



Works approval number	W6532/2021/1
Works approval holder	Northern Star (Thunderbox) Pty Ltd
ACN	107 154 727
Registered business address	Level 1, 388 Hay Street SUBIACO WA 6008
DWER file number	DER2021/000137
Duration	2/07/2021 to 2/07/2026
Date of issue	2/07/2021
Premises details	North Eastern Goldfields Operations Thunderbox Mill and Power Station expansion Mining tenement M36/542 LEINSTER WA 6437

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed design capacity
Category 5: Processing or beneficiation of metallic or non-metallic ore.	7,000,000 tonnes per annual period.
Category 52: Electrical power generation	38 MW in aggregate.

This works approval is granted to the works approval holder, subject to the attached conditions, on 2 July 2021, by:

Melanie Bruckberger

A/Manager Resource Industries

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
2/07/2021	W6532/2021/1	Works approval granted

Interpretation

In this works approval:

- (a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- (b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (c) where tables are used in a condition, each row in a table constitutes a separate condition;
- (d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:
 - (i) if dated, refers to that particular version; and
 - (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- (f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Infrastructure and equipment

1. The works approval holder must:
 - (a) construct and/or install the infrastructure;
 - (b) in accordance with the corresponding design and construction requirements; and
 - (c) at the corresponding infrastructure location as set out in Table 1.

Table 1: Design and construction requirements

	Infrastructure	Design and construction requirements	Infrastructure location
Category 5 infrastructure			
1.	Thunderbox Mill expansion infrastructure	<ul style="list-style-type: none"> ▪ To consist of: <ul style="list-style-type: none"> - Primary jaw crushing circuit, consisting of ROM bins, apron feeder, vibrating grizzly and C160 jaw crusher - Crushed ore stockpile with cover and associated conveyor and apron feeders - 18 MW SAG mill - Pebble crushing circuit - Cyclone cluster - Gravity circuit - Two 4,100 m³ leach tanks - Conversion of elution circuit to split-AARL - Electrowinning cells - Tailings thickener ▪ Layout of infrastructure to be in accordance with Schedule 1, Figure 2. ▪ All transfer points to be equipped with rubber sealing and skirting. ▪ Water sprays to be installed on the ROM bin. ▪ Dust extraction units (bag house) to be installed on jaw crusher discharge and screen discharge chute. ▪ All motors, pumps, crushers, drives and screens to be installed on bunded concrete hardstands. ▪ Leach tanks to be installed on bunded concrete hardstand. 	Schedule 1, Figure 2
		<ul style="list-style-type: none"> ▪ Stormwater diversion bund to be installed in the location outlined within Schedule 1, Figure 3. 	Schedule 1, Figure 3
		<ul style="list-style-type: none"> ▪ Toe drain to be installed around perimeter of the new stockpile/reclaim area to ensure sediment laden stormwater is captured. 	

	Infrastructure	Design and construction requirements	Infrastructure location
2.	Thunderbox Power Station expansion infrastructure	<ul style="list-style-type: none"> ▪ To consist of seven 2.5MW CAT G3520H gas powered generators. ▪ To be installed as per manufacturers specifications. ▪ Layout of infrastructure to be in accordance with Schedule 1, Figure 4. ▪ Power generators to be installed on concrete hardstand that is bunded and drains to an oil water separator. 	Schedule 1, Figure 4.

Compliance reporting

2. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 1 being constructed and/or installed:
 - (a) undertake an audit of their compliance with the requirements of condition 1; and
 - (b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.
3. The Environmental Compliance Report required by condition 2, must include as a minimum the following:
 - (a) certification by a suitably qualified and experienced Engineer that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;
 - (b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; and
 - (c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Environmental commissioning phase

Commencement and duration

4. The works approval holder may only commence environmental commissioning of the expanded Thunderbox Power Station infrastructure identified in condition 1 once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 2 of this works approval.
5. The works approval holder shall undertake environmental commissioning for the expanded Thunderbox Power Station infrastructure for a period of no longer than 3 months.

Monitoring during environmental commissioning

6. The Works Approval Holder shall undertake the monitoring specified in Table 2 during environmental commissioning of the expanded Thunderbox power station.

Table 2: Emission monitoring during environmental commissioning phase

Monitoring points	Parameter	Units ¹	Averaging period	Frequency	Method
Each new power generator stack 1-7	Volumetric flow rate	m ³ /s	Minimum 30 minutes	Monthly	USEPA Method 2
	NOx	mg/m ³			USEPA Method 7D or 7E
	Carbon monoxide (CO)				USEPA Method 10
	Sulphur dioxide (SO ₂)				USEPA Method 6C
	Particulates				USEPA Method 5 or 17

Note 1: All units are referenced to STP dry

7. The works approval holder must ensure that all monitoring equipment used to comply with condition 6 is calibrated in accordance with the manufacturer's specifications.
8. The works approval holder must ensure that all non-continuous sampling and analysis undertaken required by condition 6 is undertaken by a holder of NATA accreditation for the relevant methods of sampling and analysis.

Environmental commissioning report

9. The works approval holder must submit to the CEO an Environmental Commissioning Report within 14 calendar days of the completion date of environmental commissioning for the expanded Thunderbox power station infrastructure.
10. The works approval holder must ensure the Environmental Commissioning Report required by condition 9 of this works approval includes the following;
 - (a) a summary of the environmental commissioning activities undertaken, including timeframes;
 - (b) the point-source emissions monitoring results recorded in accordance with condition 6 with comparison against manufacturers expected stack emission rates.
 - (c) a review of the works approval holder's performance and compliance against the conditions of this works approval; and
 - (d) where they have not been met, measures proposed to meet the manufacturer's design specifications and the conditions of this works approval, together with timeframes for implementing the proposed measures.

Time limited operations phase

Commencement and duration

11. The Works Approval Holder may commence time limited operations for an item of infrastructure specified in Condition 1:
 - (a) where an item of infrastructure is not authorised to undertake environmental commissioning, the Environmental Compliance Report as required by condition 2 has been submitted by the works approval holder for that item of infrastructure; and

- (b) where an item of infrastructure is authorised for environmental commissioning under condition 4, the Environmental Commissioning Report for that item of infrastructure as required by condition 9 has been submitted by the works approval holder.
- 12.** The Works Approval Holder may conduct time limited operations for an item of infrastructure specified in condition 1:
- (a) For a period not exceeding 180 calendar days from the day the Works Approval Holder meets the requirements of condition 11 for that item of infrastructure; or
 - (b) Until such time as a Licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*.

Compliance reporting

- 13.** The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 30 calendar days before the expiration date of the works approval, whichever is the sooner.
- 14.** The works approval holder must ensure the report required by condition 13 includes the following:
- (a) a summary of the time limited operations, including timeframes and amount of ore processed;
 - (b) a review of performance and compliance against the conditions of the works approval; and
 - (c) where the manufacture's design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.

Records and reporting (general)

- 15.** The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:
- (a) the name and contact details of the complainant, (if provided);
 - (b) the time and date of the complaint;
 - (c) the complete details of the complaint and any other concerns or other issues raised; and
 - (d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.
- 16.** The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:
- (a) the works conducted in accordance with condition 1;
 - (b) complaints received under condition 15.
- 17.** The books specified under condition 16 must:
- (a) be legible;

- (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
- (c) be retained by the works approval holder for the duration of the works approval;
and
- (d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table have the meanings defined.

Table 3: Definitions

Term	Definition
annual period	a 12-month period commencing from 1 July until 30 June of the immediately following year.
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
environmental commissioning	means the sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	<i>Environmental Protection Act 1986</i> (WA).
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA).
monthly period	means a period of time that is at least 30 days apart
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1)

Term	Definition
	in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
Suitably qualified an experienced Engineer	means a person who: a) holds a Bachelor's degree recognised by Engineers Australia; and b) has a minimum of five years of experience working in a supervisory role in civil or structural engineering; and c) is employed by an independent third party external to the Works Approval Holder's business; or is otherwise approved in writing by the CEO to act in this capacity.
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in green on the map below (Figure 1).

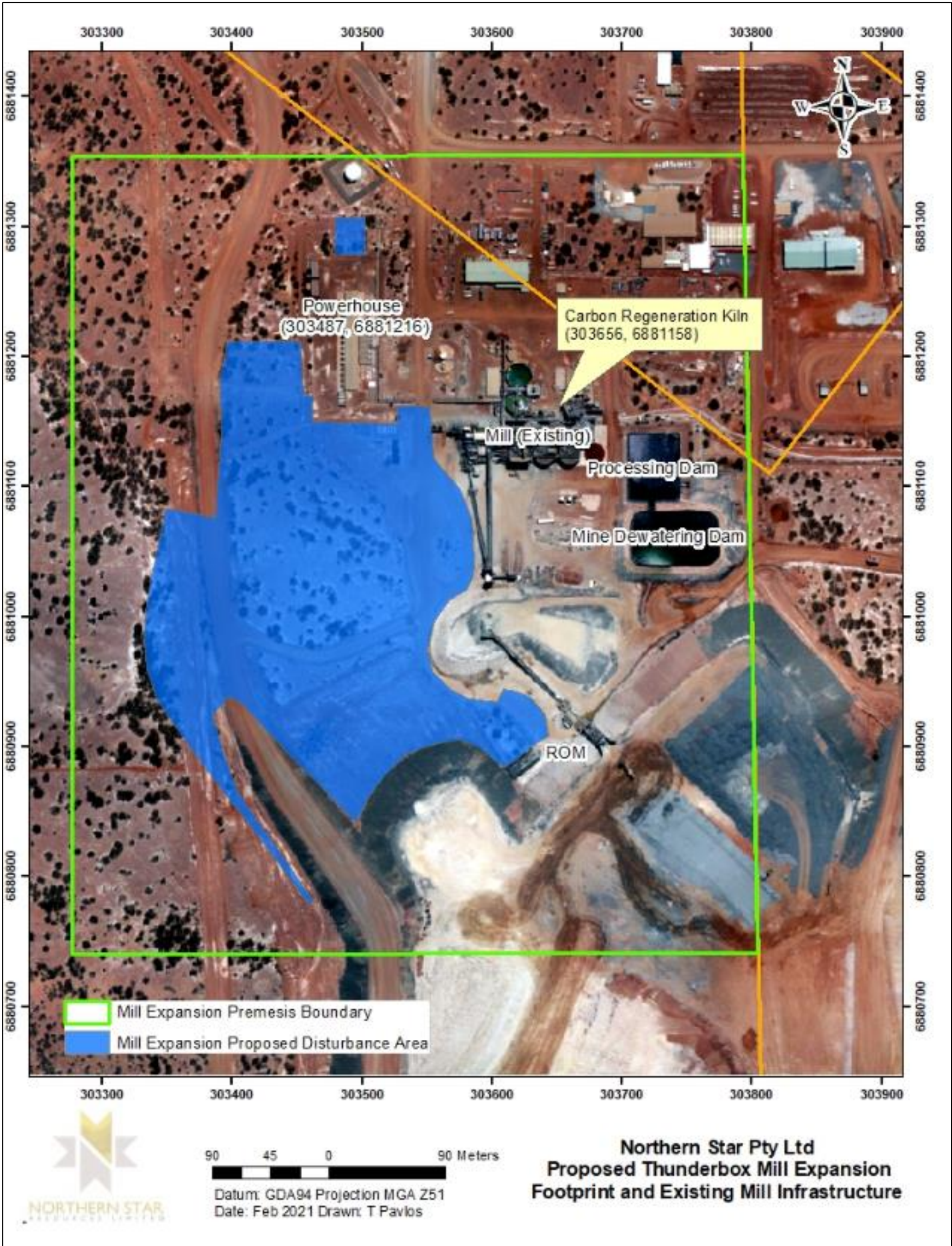


Figure 1: Map of the boundary of the prescribed premises

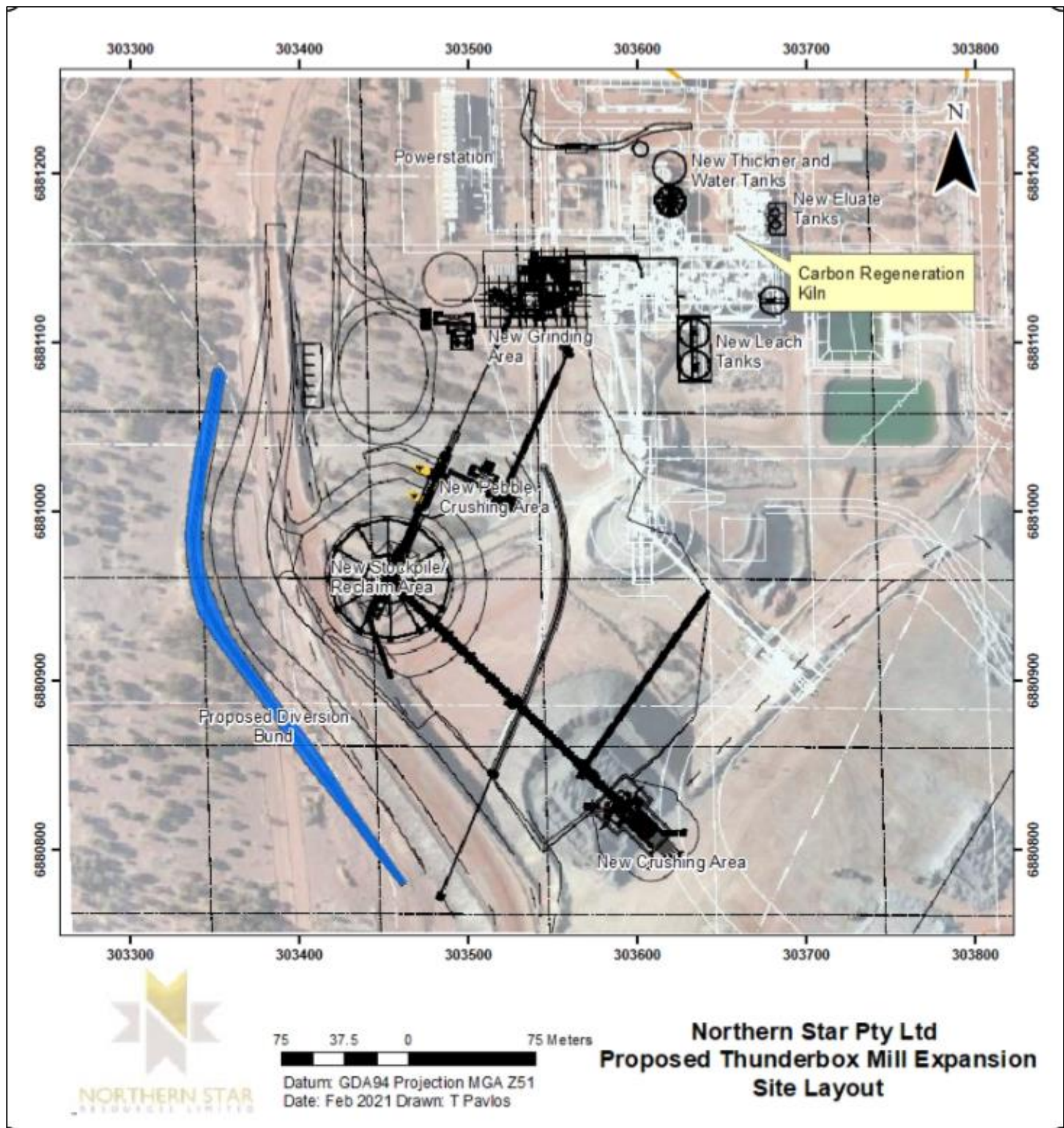


Figure 2: Map of Thunderbox Mill expansion infrastructure layout

