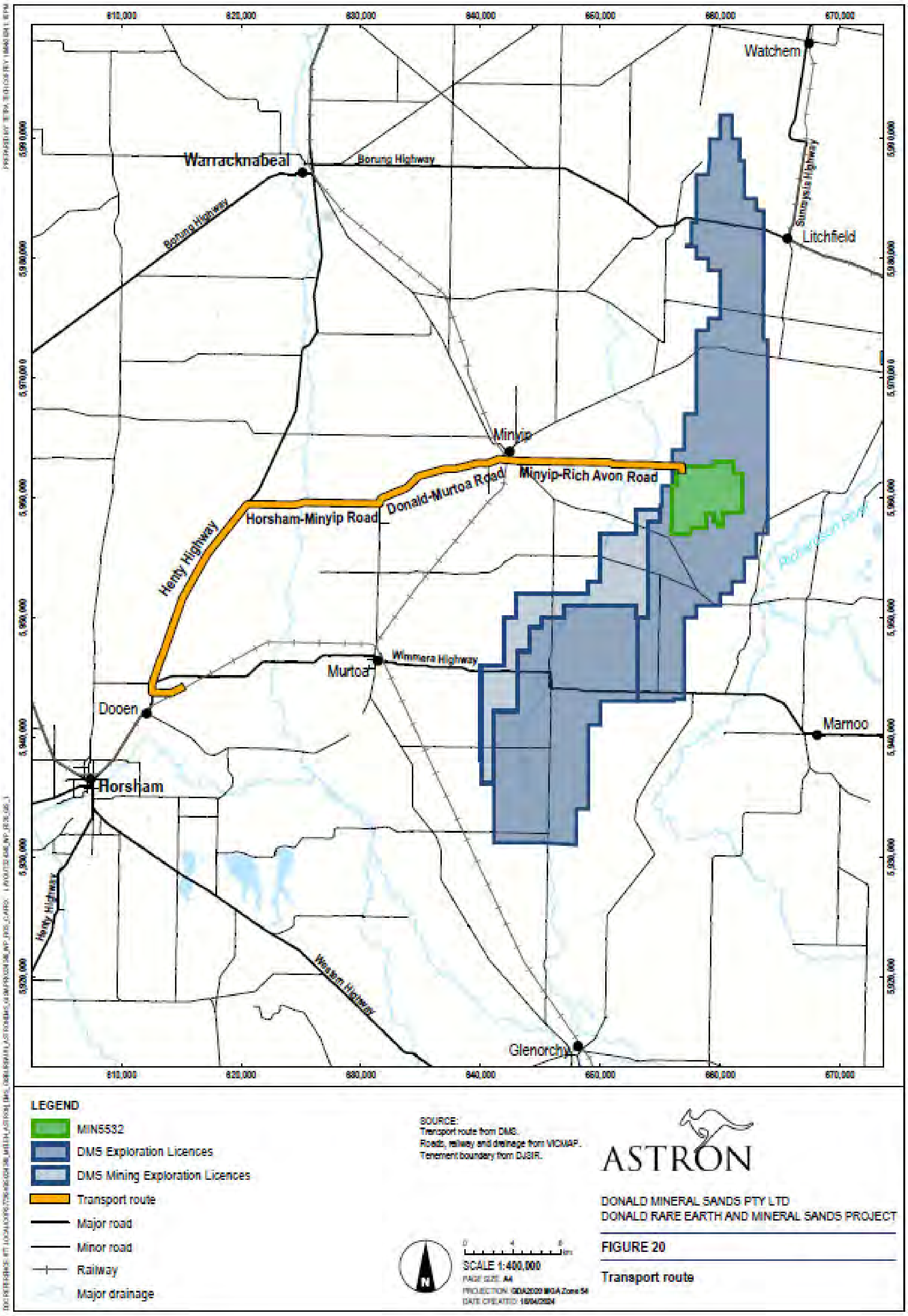


Figure 19 - Transport Route

8.7.2. POWER

Electricity will be supplied to a 66/11 kV substation at the mine, via a new 66 kilovolt (kV) overhead power line connected to the Victorian transmission grid at Horsham substation (HOTS). The Horsham substation is connected to the transmission network via a 220 kV ring which provides high reliability of supply. The network connection enables the Donald Project to purchase renewable energy for process plant operations as a future option in line with the greenhouse gas management strategy.

8.8. FUEL

Diesel fuel usage primarily for mining equipment and for process plant mobile equipment is presented in Table 14.

The fuel storage will be stored and contained in self-bunded tanks in accordance with the requirements of AS 1940:2017 (as amended 2019): The storage and handling of flammable and combustible liquids.

Table 14 - Diesel Fuel Use and Storage

Transportation vessel	Site storage requirements
Tanker delivery	100,000 L equivalent for approximately 3 days of operation. Stored in vessel designed for use in well-ventilated area away from sources of ignition and contained in bunded area to avoid environmental contamination.

8.9. SEWERAGE TREATMENT

On-Site (bio filter type) package plant treatment and on-site irrigation disposal system will be used for the treatment of wastewater. The on-site irrigation disposal system should be suitable for peak daily flows. The type of vegetation for on-site disposal is subject to the land capability assessment and will be specified at that time.

Any permits/ approvals required by EPA or Council will be sought and in place prior to construction of the treatment plant.

8.10. DANGEROUS GOODS STORAGE AND USE

The Project will reduce use of dangerous goods and storage of such goods during phases of construction, operations, and maintenance to as low as reasonably practicable. Table 15 presents the likely Classes to be used during operations, examples of what they might be.

Table 15 - Dangerous goods used at mine

Class	Class Type	Description	Qty / Use on site
Class 2	Gases (flammable, compressed/non-toxic, poisonous)	• Oxygen, acetylene, argon gases for thermal cutting purposes and welding purposes. • Aerosol lubricants and zinc-based aerosol paints for maintenance activities	Operations and maintenance use of the following flammable gases within the workshop and project site.
Class 3	Flammable Liquids	• Diesel fuel	Various uses on site

Class	Class Type	Description	Qty / Use on site
		• Solvents such as paint thinners • Methanol / Ethanol • Adhesives • Epoxies	
Class 6	Toxic substances	See Table 16 below for full list.	Nil
Class 7	Radioactive substances	Instrumentation that uses a radiation source will be used in the process plant. Refer Radiation Management Plans (DBH, 2024), (DBH, 2023b) and (DBH, 2023c).	Nil
Class 8	Corrosive Substances	As per reagents Table 16 below for full list.	Nil
Class 9	Miscellaneous Dangerous Goods	• Argon • Oxygen • Acetylene	Ongoing operations and maintenance will require the use of thermal cutting and welding equipment

8.10.1. HAZARDOUS MATERIALS

Reagents used in the processing plant that need consideration of hazardous materials handling and storage requirements are shown in Table 16.

Table 16 - Reagents used in the Process Plant

Reagent Use	Reagent name	Transportation vessel	Site storage requirements
pH Modifier	Sulphuric Acid 50%w/w liquid	Intermediate bulk container (IBC)	IBCs & acid storage tank onsite within bunded area contained in reagents shed.
Surfactant	Sodium Silicate 33% w/w Liquid	IBC	IBCs & storage tank onsite within bunded area contained in reagents shed.
pH Modifier (NaOH)	Sodium Hydroxide liquid 50% w/w	Tanker delivery	Site storage within heated corrosive resistant tank within bunded area inside the reagents shed.
Collector	Carboxylic Fatty acid liquid 100% w/w	Tanker delivery	Site storage within heated corrosive resistant tank within bunded area inside the reagents shed.
Frother	100% w/w Polyglycol-based Frother Liquid	IBC	IBC stored inside reagent shed away from direct sunlight in a cool place.

8.10.2. NON-HAZARDOUS MATERIALS

The mine will have a reagents storage and dosing facility and a flocculant storage and preparation plant that allows for the safe delivery, storage, and use of the essential reagents. The following reagents shown in Table 17 are classified as non-hazardous and will be used in the operations of the processing plant with the flocculant also dosed at the active mining area.

Table 17 - Non-Hazardous Reagents

Reagent Use	Reagent name	Transport vessel	Site storage requirements	Disposal & handling considerations
Slimes Dis-persant	Quebracho Powder	25 kg bags on pallets	Stored inside reagent shed away from direct sunlight in a cool place. Mixing equipment, dilution tank and storage tanks contained within bunded area.	Whatever cannot be saved for recovery or recycling will be disposed of according to relevant local, state and federal government regulations.
Depressant	Starch/Dex-trin powder	25 kg bags on pallets	Stored inside reagent shed away from direct sunlight in a cool place away from oxidising agents.	Whatever cannot be saved for recovery or recycling will be disposed of according to relevant local, state and federal government regulations.
Flocculant	Maxiflox 530(M)	Bulk bags – powder	Store the product in a well-ventilated area, dry area. Avoid wet and humid conditions. Avoid extremes of temperature. Maintain good housekeeping to control accumulations.	Whatever cannot be saved for recovery or recycling will be disposed of according to relevant local, state and federal government regulations.

8.11. WASTE DISPOSAL METHODS AND FACILITIES

8.11.1. WASTE DISPOSAL

Waste will be minimised where practicable on-site, and recyclable material will be separated from landfill waste.

Non-hazardous waste generated from mining operations will be stored in dedicated areas, with landfill and recyclable materials sorted and separated in dedicated areas. All waste, including recyclables, will be removed by an appropriately licenced waste management contractor for offsite disposal or recycling.

All petrochemical and chemical waste, including from the on-site laboratory and process area, would be stored to the appropriate regulatory requirements and be removed by a contracted licenced waste management service.

8.11.2. LAND CONTAMINATION

Prior to mining each land parcel, a preliminary site investigation (PSI) will be undertaken in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 2013 (NEPM) (NEPC, 2013). The investigation will be undertaken at the earliest opportunity once the relevant consent to access land parcels has been granted by the landholder.

Given the current and historical agricultural land use, the potential for contamination is considered to be relatively low, however steps in place to determine and manage potential contaminated land are required. Given the presence of dwellings with associated infrastructure and farming infrastructure such as sheds, silos, roads and dams it is plausible that contamination, including but not limited to hydrocarbons, sewage, asbestos and pesticides/ herbicides could be associated with these potential sources.

The NEPM outlines a staged approach to the investigation and assessment of existing contamination that proceeds in stages, in proportion to the risks of environmental harm. The initial phase primarily assesses the likelihood a site is contaminated to ascertain the potential for contaminated land and will typically include:

- Site inspections and landholder interviews to identify areas of potential land contamination from historical land use practices.
- Visual observations, historical use review and regulatory records.

This will facilitate the completion of a preliminary site investigation for the relevant landholdings and as detailed in Section 2 of the NEPM, further work may be required pending the outcomes of the site investigations, which may result in a further detailed site investigation which could include:

- Preliminary sampling of soil, groundwater and surface water in areas of suspected contamination.
- Preparation of a conceptual model relevant to each suspected contaminated site.

If PFAS is identified as a potential contaminant of concern during the PSI, assessment of PFAS will be completed during further detailed site investigation (if required), in accordance with the PFAS National Environmental Management Plan, version 2 (or as updated).

If areas of contamination are confirmed, a remediation plan will be developed to address all relevant requirements of the NEPM.

Any management plan in the first instance will determine whether it is possible to avoid disturbing pre-existing contaminated land. Where disturbance cannot be avoided, it will describe options to mitigate or remediate environmental harm from existing contamination.

8.12. OFFICES AND AMENITIES

Offices and amenities are contained within a fenced off area south of the main car park area accessible via swipe card activated turn style.

8.12.1. PROJECT MANAGEMENT AND GENERAL ADMINISTRATION OFFICE & AMENITIES

Operational offices and amenities buildings (ablutions blocks, medical facilities and change rooms) are located within the compound. Supporting buildings will be as follows:

- Main office building with an expected operational staff peak of around 100.
- Three ablutions blocks located adjacent to the office buildings providing toilets and washing facilities.
- Two changerooms – male and female changerooms facilities.
- Medical / First aid building – site medic first aid room and drug and alcohol testing room.

8.12.2. OPERATIONAL BUILDINGS

Located within the process plant area there will be:

- One process plant ablution block located on the process plant pad to limit transit of operations personnel back and forth to main office amenities.
- Laboratory office.
- Laboratory.

Located within the general mining area there will be satellite offices and ablution facilities. Details of which are to be determined in detail design based on the mining contractor's specific requirements.

8.12.3. WORKSHOP AND STORES

Workshop buildings and storage facilities will include the following:

- Process plant maintenance workshop and stores.
- A transport logistics unloading bay located adjacent to the workshop and stores.
- Mining maintenance and stores structure/s constructed outside the process plant area and closer to the mining area. Dimensions will be determined in detailed design based on the mining contractor's specific requirements.

8.13. INTERNAL ROADS AND VEHICLE WASHDOWN

A light vehicle washdown bay with a water treatment unit (oily water separation unit) will be located adjacent to the process plant workshop and stores building for cleaning of light vehicle contamination (mud / soils). Wastewater exit from the oily water separation unit will be sent through oily water separation system and run off sent to the process water pond.

Figure 11 includes the layout of the permanent internal roads. Mining haul roads will change constantly and be purpose built as needed.

8.14. OPERATING HOURS

Site clearing, preparation and construction at the mine will occur between the hours of:

- 7am to 6pm, 7 days per week; except for
- Surface water dam lining which will occur after sundown 6pm to 7am, 7 days per week.

Mining and processing and rehabilitation at the mine will occur 24 hours per day, 7 days per week. The operation has been based on operating two 12-hours shifts, seven days per week. Progressive rehabilitation will occur simultaneously to mining, throughout the mine-life.

All activities are managed through noise control measures and the noise management strategy presented in The Noise Management Plan. The Plan details receptor management requirements for specified activities during construction, operations and rehabilitation and the period of time (daytime, evening or nighttime) when certain activities can be conducted to meet noise requirements.

8.15. SITE ACCESS AND SECURITY

General vehicle site access including logistical transport of the HMC and REEC products, as well as flocculant and reagent deliveries and general workshop and stores deliveries will be via the Minyip-Rich Avon Road which forms the northern border of the site.

Access will be controlled entry via dual activation boom gates, manually operated by a guard house attendant or via automatic FOB / key card for pre-approved vehicles that need regular access and exit from the mine. The boom gates will be fitted with CCTV systems and lighting to allow for 24 hours of operational activities and to monitor vehicle and people movements into and out of the mine.

A car park is provided external to the main security fence and gate with personnel access into the office area compound via dedicated turnstiles through the fence line into the main plant area. Personal and visitor vehicles will be directed to this car park.

Secondary access to the east of the main access point, controlled via a locked gate, is provided as a separate access point for delivery of oversize equipment. This access road is located to align with the current gazetted road intersection of Minyip-Rich Avon Road and R Funkes Road.

The HV power substation/switch yard is located adjacent to Minyip-Rich Avon Road in the north-eastern corner of the process plant area, providing easy access to the power authority and segregating the area from the main mining and processing operations.

The entire process plant perimeter including raw water pond, process water pond and settling ponds will be fenced with chain wire fence 1.8 m high topped with 3 strands of barbed wire.

9. IMPACT ASSESSMENT REVIEW AND INHERENT DESIGN

Since the project received Ministerial determination in 2008 for its EES, environment legislation in Victoria has changed including the amended EP Act and the requirements of the Environment Protection Regulations 2021.

To identify and address new or changed legislation, technical advancements and greater understanding of project scope, updated environmental impact assessments were prepared. The assessments were also tailored to reflect the activities within the nominated work plan area that occupies a smaller footprint, located within that which was assessed as the 'EES project area'.

Development of the detailed design drew on the outcomes of these assessments to avoid and minimise impacts so far as is reasonably practicable. These design elements are detailed in the work plan risk assessment as 'inherent controls'. The assessments also informed the development of specific management plans that identified further mitigation controls and monitoring and reporting requirements. These are detailed in the Risk Management Plan.

The method used for each assessment was specific to the environmental values assessed and the applicable guidelines and standards. Whilst applying the specific assessment methods, the framework broadly applied for each assessment, comprised the following:

- Establishment of existing conditions.
- Confirmation of EES commitments and mining licence conditions.
- Review of Project design, including construction, operation and rehabilitation activities.
- Risk screening to identify key issues.
- Identification of potential impacts.
- Development of avoidance and mitigation measures to reduce the impacts so far as reasonably practicable.
- Identification of residual impacts.

A summary of the technical assessments and key findings, recommendations and their influence on design is presented in Table 18. The Project is committed to minimising impacts to the environment and the communities in which we operate, so far as is reasonably practicable.

Table 18 - Summary of key impact assessment findings and influence on design

Discipline	Key Findings	Approach to Mine Design
Native vegetation (EHP, 2023 & AECOM, 2024c)	A field assessment for biodiversity values in the work plan area was undertaken by Environment & Heritage Partners (EHP) in 2023 to review and update previous native vegetation mapping and habitat scores within the work plan area and update the previous ecological data in accordance with the Guidelines for the Removal, Destruction or Lopping of Native Vegetation – DELWP 2017. The assessment determined that 14.615 hectares of native vegetation and 131 large trees would be impacted and the necessary offsets required. A letter of addenda was prepared (AECOM, 2024c) which presents the findings of additional ecological assessment and addresses comments provided by DEECA. AECOM (2024c) determined a revised extent of native vegetation removal of 14.744 hectares of native vegetation and 121 large trees.	The project sought to minimise impact to native vegetation, applying the avoid, minimise, and offset hierarchy. The native vegetation clearance requirement in the work plan area is less than that proposed in the 2008 EES and the mine design generally upholds the areas that were nominated for avoidance. The mine design has further sought to avoid native vegetation in the external TSF area by moving the TSF further north than earlier phases of the mine design planned.
Noise and vibration (AECOM, 2024a)	**Site clearing, preparation and construction** Site clearing, preparation and construction noise emissions for the proposed hours of 7am to 6pm, 7 days were generally predicted to conform with noise thresholds. Where exceedances were identified the following has been recommended: • A receptor management plan be in place for two receptors (R3 and R4) during Block 1 Overburden Stripping • A receptor management plan be in place for two receptors (R3 and R4) for Evening works (excluding dam lining and processing plant construction). • Processing plant construction is managed to minimise impacts by a dedicated onsite Environmental Advisor during Outside Normal Working Hours.	The noise and vibration assessment identifies a reduction in operational noise emissions as compared to those identified in the EES Noise Assessment Report. Mine design incorporates a reduced footprint that increases the buffer distance to receptors, reduced haul distances and truck movements, mining equipment noise attenuation, full and partial enclosure of process plant and the active selection of the mobile mining unit plant (MUP) location to maximise its separation from receptors. Also, the Noise Management Strategy outlined in the Noise and Vibration Management Plan (see Section 10 below) will manage the risk to affected residences.

<table>
<tr><th>Discipline</th><th>Key Findings</th><th>Approach to Mine Design</th></tr>
<tr><td></td><td>Operational
The key noise contributions are from the mobile plant operating within the mine footprint, including overburden haul trucks, overburden mining excavators, support front end loader, soil compactor, ore rehandle front end loader and grade control drill. To reduce noise so far as reasonably practicable, the Project proposes to incorporate noise control kits for these.
Operational noise emissions were predicted to exceed the night-time noise limits (Noise Protocol) at 9 receptors. To manage these exceedances, DMS proposes a noise management strategy which includes building treatments, or various receptor management options so as the residence is not habited and is subject to agreement with the landholder.</td><td></td></tr>
<tr><td>Air quality
(AECOM, 2023)</td><td>Air dispersion modelling was conducted using AERMOD to predict incremental ground level concentrations (i.e., project contribution) for each worst-case modelling scenario. Contemporaneous (i.e., the same time period) background data was added to the predicted contribution from the Project to determine cumulative impacts.
As part of the design, a mining unit plant (MUP) will slurry the ore and pump it to the wet concentrator plant (WCP). The WCP and the concentrate upgrade plant (CUP) and conveyors at the processing plant are all enclosed. Therefore, the main sources of emissions are from the earthworks and mining activities.
The modelling results determined that PM10, PM2.5, respirable crystalline silica (RCS) and deposited dust emissions associated with the Project are predicted to comply with the relevant criteria at all sensitive receptors except R3 and R4.</td><td>Air emissions associated with the Project are expected to comply with relevant criteria at all surrounding residences. The conclusion of this assessment is generally consistent with that in the EES 2008.
Mine design incorporates a slurry and enclosed conveyors and plant. Open mined areas will also be limited through implementation of the progressive rehabilitation strategy.</td></tr>
<tr><td>Groundwater
(CloudGMS, 2023)</td><td>The Groundwater Impact Assessment identified consistencies with the 2008 EES findings and key updates as follows for area within the vicinity of the work plan area:
• The natural groundwater is saline (classified Segment F).
• There are no known users of groundwater.</td><td>Minimising seepage and losses formed part of the mine design. In addition to certain constructed foundations, the natural clays on-site are of low permeability and tailings management will include removal of decant from the tailings as they consolidate to further reduce potential for tailings leachate generation. A summary of the key design elements is provided below:</td></tr>
</table>

Discipline	Key Findings	Approach to Mine Design
	• There is low actual potential for groundwater dependent vegetation. • Reduced groundwater pumping requirements (200 to 400 ML/yr) and drawdown magnitude/extent is predicted. • Particle tracking over 200 years post-mining shows the effects extend less than 3 km from the work plan area and do not affect groundwater quality or groundwater dependent ecosystems. Latest uncertainty analysis methods quantify the potential range of pumping volumes, drawdowns and flowpaths, demonstrating reduced effects compared to the EES and thus 'minimised harm' in the context of the EP Act and General Environmental Duty. The Assessment concluded that: • A water table drawdown of approximately 0.5 m would extend approximately 2 km from the mine site after 50 years post-mining. • Impacts on the underlying Renmark Formation are not material, in that the 0.1 m drawdown contour for the Renmark aquifer extends about 1 km from the edge of the work plan area by the end of mining and reduces thereafter.	• The external TSF is founded on a low permeability compacted Shepparton clay (Unit 2) liner with an estimated permeability of 1 x 10-9 m/s, which will minimise seepage through the base. • Tailings production and management strategy includes use of flocculant to thicken tails and sand tailings and slimes will be mixed at processing plant. This co-disposal strategy will recover a higher volume of water (decant), which will reduce potential for seepage. • The in-pit TSF is situated above Geera clay (Unit 5) with an estimated permeability of 1 x 10-9 m/s that acts as an aquitard and will minimise seepage through the base. • All dams will be underlain by natural low permeability clays which will reduce potential for seepage. • Process water and raw water dams will be HDPE lined to minimise losses.
Surface water (ATCW, 2024b)	The closest defined waterways are the Richardson River (4 km to the east) and Dunmunkle Creek (2 km to the west). Sheet floodwater flows can occur following major rainfall events. The Site Water Balance describes the water management system required to accommodate process and maintenance water requirements for operations, whilst preserving natural flow regimes in the environment and accommodating a 1-in-100-year storm event.	Site surface water management design diverts clean water from active areas, and collects and contains contaminated surface water that encounters mining / disturbed areas: • Drainage control works used to divert clean water surface water away from extraction areas. • Upstream diversion channel will be installed to minimise water capture onsite and maintain catchment flows downstream.
Visual amenity (Landform Architects, 2023)	Sensitive viewpoints that would be most affected by visual amenity impacts identified in the 2008 EES included rural residences situated in the local setting, defined as those within 1 km from the mining licence area.	To reduce visual amenity impacts, the following key elements were considered as part of mine design: Inherent design controls that will reduce impacts to visual amenity include:

Discipline	Key Findings	Approach to Mine Design
	The recent Landscape and Visual Impact Assessment Review (Landform Architects, 2023) determined that there will be no negative change in views or outlooks from dwellings proposed to be retained by the project, that would materially alter from the EES Project assessed in 2008. In some areas (receptors R12, R20, R31), there may be a slight improvement in views due to a reduced mining footprint proposed under this work plan, compared to the footprint contemplated in the 2008 EES. However, to be conservative, any such improvements have not been reported as such.	• Siting of process plant and external TSF in the northwest corner of work plan area, confining impacts from these facilities to one location. • Existing vegetation along roadsides and close to residences (especially vegetation greater than 1.5 m high) being retained where practicable. • Site soil and overburden stockpiles used to screen internal pit operations. • Buffer zone between mining activities and edge of work plan area is included to accommodate screening e.g., earthen bunds and vegetation. • Perimeter vegetation, screening the process plant bund and western external TSF wall.
Greenhouse Gas (Greenbase, 2023)	The greenhouse gas (GHG) assessment accounts for plant emissions and the Greenhouse Gas Management Plan establishes a strategy to reduce GHG emissions over time.	Power is to primarily be sourced from the grid, reducing consumption of diesel and providing options to purchase 'green' power. DMS is working with Powercor to establish a 66 kV power supply to the mine site.
Geochemistry (RGS, 2023)	RGS completed a geochemical program to identify any potential for acid and metalliferous drainage (AMD), including soluble metal(loid) and salt release from overburden materials associated with the Shepparton Formation and Parilla Sand units and tailings (sand and slimes) produced from processing of the HM orebody. This work concluded that overburden materials are likely to generate pH neutral surface runoff and seepage with low salinity and low concentrations of dissolved metals(loids) and that generally the tailings are likely to generate pH neutral surface runoff and seepage with low/ moderate salinity and generally low concentrations of dissolved metals(loids). The geochemical classification of mine waste materials is NAF - barren.	Mining will not penetrate the Geera Clay, therefore, any sulfides that may be present will not be exposed to air and the risk of acid formation. In addition, in the work plan area, the top of the Geera Clay is typically oxidised with iron present as either an oxide or hydrated oxide, so the soil study concludes that there is no potential for acid formation.
Radiation	The heavy minerals being mined are rich in naturally occurring radioactive material, namely uranium and thorium. As such,	The Radiation Management Plans describe a number of controls that will be implemented and are inherent to project design.

Discipline	Key Findings	Approach to Mine Design
(DBH, 2024) (RCA, 2023)	there is an expectation for consideration of radiological protection issues in relation to potential exposure to members of the public and the environment. The Radiation Environment Impact Assessment (RCA, 2023) of impacts to non-human biota and members of the public arising from project activities concluded that on the basis that the Radiation Management Plans are implemented, the proposed operations will result in negligible impact to members of the public, and no effect to non-human biota. The report also concluded that post-closure doses will result in negligible impacts to members of the public, and no effect to non-human biota.	Key design elements which form part of the radiation management and reduce potential exposure include: Minimisation of radioactive dust inhalation. • 'Moving pit' concept allows mined out cells to be progressively backfilled and re-vegetated minimising ore and tailings that are exposed to the environment. • Ore pumped as a wet slurry to the WCP, and thus avoid potential for dust creation. • Tailings pumped as a slurry will minimise the potential for inhalation of radioactive dust and/or transport of dust into the environment during the disposal of tailings to the external TSF and in-pit mine voids. Minimising potential for radioactive dust inhalation and/or transport of dust into the environment from operation of the processing plant. • high moisture content and specific gravity of concentrates that minimise its potential as a source of dust • wet processing, reducing potential for dust • HMC stockpile being contained within a purpose-built storage shed • REEC will be shipped in sealed drums and HMC shipped in sealed containers to minimise the potential inhalation of radioactive dust and transport of material into the environment. And furthermore: • Operational and storage areas adequately bunded with rainfall runoff and washings collected will minimise the potential transport of spilled material into the environment. • Radioactivity is not leached from tailings as the minerals undergo no chemical or heat treatment during processing and

Discipline	Key Findings	Approach to Mine Design
		hence radium levels in groundwater are not expected to increase.

All technical assessments reports are provided to support the work plan.

10. AFFECTED PROPERTY MANAGEMENT

DMS will acquire access to areas impacted by its activities at a time that is commensurate with the relevant activity in the mine plan, landowner preferences and the goal of minimising environmental impacts so far as is reasonably practicable.

To maximise the buffer between mining activities and nearby residents, DMS has gradually increased its landholdings in proximity to and within the work plan area over time. Within the work plan area, agreements will be finalised with the two remaining landowners (receptors R8 and R9) prior to construction. DMS is exploring options with the landowners that include 'land swap' and buy-back options post mine rehabilitation (DMS owns 1,129 ha of land nearby, outside the work plan area).

Further to arrangements made for land within the work plan area, DMS must address the predicted air quality and noise impacts that activities pose to nearby residents. Having engaged with all affected landowners identified in the Air Quality and Noise and Vibration management plans, DMS appreciates that each agreement will be unique to the landowner; with some expressing the desire for DMS to purchase their property, others to rent or lease the property whilst others, the opportunity to remain in their homes for as long as possible.

Noise impacts affect the greatest number of residences (nine including receptors R8 and R9). Noise varies at each residence as the mining progresses around the work plan area. The Noise and Vibration Management Plan includes detailed analysis for each affected receptor, such that the year and mine block from which they are affected, is known – as they all differ. Furthermore, differing management options have been identified for each receptor, providing DMS the ability to offer the affected receptor with options and the opportunity to stay in their home for as long as possible, where desired and possible. The Air Quality Management Plan equally identifies when a receptor is affected by mining activities, however in all operational scenarios the noise impacts dictate when an affected receptor will need to cease living in their dwelling.

DMS is committed to achieving agreement with landowners and having implemented any agreed treatments prior to mining in the location that would lead to exceedance of the nominated air quality or noise criteria without the intervention.

11. REFERENCES

References made in this work plan document include technical references, the impact assessment and design reports that informed this work plan and the risk treatment plans developed as part of the Risk Management Plan.

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Attachment A. Figures

PREPARED BY: TETRA TECH COFFEY 18/04/2024 12:59 PM

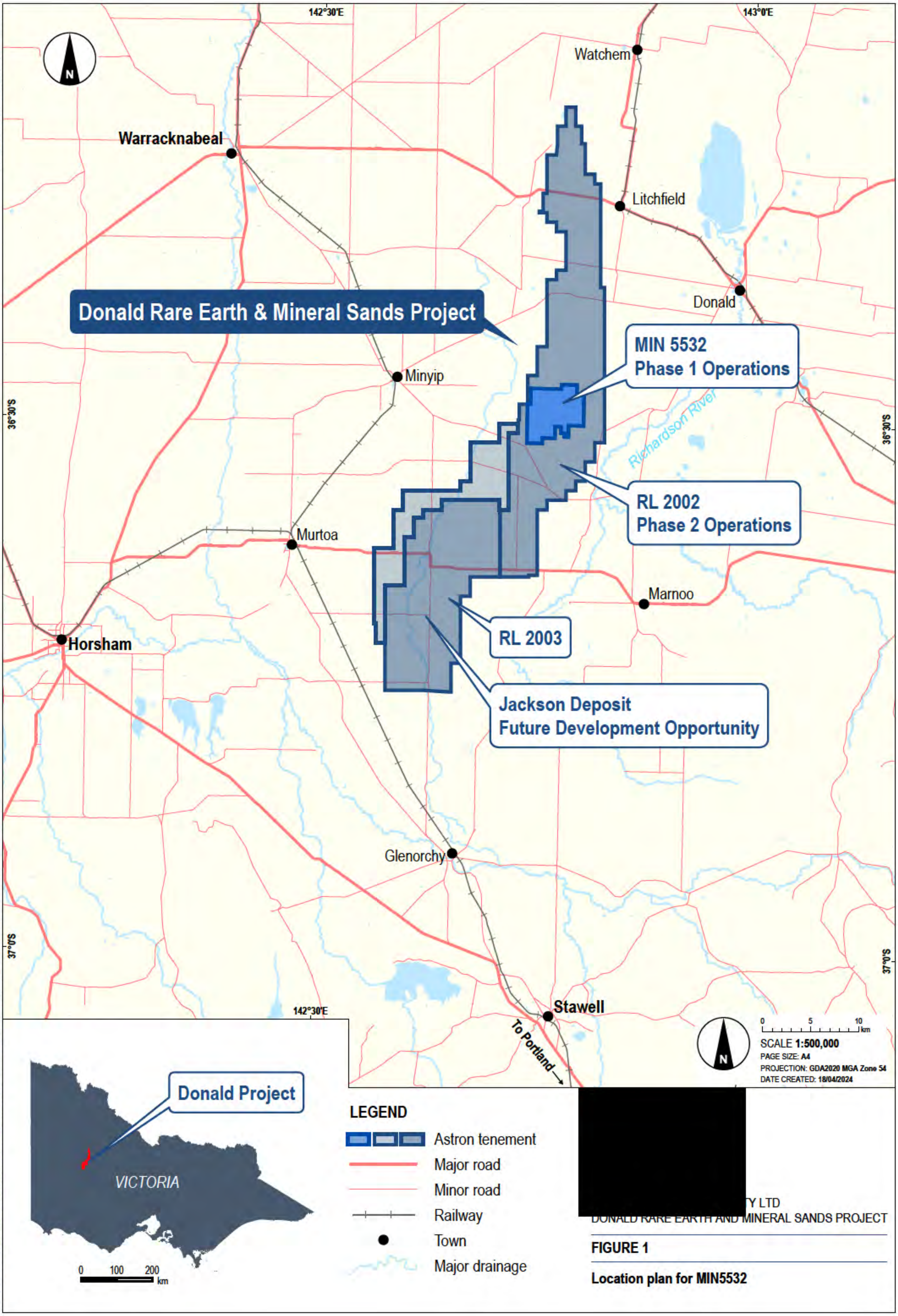
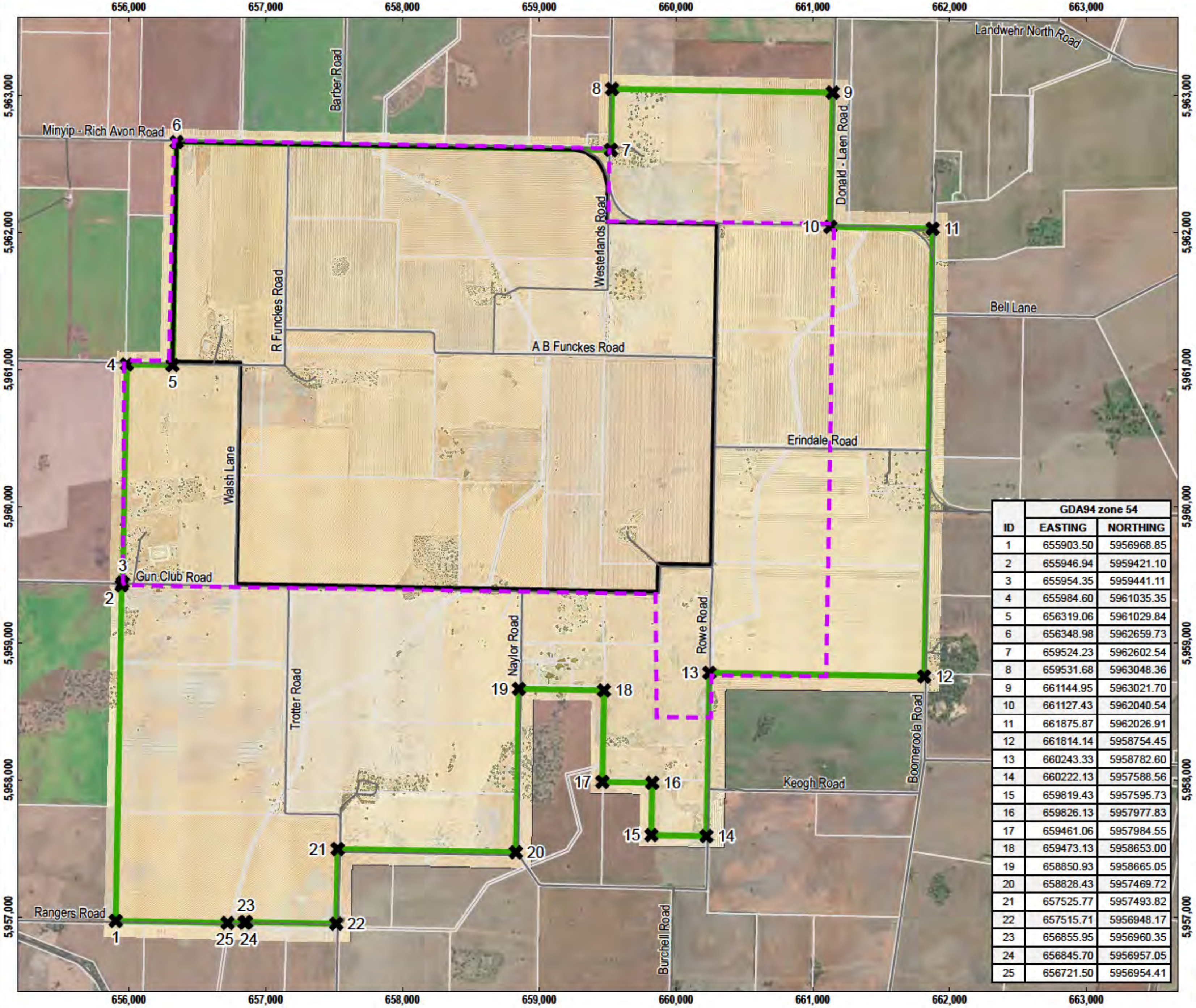


FIGURE 1

Location plan for MIN5532



ID	GDA94 zone 54	
	EASTING	NORTHING
1	655903.50	5956968.85
2	655946.94	5959421.10
3	655954.35	5959441.11
4	655984.60	5961035.35
5	656319.06	5961029.84
6	656348.98	5962659.73
7	659524.23	5962602.54
8	659531.68	5963048.36
9	661144.95	5963021.70
10	661127.43	5962040.54
11	661875.87	5962026.91
12	661814.14	5958754.45
13	660243.33	5958782.60
14	660222.13	5957588.56
15	659819.43	5957595.73
16	659826.13	5957977.83
17	659461.06	5957984.55
18	659473.13	5958653.00
19	658850.93	5958665.05
20	658828.43	5957469.72
21	657525.77	5957493.82
22	657515.71	5956948.17
23	656855.95	5956960.35
24	656845.70	5956957.05
25	656721.50	5956954.41

LEGEND

- Road
- Property parcel
- CHMP Boundary
- Work plan area
- MIN5532 coordinate point
- MIN5532

SOURCE:
Work plan area and CHMP boundary from DMS.
Roads and parcels from VICMAP.
Tenement boundary from DJSIR.
Imagery from Aerometrex (05/02/2023) and ESRI Online.

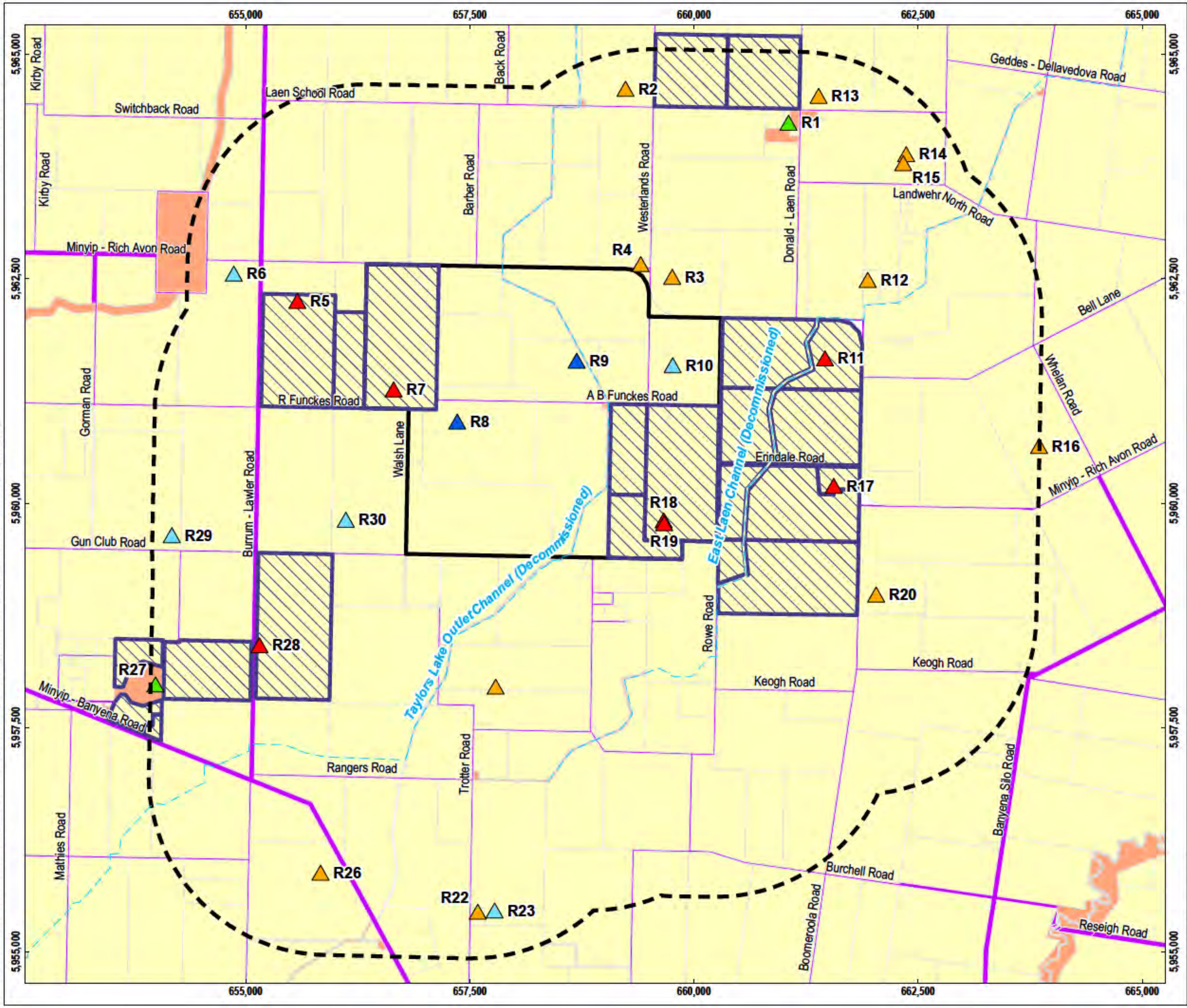
0 400 800 m
SCALE **1:40,000**
PAGE SIZE: A4
[redacted]one 54

DONA[redacted]
DONALD RARE EARTH AND MINERAL SANDS PROJECT

FIGURE 2

Work plan area and CHMP boundary within MIN5532

PREPARED BY: TETRA TECH COFFEY 18/04/2024 11:07 AM



LEGEND

Receptors
- Environmental
- DMS owned
- Dwelling within work plan area
- Dwelling outside work plan area
- Shed
- Work plan area
- MIN5532 2km buffer
- DMS owned properties
- Property parcel

Parcel crown status
- Freehold
- Crown land
- Government road
- Crownland channel

SOURCE:
Work plan area and owned properties from DMS.
Roads, parcels and crown status from VICMAP.
Tenement boundary from DJSIR.

0 0.6 1.2 km
SCALE 1:60,000
PAGE SIZE: A4

DONA[redacted]
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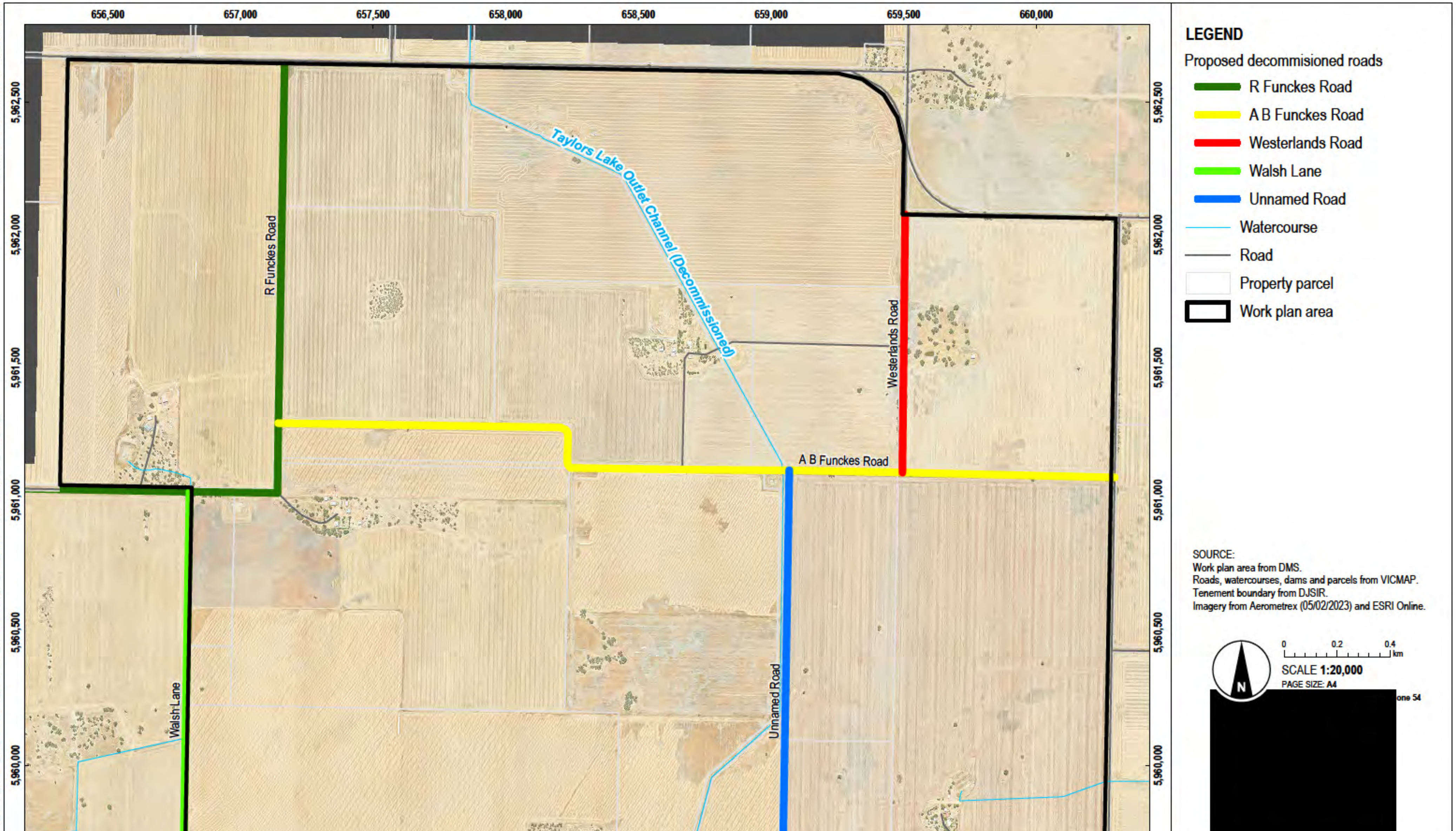
FIGURE 3A

Land tenure, rural residents and conservation reserves

PREPARED BY: TETRA TECH COFFEY 18/04/2024 11:15 AM



[redacted]

DONA[redacted]
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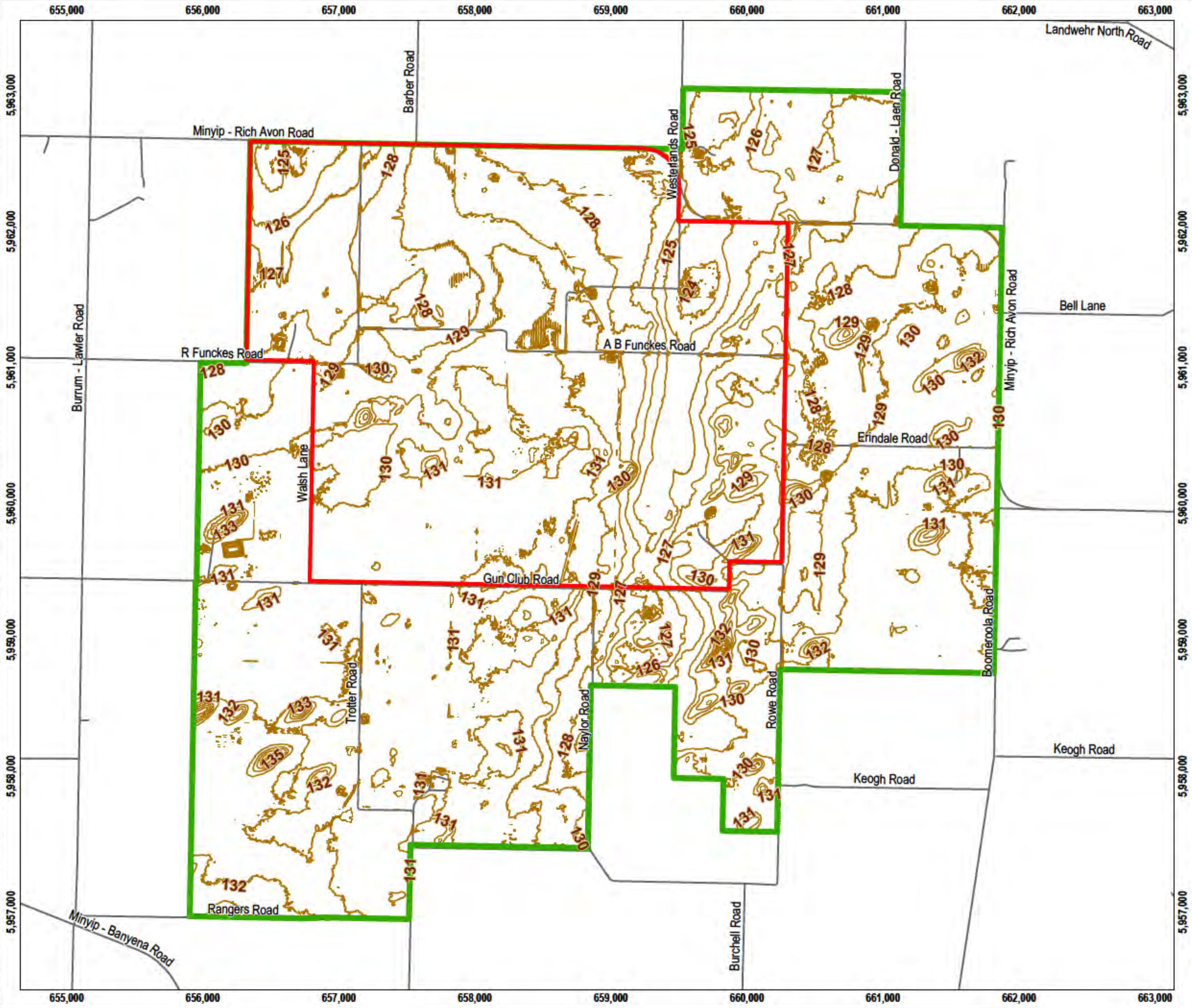
FIGURE 3B

Minor roads on-site proposed to be decommissioned



LEGEND

- Work plan area
- MIN5532
- Road
- Elevation contour (1m interval)

SOURCE:
Work plan area from DMS.
Roads from VICMAP.
Tenement boundary from DJSIR.
Elevation contours from Aerometrex (05/02/2023).

0 400 800 m

SCALE 1:40,000
PAGE SIZE: A4

DONA[redacted]

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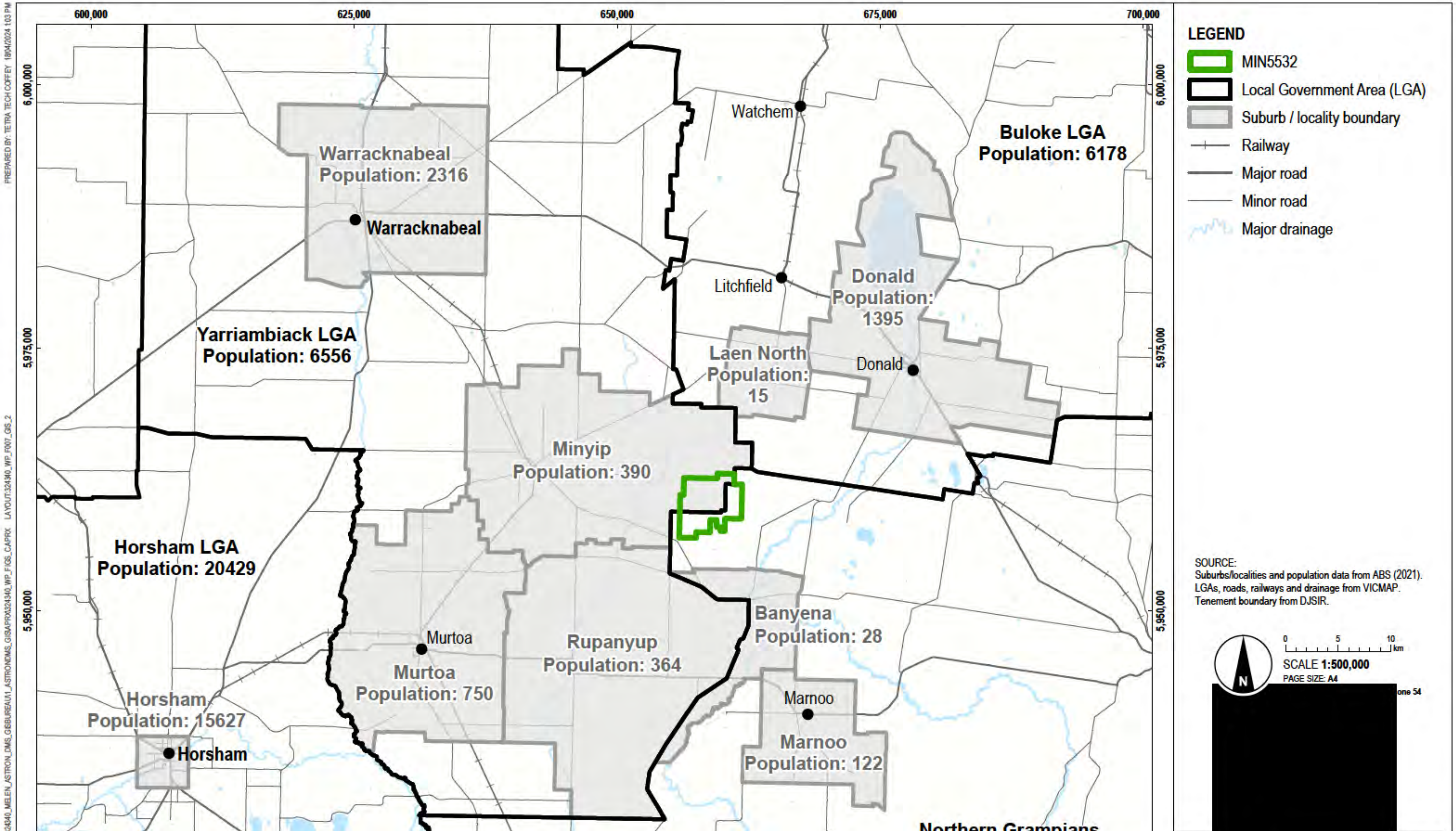
FIGURE 5

Elevation contours across the work plan area

PREPARED BY: TETRA TECH COFFEY 18/04/2024 11:17 AM



DONA[redacted]
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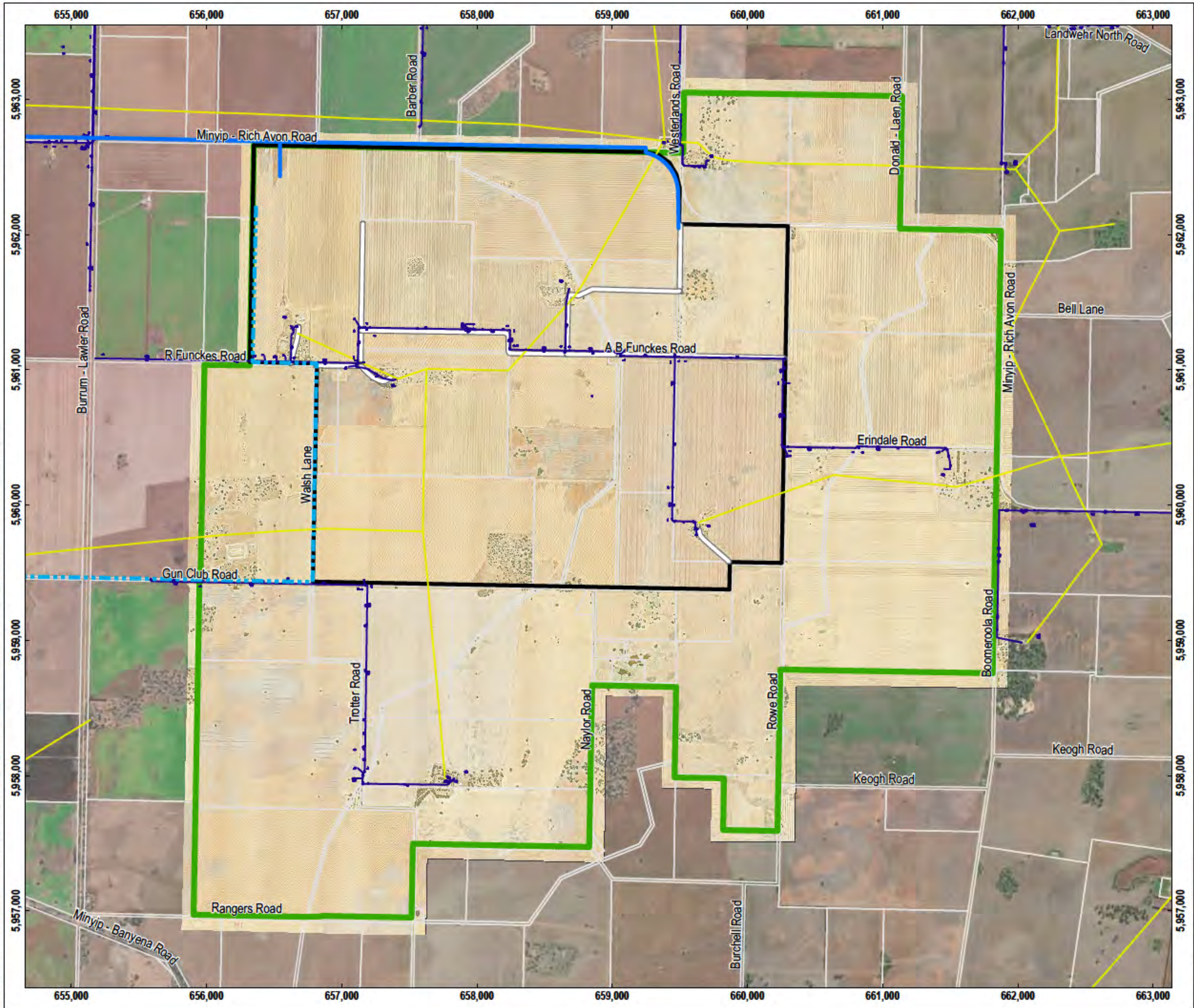
FIGURE 7

Local population data for towns near the Donald Project (2021 census)



LEGEND

- Telstra assets
- Low voltage transmission line
- Road
- Existing GMW pipeline
- Proposed water pipeline route
- Road to be removed
- Property parcel
- Work plan area
- MIN5532

SOURCE:
Work plan area and mine layout from DMS.
Roads, parcels and transmission lines from VICMAP.
Telstra assets from DBYD.
Tenement boundary from DJSIR.
Imagery from Aerometrex (05/02/2023) and ESRI Online.

0 400 800 m

SCALE 1:40,000

PAGE SIZE: A4

DONA[redacted]

DONALD RARE EARTH AND MINERAL SANDS PROJECT

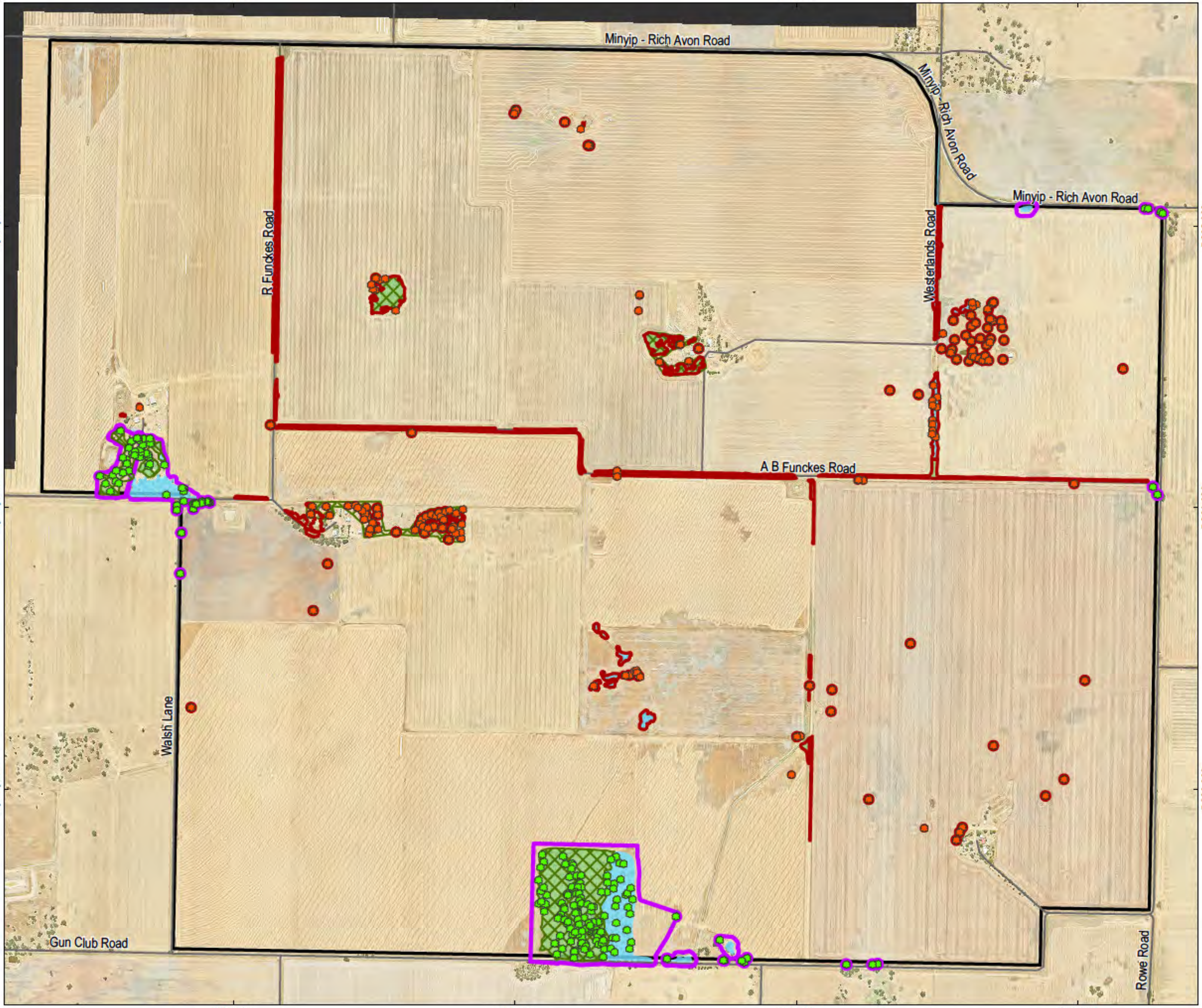
FIGURE 8A

Sensitive receptors (public infrastructure)

PREPARED BY: TETRA TECH COFFEY 23/04/2024 9:41 AM

LAYOUT: 324340_WP_F008A_GIS_2

[redacted]



LEGEND

- Directly impacted tree
- Tree to be retained
- No go zones for retained vegetation
- Impacted vegetation

EPBC Act Areas

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions

Ecological Vegetation Classes

- Plains Savannah (EVC 826)
- Plains Woodland (EVC 803)
- Road
- Work plan area

SOURCE:
Work plan area from DMS.
Roads from VICMAP.
Impacted vegetation and no go zones from AECOM.
Trees from EHP (2023).
Imagery from Aerometrex (05/02/2023).

0 200 400 m
SCALE 1:20,000
PAGE SIZE: A4
[redacted]one 54

DONA[redacted]
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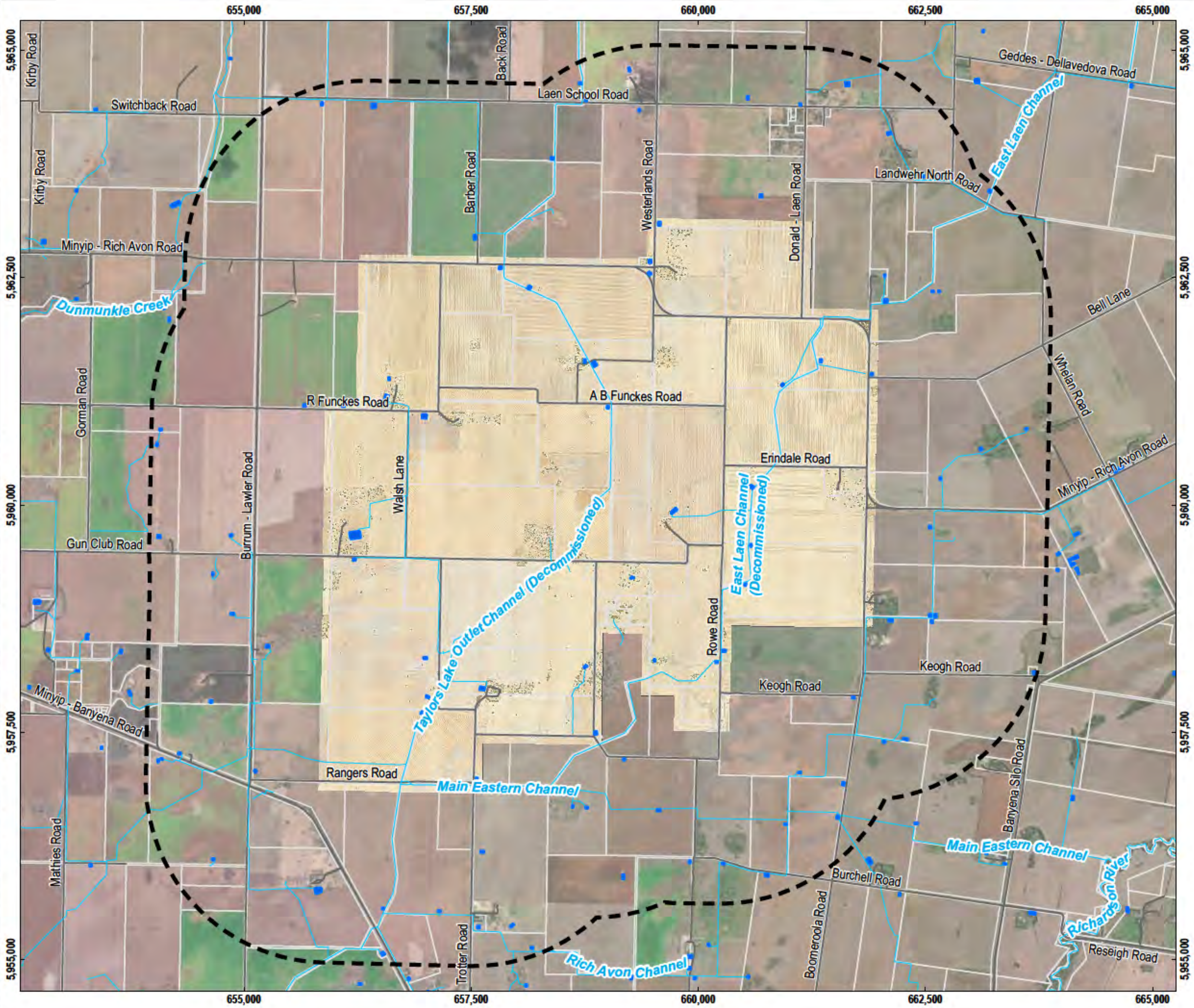
FIGURE 9

Ecological vegetation classes and retained vegetation in the work plan area



LEGEND

- Watercourse
- Dam
- Road
- Property parcel
- MIN5532 2km buffer

SOURCE:
Work plan area from DMS.
Bores from BOM NGIS (2023).
Roads, watercourses, dams and parcels from VICMAP.
Tenement boundary from DJSIR.
Imagery from Aerometrex (05/02/2023) and ESRI Online.

0 0.6 1.2 km
SCALE 1:60,000
PAGE SIZE: A4
[redacted] one 54

DONA[redacted]
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FIGURE 10

Watercourses and water bodies in the vicinity of the work plan area

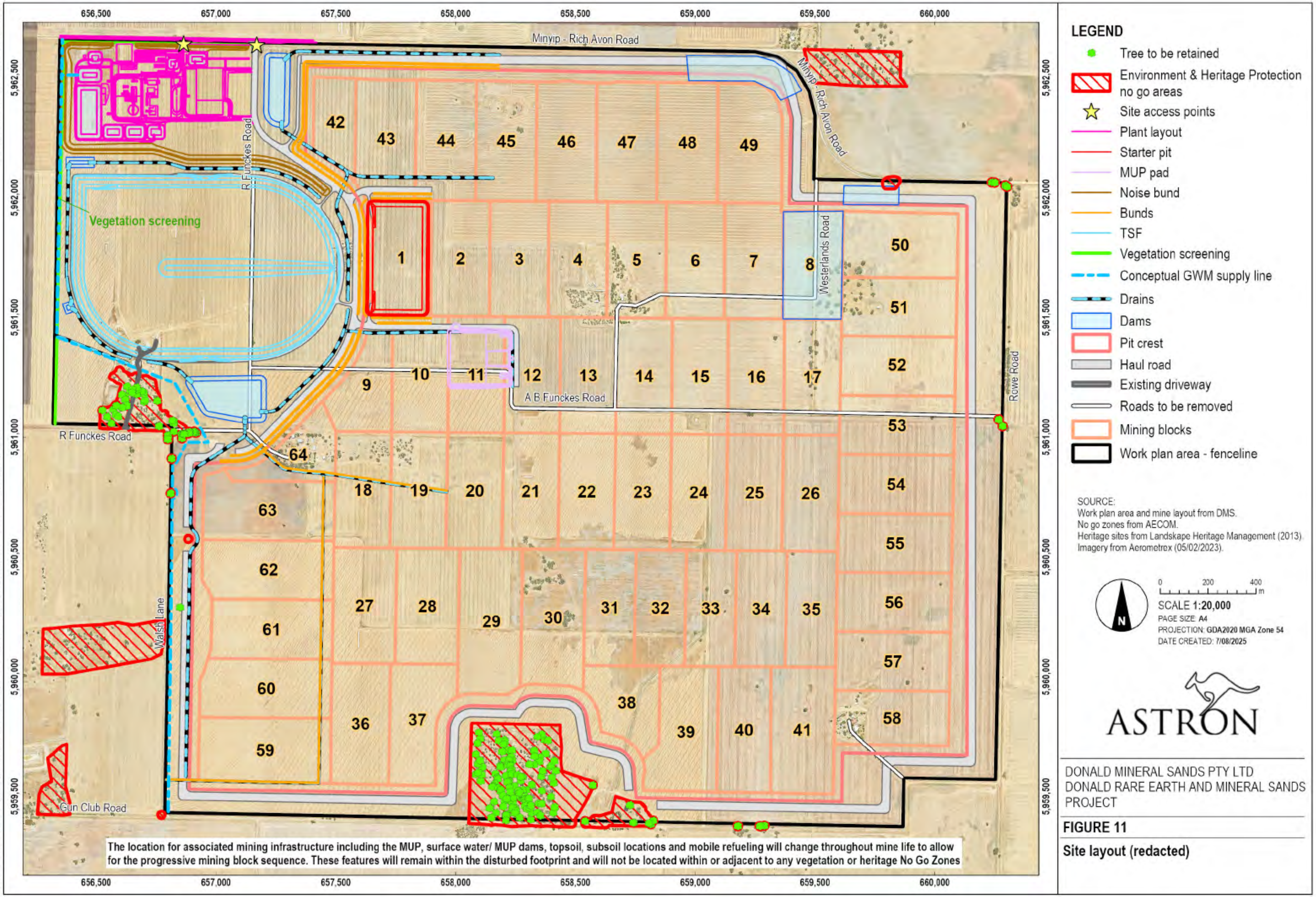
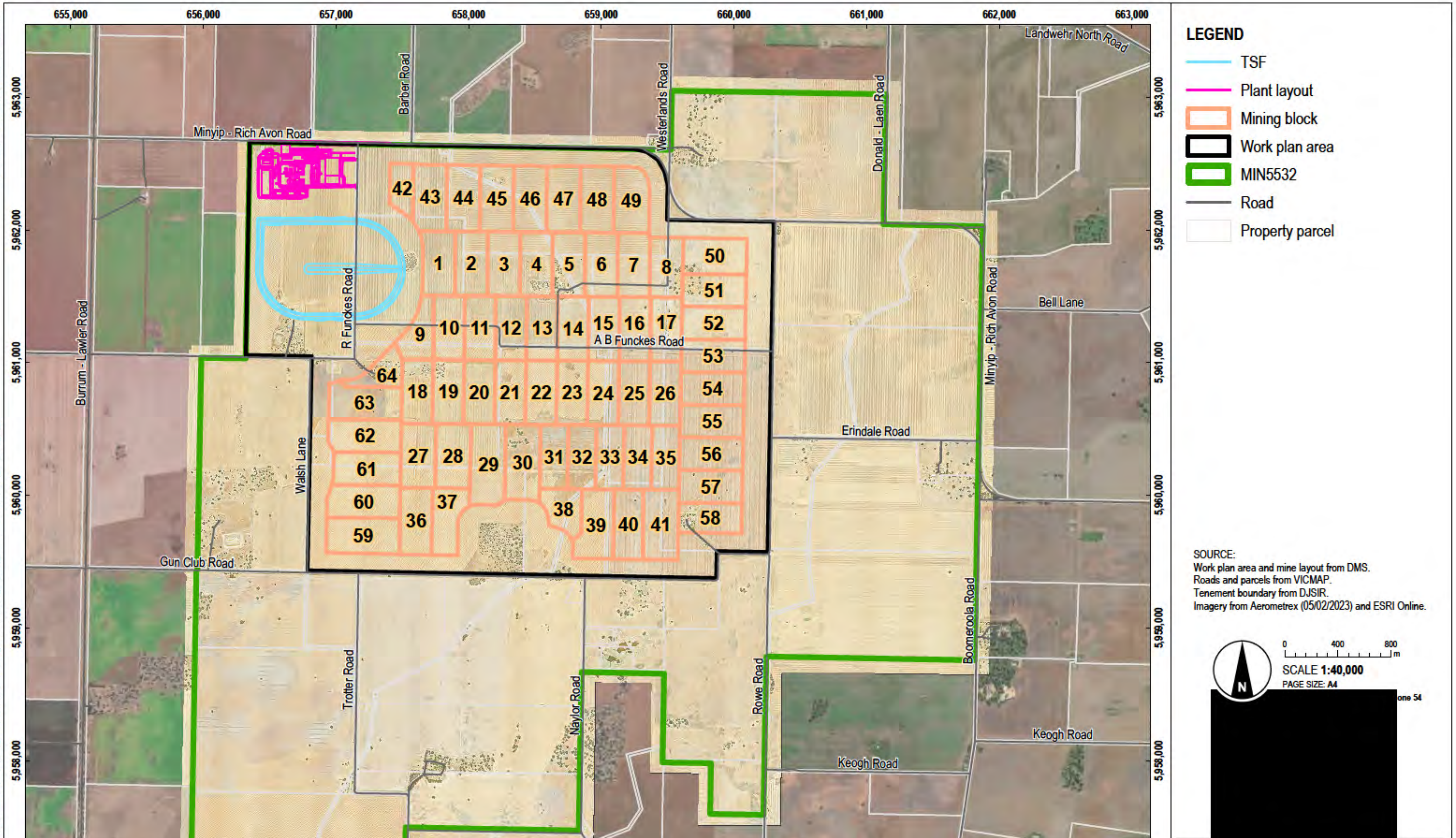


FIGURE 11

Site layout (redacted)



DONA[redacted]
DONALD RARE EARTH AND MINERAL SANDS PROJECT

FIGURE 12

Block mine schedule

East West Cross Section – Blocks 1 - 8 while mining is active – End of Year 1

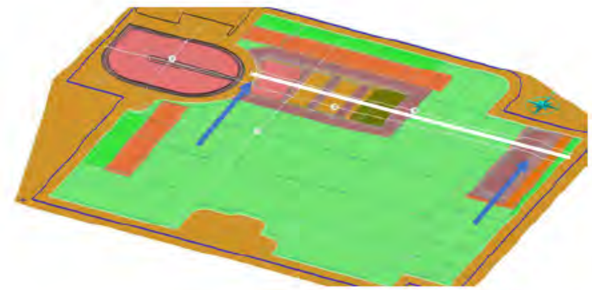
Legend – Layers

- Soils
- OB
- Ore
- Tails Embankment
- Tails Deposition

Legend

- Existing Topography
- Design

Section is vertically exaggerated x 5



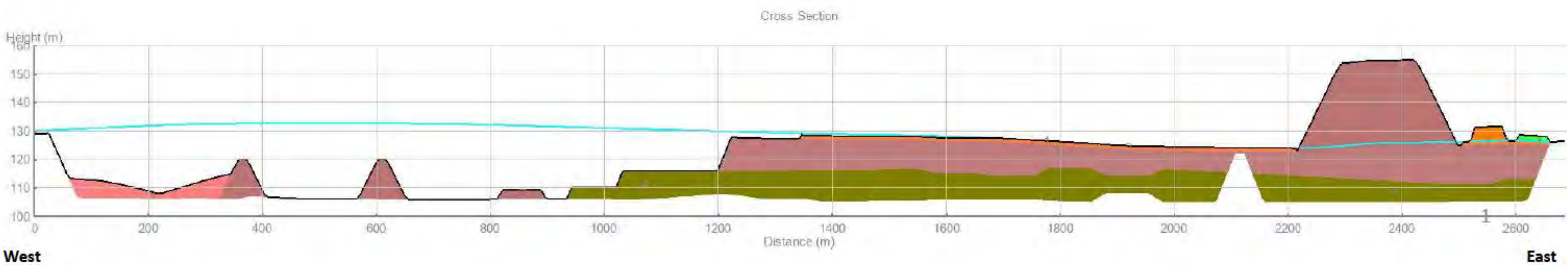
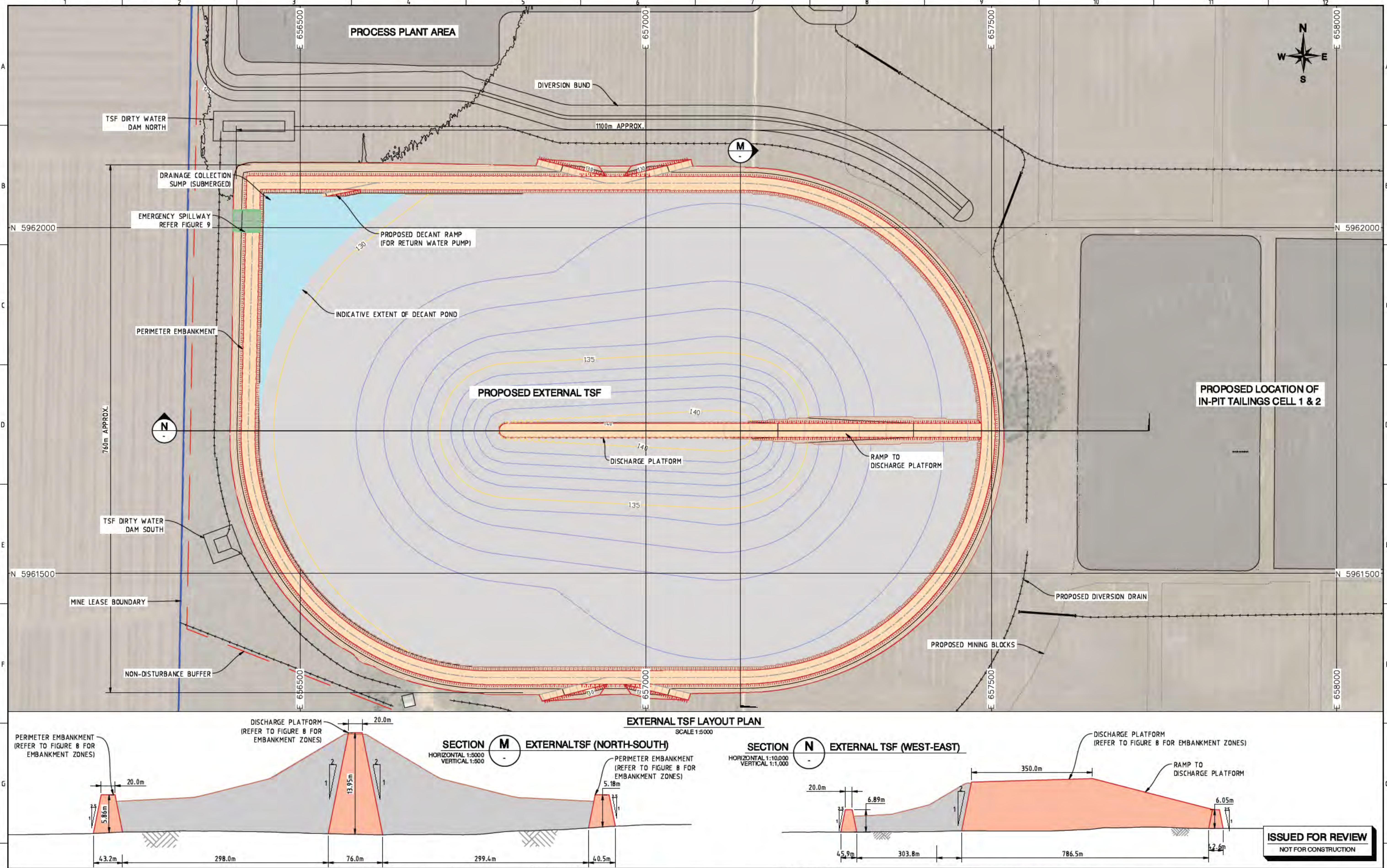


Figure 13 Mine cross section

Figure 16 - External TSF Design



No.	DESCRIPTION	DATE	DRAWN	CHECK'D	APPR'D
F	DRAWING AMENDMENTS	17.05.24	BTS	FCS	AvK
E	PEER REVIEW	08.03.24	APC	FCS	AvK
D	DESIGN AMENDMENTS	28.02.24	BTS	FCS	AvK

SCALE:	1:5,000
JOB No.	113259.09
DATE	26.09.23
DESIGN	SC
DRAWN	BTS
CHECKED	FCS
APPROVED	AvK

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Melbourne T +61 3 8587 0900
melbourne@atcwilliams.com.au

ASTRON CORPORATION LIMITED
DONALD PROJECT

EXTERNAL TSF AND IN-PIT TAILINGS CELL DESIGN
GENERAL ARRANGEMENT PLAN
POST-TAILINGS DEPOSITION

DWG. No. **FIGURE 11**

SHEET SIZE A3 Rev. F

SHEET 1 OF 1

Figure 17: In-Pit Tailings Disposal Indicative Arrangement

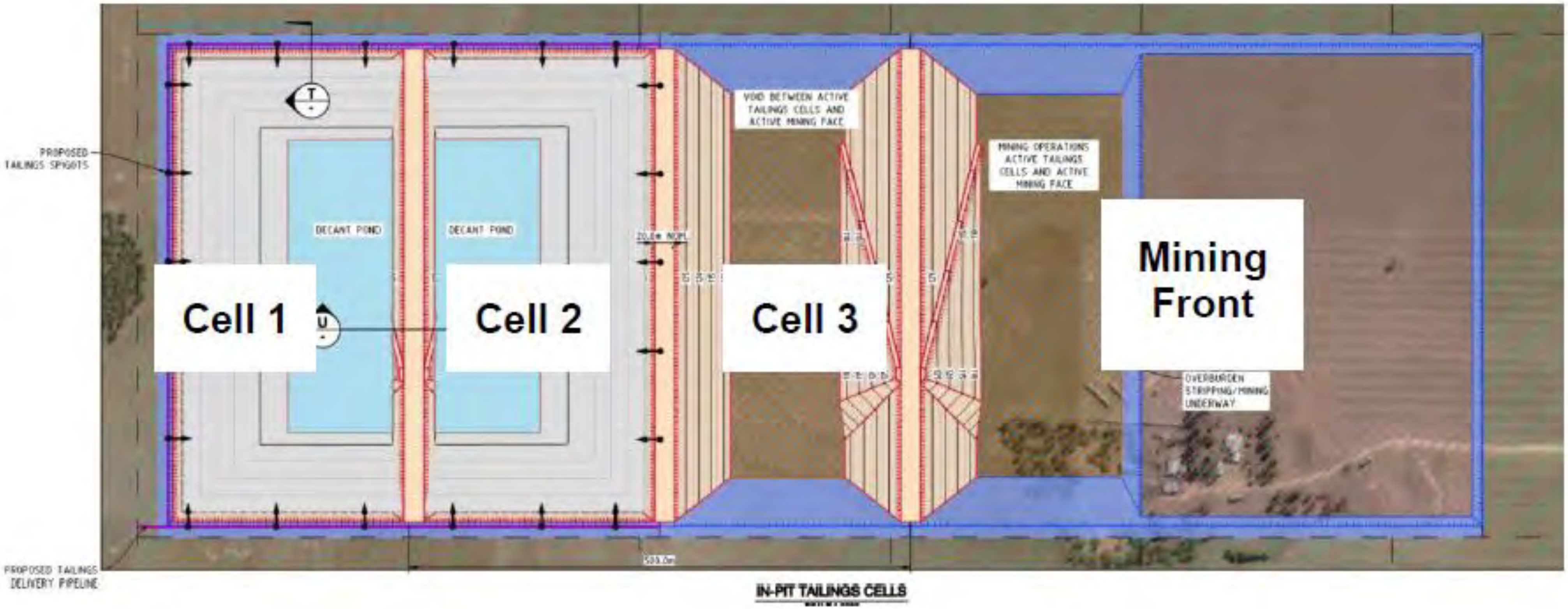
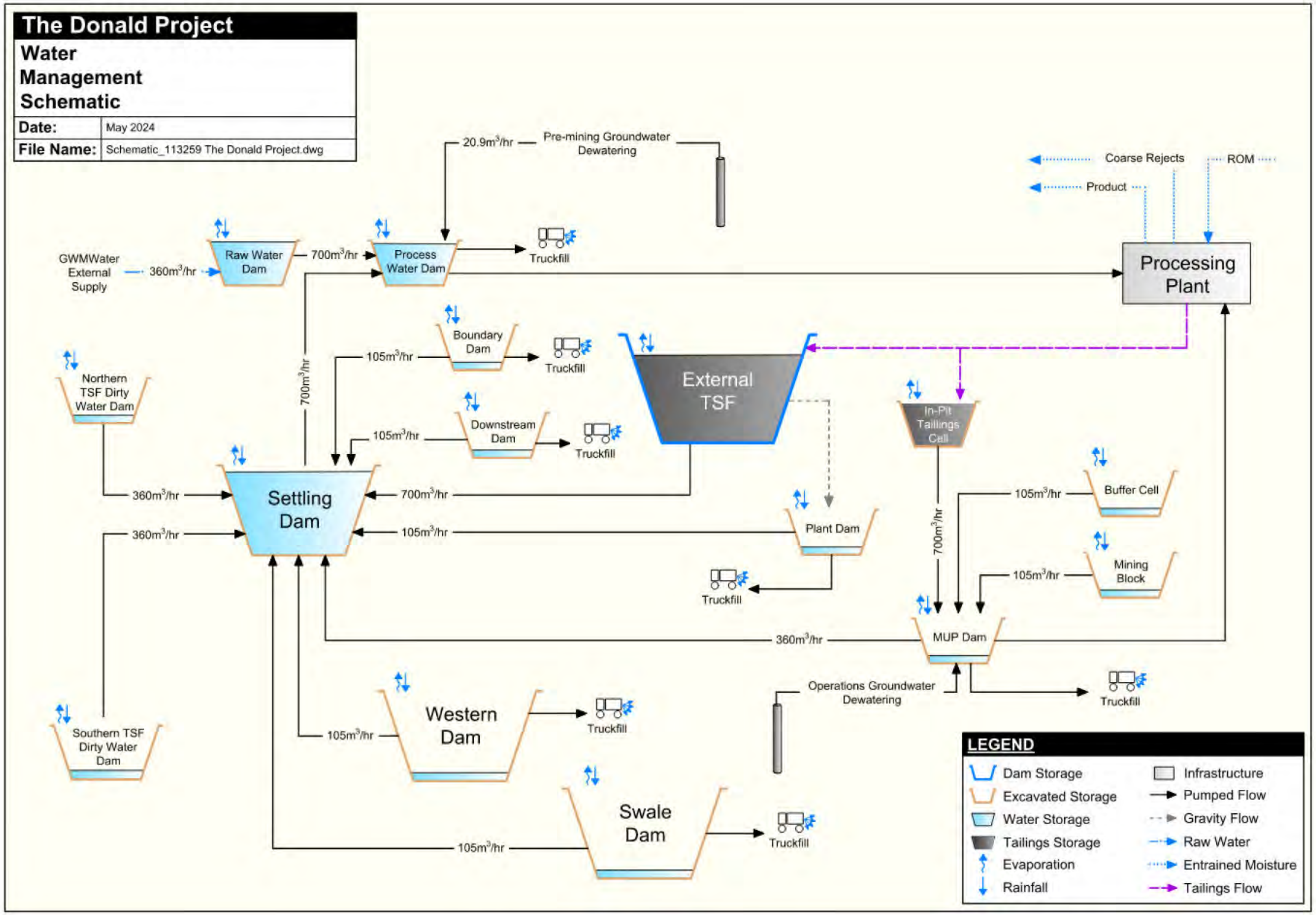
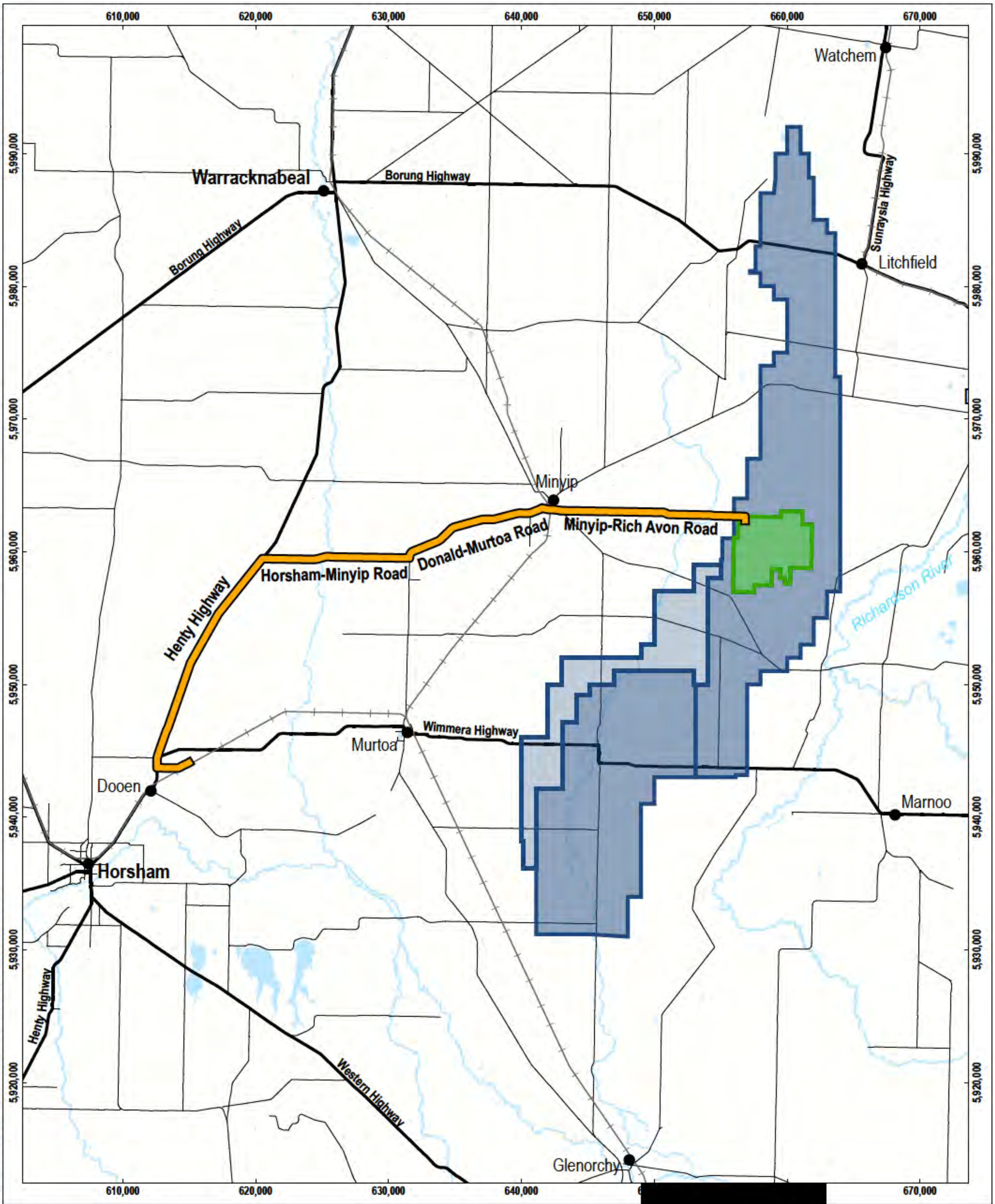


DIAGRAM 1: THE DONALD PROJECT WATER MANAGEMENT SYSTEM SCHEMATIC



TAILINGS.WATER.WASTE.



LEGEND

- MIN5532
- DMS Exploration Licences
- DMS Mining Exploration Licences
- Transport route
- Major road
- Minor road
- Railway
- Major drainage

SOURCE:
Transport route from DMS.
Roads, railway and drainage from VICMAP.
Tenement boundary from DJSIR.

SCALE 1:400,000
PAGE SIZE: A4
PROJECTION: GDA2020 MGA Zone 54
DATE CREATED: 18/04/2024

[redacted] TY LTD
DONALD RARE EARTH AND MINERAL SANDS PROJECT

FIGURE 20

Transport route

PREPARED BY: TETRA TECH COFFEY 18/04/2024 1:10 PM

DOC REFERENCE: \\TT.LOCAL\COF\S\772\S\GIS\324340_MELEN_ASTRON_DMS_GIS\BUREAU\1_ASTRONDMS_GIS\WPRX\324340_WP_FIGS_C.APRX LAYOUT:324340_WP_F020_GIS_1

Attachment B. GWMWater advice regarding decommissioned water channels

Our ref: 15/141/001
Contact: Alana Roissetter
Office: McLachlan

GWMWater

ABN 35 584 588 263

11 McLachlan Street
(PO Box 481)
Horsham Victoria 3402

Tel: 1300 659 961
Fax: 03 5381 9881
Email: info@gwmwater.org.au
Website: www.gwmwater.org.au

18 September 2023

Department of Energy, Environment and Climate Action
PO Box 378
HORSHAM VIC 3402

Dear DEECA

Redundant Channel Land

Crown Allotment 11A Section A Parish of Rich Avon West and Crown Allotment 21A Section A Parish of Rich Avon West both sit within the mining licence area of Donald Mineral Sands.

I write to inform you that GWMWater has no further requirements for this land for water supply purposes.

If you have any queries please contact Alana Roissetter on 1300 659 961.

Yours sincerely

Ross Higgins
Manager Legal and Corporate Resources