Calvale to Calliope River Transmission Line Reinforcement Project

Noise Impact Assessment Report

Final

July 2025

umwelt

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Prepared by
Umwelt (Australia) Pty Limited

On behalf of
Powerlink Queensland

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Executive Summary

Powerlink Queensland (Powerlink) is proposing to reinforce the Gladstone electricity network by constructing a new transmission line along an existing transmission infrastructure corridor located between the Calvale Substation near Biloela and the Calliope River Substation near Gladstone in Central Queensland. The Calvale to Calliope River Transmission Line Reinforcement Project (the Project) comprises a new double-circuit 275 kilovolt (kV) transmission line proposed to be developed mostly within the existing easement as well as the expansion of the Calliope River substation. Umwelt has been commissioned by Powerlink to conduct a noise impact assessment for the Project to support a Ministerial Infrastructure Designation (MID).

Key terminology used throughout this document include:

- **Study Area** – The Study Area extends from the Calvale Substation site to the Calliope River Substation site and includes the existing powerline easement with a varying buffer for each section. The Study Area covers approximately 14,293 hectares (ha) and extends for 87 kilometres (km)
- **Disturbance Footprint** – The area required to construct and operate the Project. This includes the transmission line, grid connection of the new transmission line to the Calvale Substation, expansion of the Calliope River substation, and other ancillary infrastructure (i.e. tower pads, access tracks, laydown areas, batch plants and brake and winch sites).
- **MID Proposal Area (MPA)** – Refers to the areas of the Project alignment that are not captured by an existing MID and therefore are the subject of the MID proposal. The MPA includes a small portion of Section A and Section E and larger areas of Section C and Section D.
- **MID Disturbance Area (MDA)** – Refers the disturbance footprint within the MPA. The MDA represents the extent of direct impacts (i.e., vegetation clearing) proposed for the MID proposal.

The existing acoustic environment in the area surrounding the MPA is predominantly rural and used for agricultural purposes. The area includes sparsely located sensitive receptors in the form of dwellings. In some localised areas along the MPA, particularly West Stowe and Callemondah, the existing acoustic environment also includes road, rail and air transportation noise, as well as industrial noise contribution from the various industries at Gladstone. The acoustic environment also includes noise emissions from the existing transmission infrastructure adjacent the MPA.

The ambient noise levels for Section C of the MPA would be characterised as a rural environment. Similarly, the ambient noise levels for Section D of the MPA would be characterised by a rural environment with localised increases in ambient noise levels in the vicinity of Calliope River Road and the North Coast Line. The ambient noise levels for Section E of the MPA would be characterised by an industrial environment with urban/suburban interface with the residential area of Clinton. Major industrial sources in the area include the Gladstone Power Station, Wiggins Island Coal Terminal and the Curtis Island LNG Facility.

A desktop assessment has been undertaken to assess the potential noise and vibration emissions from the construction and operational activities within the transmission corridor using representative equipment for the various tasks. The assessment has considered the potential impacts from nine construction scenarios and three operational and maintenance scenarios. The nine construction scenarios are representative of the various activities/phases that will be undertaken during the construction program. Similarly, the three operational and maintenance scenarios address the potential operational noise emissions from the transmission infrastructure itself as well as the periodic inspections and vegetation clearing tasks to be undertaken during the life of the project.

The assessment found the following conclusions:

- Construction noise levels have been modelled for a variety of representative construction scenarios, the modelling indicated that there will be elevated noise levels at sensitive receptors along the MPA during the construction program. The noise modelling indicated that consideration of reasonable and feasible mitigation measures during the construction phase will be necessary to minimise potential noise levels. The buffer distances for the various construction activities are as follows:
    - The Clear and Grub, Construction of Access Tracks, and Foundation Excavations activities had similar buffer distances ranging from 750 m to 870 m. There are approximately 16 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
    - The Stub Set and Form, and Transmission Tower Assembly and Erection activities had similar buffer distances ranging from 120 m to 230 m. There are no residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
    - The Batch Plant, Laydown Areas and Rehabilitation activities had similar buffer distances ranging from 340 m to 470 m. There are approximately 4 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
    - The Stringing activity had a buffer distance of 2,750 m. There are approximately 449 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
- Potential construction vibration levels were evaluated for safe working buffer distances for a variety of equipment.
- Operational and maintenance noise levels have been predicted and assessed as follows:
    - The potential noise emissions related to Corona Discharge along the MPA are predicted to achieve the day and evening limit of 40 dB(A) and the night-time limit of 35 dB(A) at the nearest sensitive residential receptors.
    - The potential noise emissions from helicopter inspections during the maintenance of the transmission corridor and is predicted to have a buffer distance of 2,730 m. This distance indicates that helicopter inspections have the potential to generate elevated noise levels at sensitive receptors along the MPA. Based on the prediction results there are approximately 441 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A). The helicopter inspections are anticipated to occur every two to four years, given that potential noise impacts are infrequent, temporary and limited to daytime only there is unlikely to be any residual impact on the acoustic amenity for the community.

- The potential noise emissions from vegetation clearing inspections during the maintenance of the transmission corridor and is predicted to have a buffer distance of 440 m. This distance indicates that the vegetation management activities have the potential to generate elevated noise levels at sensitive receptors along the MDA. Based on the prediction results, there are approximately 3 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A). These activities are anticipated to occur every two to four years, given that potential noise impacts are infrequent, temporary and limited to daytime only there is unlikely to be any residual impact on the acoustic amenity for the community.

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1.0 Introduction

Powerlink Queensland (Powerlink) is proposing to reinforce the Gladstone electricity network by constructing a new transmission line along an existing transmission infrastructure corridor between Calvale Substation and Calliope River Substation in Central Queensland. The Calvale to Calliope River Transmission Line Reinforcement Project (the Project) comprises a new double-circuit 275 kilovolt (kV) transmission line proposed to be developed mostly within the existing easement as well as the expansion of the Calliope River substation.

Umwelt has been commissioned by Powerlink to prepare a noise and vibration impact assessment for the Project for the proposed Ministerial Infrastructure Designation (MID). This assessment will support Powerlink's application to seek a MID from the Minister for State Development, Infrastructure, and Planning.

1.1 Project Background

In preparation for transitioning the electricity network to renewable supply, Powerlink has identified constraints for the Gladstone transmission grid. To ensure the future security of electricity supply to the Gladstone area, the existing transmission infrastructure corridor between the Calvale Substation and Calliope River Substation is to be strengthened with the establishment of a new transmission line. The Calliope River Substation will also be required to be expanded to accommodate this new connection however the expansion is sited within an existing designation and is therefore not subject to this MID proposal.

The proposed transmission line is approximately 87 kilometres (km) in length and will be co-located within existing spare easements for most of its route, with a widened easement to be acquired for a portion of the alignment.

The Project is the first of a collection of projects which have been identified as Priority Transmission Investments (PTI) and collectively referred to as the 'Gladstone Project'. The primary purpose of the Gladstone Project is the reinforcement of the Gladstone network to support decarbonisation in the region and also provides some incremental renewable connection capacity.

1.2 Assessment Aims and Scope

The aim of this report is to describe the acoustic values known or likely to occur within the Study Area and MID Proposal Area (MPA). For activities occurring within the MPA, this report assesses the impacts of the Project on acoustic values, and presents strategies to avoid, minimise or mitigate potential impacts.

To support the MID proposal for the Project, this assessment included the following tasks:

- A desktop review of the Study Area and MPA.
- Noise and vibration modelling of potential construction-related emissions.
- Noise modelling of potential operational and maintenance related emissions.
- Assessment of potential noise and vibration impacts onto the acoustic values.
- Consideration of mitigation and management strategies to minimise potential impacts onto the acoustic values.

2.0 Project Description

Umwelt, on behalf of Powerlink, is seeking a MID from the Minister of the Department of State Development, Infrastructure and Planning (DSDIP) for the Project. The Project extends from the Calvale Substation near Biloela to the Calliope River Substation near Gladstone in Central Queensland and traverses both the Gladstone Regional and Banana Shire Local Government Areas (LGA). The Project runs parallel with existing Powerlink transmission infrastructure and is split into five sections for assessment purposes as detailed in **Table 2.1**. For a full description of the Project, including construction activities and methodologies, please refer to the MID Proposal Report.

Table 2.1 Project Sections

Section	Start of section	End of section	Approximate length	Existing Powerlink infrastructure
Section A	-24.3418, 150.6270	-24.3268, 150.6560	3.5 km	132 kV and 275 kV lines Calvale substation
Section B	-24.3268, 150.6560	-23.9344, 150.9174	51.5 km	One 275 kV line
Section C	-23.9344, 150.9174	-23.9230, 151.0733	16 km	Two 275 kV lines
Section D	-23.9230, 151.0733	-23.8484, 151.1754	13.5 km	One 275 kV line
Section E	-23.8484, 151.1754	-23.8580, 151.1943	2 km	Two 275 kV lines Calliope River substation

A large portion of the Project is contained within approved MIDs. Works to be undertaken within the approved MIDs are categorised as *accepted development* in accordance with section 44(6)(b) of the Planning Act 2016 (Planning Act). The assessment of impacts therefore focuses on the areas of the Project that fall outside of the approved MIDs (the MID proposal). The MID proposal captures a small portion of Section A and Section E and larger areas of Section C and Section D.

The MID proposal is likely to comprise the following components:

- A new double circuit, 275 kilovolt (kV) transmission line within a 60 metre (m) wide easement.
- Steel lattice towers (up to 66 m in height).
- Brake and winch sites.
- Laydown areas.
- Concrete batching plants.
- A mobile site office.
- Upgrades to existing access tracks.

The Project area boundaries referred to throughout this report are defined as follows:

- **Study Area** – The Study Area extends from the Calvale Substation site to the Calliope River Substation site and includes the existing powerline easement with a varying buffer for each section. The Study Area covers approximately 14,293 hectares (ha) and extends for 87 kilometres (km)
- **Disturbance Footprint** – The area required to construct and operate the Project. This includes the transmission line, grid connection of the new transmission line to the Calvale Substation, expansion of the Calliope River substation, and other ancillary infrastructure (i.e. tower pads, access tracks, laydown areas, batch plants and brake and winch sites)
- **MID Proposal Area (MPA)** – Refers to the areas of the Project alignment that are not captured by an existing MID and therefore are the subject of the MID proposal. The MPA includes a small portion of Section A and Section E and larger areas of Section C and Section D.
- **MID Disturbance Area (MDA)** – Refers the disturbance footprint within the MPA. The MDA represents the extent of direct impacts (i.e., vegetation clearing) proposed for the MID proposal.

2.1 Study Area

The Study Area covers approximately 14,293 ha and extends for 87 km. It is 800 metres (m) on each side of the transmission line in Sections A-D, 100 m around Section E, and 100 m around an additional laydown area proposed approximately 1 km north of Section B (**Error! Reference source not found.**).

The Study Area is located within two local government areas: Banana Shire and Gladstone Region (**Figure 2.1**). Given the largely narrow and linear nature of both the Study Area and Disturbance Footprint, subsequent figures have been spilt into five zones so greater detail can be displayed. **Figure 2.2** provides an overview of the five zones relevant to the Study Area which are labelled by section 'A-E'.

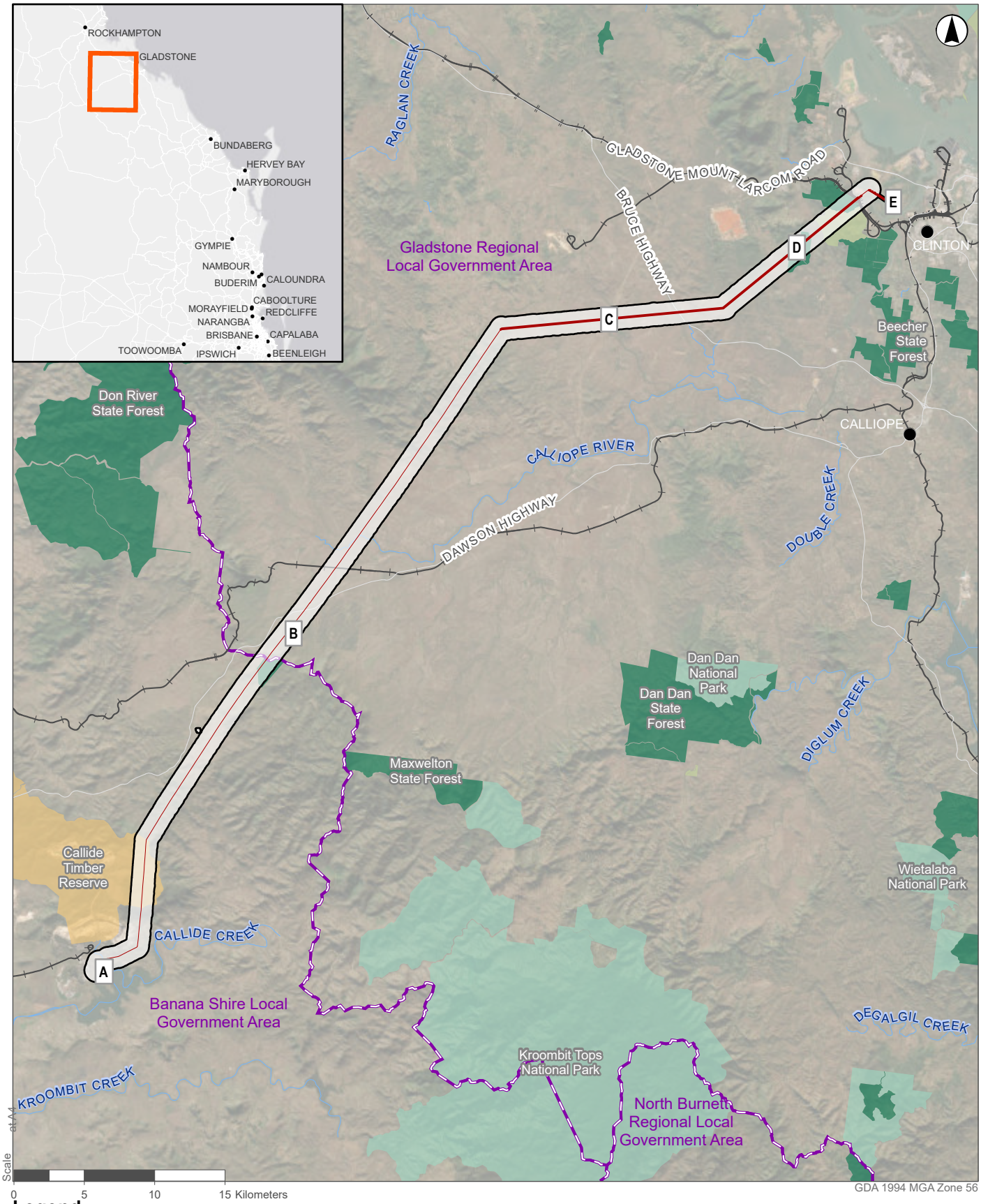
Topography, land use and vegetation are highly variable throughout the Study Area. The Study Area intersects several small ranges including the Callide and Calliope ranges as well as multiple rivers and creeks. Land use across the Study Area is adjacent to or includes mineral extraction, agriculture (primarily grazing) and industry. Vegetation is a mosaic of remnant and regrowth forests and woodlands interspersed by cleared grassy areas with mangroves and saltmarsh at the eastern extent of the Study Area.

Land uses in each section of the Study Area is detailed in **Table 2.2**.

Table 2.2 Land Use Within and Surrounding the Study Area

Section	Land Use
Section A	Section A comprises land used for grazing, intensive uses (recreation and culture), conservation and natural environments and reservoir/dam. Section A includes the Calvale Substation and associated transmission infrastructure, located within Lot 1 CP890133. Other land uses surrounding Section A include: • Callide Mine (approximately 1 km to the north) • Lake Callide (located 350 m south) • Callide Dam (located 350 m south)

Section	Land Use
	• Callide A Power Station (located 300 m north) • Callide B Power Station (located 250 m west) • Biloela-Callide Road (located along the northern boundary of Section A).
Section B	Section B comprises land used for grazing, production forestry, plantation forestry and other minimal use (conservation). Section B includes one existing Powerlink 275 kV transmission line. Land uses surrounding Section B include: • Callide Mine (ML6993 intersects Section B) • Callide Timber Reserve (intersecting Section B to the south) • Calliope Range State Forest (intersecting Section B in the centre) • Pipeline infrastructure operated by APA WGP Pty Ltd, Santos Limited and Australia Pacific LNG Gladstone Pipeline Pty Limited (intersecting Section B) • Dawson Highway (intersecting the centre of Section B) • Moura System Railway (intersecting the centre of Section B).
Section C	Section C primarily comprises land used for grazing with small areas of transport and communication. Two 275 kV Powerlink transmission lines exist within the Study Area, which are not designated. Land uses surround Section C include: • Pipeline infrastructure operated by Jemena Gas Pipelines Holdings Pty Ltd, APA WGP Pty Ltd, Santos Limited and Australia Pacific LNG Gladstone Pipeline Pty Limited (intersecting Section C) • Bruce Highway (intersecting Section C).
Section D	Section D comprises land used for grazing, production native forests, intensive uses, residential and other minimal use (conservation). Section D includes one existing Powerlink 275 kV transmission line. Land uses surrounding Section D include: • Calliope Conservation Park (intersecting Section D to the north) • Mount Stowe State Forest (intersecting Section D to the north) • Rio Tinto Yarwun Alumina Refinery (located 3 km north) • North Coast Line (intersecting the north of Section D).
Section E	Section E comprises land used for conservation and natural environments, mining, other minimal use (conservation) and tidal areas. Section E includes the Calliope River Substation and associated transmission infrastructure, located within Lot 113 CTN799. Land uses surrounding Section E include: • Gladstone Power Station (located 1 km south) • Wiggins Island Coal Terminal (located 2.5 km north) • Curtis Island and LNG Facility (located 8 km north).



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Legend

- Study Area Boundary
- MID Proposal Area (MPA)
- Local Government Area (LGA)
- Town
- Major Watercourses
- Major Roads

Protected Areas

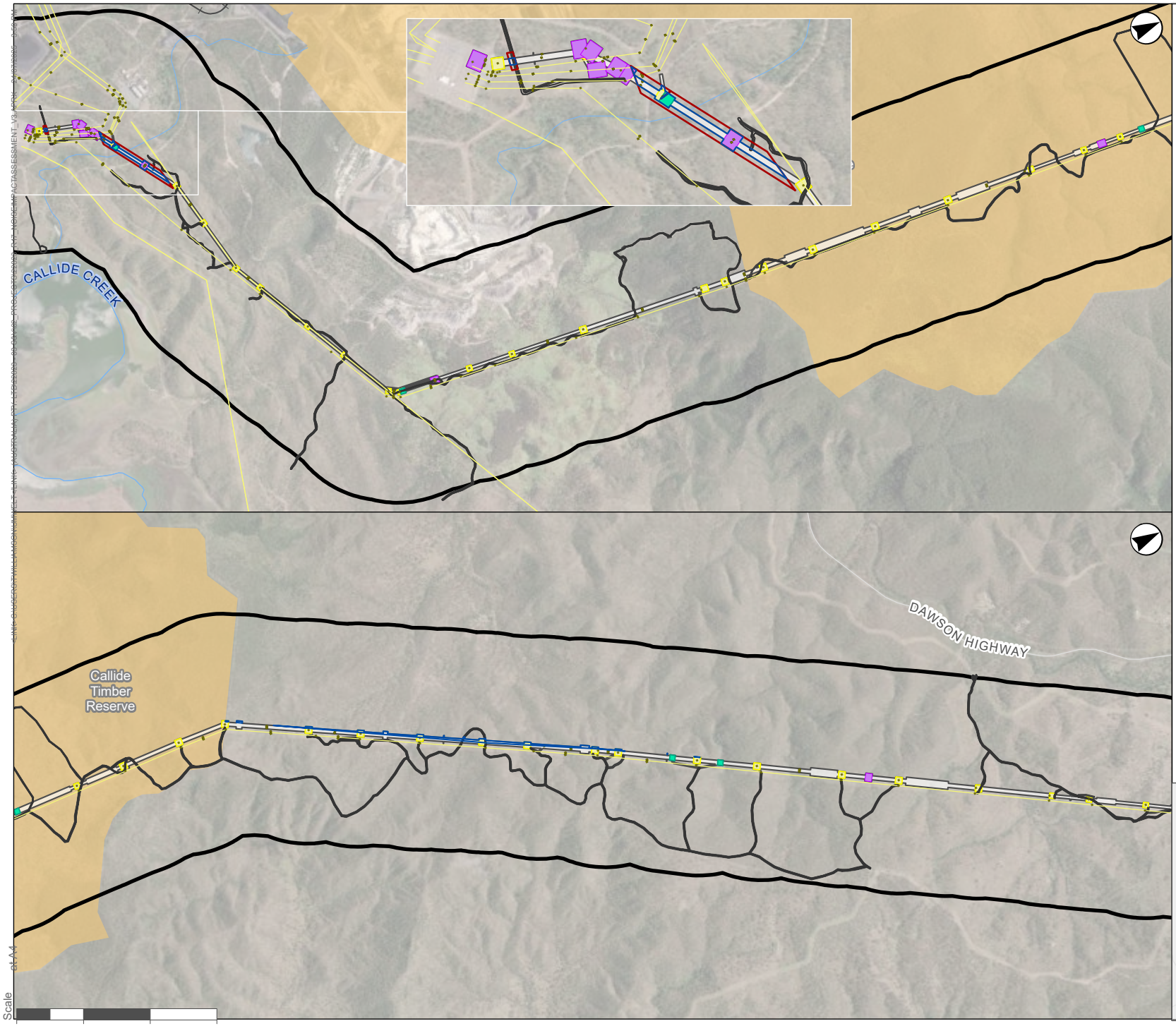
- Conservation Park
- National Park
- Resources Reserve
- State Forest
- Timber Reserve

POWERLINK - CALVALE TO CALLOPE RIVER

FIGURE 2.1

Study Area Boundary

Image Source: ESRI Maps (2020) **Data source:** QSpatial (2020)



POWERLINK
CALVALE TO CALLOPE RIVER

Legend

- Watercourse
- Railway
- Disturbance Footprint
- MID Proposal Area (MPA)
- MID Disturbance Area (MDA)
- Study Area Boundary
- Access Tracks
- Batching Plant
- Conductors
- Laydown Areas
- Brake and Winch Sites
- Tower Pad

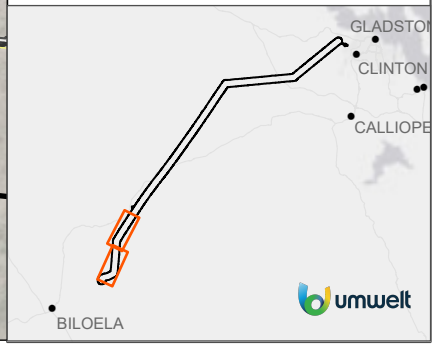
Existing Transmission Line and Association Infrastructure

- Existing Tower
- Existing Feeder

Protected Areas

- Timber Reserve

FIGURE 2.2 A
Disturbance Footprint



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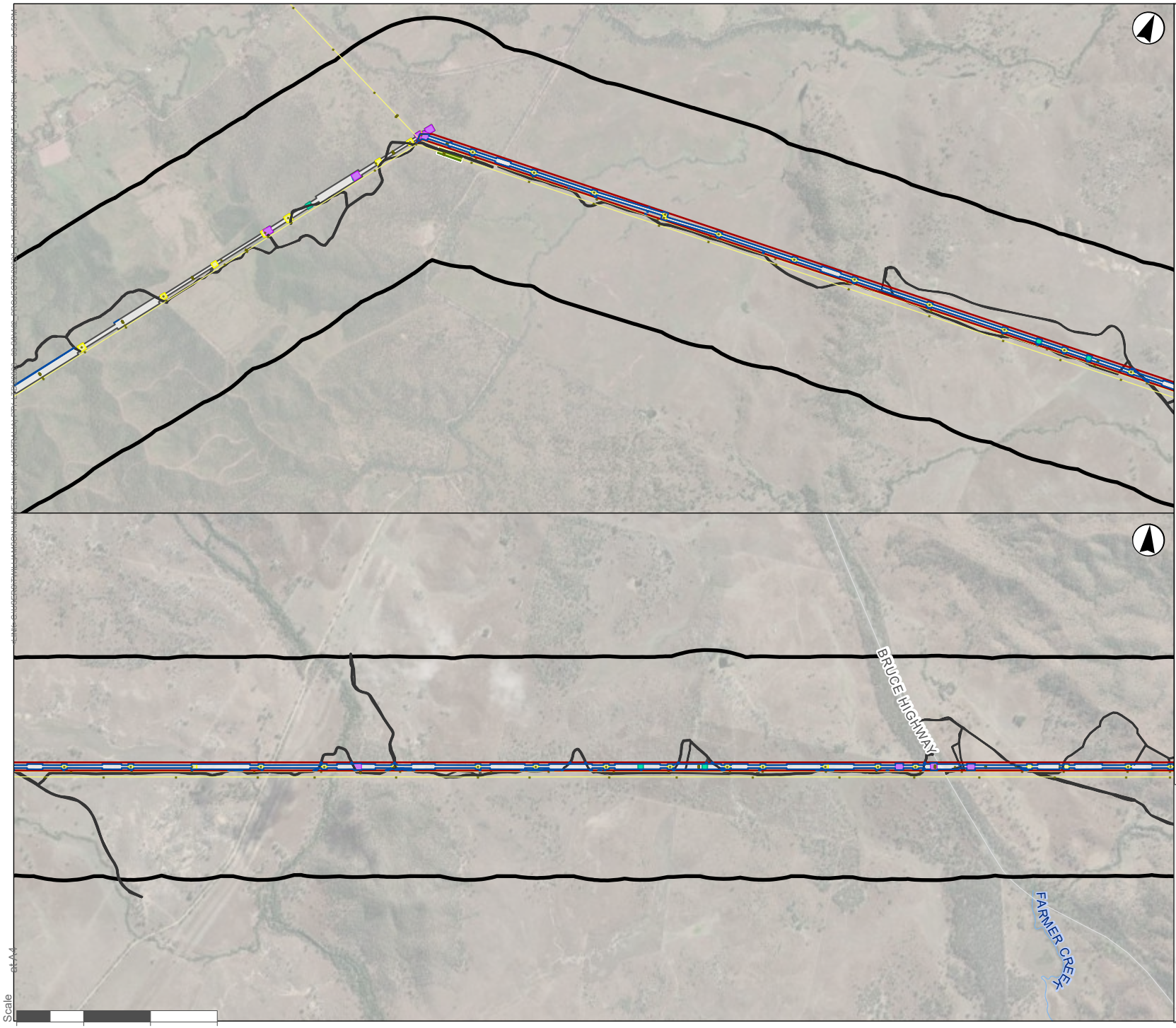
GDA 1994 MGA Zone 56

Image Source: ESRI Maps (2020) **Data source:** QSpatial (2020)



POWERLINK
CALVALE TO CALLOPE RIVER

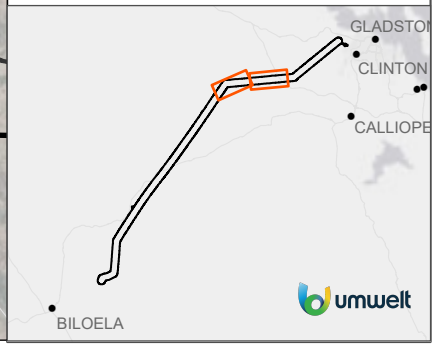
Legend

- Disturbance Footprint
- MID Proposal Area (MPA)
- MID Disturbance Area (MDA)
- Study Area Boundary
- Access Tracks
- Batching Plant
- Conductors
- Laydown Areas
- Brake and Winch Sites
- Tower Pad

Existing Transmission Line and Association Infrastructure

- Existing Tower
- Existing Feeder

FIGURE 2.2 B
Disturbance Footprint

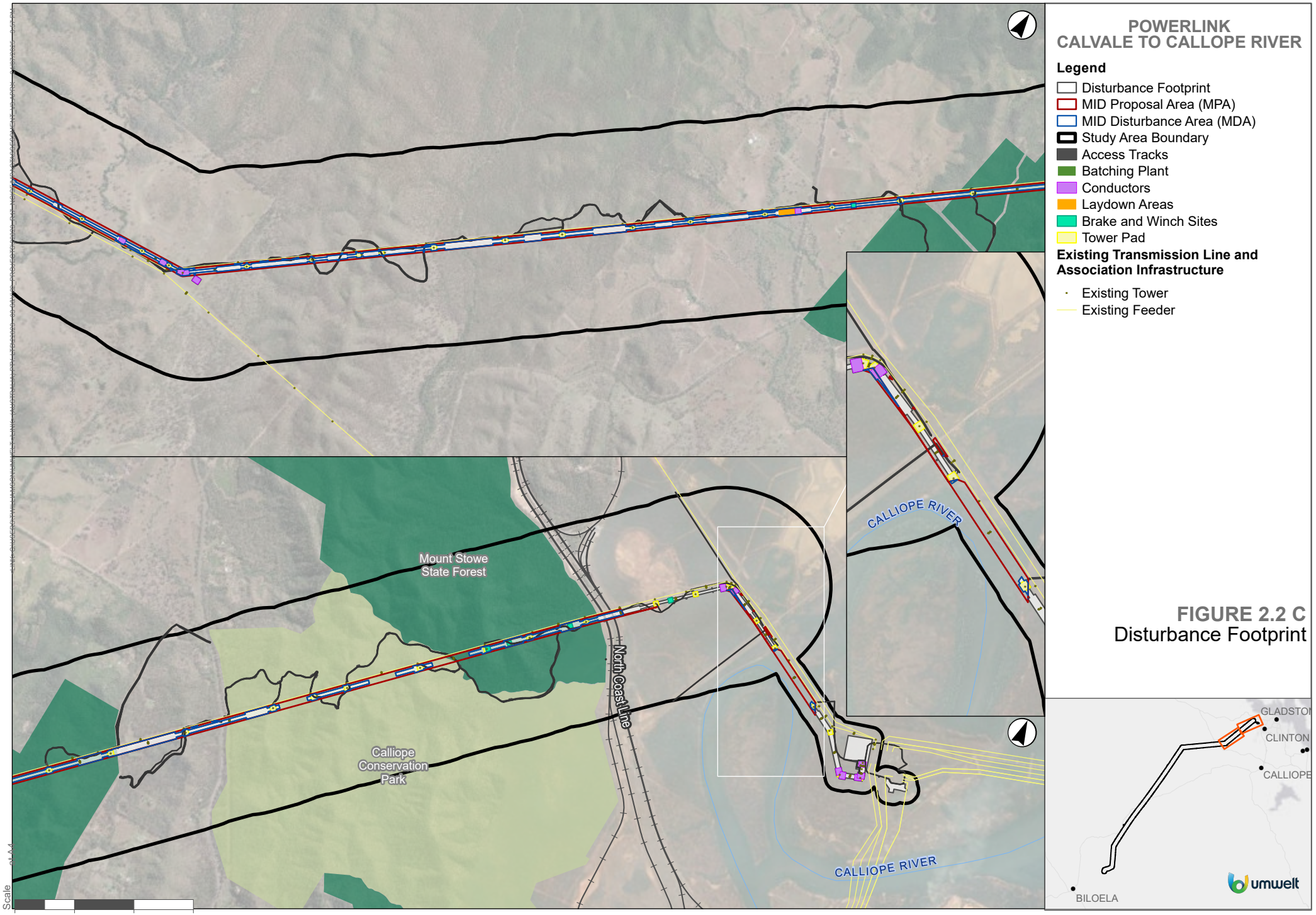


1:40,000 Scale at A4

0 500 1,000 1,500 Meters

GDA 1994 MGA Zone 56

Image Source: ESRI Maps (2020) **Data source:** QSpatial (2020)



POWERLINK
CALVALE TO CALLOPE RIVER

Legend

- Disturbance Footprint
- MID Proposal Area (MPA)
- MID Disturbance Area (MDA)
- Study Area Boundary
- Access Tracks
- Batching Plant
- Conductors
- Laydown Areas
- Brake and Winch Sites
- Tower Pad

Existing Transmission Line and Association Infrastructure

- Existing Tower
- Existing Feeder

FIGURE 2.2 C
Disturbance Footprint

1:40,000 Scale at A4

0 500 1,000 1,500 Meters

GDA 1994 MGA Zone 56

Image Source: ESRI Maps (2020) **Data source:** QSpatial (2020)

2.2 Disturbance Footprint

The Project components and their clearing requirements that make up the Disturbance Footprint are outlined in **Table 2.3**. The Disturbance Footprint totals 356.66 hectares (ha) and represents the extent of direct impacts (i.e. vegetation clearing) for all Project elements. This area represents a worst-case clearing scenario.

2.2.1 MID Proposal Area (MPA)

The MID Proposal Area (MPA) totals 177.5 ha and refers to the areas of the Project alignment that are not captured by an existing designation and are therefore the subject of the MID proposal. The MPA includes a small portion of Section A and Section E and larger areas of Section C and Section D.

2.2.2 MID Disturbance Area (MDA)

The MID Disturbance Area (MDA) totals 93.6 ha and represents the disturbance footprint within the MPA.

The Disturbance Footprint, MPA and MDA is displayed on **Figure 2.2** and are labelled by section **'A–E'**.

Table 2.3 Project Components

Project Component	Clearing Requirements
Transmission line	Transmission line spans are categorised into the following categories: • High risk. • Low risk. • Utilise 8 m vertical and 7 m horizontal clearance of conductor. High risk spans: • 60 m wide clearing in the mid-span which can be determined from Power Line Systems - Computer Aided Design and Drafting (PLS-CADD) and violation vegetation • 30 m wide clearing in the areas between tower pad and mid-span clearing • areas of no clearing (where vegetation can be spanned) – air gap between top of vegetation and bottom of conductor must be a minimum of 1.5 times the height of the vegetation (trees must be at mature height). Low risk spans: • 50 m wide clearing in the mid-span which can be determined from PLS-CADD and violation vegetation • 24 m wide clearing in the areas between tower pad and mid-span clearing • areas of no clearing (where vegetation can be spanned) – air gap of 10 m between top of vegetation and bottom of conductor (trees must be at mature height).
Tower pads	• High risk – 50 x 50 m. • Low risk – 40 x 40 m. • All towers above 50 m in height to be treated as high risk.
Access tracks	14 m maximum clearing width.
Laydown areas	60 x 200 m.
Batch plants	60 x 200 m.
Conductor brake and winch sites	60 x 50 m.
Conductor and earth wire (OPGW) brake and winch sites	40 x 40 m.

3.0 Existing Environment

The area surrounding the MPA is predominantly rural and used for agricultural purposes and includes sparsely located sensitive receptors in the form of dwellings. In some localised areas along the MPA study area, particularly West Stowe and Callemondah, the acoustic environment also includes road, rail and air transportation noise, as well as industrial noise contribution from the various industries at Gladstone. The acoustic environment immediately along the MPA also includes noise emissions from the existing transmission infrastructure adjacent the MPA.

The ambient noise levels for Section C of the MPA would be characterised as a rural environment. Similarly, the ambient noise levels for Section D of the MPA would be characterised by a rural environment with localised increases in ambient noise levels in the vicinity of Calliope River Road and the North Coast Line. The ambient noise levels for Section E of the MPA would be characterised by an industrial environment with urban/suburban interface with the residential area of Clinton.
Major industrial sources in the area include the Gladstone Power Station, Wiggins Island Coal Terminal and the Curtis Island LNG Facility.

4.0 Assessment Methodology

4.1 Desktop Assessment

A desktop assessment has been undertaken to assess the potential noise and vibration emissions from the construction and operational activities from the project using representative equipment for the various tasks. This assessment has primarily focused on the potential impacts arising from activities in Sections C, D and E, while the potential impacts from activities in Section A of the MPA have not been considered further due to the small disturbance area and large separation distance to the nearest sensitive receptors (approximately 1,500 m and greater).

4.2 Modelling Methodology

Prediction of the operation and construction noise levels was undertaken with the proprietary noise modelling software SoundPLAN version 9.1, using the CONCAWE noise prediction algorithms.
The construction and operational noise impacts were predicted based on noise source emissions for representative plant and equipment. The noise models were constructed incorporating 3-dimensional terrain for the area based on the 1-second Shuttle Radar Topography Mission (SRTM) Digital Elevation Model. A ground absorption factor of 0.75 has been adopted for the models. To represent worst-case results, downwind noise enhancing meteorological conditions were modelled and are represented by:

- neutral conditions: Atmospheric Stability Class ‘D’, wind speed 3 m/s; or equivalent
- temperature inversion conditions: Atmospheric Stability Class ‘F’, wind speed 2 m/s.

The potential vibration impacts have been assessed with consideration of safe working distances for a variety of typical vibration-inducing plant and equipment.

5.0 Noise and Vibration Criteria

5.1 Overview

Noise criteria applicable to the project have been drawn from the following legislation and associated guidelines:

- *Environment Protection Act 1994* (EP Act)
- Environment Protection Regulation 2019 (EP Reg)
- Environment Protection (Noise) Policy 2019 (EPP(Noise))

For the assessment of potential vibration impacts, guidance has been drawn from the following:

- New South Wales Department of Environment and Conservation's *Assessing Vibration: A Technical Guideline* (the Vibration Guideline)
- New South Wales Roads and Maritime Services' *Construction Noise and Vibration Guideline* (CNVG)
- British Standard BS7385 (1993) – Part 2 *Evaluation and measurement of vibration in buildings* (BS7385)
- German Institute for Standardisation DIN 4150-3:1999-02 *Structural vibration – Effects of vibration on structures* (DIN4150).

5.2 Noise Criteria

5.2.1 Environment Protection Act 1994

The object of the EP Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).

Section 440R of the EP Act also nominates a default noise standard relating to construction noise emissions as follows:

440R Building work

- *(1) A person must not carry out building work in a way that makes an audible noise—*
  - *(a) on a business day or Saturday, before 6.30a.m. or after 6.30p.m; or*
  - *(b) on any other day, at any time.*
- *(2) The reference in subsection (1) to a person carrying out building work—*
  - *(a) includes a person carrying out building work under an owner-builder permit; and*
  - *(b) otherwise does not include a person carrying out building work at premises used by the person only for residential purposes.*

It is also noted that under Schedule 1 Part 1 Section 2(b)(ii) of the EP Act, that contravening a noise standard in the course of maintaining public infrastructure, including an electricity system, is excluded from being deemed an environmental nuisance.

5.2.2 Environment Protection Regulation 2019

The EP Reg nominates the environmental objectives and performance outcomes in relation to operational noise emissions.

Table 5.1 Environment Protection Regulation 2019 – Environmental Objective and Performance Outcome related to Noise

Environmental Objective	Performance Outcome
The activity will be operated in a way that protects the environmental values of the acoustic environment.	1. Sound from the activity is not audible at a sensitive receptor. 2. The release of sound to the environment from the activity is managed so that adverse effects on environmental values, including health and wellbeing and sensitive ecosystems, are prevented or minimised.

The noise emissions from the project will likely be audible at some sensitive receptors and therefore consideration of the effects on the environmental values under Item 2 of the Performance Outcome is necessary.

5.2.3 Environment Protection (Noise) Policy 2019

The purpose of the EPP(Noise) is to achieve the object of the EP Act in relation to the acoustic environment, and is achieved by:

(a) identifying and declaring the environmental values of the acoustic environment; and

(b) stating acoustic quality objectives that are directed at enhancing or protecting the environmental values; and

(c) providing a framework for making consistent, equitable and informed decisions that relate to the acoustic environment.

The environmental values to be enhanced or protected under this policy are—

(a) the qualities of the acoustic environment that are conducive to protecting the health and biodiversity of ecosystems; and

(b) the qualities of the acoustic environment that are conducive to human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to do any of the following—

(i) sleep;

(ii) study or learn;

(iii) be involved in recreation, including relaxation and conversation; and

(c) the qualities of the acoustic environment that are conducive to protecting the amenity of the community.

The EPP(Noise) nominates the Acoustic Quality Objectives (AQO) for a variety of sensitive receptor types are presented in **Table 5.2**.

Table 5.2 EPP(Noise) Acoustic Quality Objectives for Sensitive Receptors

Sensitive receptor	Time of day	Acoustic quality objectives (measured at the receptor) dB(A)			Environmental value
		$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$	
residence (for outdoors)	daytime and evening	50	55	65	health and wellbeing
residence (for indoors)	daytime and evening	35	40	45	health and wellbeing
	night-time	30	35	40	health and wellbeing, in relation to the ability to sleep
library and educational institution (including a school, college and university) (for indoors)	when open for business or when classes are being offered	35			health and wellbeing
childcare centre or kindergarten (for indoors)	when open for business, other than when the children usually sleep	35			health and wellbeing
childcare centre or kindergarten (for indoors)	when the children usually sleep	30			health and wellbeing, in relation to the ability to sleep
school or playground (for outdoors)	when the children usually play outside	55			health and wellbeing, and community amenity
hospital, surgery or other medical institution (for indoors)	visiting hours	35			health and wellbeing
hospital, surgery or other medical institution (for indoors)	anytime, other than visiting hours	30			health and wellbeing, in relation to the ability to sleep
commercial and retail activity (for indoors)	when the activity is open for business	45			health and wellbeing, in relation to the ability to converse
protected area or critical area	anytime	the level of noise that preserves the amenity of the existing area or place			health and biodiversity of ecosystems
marine park	anytime	the level of noise that preserves the amenity of the existing marine park			health and biodiversity of ecosystems

Sensitive receptor	Time of day	Acoustic quality objectives (measured at the receptor) dB(A)			Environmental value
		$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$	
park or garden that is open to the public (whether or not on payment of an amount) for use other than for sport or organised entertainment	anytime	the level of noise that preserves the amenity of the existing park or garden			community amenity

Notes:

Daytime means the period after 7 am on a day to 6 pm on the day.

Evening means the period after 6 pm on a day to 10 pm on the day.

Night-time means the period after 10 pm on a day to 7 am on the next day.

The EPP(Noise) describes the management hierarchy for noise emissions as follows:

(1) This section states the management hierarchy for an activity involving noise that affects, or may affect, an environmental value to be enhanced or protected under this policy.

(2) To the extent it is reasonable to do so, noise must be dealt with in the following order of preference—

(a) firstly—avoid the noise;

(b) secondly—minimise the noise, in the following order—

(i) firstly—orientate an activity to minimise the noise;

(ii) secondly—use best available technology to minimise the noise;

(c) thirdly—manage the noise.

The EPP(Noise) describes the management intent for noise as follows:

(1) This section states the management intent for an activity involving noise that affects, or may affect, an environmental value to be enhanced or protected under this policy.

(2) To the extent it is reasonable to do so, noise must be dealt with in a way that ensures—

(a) the noise does not have any adverse effect, or potential adverse effect, on an environmental value under this policy; and

(b) background creep in an area or place is prevented or minimised.

(3) Despite subsection (2)(b), if the acoustic quality objectives for an area or place are not being achieved or maintained, the noise experienced in the area or place must, to the extent it is reasonable to do so, be dealt with in a way that progressively improves the acoustic environment of the area or place.

(4) In this section— background creep, for noise in an area or place, means a gradual increase in the total amount of background noise in the area or place as measured under the document called the 'Noise measurement manual' published on the department's website.

5.2.4 Summary Noise Criteria

5.2.4.1 Construction

As construction activities are temporary and occur during standard daytime hours, it is proposed to adopt the EPP(Noise) AQO for Residences (for outdoors) of 50 dBA $L_{Aeq,adj,1hr}$ as a noise management level for the assessment of potential construction-related noise impacts and represent a benchmark for the consideration of reasonable and feasible mitigation measures and management strategies.

5.2.4.2 Operation and Maintenance

The operational activities represent a long-term activity that may occur during the day, evening or night periods, therefore it is proposed to adopt the EPP(Noise) AQO's for Residences (for indoors) and modify them to external noise limit as follows:

- Day and Evening: 40 dB(A) $L_{Aeq,adj,1hr}$ (based 35 dB(A) indoors plus 5 dB façade reduction).
- Night: 35 dB(A) $L_{Aeq,adj,1hr}$ (based 30 dB(A) indoors plus 5 dB façade reduction).
- Note: The indoor noise levels have been corrected to an external noise level allowing for 5 dB(A) noise reduction across the building façade in accordance with the *EcoAccess Guideline: Planning for Noise Control*. Typically, the reduction achieved across a semi-open façade is in the order of 5 dB(A) to 10 dB(A). In a contemporary setting, a correction of 5 dB(A) is commonly adopted as a conservative outcome.

As noted in the project description, there are temporary maintenance-related activities which are likely to occur every two to four years. Given that these activities are temporary, infrequent and during the daytime only, it is proposed to adopt the EPP(Noise) AQO for Residences (for outdoors) of 50 dBA $L_{Aeq,adj,1hr}$ as a noise management level for the assessment of potential maintenance-related noise impacts.

5.3 Vibration Criteria

5.3.1 Vibration Effects on Structures

Criteria for vibration effects on building structures recommended in the Department of Environment and Conservation's (DEC) *Assessing Vibration: A Technical Guideline* (the vibration guideline) are given in British Standard BS7385 (1993) – Part *2 Evaluation and measurement of vibration in buildings* (BS7385). The criteria in BS7385 are given in terms of peak component (x-, y- or z-axes separately) vibration velocity values from transient (impulsive) vibration events. The criteria for continuous vibration are recommended to be 50% lower than for impulsive vibration. The vibration criteria for the protection of structures and buildings from cosmetic damage (e.g. hairline cracks in drywalls, etc.) are given in **Table 5.3**.

Table 5.3 BS 7385 Vibration Criteria for Cosmetic Damage to Structures (peak vibration velocity, mm/s)

Type of Structure	Peak Component Particle Velocity (mm/s)		
	4 Hz–15 Hz	15 Hz–40 Hz	40 Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings	50 (transient (impulsive) vibration) 25 (continuous vibration)		
Un-reinforced or light framed structures.	15–20 (transient (impulsive) vibration)	20–50 (transient (impulsive) vibration)	50 (transient (impulsive) vibration)
Residential or light commercial type buildings.	7.5–10 (continuous vibration)	10–25 (continuous vibration)	25 (continuous vibration)

5.3.2 Heritage Protected Structures

Assessment guidelines for vibration damage to heritage-protected structures are commonly referenced from the German Institute for Standardisation DIN 4150-3:1999-02 *Structural vibration – Effects of vibration on structures* (DIN4150). This standard differentiates between short-term and long-term vibration, where short-term vibration is caused by sources such as drop-hammers, impact piling, etc. All other sources of vibration are considered to be long-term.

The guideline value for heritage-protected structures for long-term vibration is 2.5 mm/s peak particle velocity (PPV) in the horizontal plane at all frequencies. This guideline value is primarily intended for older, sensitive, above-ground structures (typically buildings).

5.3.3 Human Perception of Vibration

Criteria for the human perception of vibration from construction activities are given in the *Assessing Vibration: A Technical Guideline* (the Vibration Guideline). The criteria in the vibration guideline are given for continuous vibration, impulsive vibration and for intermittent vibration. For continuous and impulsive vibration, the criteria are given in terms of root-mean-square (rms) vibration acceleration (m/s^2) in the frequency range 1 - 80 Hertz (Hz). For intermittent vibration, the criteria are given in terms of vibration dose value (VDV), which is a parameter used for assessing the combined magnitude and the total duration of vibration impacts.

The criteria given in the vibration guideline for continuous or impulsive vibration relevant to the receptors in the area are given in **Table 5.4**. The frequency weightings are given in the vibration guideline in Appendix B3.

Table 5.4 The Vibration Guideline Criteria for Continuous and Impulsive Vibration for Human Comfort in Residential Buildings

Location	Assessment Period [1]	Weighted Vibration Acceleration, m/s^2 at 1-80 Hz			
		Preferred values		Maximum values	
		z-axis	x- and y-axes	z-axis	x- and y-axes
Continuous vibration					
Residences	Day	0.010	0.0071	0.020	0.014
	Night	0.007	0.005	0.014	0.010
Impulsive vibration					
Residences	Day	0.30	0.21	0.60	0.42
	Night	0.10	0.071	0.20	0.14

Notes: [1] Day period is 7.00 am–10.00 pm. Night period is 10.00 pm–7.00 am.

The criteria for intermittent vibration given in the vibration guideline for the relevant receptors in the area are shown in **Table 5.5**. The vibration dose value (VDV) is calculated using the frequency-weighted rms acceleration as described in the vibration guideline.

Table 5.5 The Vibration Guideline Criteria for Intermittent Vibration for Human Comfort in Residential Buildings

Location	VDV, $m/s^{1.75}$			
	Day period [1]		Night period [1]	
	Preferred value	Maximum value	Preferred value	Maximum value
Residences	0.20	0.40	0.13	0.26

Notes: [1] Day period is 7.00 am–10.00 pm. Night period is 10.00 pm–7.00 am.

According to the vibration guideline, the 'preferred' vibration limits are not mandatory but should be sought to be achieved through reasonable mitigation measures. Where all possible and reasonable measures have been applied, values up to the 'maximum' value may be used if they can be justified. For values beyond the maximum value, direct negotiation with the affected receptors must be carried out.

6.0 Construction Assessment

6.1 Construction Overview

The construction activities for the Project will broadly include the following:

- Clear and grub.
- Construction of access tracks.
- Foundation excavation.
- Stub set and form.
- Batch plant.
- Transmission tower assembly and erection.
- Stringing.
- Laydown area.
- Rehabilitation.

It is likely that some of these activities may occur simultaneously through the progression of the construction program along the transmission corridor.

Generally, the construction activities to be undertaken during standard construction hours as follows:

- Monday to Saturday: 6.30 am–6.30 pm
- Sunday and public holidays: No work.

Exceptions to these standard hours may occur, however would be limited to activities with low noise generation where practicable. These activities will be assessed on a case-by-case basis prior to the commencement of those activities.

6.2 Construction Scenarios

For the purposes of this assessment, nine indicative construction scenarios have been modelled to resemble the construction stages. Each scenario is described in **Table 6.1**. Detailed construction methodologies would be determined following finalisation of the detailed design and construction planning. Typical sound power levels for construction noise sources associated with typical construction activities have been sourced from Umwelt's noise source database and other references.

Table 6.1 Indicative Construction Scenarios, Equipment, Quantities and Sound Power Levels

Construction Scenario	Activity description	Equipment	Quantity	Sound Power Levels LAeq(15 min) dB(A)/ unit	Combined Sound Power Level LAeq(15 min) dB(A)
Sc.1	Clear and Grub	D8 Dozer	2	103	124
		Grader (16)	2	108	
		D6 Dozer – with stick rake	2	103	
		Chainsaws	6	116	
		30 t excavator (and grab in sensitive areas)	2	104	
Sc.2	Construction of access tracks	Grader (16)	2	108	119
		30 t excavator (and grab in sensitive areas)	2	104	
		Drum roller	2	112	
		20 t Articulated Truck	2	97	
		Posi Track	2	110	
		Water Truck	2	108	
		Backhoe	2	98	
Sc.3	Foundation Excavation	SR35 Drill rig	2	105	123
		Posi Track	2	110	
		AirTrack (Drill)	2	119	
Sc.4	Stub Set and Form	8x8 with 2 t Hiab (truck)	2	96	99
		Foundation Jigs	4	-	
		Manitou (forklift)	1	90	
Sc.5	Batch Plant	Front End Loader	1	104	114
		Cement Truck	4	108	
Sc.6	Transmission Tower Assembly and Erection	8x8 with 2 t Hiab (truck)	2	96	106
		Manitou (forklift)	2	90	
		Mobile Crib Room	1	-	
		60 t Crane	1	98	
		150 t Crane (with long boom)	1	100	
		260 t Crane	1	100	
Sc.7	Stringing	Helicopter	1	135	135
		Helicopter Support Vehicle	1	107	
		15 t Brake and Winch	2	94	
		9 t Brake and Winch	9	94	
		8x8 with 2 t Hiab (truck)	4	96	

Construction Scenario	Activity description	Equipment	Quantity	Sound Power Levels LAeq(15 min) dB(A)/ unit	Combined Sound Power Level LAeq(15 min) dB(A)
		60 t Crane	1	98	
		70 m Elevated work platform	4	95	
		Winch Trucks	4	107	
		30 t Excavator	1	104	
		Earthing Backhoe	1	98	
		Earthing AirTrack	1	119	
		Drone [1]	1	-	
		Mobile Crib Room	4	-	
Sc.8	Laydown area	Water Truck	2	108	114
		Fuel Truck	2	107	
		Welding Plant	1	100	
		5 t Forklift	1	90	
Sc.9	Rehabilitation	Backhoe	1	98	111
		Bobcat	1	102	
		30 t Excavator	1	104	
		20 t Articulated Truck	1	97	
		Water Truck	1	108	

Notes: [1] Drone noise levels are expected to be significantly less than a helicopter.

6.3 Construction Noise Levels

Construction noise levels have been predicted for the indicative construction scenarios described in **Section 6.2**. It is noted that the noise level predictions are likely to be conservative as they assume that all equipment is in operation concurrently in the same work area and in the presence of enhancing downwind meteorological conditions. The indicative buffer distance to achieve the daytime noise management level (NML) of 50 dB(A) $L_{Aeq(15\ min)}$ for each construction scenario (Sc.1 to Sc.9) have been summarised in **Table 6.2**. The predicted noise level buffers are presented graphically in **Figure 6.1** to **Figure 6.9**. The predicted noise levels at each receptor are presented in Table A.1 in **Appendix A**.

Table 6.2 Indicative Construction Scenarios and Buffer Distances

Construction Scenario	Activity Description	Combined Sound Power Level $L_{Aeq(15\ min)}$, dB(A)	Buffer Distances (m) to achieve daytime noise management level of 50 dB(A) $L_{Aeq(15\ min)}$
Sc.1	Clear and Grub	124	830
Sc.2	Construction of Access Tracks	119	750
Sc.3	Foundation Excavation	123	870
Sc.4	Stub Set and Form	99	120
Sc.5	Batch Plant	114	470
Sc.6	Transmission Tower Assembly and Erection	106	230
Sc.7	Stringing	135	2,750
Sc.8	Laydown area	114	440
Sc.9	Rehabilitation	111	340

As indicated in **Figure 6.1** to **Figure 6.9**, a number of sensitive receptors are located within the nominated buffer distances. The buffer distances for the various construction activities are as follows:

- Scenario 1 – Clear and Grub, Scenario 2 – Construction of Access Tracks, and Scenario 3 – Foundation Excavations activities had similar buffer distances ranging from 750 m to 870 m. There are approximately 16 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
- Scenario 4 – Stub Set and Form, and Scenario 6 – Transmission Tower Assembly and Erection activities had similar buffer distances ranging from 120 m to 230 m. There are no residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
- Scenario 5 – Batch Plant, Scenario 8 – Laydown Areas and Scenario 9 – Rehabilitation activities had similar buffer distances ranging from 340 m to 470 m. There are approximately 4 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
- Scenario 7 – Stringing activity had a buffer distance of 2,750 m. There are approximately 449 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.

With the exception of Scenario 7 – Stringing, there are approximately 16 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$. For Scenario 7 – Stringing, there are approximately 449 residential receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$. As the predicted construction noise levels are above the nominated daytime noise management level of 50 dB(A) $L_{Aeq(15\ min)}$, consideration of reasonable and feasible noise mitigation and management strategies is necessary to minimise the potential impacts on the receptors surrounding the MPA.

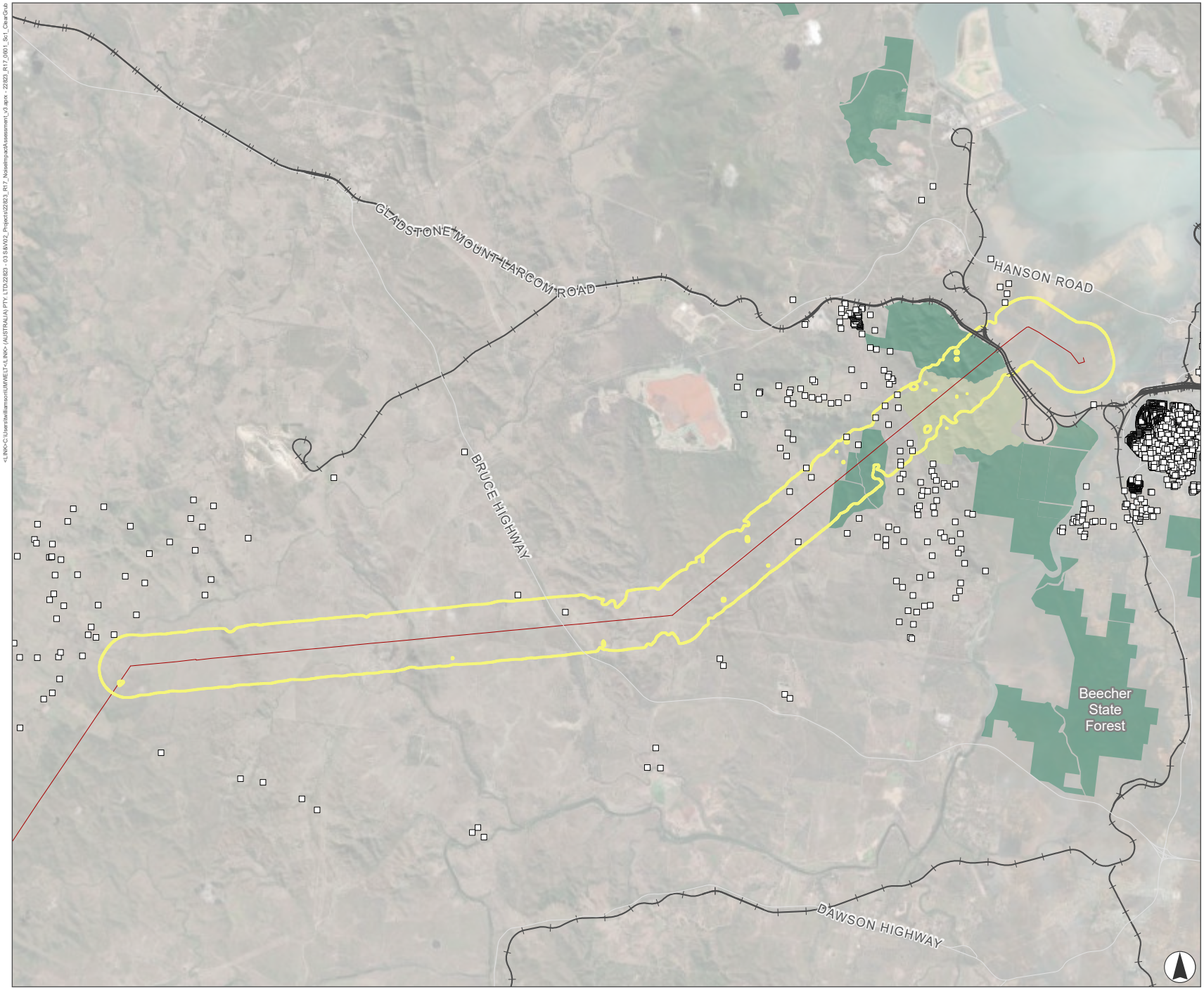


FIGURE 6.1

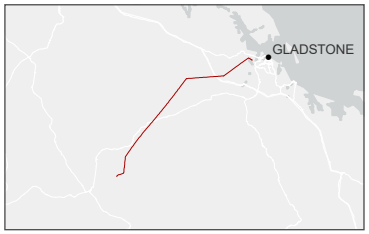
Scenario 1 - Clear and Grub - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



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Kilometres

Scale 1:155,000 at A4
GDA2020 MGA Zone 56

Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

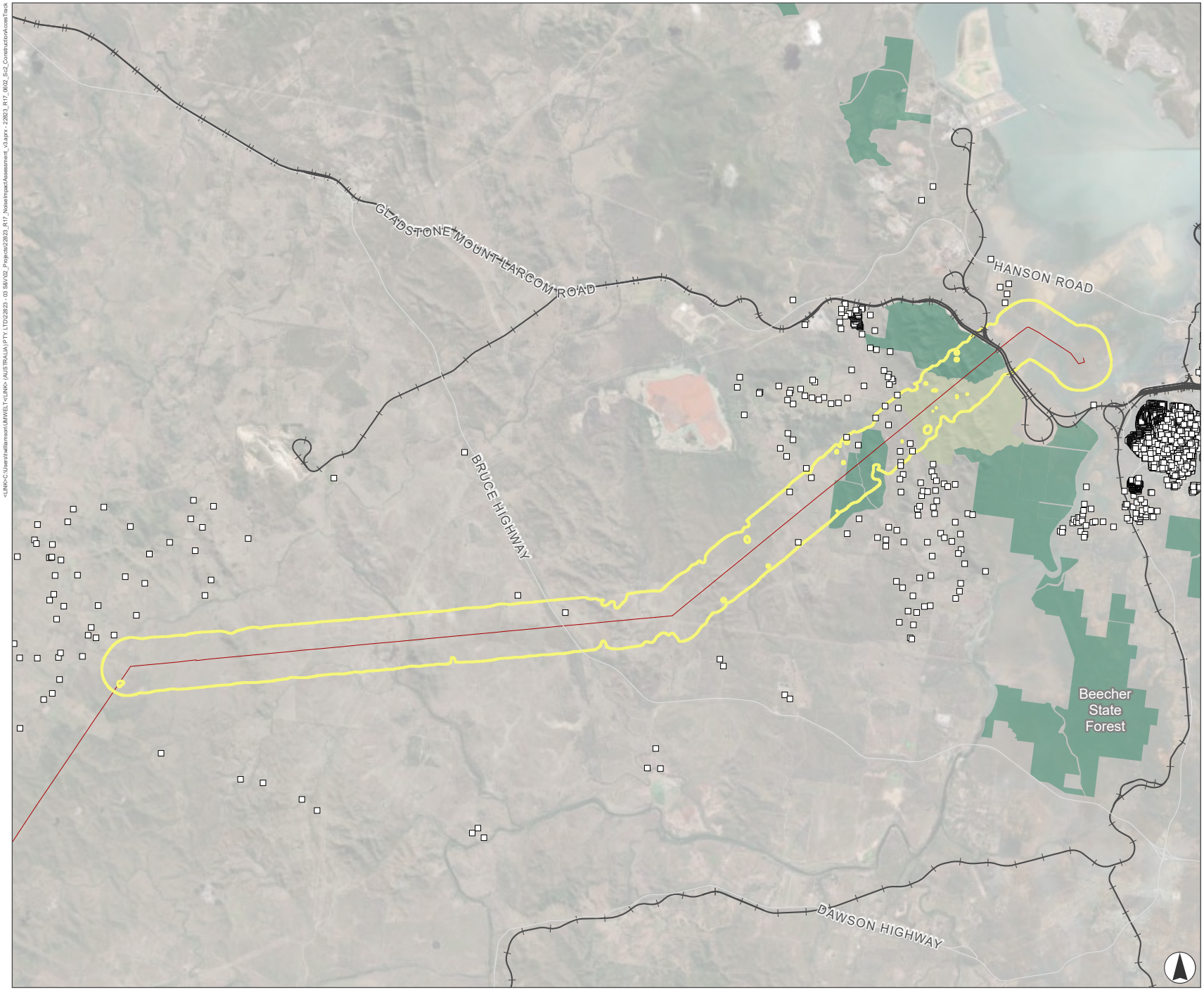


FIGURE 6.2

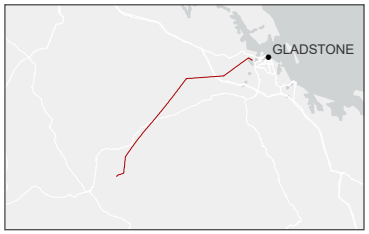
Scenario 2 - Construction of Access Tracks - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



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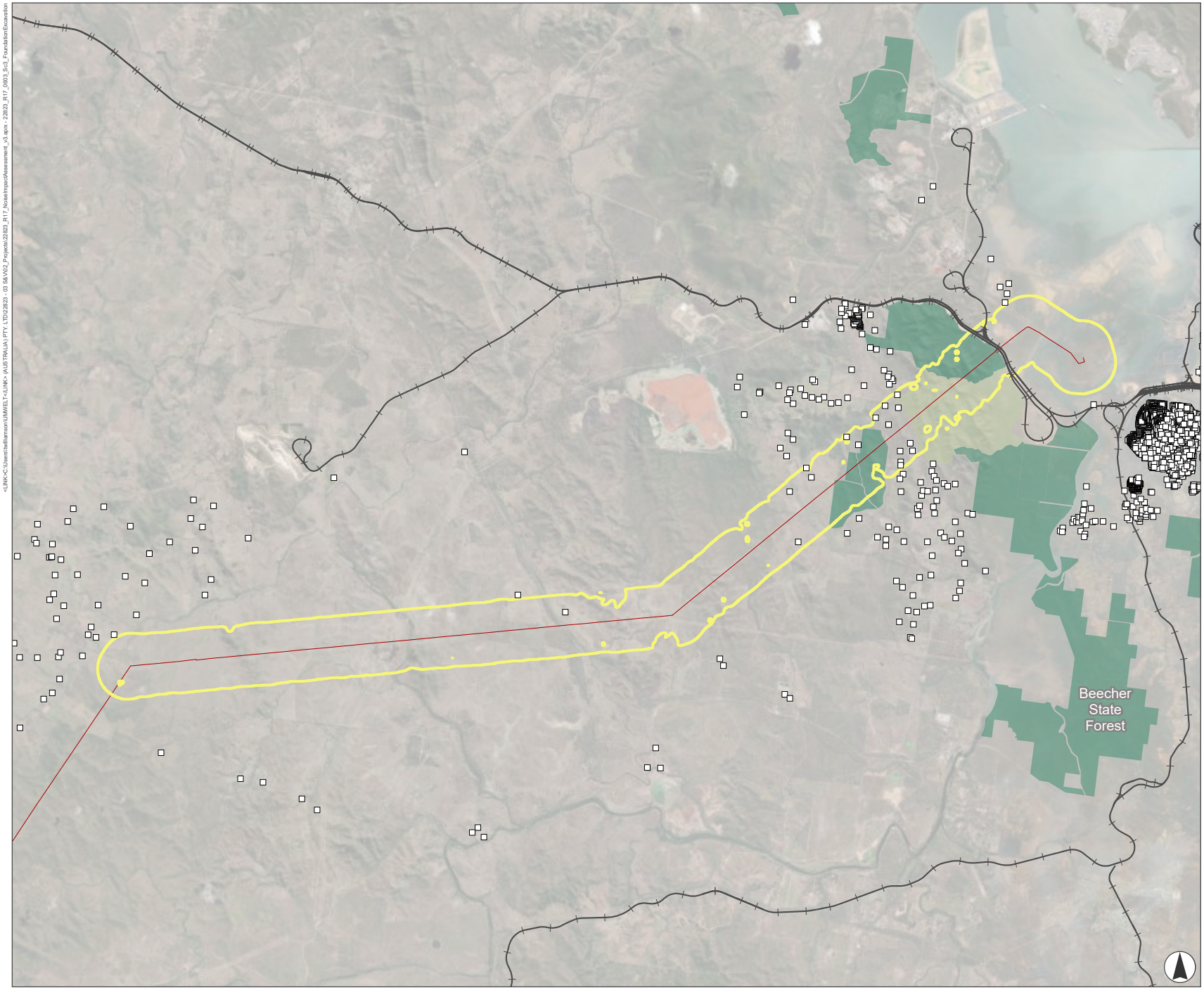


FIGURE 6.3

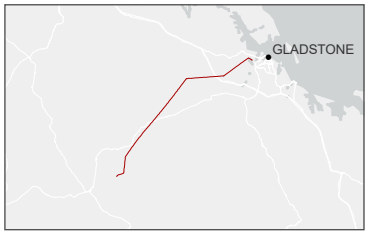
Scenario 3 - Foundation Excavation - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



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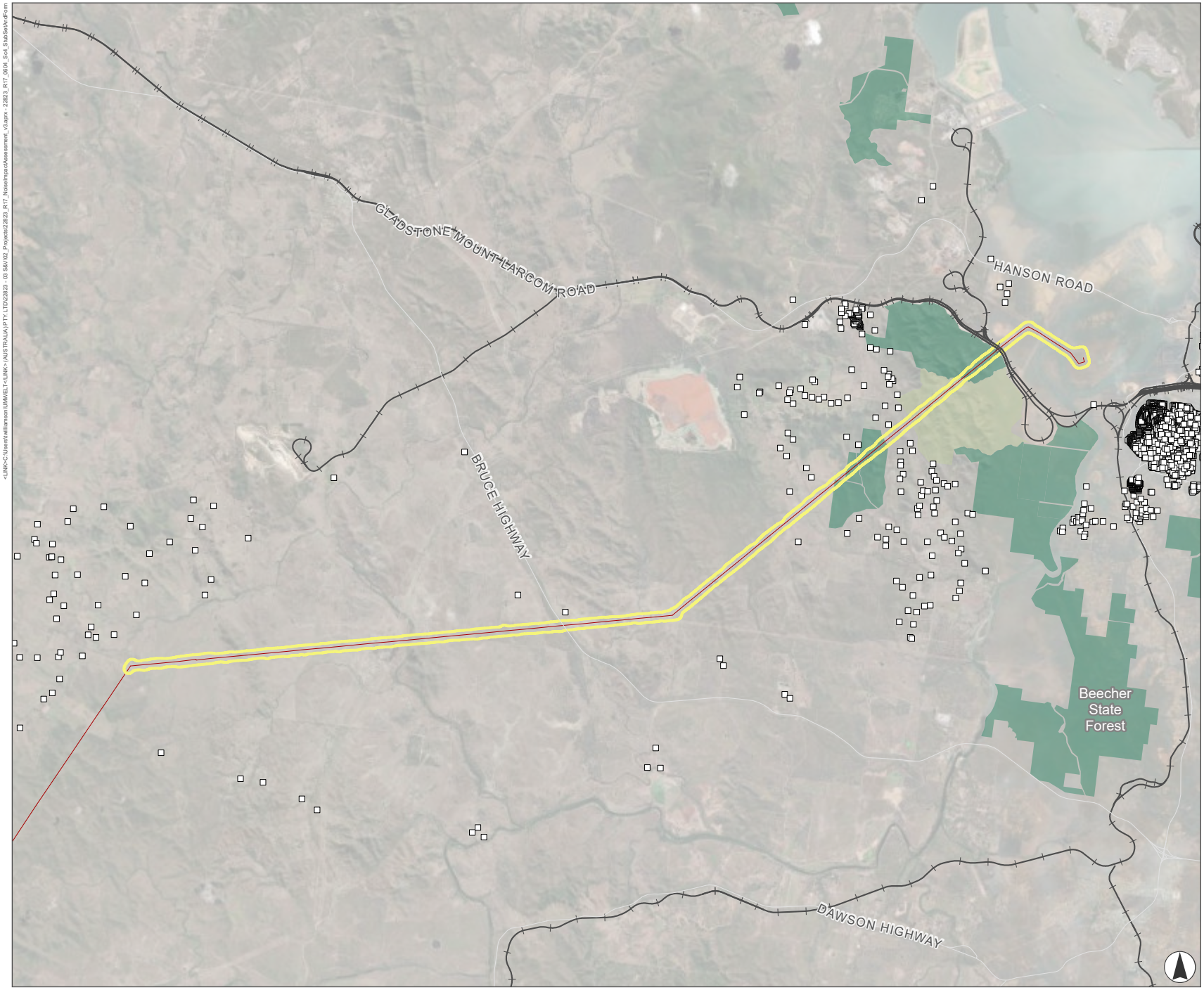


FIGURE 6.4

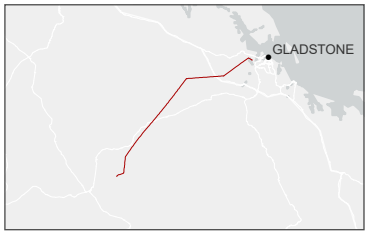
Scenario 4 - Stub Set and Form - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



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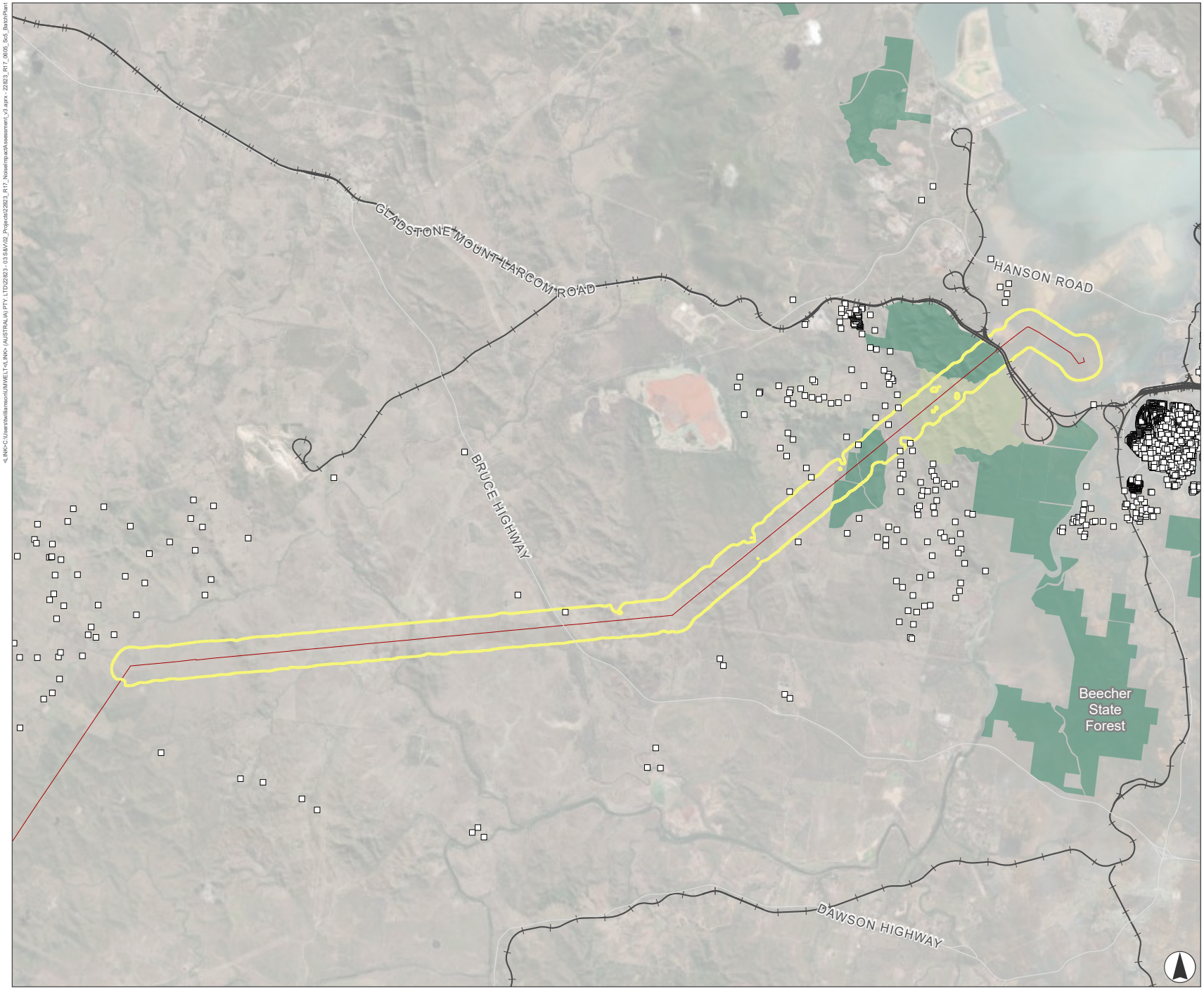

FIGURE 6.5

Scenario 5 - Batch Plant - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest

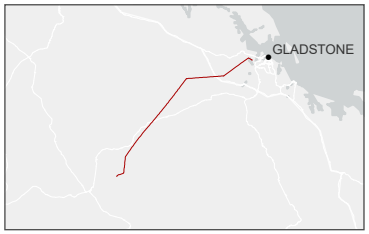

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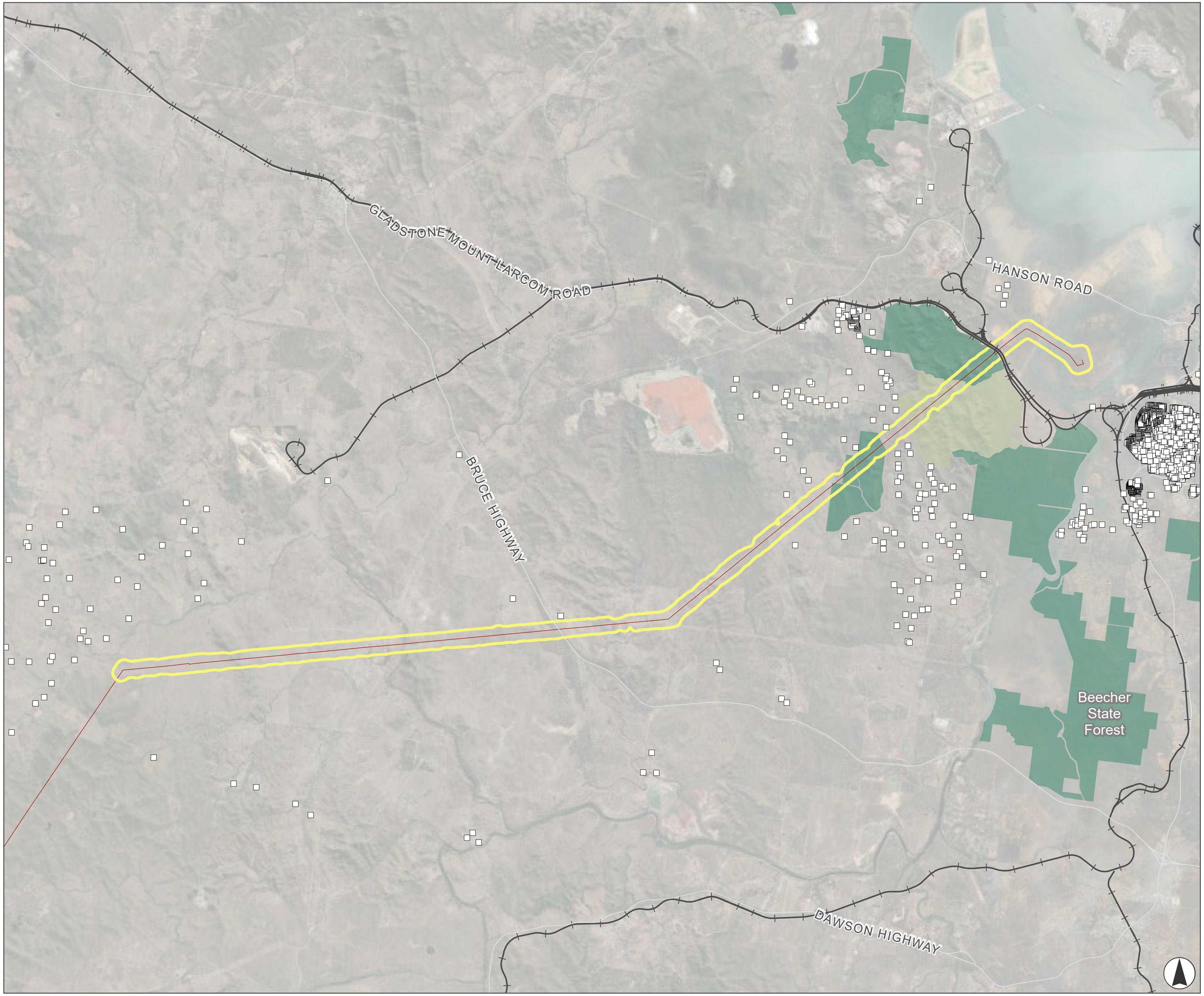
Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

FIGURE 6.6

Scenario 6 - Transmission Tower Assembly and Erection - 50 dB(A) LAeq Buffer Contour



Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest

0 2.5 5
Kilometres

Scale 1:155,000 at A4
GDA2020 MGA Zone 56

Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

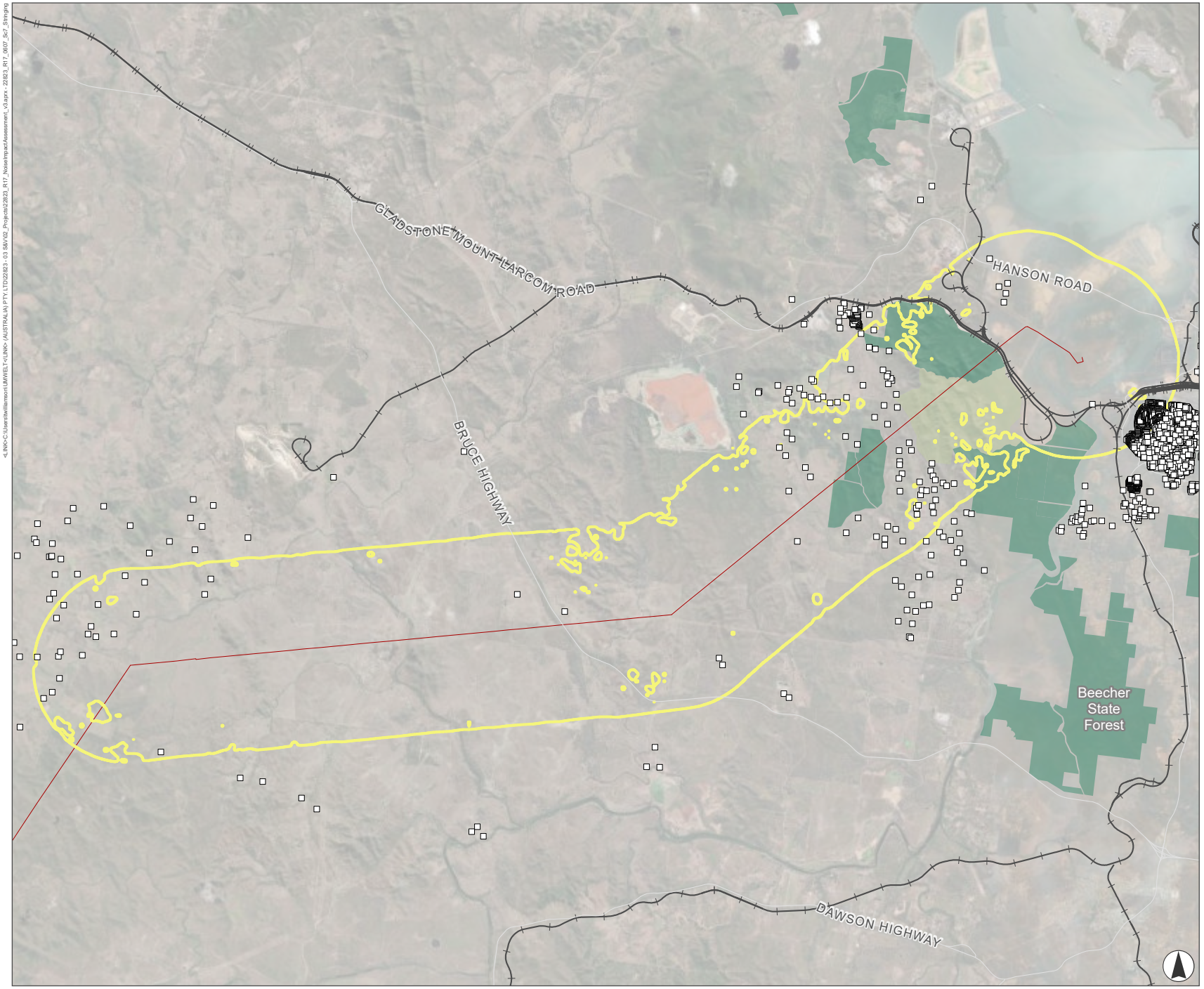


FIGURE 6.7

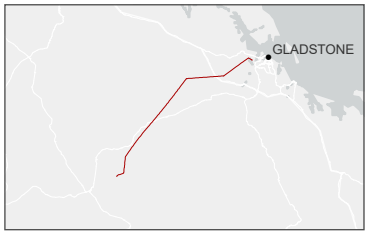
Scenario 7 - Stringing - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



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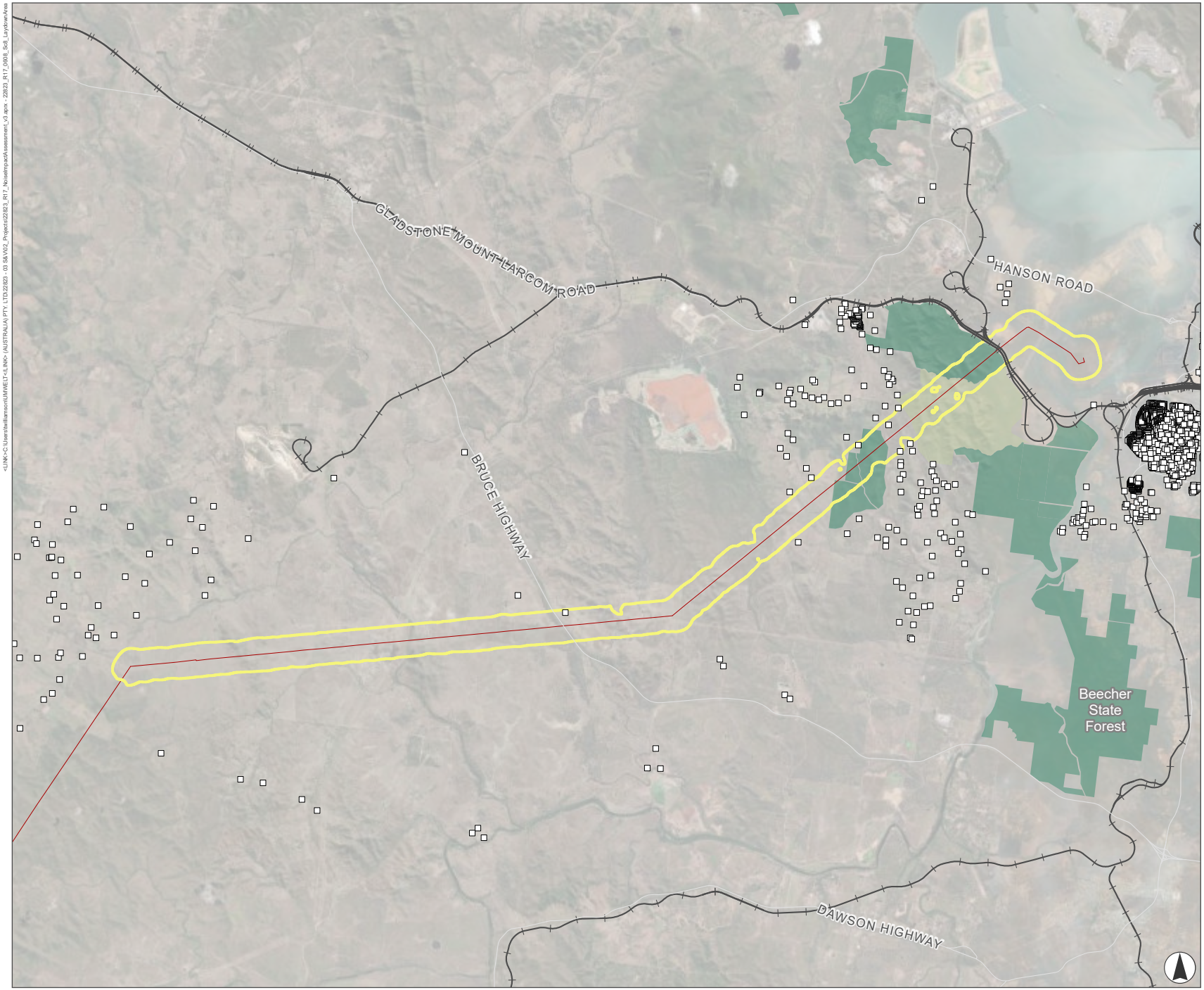


FIGURE 6.7

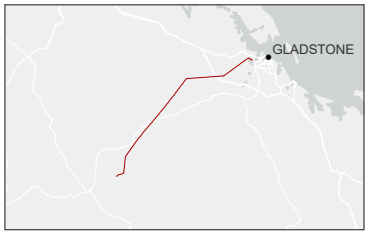
Scenario 8 - Laydown area - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



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Scale 1:155,000 at A4
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Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

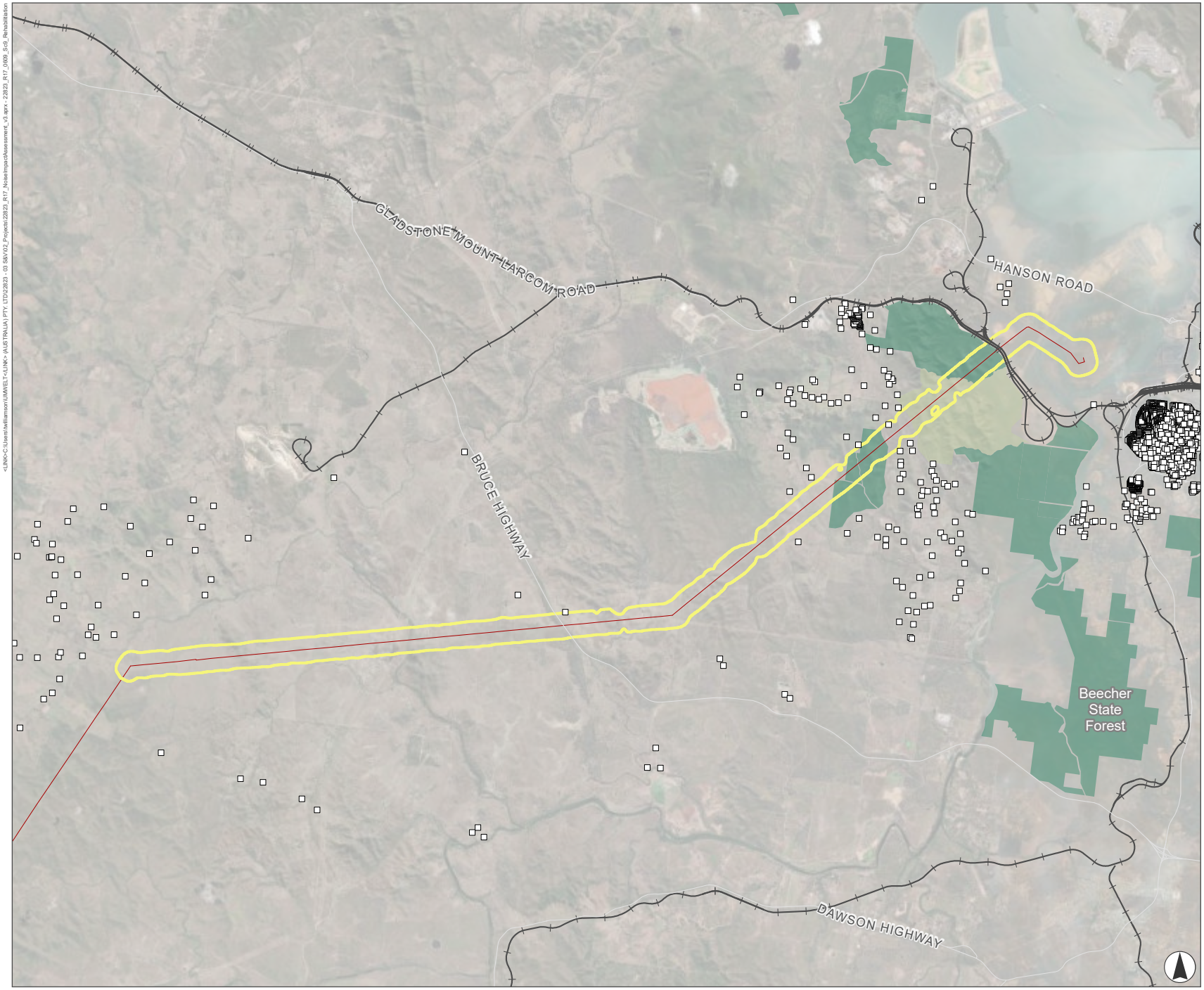


FIGURE 6.9

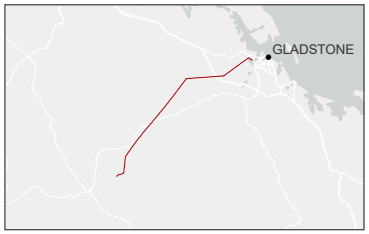
Scenario 9 - Rehabilitation - 50 dB(A) LAeq Buffer Contour

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



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Kilometres

Scale 1:155,000 at A4
GDA2020 MGA Zone 56

Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

6.4 Construction Vibration

Many items of construction equipment generate vibration that may be perceptible to receptors and cause annoyance; or cause structural damage to buildings or other structures.

The types of vibration-sensitive receptors in the Project Area likely include:

- Residential dwellings (occupants).
- Residential dwellings (structures).
- Commercial/agricultural buildings.
- Heritage structures.

The commercial buildings in the area are structurally similar to residential buildings, therefore the assessment for residential buildings is considered to be relevant for the commercial receptors as well.

Recommended safe working distances for vibration generating equipment from sensitive receptors (i.e. the receptor building or its occupants) are given in Table 2 of the NSW Construction Noise and Vibration Guideline (CNVG) (RMS, 2016) reproduced in **Table 6.3**.

Table 6.3 Recommended Minimum Working Distances for Vibration Generating Plant from a Residential Sensitive Receptor (CNVG Table 2)

Plant Item	Rating/Description	Minimum Working Distance	
		Cosmetic Damage (Residential Building)	Human Response
Vibratory Roller	< 50 kN (Typically 1–2 tonnes)	5 m	15 m to 20 m
	< 100 kN (Typically 2–4 tonnes)	6 m	20 m
	< 200 kN (Typically 4–6 tonnes)	12 m	40 m
	< 300 kN (Typically 7–13 tonnes)	15 m	100 m
	> 300 kN (Typically 13–18 tonnes)	20 m	100 m
	> 300 kN (> 18 tonnes)	25 m	100 m
Small Hydraulic Hammer	300 kg – 5 to 12 t excavator	2 m	7 m
Medium Hydraulic Hammer	900 kg – 12 to 18 t excavator	7 m	23 m
Large Hydraulic Hammer	1600 kg – 18 to 34 t excavator	22 m	73 m
Vibratory Pile Driver	Sheet piles	2 m to 20 m	20 m
Pile Boring	≤ 800 mm	2 m (nominal)	4 m
Jackhammer	Handheld	1 m (nominal)	2 m

Due to the large separation distances between the MPA and the external sensitive receptors (i.e. much greater than 100 m), vibration impacts from construction activities are anticipated to be negligible.

As discussed in **Section 5.3**, heritage structures can be more sensitive to vibration impacts than modern structures and therefore have a more stringent vibration screening limit of 2.5 mm/s PPV. The safe working distances presented in **Table 6.3** for residential structures have been scaled to allow for heritage structures through the application of the vibration scaling method presented in the Federal Transit Administration's Transit Noise And Vibration Impact Assessment Manual. The safe working distances for the heritage structures are presented in **Table 6.4**.

Table 6.4 Recommended Minimum Working Distances for Vibration Generating Plant from a Heritage Receptor

Plant Item	Rating/Description	Minimum Working Distance
		Cosmetic Damage (Heritage Structures)
Vibratory Roller	< 50 kN (Typically 1–2 tonnes)	12 m
	< 100 kN (Typically 2–4 tonnes)	15 m
	< 200 kN (Typically 4–6 tonnes)	25 m
	< 300 kN (Typically 7–13 tonnes)	35 m
	> 300 kN (Typically 13–18 tonnes)	45 m
	> 300 kN (> 18 tonnes)	55 m
Small Hydraulic Hammer	300 kg – 5 to 12 t excavator	5 m
Medium Hydraulic Hammer	900 kg – 12 to 18 t excavator	15 m
Large Hydraulic Hammer	1600 kg – 18 to 34 t excavator	50 m
Vibratory Pile Driver	Sheet piles	45 m
Pile Boring	≤ 800 mm	5 m
Jackhammer	Handheld	35 m

7.0 Operational Assessment

7.1 Operational Overview

The operation of the transmission lines and associated maintenance activities have the potential to generate noise levels. For this assessment, the primary operational noise emissions are related to potential corona discharge from the transmission lines themselves. Similarly, maintenance activities along the corridor might involve helicopter-based surveys/inspections and vegetation clearing. These maintenance tasks will occur during the daytime only.

7.2 Operational Scenarios

For the purposes of this assessment, three indicative construction scenarios have been modelled to resemble the operation and maintenance activities. Each scenario is described in **Table 7.1**. Typical sound power levels for these activities have been sourced from Umwelt's noise source database and other references.

Table 7.1 Indicative Operational Scenarios, Equipment and Sound Power Levels

Scenario	Activity Description	Equipment	Sound Power Levels LAeq(15 min) dB(A)
Sc.1	Operation	Corona Discharge [1,2]	94
Sc.2	Maintenance – Inspections	Helicopter	135
Sc.3	Maintenance – Vegetation Clearing	Chainsaw	116

Notes:

1. Estimated from information presented Wan et al within research paper title Audible Noise Performance of Conductor Bundles Based on Cage Test Results and Comparison with Long Term Data (2017).

2. Assumed to be a point source occurring at any point along the transmission line.

7.3 Operational Noise Levels

The indicative buffer distance to achieve the daytime, evening and night-time noise limits for the operation (Sc.1) and maintenance scenarios (Sc.2 and Sc.3) have been summarised in **Table 7.2** and **Table 7.3** respectively. The predicted noise level buffers are presented graphically in **Figure 7.1** to **Figure 7.3**. The predicted noise levels at each receptor are presented in **Table A1.2** in **Appendix A**.

Table 7.2 Indicative Operational Scenarios and Buffer Distances

Scenario	Activity Description	Buffer Distances (m) to achieve Day and Evening Noise limit of 40 dB(A) LAeq(15 min)	Buffer Distances (m) to achieve Day and Evening Noise limit of 35 dB(A) LAeq(15 min)
Sc.1	Operational – Corona Discharge	135	270

Table 7.3 Indicative Maintenance Scenarios and Buffer Distances

Scenario	Activity Description	Buffer Distances (m) to achieve Daytime Noise management level of 50 dB(A) LAeq(15 min)
Sc.2	Maintenance – Helicopter inspection	2,730
Sc.3	Maintenance – Vegetation clearing	440

As indicated in **Figure 7.1** to **Figure 7.3**, a number of sensitive receptors are located within the nominated buffer distances.

Based on the buffer distances and noise level contours for Scenario 1, the potential noise emissions related to Corona Discharge along the MPA are predicted to achieve the day and evening limit of 40 dB(A) $L_{Aeq(15\ min)}$ and the night-time limit of 35 dB(A) $L_{Aeq(15\ min)}$.

The buffer distance for Scenario 2 indicates that helicopter inspections have the potential to generate elevated noise levels at sensitive receptors along the MPA. Based on the prediction results there are approximately 441 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$. The helicopter inspections are anticipated to occur every two to four years, given that potential noise impacts are infrequent, temporary and limited to daytime only there is unlikely to be any residual impact on the acoustic amenity for the community.

Similarly, the buffer distance for Scenario 3 indicates that the vegetation management activities have the potential to generate elevated noise levels at sensitive receptors along the MDA. Based on the prediction results for Scenario 3, there are approximately 3 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$. These activities are anticipated to occur every two to four years, given that potential noise impacts are infrequent, temporary and limited to daytime only there is unlikely to be any residual impact on the acoustic amenity for the community.

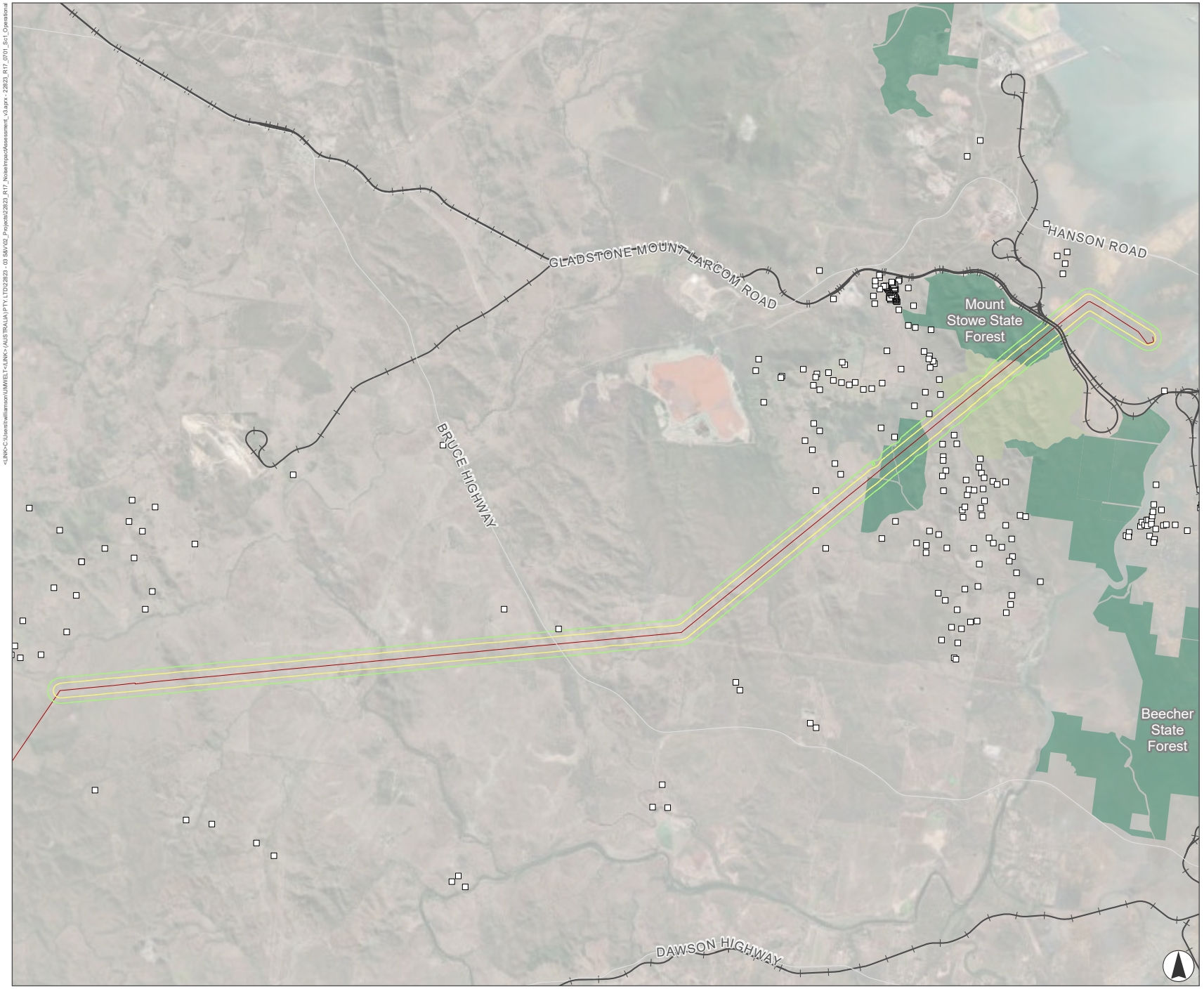


FIGURE 7.1

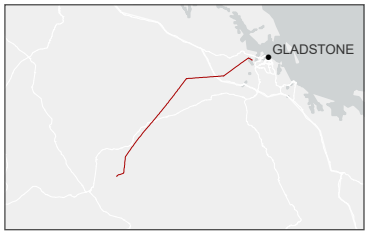
Scenario 1 - Operational – Corona Discharge - LAeq Contours

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 35 dB(A) LAeq Buffer Contour
- 40 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



0 2.5 5

Kilometres

Scale 1:135,000 at A4
GDA2020 MGA Zone 56

Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

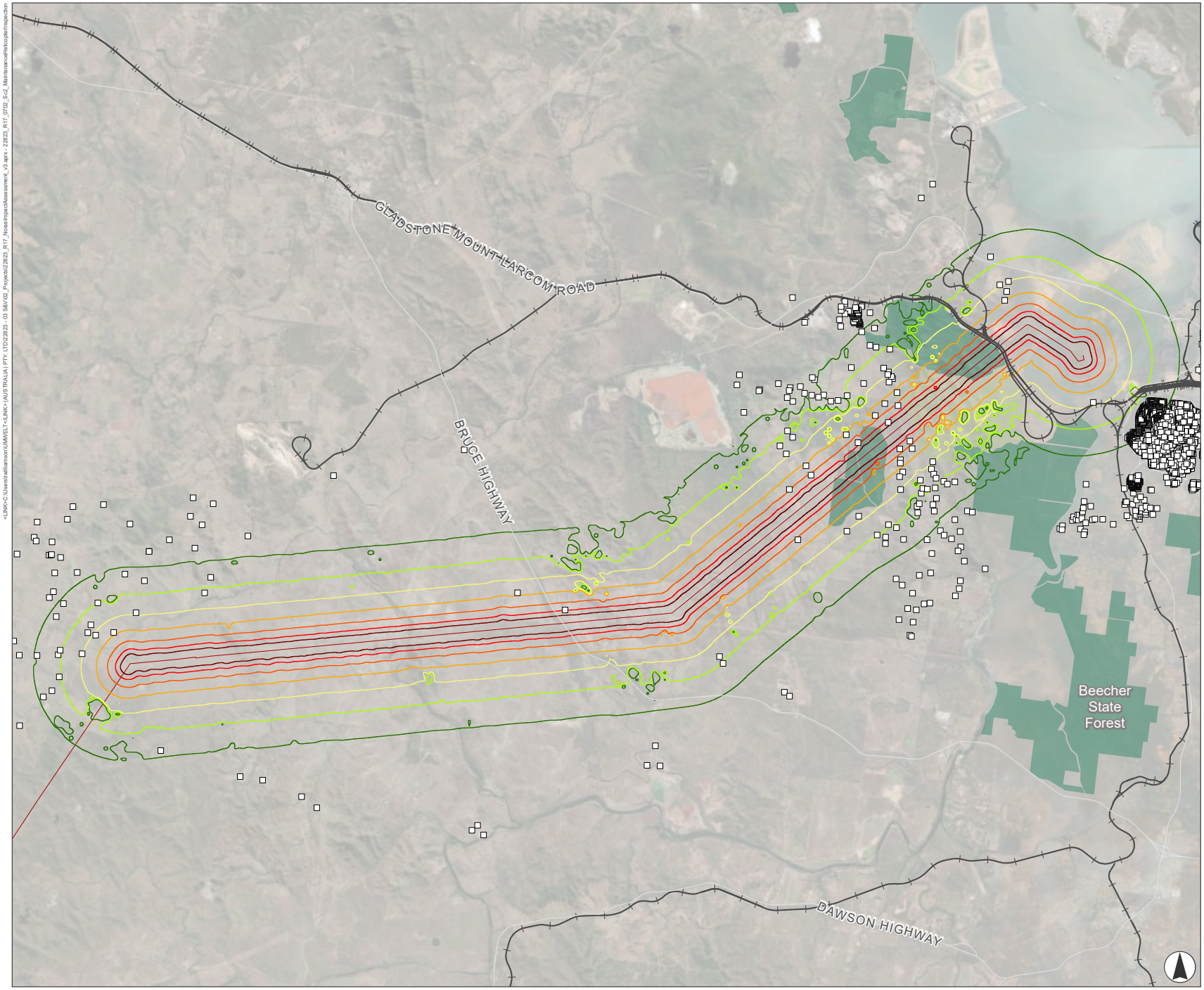


FIGURE 7.2

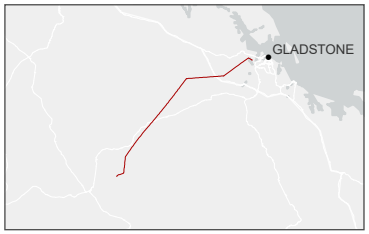
Scenario 2 - Maintenance – Helicopter inspection - LAeq Contours

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour
- 55 dB(A) LAeq Buffer Contour
- 60 dB(A) LAeq Buffer Contour
- 65 dB(A) LAeq Buffer Contour
- 70 dB(A) LAeq Buffer Contour
- 75 dB(A) LAeq Buffer Contour
- 80 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



0 2.5 5

Kilometres

Scale 1:155,000 at A4
GDA2020 MGA Zone 56

Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

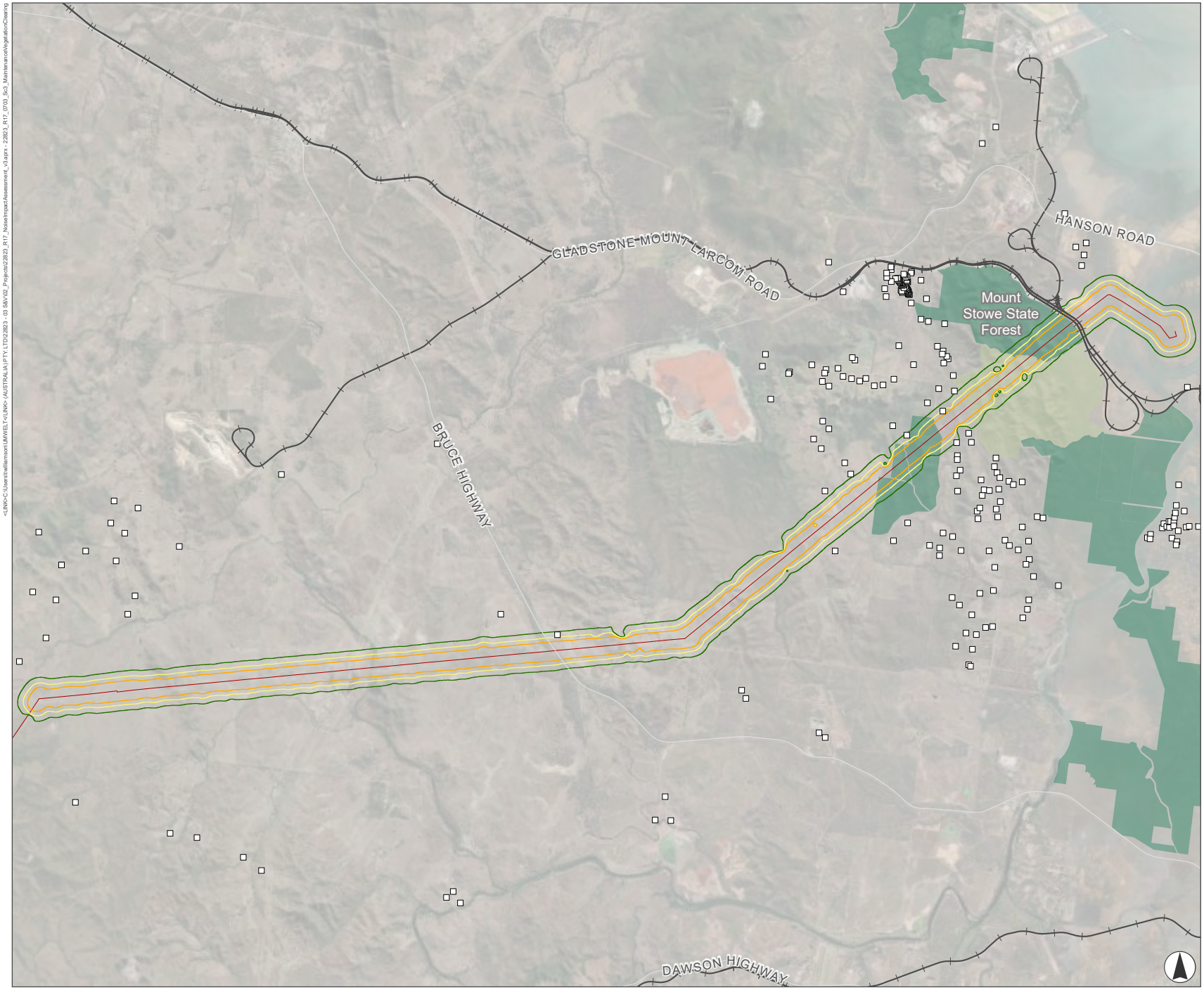


FIGURE 7.3

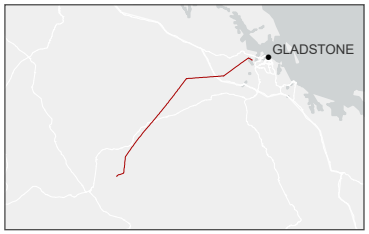
Scenario 3 - Maintenance – Vegetation clearing - LAeq Contours

Legend

- Receptors
- Roads
- Railway
- Proposed Alignment
- 50 dB(A) LAeq Buffer Contour
- 55 dB(A) LAeq Buffer Contour
- 60 dB(A) LAeq Buffer Contour

Protected Areas

- Conservation Park
- State Forest



0 2.5 5

Kilometres

Scale 1:130,000 at A4
GDA2020 MGA Zone 56

Image Source: ESRI Basemap (2024) | **Data Source:** NSW DFSI (2025)

A note on Corona Discharge Noise

Corona noise or corona discharge noise emission (hissing or cracking noise) is predominantly associated with the conductor bundles located at the transmission line towers rather than the transmission line itself. The intensity and frequency of the corona discharge and the resulting noise is dependent on the voltage of the transmission line, the state of the conductor surface and concentration of airborne particles (dust, ash) and the meteorological conditions (such as humidity, rain, fog and wind).

Corona effects are relatively small in fair weather but can become evident during light rainfall and humid conditions as a consequence of water droplets mixing with dust on the conductor itself creating a migrating electricity leakage path. Corona effects can also become significant under electrically charged clouds.

Previous research conducted by EirGrid published in EirGrid Evidence Based Environmental Studies Study 8: Noise Literature review and evidence-based field study on the noise effects of high voltage transmission development (2016) suggests that:

- Corona noise is only an issue for 350 kV lines and above.
- For 400 kV lines, a recommended separation distances of 100 m from the line and 200 m from towers.

Based the finding of the EirGrid Study and the comparatively lower voltage of the Project transmission line (275 kV), noise impacts are not anticipated.

7.4 Cumulative Noise Levels

Due to the transient and infrequent nature of the operational and maintenance activities related to the MPA, the potential for additional noise impacts associated with cumulative emissions from any existing transmission infrastructure is likely to be minimal and temporary.

8.0 Mitigation and Management

8.1 Powerlink's Standard Controls

The construction noise levels are predicted to be above the nominated noise management levels, therefore reasonable and feasible noise management and mitigation strategies should be considered during the construction phase of the project. **Table 8.1** presents Powerlink's standard controls for managing noise and vibration emissions during the construction, maintenance and operation of the transmission line corridor.

Table 8.1 Powerlink's Standard Controls for Managing Noise and Vibration Emissions

ID	Control
NV1	Limit work hours to between 6.30 am to 6.30 pm Monday to Saturday (excluding public holidays) for construction work. Work is not to occur outside these hours unless permitted by a Development Approval, or it is in an emergency, due to limited line outages, maintenance activity, or other exceptional circumstances.
NV2	Appropriate plant and equipment to be selected for each task to minimise the noise contributions.
NV3	Ensure machinery is fitted with appropriate noise attenuation devices and is maintained in accordance with the manufacturer's recommendations.
NV4	Shut down any LPG/petrol/diesel powered equipment generating loud, extraneous (unusual) noise until the source of the noise can be identified and rectified.
NV5	Schedule loud noise activities to occur at times to minimise noise nuisance to surrounding sensitive receptors. Physical noise barriers such as earth mounds, mobile screens, or noise attenuation devices should be used, where necessary.
NV6	Deliver and/or remove materials and equipment to and from the site within the approved hours for construction. All transport vehicles will be in good working order and will avoid using exhaust brakes in built up areas adjacent to the work site.
NV7	Ensure transport routes to and from the site are located, where possible, to limit the impact of traffic noise on potentially sensitive areas.
NV8	Plant to be turned off when not in use.
NV9	Plant is to be regularly maintained, and repaired or replaced if it becomes noisier.
NV10	Project inductions will include information on the potential adverse impact of reversing alarms and exhaust brakes and the need to minimise their use.
NV11	Wherever feasible, turning circles are to be created at the end points of vehicle work legs, which should allow trucks to turn and avoid the need for reversing.
NV12	Non-tonal reversing alarms to be used where practicable.

8.2 Construction Vibration Mitigation

The actual construction equipment to be used on site would be confirmed by the construction contractor during the detailed design phase. In the event that any vibration-generating equipment would be used within the recommended safe working distances nominated in **Table 6.3** and **Table 6.4**, a Construction Vibration Assessment would be prepared, this might include the following items:

- A structural engineering assessment that would nominate suitable vibration criteria for the structure.
- A dilapidation survey before and after the works.
- Continuous vibration monitoring for the duration of the vibration-generating construction works when undertaken within the safe working distances. The vibration logger should be equipped with the facility to remotely alert the site to reduce or cease construction activities if vibration levels are approaching the criterion threshold.
- A Construction Vibration Assessment would also be prepared for the use of any vibration-generating equipment in the vicinity of any existing infrastructure (i.e. structures, pipelines telecommunications) or public utilities plant to evaluate the safe working distances.

8.3 Summary of Construction Mitigation Measures and Strategies

Noise and vibration mitigation measures to be implemented during construction of the Project may include:

- A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the Construction Environmental Management Plan (CEMP). The NVMP will generally identify:
    - all potential significant noise and vibration generating activities associated with the project
    - feasible and reasonable mitigation measures to be implemented
    - a monitoring program to assess performance against relevant noise and vibration criteria
    - arrangements for consultation with affected neighbours and sensitive receptors, including notification and complaint handling procedures
    - contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.
- Sensitive receptors likely to be affected will be notified at least 7 days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of:
    - the Project
    - the construction period and construction hours
    - contact information for project management staff
    - complaint and incident reporting
    - how to obtain further information.

- All employees, contractors and subcontractors are to receive an environmental induction. The induction must include at a minimum:
    - all applicable mitigation measures
    - hours of works
    - any limitations on high noise-generating activities
    - location of nearest sensitive receptors
    - designated parking areas
    - relevant approval conditions
    - incident procedures.
- Employees, contractors and subcontractors are to keep noise to a minimum, including limiting the use of loud stereos/radios and shouting on site.
- If required a noise verification program should be carried out during the construction program in accordance with the NVMP for the Project.
- The noise levels of plant and equipment must have operating Sound Power or Sound Pressure Levels consistent with those nominated in **Table 6.1**.
- The CEMP and NVMP should be regularly updated to account for any changes in noise and vibration management of the Project.
- Where feasible and reasonable:
    - Construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration should be scheduled during less sensitive time periods.
    - Plant used intermittently to be throttled down or shut down when not in use.
    - Stationary noise sources should be enclosed or shielded.
    - Use non-tonal reversing beepers on all construction vehicles and mobile plant used regularly on site and for any out of hours work.
    - Where practical, loading and unloading of materials/deliveries is to occur as far as possible from sensitive receptors.
    - Where practical, no dropping of materials from height or throwing of metal items. Workers shall be instructed not to slam car doors.
- Any additional vibration generating plant not listed in **Table 6.3** and **Table 6.4** should be assessed safe working distances identified and updated.
- In the event that any vibration-generating equipment would be used within the recommended safe working distances nominated in **Table 6.3** and **Table 6.4**, a Construction Vibration Assessment would be prepared, this might include the following items:
    - A structural engineering assessment that would nominate suitable vibration criteria for the structure.
    - A dilapidation survey before and after the works.

- Continuous vibration monitoring for the duration of the vibration-generating construction works when undertaken within the safe working distances. The vibration logger should be equipped with the facility to remotely alert the site to reduce or cease construction activities if vibration levels are approaching the criterion threshold

- A Construction Vibration Assessment would also be prepared for the use of any vibration-generating equipment in the vicinity of any existing infrastructure (i.e. structures, pipelines telecommunications) or public utilities plant to evaluate the safe working distances.

9.0 Conclusion

This noise and vibration assessment was prepared to support the Project's MID proposal.
The assessment found the conclusions:

- Construction noise levels have been modelled for a variety of representative construction scenarios, the modelling indicated that there will be elevated noise levels at sensitive receptors along the MPA during the construction program. The noise modelling indicated that consideration of reasonable and feasible mitigation measures during the construction phase will be necessary to minimise potential noise levels. The buffer distances for the various construction activities are as follows:
    - The Clear and Grub, Construction of Access Tracks, and Foundation Excavations activities had similar buffer distances ranging from 750 m to 870 m. There are approximately 16 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
    - The Stub Set and Form, and Transmission Tower Assembly and Erection activities had similar buffer distances ranging from 120 m to 230 m. There are no residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
    - The Batch Plant, Laydown Areas and Rehabilitation activities had similar buffer distances ranging from 340 m to 470 m. There are approximately 4 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
    - The Stringing activity had a buffer distance of 2,750 m. There are approximately 449 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$.
- Potential construction vibration levels were evaluated for safe working buffer distances for a variety of equipment.
- Operational and maintenance noise levels have been predicted and assessed as follows:
    - The potential noise emissions related to Corona Discharge along the MPA are predicted to achieve the day and evening limit of 40 dB(A) $L_{Aeq(15\ min)}$ and the night-time limit of 35 dB(A) $L_{Aeq(15\ min)}$ at the nearest sensitive residential receptors.
    - The potential noise emissions from helicopter inspections during the maintenance of the transmission corridor and is predicted to have a buffer distance of 2,730 m. This distance indicates that helicopter inspections have the potential to generate elevated noise levels at sensitive receptors along the MPA. Based on the prediction results there are approximately 441 residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$. The helicopter inspections are anticipated to occur every two to four years, given that potential noise impacts are infrequent, temporary and limited to daytime only there is unlikely to be any residual impact on the acoustic amenity for the community.

- The potential noise emissions from vegetation clearing inspections during the maintenance of the transmission corridor and is predicted to have a buffer distance of 440 m. This distance indicates that the vegetation management activities have the potential to generate elevated noise levels at sensitive receptors along the MDA. Based on the prediction results, there are approximately three residential sensitive receptors along the MPA that are predicted to have noise levels above 50 dB(A) $L_{Aeq(15\ min)}$. These activities are anticipated to occur every two to four years, given that potential noise impacts are infrequent, temporary and limited to daytime only there is unlikely to be any residual impact on the acoustic amenity for the community.

10.0 References

Queensland Environment Protection Act 1994.

Queensland Environment Protection Regulation 2019.

Queensland Environment Protection (Noise) Policy 2019.

EcoAccess Guideline: Planning for Noise Control, Queensland Environment Protection Agency, 2004.

Assessing Vibration: A Technical Guideline, New South Wales Department of Environment and Conservation, 2006.

Construction Noise and Vibration Guideline, New South Wales Roads and Maritime Services, v 1.0, 2016.

German Standard (Deutsche Norm) DIN 4150-3:1999-02 Structural Vibration Part 3: Effects of vibration on structures.

British Standard BS7385-2:1993 Evaluation and measurement for vibration in buildings Part 2. Guide to damage levels from groundborne vibration.

Australian Standard AS2436-2010 (R2016) Guide to Noise Control on Construction, Demolition and Maintenance Sites.

Transit Noise and Vibration Impact Assessment, Federal Transit Administration, 2018.

EirGrid Evidence Based Environmental Studies Study 8: Noise Literature review and evidence based field study on the noise effects of high voltage transmission development, May 2016.

Audible Noise Performance of Conductor Bundles Based on Cage Test Results and Comparison with Long Term Data, Wan et al, 2017.

Appendix A

Noise Level Predictions

Table A.1 Predicted Construction Noise Levels (where > 50 dB(A))

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0001	20MPH23015	286615	7351757	43	43	44	22	36	29	60	37	34
R0002	3MPH22996	286781	7352373	42	42	43	21	35	28	59	35	33
R0003	43CTN260	287536	7352377	48	47	49	27	41	33	64	41	38
R0004	54CTN515	288907	7348935	34	34	35	14	28	20	51	28	25
R0005	3CTN496	290186	7353533	39	39	40	19	33	25	56	33	30
R0006	2RP603104	290364	7353983	36	36	37	16	30	22	53	30	27
R0014	16CL40367	299306	7353534	48	47	48	27	41	33	64	41	38
R0019	2MPH22996	288432	7353884	35	35	36	15	29	22	52	29	27
R0021	7MPH22996	287073	7353238	38	38	39	18	32	24	55	32	29
R0022	4CP889242	286870	7352599	41	41	42	21	35	27	58	35	32
R0023	21CTN248	309252	7355765	45	45	46	24	38	31	61	39	36
R0024	529CL40250	308906	7355330	43	43	44	23	37	29	60	37	34
R0025	89CTN248	307230	7356547	54	53	55	32	47	39	70	47	44
R0026	90CTN248	307861	7356961	56	54	56	34	49	40	71	48	45
R0027	3RP606484	307714	7357235	50	49	50	28	43	35	66	42	40
R0028	88CTN248	307139	7357582	42	42	43	22	36	28	59	36	33
R0029	2RP616496	308887	7358141	51	51	52	30	45	37	67	45	42
R0030	1RP616496	309230	7357910	60	57	60	37	52	43	73	51	48
R0031	2RP851157	309735	7358701	51	50	52	30	44	36	67	44	41
R0032	3RP863615	310112	7358499	64	61	64	41	56	47	77	55	52
R0033	40CTN157	310396	7358990	57	55	57	35	50	42	71	49	47
R0034	99SP116453	310011	7359048	51	50	52	30	44	36	67	44	41
R0035	101RP882263	310242	7359775	45	45	46	24	38	31	61	39	36
R0036	1RP840085	310367	7359369	51	50	51	29	44	36	66	43	41
R0037	6RP863615	310449	7357728	58	56	58	36	51	42	72	50	47
R0038	1SP109964	310467	7357411	52	51	53	30	45	37	68	45	42

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0039	1SP109964	310465	7357314	51	49	51	29	44	36	67	43	40
R0040	2SP109964	310535	7357055	47	46	48	26	40	32	63	40	37
R0041	3SP109964	310444	7356918	47	46	47	26	40	32	63	40	37
R0042	1RP617919	310473	7356543	44	44	45	23	37	30	60	38	35
R0043	508CL40240	309788	7355217	39	38	39	18	32	25	55	32	30
R0044	3RP617919	310035	7355154	37	37	38	17	31	23	54	31	28
R0045	2RP617919	310118	7355520	39	39	40	18	32	25	56	33	30
R0046	2RP617919	310351	7355431	38	38	38	17	31	24	54	32	29
R0047	1RP618597	311410	7357354	44	43	45	23	37	30	60	37	35
R0048	2RP618597	311373	7357141	42	42	43	22	36	28	59	36	33
R0049	3RP859964	311438	7356993	41	41	42	20	34	27	58	35	32
R0050	2RP612342	311048	7356816	38	37	39	17	31	24	55	31	28
R0051	5RP863615	310810	7357735	51	50	52	30	44	37	68	44	42
R0052	4RP863615	310743	7357957	55	54	56	33	48	40	71	48	45
R0053	78CTN535	309712	7361246	34	34	35	14	28	20	51	28	25
R0060	46CTN198	307479	7355079	53	52	54	31	46	38	69	46	43
R0061	2RP614902	309757	7360692	37	37	38	16	30	23	54	31	28
R0062	2RP614902	310156	7360634	39	39	40	19	33	25	56	33	30
R0063	1RP614902	309579	7360745	36	36	37	15	29	22	53	30	27
R0064	101RP882263	310207	7359837	45	45	46	24	38	31	61	39	36
R0065	2RP836458	310119	7359969	43	43	44	22	37	29	60	37	34
R0066	100RP882263	310100	7359894	43	43	44	23	37	29	60	37	34
R0067	2RP840085	310135	7359675	45	45	46	25	39	31	62	39	36
R0068	10SP190336	309036	7360099	37	37	38	16	30	23	54	31	28
R0069	1RP851157	308916	7359280	37	37	38	16	30	23	55	31	28
R0083	1RP607568	307327	7358065	40	40	41	19	33	26	57	33	31
R0084	2RP607568	307176	7358252	38	38	39	18	31	24	55	32	29

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0085	1RP610723	306954	7357816	40	40	41	19	33	26	57	34	31
R0086	7SP239664	300691	7353032	61	58	61	38	53	44	75	52	49
R0087	16MPH14073	285486	7350499	34	34	35	14	27	20	51	28	25
R0088	15MPH14073	285736	7350680	35	36	37	15	29	22	52	29	27
R0089	1MPH23008	285949	7351084	38	38	39	17	31	24	55	32	29
R0090	50SP108918	285916	7351727	37	37	38	17	31	24	54	31	29
R0091	50SP108918	285976	7351858	38	38	39	17	31	24	55	32	29
R0092	3MPH14073	285300	7351706	34	34	35	13	27	20	51	28	25
R0093	18CP881417	285861	7352841	34	34	35	14	28	21	51	28	26
R0094	2CP881418	286072	7353219	34	34	35	14	27	20	51	28	25
R0095	4RP901627	310558	7355090	35	35	36	14	29	21	52	29	26
R0099	1RP855481	311017	7356131	34	34	35	14	28	20	52	28	25
R0100	3RP855481	311076	7356437	38	38	39	18	32	25	56	32	29
R0101	4RP855481	311120	7356574	38	38	39	18	32	24	56	32	29
R0102	4RP855481	311250	7356557	38	38	39	18	32	24	56	32	29
R0103	4RP859964	311506	7356873	40	40	41	19	33	26	56	33	31
R0104	4RP859964	311729	7356782	38	38	39	17	31	24	55	32	29
R0105	4RP859964	311836	7356702	37	37	38	17	30	23	54	31	28
R0106	101CTN242	312052	7356767	36	36	37	15	29	22	53	30	27
R0107	3RP616412	311480	7356590	38	38	39	17	31	24	55	32	29
R0108	2RP616412	311516	7356287	36	36	37	16	29	22	53	30	27
R0109	1RP616408	311418	7356102	36	36	37	15	29	22	53	30	27
R0110	1RP616409	311453	7355914	34	34	35	14	27	20	51	28	25
R0115	1RP614414	316090	7359083	44	44	45	24	38	30	61	38	35
R0120	233SP116447	317318	7358174	31	31	32	11	25	17	51	25	22
R0132	246SP182716	317104	7358055	34	34	35	14	27	20	51	28	25
R0133	247SP182716	317089	7358045	34	34	35	14	28	20	51	28	25

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0134	248SP182679	317138	7358018	34	34	35	13	27	20	51	28	25
R0135	316SP200673	317153	7357997	34	34	35	13	27	20	51	28	25
R0199	303SP165525	317469	7358231	34	34	35	13	27	20	51	28	25
R0200	302SP165525	317496	7358230	34	34	35	13	27	20	51	28	25
R0208	365SP241220	317614	7358319	34	34	35	13	27	20	51	28	25
R0209	364SP223497	317588	7358316	34	34	35	13	27	20	51	28	25
R0210	363SP223497	317573	7358303	34	34	35	13	27	20	51	28	25
R0211	362SP223497	317557	7358296	34	34	35	13	27	20	51	28	25
R0212	361SP223497	317538	7358284	34	34	35	13	27	20	51	28	25
R0213	346SP223497	317513	7358279	34	34	35	13	27	20	51	28	25
R0214	305SP165525	317495	7358274	34	34	35	14	27	20	51	28	25
R0215	304SP165525	317474	7358275	34	34	35	14	27	20	51	28	25
R0216	1SP181605	317469	7358327	34	34	35	14	28	20	51	28	25
R0217	306SP165525	317486	7358320	34	34	35	14	28	20	51	28	25
R0218	1SP256198	317509	7358323	34	34	35	14	28	20	51	28	25
R0219	2SP256198	317517	7358327	34	34	35	14	28	20	51	28	25
R0220	344SP223497	317535	7358336	34	34	35	14	27	20	51	28	25
R0221	343SP223497	317550	7358344	34	34	35	14	27	20	51	28	25
R0222	1SP256197	317564	7358362	34	34	35	14	27	20	51	28	25
R0223	2SP256197	317588	7358370	34	34	35	14	27	20	51	28	25
R0224	312SP165525	317555	7358387	34	34	35	14	28	20	51	28	25
R0225	311SP165525	317528	7358374	34	34	35	14	28	20	51	28	25
R0226	310SP165525	317504	7358372	34	34	35	14	28	20	51	28	25
R0227	309SP165525	317488	7358368	34	34	35	14	28	21	51	28	26
R0228	1SP235959	317469	7358362	34	34	35	14	28	21	51	28	26
R0229	317SP165525	317466	7358410	35	35	36	14	28	21	51	29	26
R0230	316SP165525	317480	7358414	35	35	35	14	28	21	51	29	26

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0231	315SP165525	317502	7358418	35	35	35	14	28	21	51	28	26
R0232	314SP165525	317519	7358426	34	34	35	14	28	21	51	28	26
R0233	313SP165525	317550	7358416	34	34	35	14	28	21	51	28	25
R0234	296SP165525	317419	7358227	34	34	35	14	27	20	51	28	25
R0235	295SP165525	317424	7358257	34	34	35	14	28	20	51	28	25
R0236	294SP165525	317423	7358275	34	34	35	14	28	20	51	28	25
R0237	293SP165525	317418	7358301	34	34	35	14	28	21	51	28	25
R0238	292SP165525	317422	7358314	34	34	35	14	28	21	51	28	26
R0239	291SP165525	317418	7358338	34	34	35	14	28	21	51	28	26
R0240	290SP165525	317416	7358356	35	35	35	14	28	21	51	29	26
R0241	289SP165525	317412	7358378	35	35	36	14	28	21	52	29	26
R0242	288SP165525	317413	7358396	35	35	36	14	28	21	52	29	26
R0243	287SP165525	317413	7358413	35	35	36	14	28	21	52	29	26
R0244	286SP165525	317411	7358440	35	35	36	15	28	21	52	29	26
R0245	285SP165525	317411	7358453	35	35	36	15	29	21	52	29	26
R0246	284SP165525	317400	7358482	35	35	36	15	29	21	52	29	26
R0247	283SP165525	317403	7358496	35	35	36	15	29	21	52	29	26
R0248	282SP160780	317401	7358517	34	35	36	14	28	21	52	29	26
R0249	281SP160780	317403	7358538	27	27	27	6	20	13	52	21	18
R0250	318SP165525	317466	7358450	35	35	36	14	28	21	52	29	26
R0251	1SP263690	317455	7358466	35	35	36	15	28	21	52	29	26
R0252	2SP263690	317475	7358467	35	35	36	14	28	21	52	29	26
R0253	320SP165525	317460	7358484	35	35	36	15	28	21	52	29	26
R0254	4SP181606	317455	7358506	35	35	36	15	29	21	52	29	26
R0255	1SP174647	317455	7358529	35	35	36	15	29	21	52	29	26
R0256	7SP215251	317487	7358515	35	35	36	15	28	21	52	29	26
R0257	8SP215251	317495	7358503	35	35	36	15	28	21	52	29	26

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0258	1SP218082	317505	7358495	35	35	36	15	28	21	52	29	26
R0259	2SP218082	317501	7358477	35	35	36	14	28	21	52	29	26
R0260	324SP200671	317519	7358474	35	35	36	14	28	21	52	29	26
R0261	337SP206873	317536	7358461	35	35	35	14	28	21	51	29	26
R0262	338SP206873	317561	7358443	34	34	35	14	28	21	51	28	26
R0263	339SP206873	317575	7358428	34	34	35	14	28	20	51	28	25
R0264	340SP206873	317586	7358414	34	34	35	14	28	20	51	28	25
R0265	341SP206873	317605	7358403	34	34	35	14	28	20	51	28	25
R0266	366SP206873	317618	7358385	34	34	35	14	27	20	51	28	25
R0267	367SP206873	317635	7358372	34	34	35	13	27	20	51	28	25
R0268	368SP206873	317645	7358353	34	34	35	13	27	20	51	28	25
R0271	371SP206873	317695	7358401	34	34	35	13	27	20	51	28	25
R0272	382SP206873	317698	7358427	34	34	35	13	27	20	51	28	25
R0273	372SP206873	317674	7358416	34	34	35	13	27	20	51	28	25
R0274	373SP206873	317659	7358425	34	34	35	14	27	20	51	28	25
R0275	374SP206873	317639	7358442	34	34	35	14	28	20	51	28	25
R0276	375SP206873	317627	7358460	34	34	35	14	28	20	51	28	25
R0277	376SP206873	317613	7358468	34	34	35	14	28	21	51	28	25
R0278	381SP206873	317700	7358453	34	34	35	14	27	20	51	28	25
R0279	380SP206873	317677	7358480	34	34	35	14	28	20	51	28	25
R0280	379SP206873	317663	7358491	34	34	35	14	28	20	51	28	25
R0281	378SP206873	317657	7358510	34	34	35	14	27	20	51	28	25
R0282	336SP206873	317567	7358493	35	35	35	14	28	21	51	29	26
R0283	335SP206873	317579	7358504	35	35	35	14	28	21	51	29	26
R0284	1SP341680	317596	7358523	35	35	35	14	28	21	51	29	26
R0285	333SP206873	317617	7358536	35	35	35	14	28	21	51	29	26
R0286	125SP264615	317635	7358548	35	35	35	14	28	21	51	29	26

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0287	331SP200671	317630	7358574	35	35	36	14	28	21	52	29	26
R0288	330SP200671	317607	7358577	35	35	36	14	28	21	52	29	26
R0289	329SP200671	317588	7358595	35	35	36	15	28	21	52	29	26
R0290	328SP200671	317577	7358564	35	35	36	14	28	21	52	29	26
R0291	327SP200671	317569	7358548	35	35	36	14	28	21	52	29	26
R0292	326SP200671	317553	7358534	35	35	36	14	28	21	52	29	26
R0293	6SP228429	317540	7358517	35	35	36	14	28	21	52	29	26
R0294	269SP160780	317511	7358557	35	35	36	15	29	21	52	29	26
R0295	268SP160780	317526	7358571	35	35	36	15	29	21	52	29	26
R0296	267SP160780	317535	7358590	35	35	36	15	29	21	52	29	26
R0297	266SP160780	317548	7358606	35	35	36	15	29	21	52	29	26
R0298	208SP155988	317560	7358624	35	35	36	15	29	21	52	29	26
R0299	207SP155988	317568	7358642	35	35	36	15	29	21	52	29	26
R0300	206SP155988	317579	7358664	35	35	36	15	29	21	52	29	26
R0301	205SP155988	317591	7358676	35	35	36	15	29	21	52	29	26
R0302	265SP160780	317605	7358657	35	35	36	15	29	21	52	29	26
R0303	264SP160780	317625	7358644	35	35	36	15	28	21	52	29	26
R0304	263SP160780	317639	7358635	35	35	36	15	28	21	52	29	26
R0305	262SP200671	317656	7358621	35	35	36	14	28	21	52	29	26
R0306	261SP200671	317684	7358629	35	35	36	14	28	21	52	29	26
R0307	260SP160780	317698	7358649	35	35	36	14	28	21	52	29	26
R0308	280SP160780	317405	7358576	27	27	28	6	20	13	52	21	18
R0309	279SP160780	317409	7358593	27	27	28	7	21	14	52	21	19
R0310	278SP160780	317408	7358617	28	28	28	7	21	14	53	22	19
R0311	277SP160780	317423	7358642	35	35	37	15	29	22	53	29	27
R0312	276SP160780	317412	7358658	30	30	30	9	23	16	53	24	21
R0313	232SP155988	317423	7358680	36	36	37	16	29	22	53	30	27

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0314	231SP155988	317427	7358699	36	36	37	16	29	22	53	30	27
R0315	230SP155988	317433	7358714	36	36	37	16	30	22	53	30	27
R0316	229SP155988	317445	7358732	36	36	37	16	30	22	53	30	27
R0317	228SP155988	317456	7358749	36	36	37	16	30	22	53	30	27
R0318	227SP155988	317454	7358770	36	36	37	16	30	22	53	30	27
R0319	1SP170948	317489	7358804	36	36	37	16	30	22	53	30	27
R0320	2SP170948	317472	7358809	36	36	37	16	30	23	53	30	28
R0321	225SP155988	317498	7358824	36	36	37	16	30	22	53	30	27
R0322	125SP138668	317501	7358841	36	36	37	16	30	23	53	30	27
R0323	124SP138668	317516	7358859	36	36	37	16	30	23	53	30	27
R0324	123SP138668	317518	7358877	36	36	37	16	30	23	53	30	27
R0325	122SP138668	317531	7358897	36	36	37	16	30	23	53	30	27
R0326	121SP138668	317539	7358917	36	36	37	16	30	23	53	30	27
R0327	120SP138668	317557	7358928	36	36	37	16	30	23	53	30	28
R0328	119SP138668	317570	7358952	36	36	37	16	30	23	53	30	27
R0329	118SP138668	317585	7358966	36	36	37	16	30	23	53	30	28
R0330	117SP138668	317601	7358981	36	36	37	16	30	23	53	30	28
R0331	116SP138668	317619	7358989	36	36	37	16	30	23	53	30	28
R0332	115SP138668	317634	7359008	36	36	37	16	30	23	53	30	28
R0333	114SP138668	317690	7359023	36	36	37	16	30	22	53	30	27
R0334	113SP126502	317705	7359027	36	36	37	16	29	22	53	30	27
R0335	112SP126502	317728	7359032	36	36	37	16	29	22	53	30	27
R0336	111SP126502	317763	7359031	36	36	37	15	29	22	53	30	27
R0337	110SP126502	317765	7359051	35	35	36	15	29	21	53	29	26
R0338	109SP126502	317769	7359075	35	35	36	15	29	21	53	29	26
R0339	1SP150264	317764	7359098	34	34	35	14	28	21	53	28	25
R0340	107SP138667	317724	7359067	35	35	36	15	29	22	53	29	27

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0341	106SP138667	317715	7359095	35	35	36	15	28	21	53	29	26
R0342	105SP138667	317714	7359112	28	28	29	7	21	14	53	22	19
R0343	104SP138667	317746	7359137	26	26	26	5	19	12	53	20	17
R0344	103SP138667	317771	7359138	26	26	26	5	19	12	53	20	17
R0345	102SP138667	317787	7359138	26	26	26	5	19	12	53	20	17
R0346	101SP138667	317807	7359132	27	27	28	7	20	13	53	21	18
R0347	100SP138667	317825	7359127	28	28	29	8	22	14	53	22	19
R0348	99SP138667	317846	7359129	28	28	29	8	22	15	53	22	20
R0349	98SP138667	317865	7359120	30	30	31	10	24	17	52	24	21
R0350	97SP138667	317888	7359124	34	34	35	14	28	21	52	28	25
R0351	96SP138667	317906	7359120	34	34	35	14	28	21	52	28	26
R0352	59SP118308	317926	7359117	34	34	35	14	28	20	52	28	25
R0353	60SP118308	317911	7359065	34	34	35	14	28	21	52	28	25
R0354	95SP138667	317892	7359078	34	34	35	14	28	20	52	28	25
R0355	94SP138667	317873	7359077	34	34	35	14	28	21	52	28	25
R0356	93SP138667	317854	7359079	34	35	35	14	28	21	52	29	26
R0357	92SP138667	317833	7359083	35	35	36	14	28	21	52	29	26
R0358	10SP145555	317819	7359078	35	35	36	15	28	21	53	29	26
R0359	90SP126502	317808	7359045	35	35	36	15	28	21	53	29	26
R0360	89SP126502	317822	7359033	35	35	36	14	28	21	52	29	26
R0361	88SP126502	317843	7359027	35	35	36	14	28	21	52	29	26
R0362	87SP126502	317864	7359020	34	34	35	14	28	21	52	28	26
R0363	86SP126502	317885	7359021	34	34	35	14	28	21	52	28	26
R0364	61SP118308	317903	7359018	34	34	35	14	28	20	52	28	25
R0365	58SP118308	317949	7359119	34	34	35	14	28	20	52	28	25
R0366	57SP118308	317971	7359128	34	34	35	14	27	20	52	28	25
R0367	24RP910289	318011	7359121	34	34	35	14	28	20	51	28	25

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0368	23RP910289	318009	7359107	34	34	35	13	27	20	51	28	25
R0369	22RP910289	318004	7359086	33	33	34	13	27	20	51	27	25
R0370	21RP910289	318001	7359064	33	33	34	13	27	20	51	27	25
R0371	56SP118308	317961	7359087	34	34	35	14	27	20	52	28	25
R0372	55SP118308	317959	7359069	34	34	35	14	27	20	52	28	25
R0373	54SP118308	317952	7359050	34	34	35	14	28	20	52	28	25
R0374	20RP910289	317994	7359048	33	34	34	13	27	20	51	27	25
R0375	2SP118313	317994	7359026	34	34	35	13	27	20	51	28	25
R0376	53SP118308	317948	7359028	34	34	35	14	28	20	52	28	25
R0377	52SP118308	317948	7359015	34	34	35	14	27	20	52	28	25
R0378	49SP111007	317990	7359005	34	34	35	13	27	20	51	28	25
R0379	13RP910289	318056	7359113	34	34	35	14	28	21	51	28	25
R0380	1SP102104	318086	7359113	34	34	35	14	28	21	51	28	25
R0381	11RP910288	318089	7359093	34	34	35	14	28	20	51	28	25
R0382	14RP910289	318052	7359096	34	34	35	14	27	20	51	28	25
R0383	15RP910289	318045	7359075	33	33	34	13	27	20	51	27	25
R0384	16RP910289	318042	7359054	33	33	34	13	27	20	51	27	25
R0385	17RP910289	318038	7359038	33	33	34	13	27	20	51	27	25
R0386	18RP910289	318039	7359022	34	34	34	13	27	20	51	28	25
R0387	1SP113113	318035	7359003	33	34	34	13	27	20	51	27	25
R0388	51SP111007	318077	7358999	33	33	34	13	27	20	51	27	25
R0389	7RP910288	318085	7359008	33	33	34	13	27	20	51	27	24
R0390	8RP910288	318088	7359028	33	33	34	13	27	20	51	27	24
R0391	9RP910288	318087	7359052	33	33	34	13	27	20	51	27	24
R0392	1RP910288	318148	7359105	34	34	35	14	27	20	51	28	25
R0393	2RP910288	318144	7359087	34	34	35	14	27	20	51	28	25
R0394	3RP910288	318147	7359067	34	34	35	14	27	20	51	28	25

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0395	4RP910288	318143	7359044	34	34	35	13	27	20	51	28	25
R0396	5RP910288	318139	7359025	33	34	34	13	27	20	51	28	25
R0397	6RP910288	318136	7359008	34	34	35	13	27	20	51	28	25
R0398	25SP111007	318130	7358985	34	34	35	13	27	20	51	28	25
R0399	26SP111007	318130	7358964	34	34	34	13	27	20	51	28	25
R0400	27SP111007	318127	7358946	34	34	35	13	27	20	51	28	25
R0417	2SP181589	317458	7358583	35	35	36	15	29	22	52	29	27
R0418	4SP186454	317461	7358605	36	36	36	15	29	22	52	29	27
R0419	2SP169967	317465	7358637	36	36	37	15	29	22	53	30	27
R0420	224SP155988	317472	7358661	36	36	37	15	29	22	53	30	27
R0421	3SP162930	317478	7358675	36	36	37	15	29	22	53	30	27
R0422	2SP162930	317485	7358690	36	36	37	15	29	22	53	30	27
R0423	1SP162930	317493	7358701	36	36	37	15	29	22	53	30	27
R0424	221SP155988	317496	7358715	36	36	37	16	29	22	53	30	27
R0425	220SP155988	317508	7358740	36	36	37	16	29	22	53	30	27
R0426	219SP155988	317522	7358756	36	36	37	16	29	22	53	30	27
R0427	218SP155988	317529	7358775	36	36	37	16	29	22	53	30	27
R0428	217SP155988	317537	7358785	36	36	37	16	29	22	53	30	27
R0429	126SP138668	317547	7358810	36	36	37	16	30	22	53	30	27
R0430	127SP138668	317555	7358830	36	36	37	16	30	22	53	30	27
R0431	128SP138668	317564	7358840	36	36	37	16	30	22	53	30	27
R0432	129SP138668	317572	7358859	36	36	37	16	30	22	53	30	27
R0433	130SP138668	317583	7358883	36	36	37	16	30	22	53	30	27
R0434	131SP138668	317601	7358902	36	36	37	16	30	22	53	30	27
R0435	132SP138668	317613	7358915	36	36	37	16	30	22	53	30	27
R0436	133SP138668	317626	7358933	36	36	37	16	30	22	53	30	27
R0437	134SP138668	317646	7358943	36	36	37	16	30	22	53	30	27

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0438	135SP138668	317665	7358960	36	36	37	16	30	22	53	30	27
R0439	136SP138668	317688	7358967	36	36	37	16	29	22	53	30	27
R0442	10RP910288	318091	7359075	34	34	35	14	27	20	51	28	25
R0443	137SP138668	317707	7358971	36	36	37	16	29	22	53	30	27
R0444	138SP126502	317733	7358983	36	36	37	15	29	22	53	30	27
R0445	139SP126502	317750	7358983	36	36	37	15	29	22	53	30	27
R0446	140SP126502	317777	7358981	36	36	37	15	29	22	52	30	27
R0447	141SP126502	317798	7358979	35	35	36	15	29	22	52	29	27
R0448	142SP126502	317816	7358975	35	35	36	15	29	22	52	29	27
R0449	143SP126502	317838	7358973	35	35	36	15	29	21	52	29	26
R0450	144SP126502	317856	7358968	35	35	36	15	29	21	52	29	26
R0451	145SP126502	317882	7358969	35	35	36	15	28	21	52	29	26
R0452	62SP118308	317901	7358964	35	35	36	15	28	21	52	29	26
R0453	63SP118308	317919	7358961	35	35	36	14	28	21	52	29	26
R0454	44SP118308	317944	7358960	34	34	35	14	28	21	51	28	26
R0455	43SP118308	317964	7358959	35	35	35	14	28	21	51	28	26
R0456	48SP111007	317978	7358962	34	34	35	14	28	21	51	28	26
R0457	47SP111007	318005	7358955	34	34	35	14	28	20	51	28	25
R0458	46SP111007	318022	7358954	34	34	35	14	28	20	51	28	25
R0459	45SP111007	318040	7358948	34	34	35	14	27	20	51	28	25
R0460	42SP111007	318065	7358932	34	34	35	14	27	20	51	28	25
R0461	67SP118308	318039	7358908	34	34	35	14	27	20	51	28	25
R0462	66SP118308	318020	7358910	34	34	35	14	27	20	51	28	25
R0463	65SP118308	317998	7358915	34	34	35	14	27	20	51	28	25
R0464	64SP118308	317974	7358919	34	34	35	14	28	20	51	28	25
R0465	146SP152411	317959	7358921	34	34	35	14	28	21	51	28	26
R0466	147SP152411	317932	7358922	34	34	35	14	28	21	51	28	26

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0467	148SP152411	317915	7358918	35	35	36	14	28	21	51	29	26
R0468	150SP152411	317873	7358931	35	35	36	15	28	21	52	29	26
R0469	151SP152411	317852	7358930	35	35	36	15	28	21	52	29	26
R0470	152SP152411	317832	7358930	35	35	36	15	29	21	52	29	26
R0471	153SP152411	317818	7358939	35	35	36	15	29	21	52	29	26
R0472	154SP152411	317798	7358938	35	35	36	15	29	22	52	29	26
R0473	182SP152411	317768	7358940	35	35	36	15	29	22	52	29	27
R0474	183SP152411	317747	7358937	36	36	36	15	29	22	52	30	27
R0475	184SP152411	317727	7358937	36	36	37	15	29	22	53	30	27
R0476	185SP152411	317703	7358932	36	36	37	15	29	22	53	30	27
R0477	186SP155988	317683	7358921	36	36	37	15	29	22	53	30	27
R0478	187SP155988	317665	7358910	36	36	37	16	29	22	53	30	27
R0479	188SP155988	317648	7358894	36	36	37	16	29	22	53	30	27
R0480	189SP155988	317636	7358880	36	36	37	16	29	22	53	30	27
R0481	190SP155988	317624	7358859	36	36	37	16	29	22	53	30	27
R0482	191SP155988	317620	7358842	36	36	37	15	29	22	53	30	27
R0483	193SP155988	317591	7358805	36	36	37	15	29	22	53	30	27
R0484	194SP155988	317580	7358786	36	36	37	15	29	22	53	30	27
R0485	192SP155988	317600	7358823	36	36	37	16	29	22	53	30	27
R0486	216SP155988	317574	7358764	36	36	37	15	29	22	53	30	27
R0487	215SP155988	317566	7358747	36	36	37	15	29	22	53	30	27
R0488	214SP155988	317553	7358732	36	36	37	15	29	22	53	30	27
R0489	213SP155988	317543	7358707	36	36	37	15	29	22	52	30	27
R0490	211SP155988	317526	7358681	36	36	37	15	29	22	52	30	27
R0491	212SP155988	317532	7358697	36	36	37	15	29	22	53	30	27
R0492	210SP155988	317511	7358664	36	36	37	15	29	22	52	30	27
R0493	209SP155988	317502	7358643	36	36	36	15	29	22	52	29	27

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0494	270SP160780	317487	7358621	36	35	36	15	29	22	52	29	27
R0495	271SP160780	317485	7358595	35	35	36	15	29	22	52	29	27
R0496	259SP160780	317686	7358675	35	35	36	14	28	21	52	29	26
R0497	258SP160780	317671	7358684	35	35	36	15	28	21	52	29	26
R0498	257SP160780	317649	7358690	35	35	36	15	29	21	52	29	26
R0499	256SP160780	317631	7358706	35	35	36	15	29	21	52	29	26
R0500	204SP155988	317601	7358710	35	35	36	15	29	22	52	29	27
R0501	203SP155988	317607	7358724	35	35	36	15	29	22	52	29	27
R0502	202SP155988	317617	7358744	35	35	36	15	29	22	52	29	27
R0503	1SP162147	317648	7358729	35	35	36	15	29	21	52	29	26
R0504	254SP160766	317678	7358722	35	35	36	15	29	21	52	29	26
R0505	243SP160766	317705	7358697	35	35	36	14	28	21	52	29	26
R0506	244SP160766	317718	7358712	35	35	36	14	28	21	52	29	26
R0507	245SP160766	317720	7358743	35	35	36	15	28	21	52	29	26
R0508	246SP160766	317722	7358759	35	35	36	15	28	21	52	29	26
R0509	247SP160766	317724	7358779	35	35	36	15	29	21	52	29	26
R0510	248SP160766	317728	7358799	35	35	36	15	29	21	52	29	26
R0511	249SP160766	317734	7358824	35	35	36	15	29	21	52	29	26
R0512	250SP160766	317734	7358838	35	35	36	15	29	21	52	29	26
R0513	181SP152411	317742	7358885	35	35	36	15	29	22	52	29	27
R0514	195SP155988	317719	7358883	36	36	36	15	29	22	52	29	27
R0515	196SP155988	317700	7358869	36	36	36	15	29	22	52	29	27
R0516	197SP155988	317679	7358855	36	36	37	15	29	22	52	30	27
R0517	12SP160782	317668	7358829	36	36	36	15	29	22	52	29	27
R0518	199SP155988	317659	7358810	36	35	36	15	29	22	52	29	27
R0519	200SP155988	317650	7358794	36	35	36	15	29	22	52	29	27
R0520	1SP159698	317636	7358773	35	35	36	15	29	22	52	29	27

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0521	253SP160766	317665	7358772	35	35	36	15	29	22	52	29	26
R0522	252SP160766	317681	7358769	35	35	36	15	29	21	52	29	26
R0523	251SP160766	317688	7358803	35	35	36	15	29	22	52	29	27
R0524	180SP152411	317765	7358889	35	35	36	15	29	21	52	29	26
R0525	2SP155873	317782	7358884	35	35	36	15	29	21	52	29	26
R0526	156SP152411	317773	7358860	35	35	36	15	29	21	52	29	26
R0527	157SP152411	317769	7358842	35	35	36	15	29	21	52	29	26
R0528	158SP152411	317767	7358820	35	35	36	15	29	21	52	29	26
R0529	159SP152411	317767	7358793	35	35	36	15	28	21	52	29	26
R0530	160SP152411	317766	7358775	35	35	36	15	28	21	52	29	26
R0531	239SP160766	317763	7358757	35	35	36	14	28	21	52	29	26
R0532	240SP160766	317759	7358739	35	35	36	14	28	21	52	29	26
R0533	241SP160766	317758	7358719	35	35	36	14	28	21	52	29	26
R0534	242SP160766	317746	7358698	35	35	36	14	28	21	52	29	26
R0535	117SP264615	317738	7358679	35	35	36	14	28	21	51	29	26
R0536	116SP264615	317735	7358667	35	35	35	14	28	21	51	29	26
R0537	115SP264615	317734	7358656	35	35	35	14	28	21	51	29	26
R0538	114SP264615	317737	7358640	34	34	35	14	28	21	51	28	26
R0539	113SP264615	317780	7358639	34	34	35	14	28	20	51	28	25
R0540	1SP311640	317791	7358659	34	34	35	14	28	21	51	28	25
R0541	235SP160766	317791	7358684	34	34	35	14	28	21	51	28	26
R0542	236SP160766	317805	7358714	34	34	35	14	28	21	51	28	26
R0543	237SP160766	317804	7358732	35	35	35	14	28	21	51	28	26
R0544	238SP160766	317809	7358753	35	35	35	14	28	21	51	29	26
R0545	161SP152411	317810	7358770	35	35	36	14	28	21	51	29	26
R0546	162SP152411	317811	7358790	35	35	36	14	28	21	52	29	26
R0547	163SP152411	317818	7358809	35	35	36	14	28	21	52	29	26

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0548	164SP152411	317819	7358830	35	35	36	14	28	21	52	29	26
R0549	165SP152411	317825	7358852	35	35	36	15	28	21	52	29	26
R0550	166SP152411	317826	7358870	35	35	36	15	28	21	52	29	26
R0551	2SP155998	317831	7358885	35	35	36	15	28	21	52	29	26
R0552	1SP171130	317865	7358884	35	35	36	14	28	21	52	29	26
R0553	169SP152411	317865	7358865	35	35	36	14	28	21	52	29	26
R0554	170SP152411	317861	7358843	35	35	36	14	28	21	52	29	26
R0555	171SP152411	317861	7358829	35	35	36	14	28	21	51	29	26
R0556	172SP152411	317858	7358808	35	35	35	14	28	21	51	29	26
R0557	173SP152411	317855	7358782	34	34	35	14	28	21	51	28	26
R0558	174SP152411	317852	7358767	34	34	35	14	28	21	51	28	26
R0559	233SP160766	317851	7358747	34	34	35	14	28	21	51	28	26
R0560	234SP160766	317842	7358727	34	34	35	14	28	21	51	28	26
R0561	27SP264615	317843	7358703	34	34	35	14	28	20	51	28	25
R0562	177SP152411	317906	7358874	35	35	35	14	28	21	51	29	26
R0563	178SP152411	317924	7358875	34	34	35	14	28	21	51	28	26
R0564	179SP152411	317946	7358871	34	34	35	14	28	20	51	28	25
R0565	85SP118308	317977	7358871	34	34	35	14	27	20	51	28	25
R0566	84SP118308	317976	7358846	34	34	35	14	27	20	51	28	25
R0567	83SP118308	317967	7358830	34	34	35	14	27	20	51	28	25
R0571	175SP152411	317906	7358820	34	34	35	14	28	21	51	28	25
R0572	78SP118308	317977	7358777	34	34	35	14	27	20	51	28	25
R0573	77SP118308	317980	7358761	34	34	35	13	27	20	51	28	25
R0574	76SP118308	317985	7358740	34	34	35	13	27	20	51	28	25
R0575	76SP118308	317979	7358722	34	34	35	13	27	20	51	28	25
R0582	2SP116452	318065	7358840	34	34	35	13	27	20	51	28	25
R0583	2SP108917	318067	7358858	34	34	35	13	27	20	51	28	25

Receptor ID	Lot Plan	X	Y	Sc.1 Clear and Grub	Sc.2 Construction of access tracks	Sc.3 Foundation Excavation	Sc.4 Stub Set and Form	Sc.5 Batch Plant	Sc.6 Transmission Tower Assembly and Erection	Sc.7 Stringing	Sc.8 Laydown area	Sc.9 Rehabilitation
R0585	68SP118308	318031	7358861	34	34	35	14	27	20	51	28	25
R0586	69SP118308	318019	7358845	34	34	35	14	27	20	51	28	25
R0587	70SP118308	318019	7358824	34	34	35	13	27	20	51	28	25
R0588	71SP118308	318016	7358810	34	34	35	13	27	20	51	28	25
R0589	72SP118308	318022	7358791	34	34	35	13	27	20	51	28	25
R0632	1RP836458	309980	7360083	42	42	43	21	35	28	58	35	33
R0633	3SP132833	309396	7359635	41	41	42	21	35	27	58	35	32
R0635	8MPH22996	287863	7354078	34	34	35	14	28	21	51	28	26
R0636	44CTN260	288187	7352954	43	42	44	22	36	29	59	36	33
R0637	3RP617919	310030	7354969	36	36	37	16	30	22	53	30	27
R0681	1SP130659	305298	7351474	38	38	39	18	31	24	55	32	29
R0682	52CTN198	305195	7351674	40	39	41	19	33	26	56	33	31
R0883	139CTN2130	313507	7362057	48	48	49	27	42	34	65	41	39
R0884	12SP239343	313565	7362316	46	45	47	25	39	32	63	39	36
R0885	140CTN2130	313616	7362610	43	43	44	23	37	29	60	37	34
R0886	138CTN2123	313363	7362511	43	43	44	22	36	29	60	37	34
R0887	141CTN2144	313093	7363328	36	36	37	16	30	22	53	30	27
R0961	3MPH22996	287010	7352298	44	44	45	23	37	30	61	38	35

Table A.2 Predicted Operational and Maintenance Noise Levels (where > 50 dB(A))

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0001	20MPH23015	286615	7351757	19	60	34
R0002	3MPH22996	286781	7352373	18	58	33
R0003	43CTN260	287536	7352377	23	64	39
R0004	54CTN515	288907	7348935	11	51	25
R0005	3CTN496	290186	7353533	16	56	30
R0006	2RP603104	290364	7353983	13	53	27
R0014	16CL40367	299306	7353534	24	64	39
R0019	2MPH22996	288432	7353884	13	52	26
R0021	7MPH22996	287073	7353238	15	55	29
R0022	4CP889242	286870	7352599	18	58	32
R0023	21CTN248	309252	7355765	21	61	36
R0024	529CL40250	308906	7355330	20	60	34
R0025	89CTN248	307230	7356547	29	70	46
R0026	90CTN248	307861	7356961	30	71	48
R0027	3RP606484	307714	7357235	25	66	41
R0028	88CTN248	307139	7357582	19	59	33
R0029	2RP616496	308887	7358141	26	67	43
R0030	1RP616496	309230	7357910	32	73	51
R0031	2RP851157	309735	7358701	27	67	42
R0032	3RP863615	310112	7358499	35	77	56
R0033	40CTN157	310396	7358990	30	71	49
R0034	99SP116453	310011	7359048	26	67	42
R0035	101RP882263	310242	7359775	21	61	36
R0036	1RP840085	310367	7359369	25	66	42
R0037	6RP863615	310449	7357728	32	72	50
R0038	1SP109964	310467	7357411	27	68	43
R0039	1SP109964	310465	7357314	26	67	42

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0040	2SP109964	310535	7357055	23	63	38
R0041	3SP109964	310444	7356918	23	63	38
R0042	1RP617919	310473	7356543	20	60	35
R0043	508CL40240	309788	7355217	15	55	30
R0044	3RP617919	310035	7355154	14	54	28
R0045	2RP617919	310118	7355520	15	56	30
R0046	2RP617919	310351	7355431	14	54	29
R0047	1RP618597	311410	7357354	20	60	35
R0048	2RP618597	311373	7357141	19	59	33
R0049	3RP859964	311438	7356993	17	58	32
R0050	2RP612342	311048	7356816	15	55	28
R0051	5RP863615	310810	7357735	28	68	42
R0052	4RP863615	310743	7357957	31	71	46
R0053	78CTN535	309712	7361246	11	51	25
R0060	46CTN198	307479	7355079	28	69	44
R0061	2RP614902	309757	7360692	13	54	28
R0062	2RP614902	310156	7360634	15	56	30
R0063	1RP614902	309579	7360745	12	53	27
R0064	101RP882263	310207	7359837	20	61	36
R0065	2RP836458	310119	7359969	19	60	34
R0066	100RP882263	310100	7359894	19	60	34
R0067	2RP840085	310135	7359675	21	62	36
R0068	10SP190336	309036	7360099	13	54	28
R0069	1RP851157	308916	7359280	14	55	28
R0083	1RP607568	307327	7358065	17	57	31
R0084	2RP607568	307176	7358252	15	55	29
R0085	1RP610723	306954	7357816	16	57	31
R0086	7SP239664	300691	7353032	34	75	53
R0087	16MPH14073	285486	7350499	10	51	25

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0088	15MPH14073	285736	7350680	12	52	26
R0089	1MPH23008	285949	7351084	14	55	29
R0090	50SP108918	285916	7351727	14	54	28
R0091	50SP108918	285976	7351858	14	55	29
R0093	18CP881417	285861	7352841	11	51	25
R0094	2CP881418	286072	7353219	11	51	25
R0095	4RP901627	310558	7355090	11	52	26
R0099	1RP855481	311017	7356131	12	52	25
R0100	3RP855481	311076	7356437	16	56	29
R0101	4RP855481	311120	7356574	16	56	29
R0102	4RP855481	311250	7356557	16	56	29
R0103	4RP859964	311506	7356873	16	56	31
R0104	4RP859964	311729	7356782	15	55	29
R0105	4RP859964	311836	7356702	14	53	28
R0106	101CTN242	312052	7356767	14	53	27
R0107	3RP616412	311480	7356590	15	55	29
R0108	2RP616412	311516	7356287	13	53	27
R0109	1RP616408	311418	7356102	13	53	27
R0110	1RP616409	311453	7355914	12	51	25
R0115	1RP614414	316090	7359083	20	61	35
R0120	233SP116447	317318	7358174	10	51	22
R0132	246SP182716	317104	7358055	10	51	25
R0133	247SP182716	317089	7358045	10	51	25
R0134	248SP182679	317138	7358018	10	51	25
R0199	303SP165525	317469	7358231	10	51	25
R0200	302SP165525	317496	7358230	10	51	25
R0209	364SP223497	317588	7358316	10	51	25
R0210	363SP223497	317573	7358303	10	51	25
R0211	362SP223497	317557	7358296	10	51	25

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0212	361SP223497	317538	7358284	10	51	25
R0213	346SP223497	317513	7358279	10	51	25
R0214	305SP165525	317495	7358274	10	51	25
R0215	304SP165525	317474	7358275	10	51	25
R0216	1SP181605	317469	7358327	10	51	25
R0217	306SP165525	317486	7358320	10	51	25
R0218	1SP256198	317509	7358323	10	51	25
R0219	2SP256198	317517	7358327	10	51	25
R0220	344SP223497	317535	7358336	10	51	25
R0221	343SP223497	317550	7358344	10	51	25
R0222	1SP256197	317564	7358362	10	51	25
R0223	2SP256197	317588	7358370	10	51	25
R0224	312SP165525	317555	7358387	10	51	25
R0225	311SP165525	317528	7358374	10	51	25
R0226	310SP165525	317504	7358372	10	51	25
R0227	309SP165525	317488	7358368	10	51	25
R0228	1SP235959	317469	7358362	10	51	25
R0229	317SP165525	317466	7358410	11	51	26
R0230	316SP165525	317480	7358414	10	51	26
R0231	315SP165525	317502	7358418	10	51	26
R0232	314SP165525	317519	7358426	10	51	25
R0233	313SP165525	317550	7358416	10	51	25
R0234	296SP165525	317419	7358227	10	51	25
R0235	295SP165525	317424	7358257	10	51	25
R0236	294SP165525	317423	7358275	10	51	25
R0237	293SP165525	317418	7358301	10	51	25
R0238	292SP165525	317422	7358314	10	51	25
R0239	291SP165525	317418	7358338	10	51	25
R0240	290SP165525	317416	7358356	10	51	26

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0241	289SP165525	317412	7358378	11	52	26
R0242	288SP165525	317413	7358396	11	52	26
R0243	287SP165525	317413	7358413	11	52	26
R0244	286SP165525	317411	7358440	11	52	26
R0245	285SP165525	317411	7358453	11	52	26
R0246	284SP165525	317400	7358482	11	52	26
R0247	283SP165525	317403	7358496	11	52	26
R0248	282SP160780	317401	7358517	11	52	25
R0249	281SP160780	317403	7358538	11	52	18
R0250	318SP165525	317466	7358450	11	52	26
R0251	1SP263690	317455	7358466	11	52	26
R0252	2SP263690	317475	7358467	11	52	26
R0253	320SP165525	317460	7358484	11	52	26
R0254	4SP181606	317455	7358506	11	52	26
R0255	1SP174647	317455	7358529	11	52	26
R0256	7SP215251	317487	7358515	11	52	26
R0257	8SP215251	317495	7358503	11	52	26
R0258	1SP218082	317505	7358495	11	52	26
R0259	2SP218082	317501	7358477	11	52	26
R0260	324SP200671	317519	7358474	11	52	26
R0261	337SP206873	317536	7358461	10	51	26
R0262	338SP206873	317561	7358443	10	51	25
R0263	339SP206873	317575	7358428	10	51	25
R0264	340SP206873	317586	7358414	10	51	25
R0265	341SP206873	317605	7358403	10	51	25
R0266	366SP206873	317618	7358385	10	51	25
R0267	367SP206873	317635	7358372	10	51	25
R0272	382SP206873	317698	7358427	10	51	25
R0273	372SP206873	317674	7358416	10	51	25

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0274	373SP206873	317659	7358425	10	51	25
R0275	374SP206873	317639	7358442	10	51	25
R0276	375SP206873	317627	7358460	10	51	25
R0277	376SP206873	317613	7358468	10	51	25
R0278	381SP206873	317700	7358453	10	51	25
R0279	380SP206873	317677	7358480	10	51	25
R0280	379SP206873	317663	7358491	10	51	25
R0281	378SP206873	317657	7358510	10	51	25
R0282	336SP206873	317567	7358493	10	51	26
R0283	335SP206873	317579	7358504	10	51	26
R0284	1SP341680	317596	7358523	10	51	26
R0285	333SP206873	317617	7358536	10	51	26
R0286	125SP264615	317635	7358548	10	51	26
R0287	331SP200671	317630	7358574	11	51	26
R0288	330SP200671	317607	7358577	11	52	26
R0289	329SP200671	317588	7358595	11	52	26
R0290	328SP200671	317577	7358564	11	52	26
R0291	327SP200671	317569	7358548	11	52	26
R0292	326SP200671	317553	7358534	11	52	26
R0293	6SP228429	317540	7358517	11	52	26
R0294	269SP160780	317511	7358557	11	52	26
R0295	268SP160780	317526	7358571	11	52	26
R0296	267SP160780	317535	7358590	11	52	26
R0297	266SP160780	317548	7358606	11	52	26
R0298	208SP155988	317560	7358624	11	52	26
R0299	207SP155988	317568	7358642	11	52	26
R0300	206SP155988	317579	7358664	11	52	26
R0301	205SP155988	317591	7358676	11	52	26
R0302	265SP160780	317605	7358657	11	52	26

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0303	264SP160780	317625	7358644	11	52	26
R0304	263SP160780	317639	7358635	11	52	26
R0305	262SP200671	317656	7358621	11	52	26
R0306	261SP200671	317684	7358629	11	51	26
R0307	260SP160780	317698	7358649	11	52	26
R0308	280SP160780	317405	7358576	11	52	18
R0309	279SP160780	317409	7358593	12	52	18
R0310	278SP160780	317408	7358617	12	53	19
R0311	277SP160780	317423	7358642	12	53	26
R0312	276SP160780	317412	7358658	12	53	21
R0313	232SP155988	317423	7358680	12	53	27
R0314	231SP155988	317427	7358699	12	53	27
R0315	230SP155988	317433	7358714	12	53	27
R0316	229SP155988	317445	7358732	12	53	27
R0317	228SP155988	317456	7358749	12	53	27
R0318	227SP155988	317454	7358770	12	53	27
R0319	1SP170948	317489	7358804	12	53	27
R0320	2SP170948	317472	7358809	12	53	27
R0321	225SP155988	317498	7358824	12	53	27
R0322	125SP138668	317501	7358841	12	53	27
R0323	124SP138668	317516	7358859	12	53	27
R0324	123SP138668	317518	7358877	12	53	27
R0325	122SP138668	317531	7358897	12	53	27
R0326	121SP138668	317539	7358917	12	53	27
R0327	120SP138668	317557	7358928	12	53	27
R0328	119SP138668	317570	7358952	12	53	27
R0329	118SP138668	317585	7358966	12	53	27
R0330	117SP138668	317601	7358981	12	53	27
R0331	116SP138668	317619	7358989	12	53	27

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0332	115SP138668	317634	7359008	12	53	27
R0333	114SP138668	317690	7359023	12	53	27
R0334	113SP126502	317705	7359027	12	53	27
R0335	112SP126502	317728	7359032	12	53	27
R0336	111SP126502	317763	7359031	12	53	27
R0337	110SP126502	317765	7359051	12	53	26
R0338	109SP126502	317769	7359075	12	53	26
R0339	1SP150264	317764	7359098	12	53	25
R0340	107SP138667	317724	7359067	12	53	26
R0341	106SP138667	317715	7359095	12	53	26
R0342	105SP138667	317714	7359112	12	53	19
R0343	104SP138667	317746	7359137	12	53	17
R0344	103SP138667	317771	7359138	12	53	17
R0345	102SP138667	317787	7359138	12	53	17
R0346	101SP138667	317807	7359132	12	53	18
R0347	100SP138667	317825	7359127	12	53	19
R0348	99SP138667	317846	7359129	12	53	19
R0349	98SP138667	317865	7359120	11	52	21
R0350	97SP138667	317888	7359124	11	52	25
R0351	96SP138667	317906	7359120	11	52	25
R0352	59SP118308	317926	7359117	11	52	25
R0353	60SP118308	317911	7359065	11	52	25
R0354	95SP138667	317892	7359078	11	52	25
R0355	94SP138667	317873	7359077	11	52	25
R0356	93SP138667	317854	7359079	11	52	25
R0357	92SP138667	317833	7359083	11	52	26
R0358	10SP145555	317819	7359078	12	53	26
R0359	90SP126502	317808	7359045	11	52	26
R0360	89SP126502	317822	7359033	11	52	26

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0361	88SP126502	317843	7359027	11	52	26
R0362	87SP126502	317864	7359020	11	52	25
R0363	86SP126502	317885	7359021	11	52	25
R0364	61SP118308	317903	7359018	11	52	25
R0365	58SP118308	317949	7359119	11	52	25
R0366	57SP118308	317971	7359128	11	52	25
R0367	24RP910289	318011	7359121	11	51	25
R0368	23RP910289	318009	7359107	11	51	25
R0369	22RP910289	318004	7359086	11	51	24
R0370	21RP910289	318001	7359064	11	51	24
R0371	56SP118308	317961	7359087	11	52	25
R0372	55SP118308	317959	7359069	11	52	25
R0373	54SP118308	317952	7359050	11	52	25
R0374	20RP910289	317994	7359048	11	51	24
R0375	2SP118313	317994	7359026	10	51	25
R0376	53SP118308	317948	7359028	11	52	25
R0377	52SP118308	317948	7359015	11	52	25
R0378	49SP111007	317990	7359005	10	51	25
R0379	13RP910289	318056	7359113	10	51	25
R0380	1SP102104	318086	7359113	10	51	25
R0381	11RP910288	318089	7359093	10	51	25
R0382	14RP910289	318052	7359096	10	51	25
R0383	15RP910289	318045	7359075	10	51	24
R0384	16RP910289	318042	7359054	10	51	24
R0385	17RP910289	318038	7359038	10	51	24
R0386	18RP910289	318039	7359022	10	51	25
R0387	1SP113113	318035	7359003	10	51	24
R0388	51SP111007	318077	7358999	10	51	24
R0389	7RP910288	318085	7359008	10	51	24

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0390	8RP910288	318088	7359028	10	51	24
R0391	9RP910288	318087	7359052	10	51	24
R0392	1RP910288	318148	7359105	10	51	25
R0393	2RP910288	318144	7359087	10	51	25
R0394	3RP910288	318147	7359067	10	51	25
R0395	4RP910288	318143	7359044	10	51	25
R0396	5RP910288	318139	7359025	10	51	24
R0397	6RP910288	318136	7359008	10	51	25
R0398	25SP111007	318130	7358985	10	51	25
R0399	26SP111007	318130	7358964	10	51	25
R0400	27SP111007	318127	7358946	10	51	25
R0417	2SP181589	317458	7358583	11	52	26
R0418	4SP186454	317461	7358605	11	52	27
R0419	2SP169967	317465	7358637	11	52	27
R0420	224SP155988	317472	7358661	12	53	27
R0421	3SP162930	317478	7358675	12	53	27
R0422	2SP162930	317485	7358690	12	53	27
R0423	1SP162930	317493	7358701	12	53	27
R0424	221SP155988	317496	7358715	12	53	27
R0425	220SP155988	317508	7358740	12	53	27
R0426	219SP155988	317522	7358756	12	53	27
R0427	218SP155988	317529	7358775	12	53	27
R0428	217SP155988	317537	7358785	12	53	27
R0429	126SP138668	317547	7358810	12	53	27
R0430	127SP138668	317555	7358830	12	53	27
R0431	128SP138668	317564	7358840	12	53	27
R0432	129SP138668	317572	7358859	12	53	27
R0433	130SP138668	317583	7358883	12	53	27
R0434	131SP138668	317601	7358902	12	53	27

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0435	132SP138668	317613	7358915	12	53	27
R0436	133SP138668	317626	7358933	12	53	27
R0437	134SP138668	317646	7358943	12	53	27
R0438	135SP138668	317665	7358960	12	53	27
R0439	136SP138668	317688	7358967	12	53	27
R0442	10RP910288	318091	7359075	10	51	25
R0443	137SP138668	317707	7358971	12	53	27
R0444	138SP126502	317733	7358983	12	53	27
R0445	139SP126502	317750	7358983	12	53	27
R0446	140SP126502	317777	7358981	11	52	27
R0447	141SP126502	317798	7358979	11	52	26
R0448	142SP126502	317816	7358975	11	52	26
R0449	143SP126502	317838	7358973	11	52	26
R0450	144SP126502	317856	7358968	11	52	26
R0451	145SP126502	317882	7358969	11	52	26
R0452	62SP118308	317901	7358964	11	52	26
R0453	63SP118308	317919	7358961	11	52	26
R0454	44SP118308	317944	7358960	11	51	25
R0455	43SP118308	317964	7358959	10	51	26
R0456	48SP111007	317978	7358962	10	51	25
R0457	47SP111007	318005	7358955	10	51	25
R0458	46SP111007	318022	7358954	10	51	25
R0459	45SP111007	318040	7358948	10	51	25
R0460	42SP111007	318065	7358932	10	51	25
R0461	67SP118308	318039	7358908	10	51	25
R0462	66SP118308	318020	7358910	10	51	25
R0463	65SP118308	317998	7358915	10	51	25
R0464	64SP118308	317974	7358919	10	51	25
R0465	146SP152411	317959	7358921	10	51	25

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0466	147SP152411	317932	7358922	10	51	25
R0467	148SP152411	317915	7358918	11	51	26
R0468	150SP152411	317873	7358931	11	52	26
R0469	151SP152411	317852	7358930	11	52	26
R0470	152SP152411	317832	7358930	11	52	26
R0471	153SP152411	317818	7358939	11	52	26
R0472	154SP152411	317798	7358938	11	52	26
R0473	182SP152411	317768	7358940	11	52	26
R0474	183SP152411	317747	7358937	11	52	27
R0475	184SP152411	317727	7358937	11	52	27
R0476	185SP152411	317703	7358932	12	53	27
R0477	186SP155988	317683	7358921	12	53	27
R0478	187SP155988	317665	7358910	12	53	27
R0479	188SP155988	317648	7358894	12	53	27
R0480	189SP155988	317636	7358880	12	53	27
R0481	190SP155988	317624	7358859	12	53	27
R0482	191SP155988	317620	7358842	12	53	27
R0483	193SP155988	317591	7358805	12	53	27
R0484	194SP155988	317580	7358786	12	53	27
R0485	192SP155988	317600	7358823	12	53	27
R0486	216SP155988	317574	7358764	12	53	27
R0487	215SP155988	317566	7358747	12	53	27
R0488	214SP155988	317553	7358732	12	53	27
R0489	213SP155988	317543	7358707	11	52	27
R0490	211SP155988	317526	7358681	11	52	27
R0491	212SP155988	317532	7358697	11	52	27
R0492	210SP155988	317511	7358664	11	52	27
R0493	209SP155988	317502	7358643	11	52	27
R0494	270SP160780	317487	7358621	11	52	27

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0495	271SP160780	317485	7358595	11	52	26
R0496	259SP160780	317686	7358675	11	52	26
R0497	258SP160780	317671	7358684	11	52	26
R0498	257SP160780	317649	7358690	11	52	26
R0499	256SP160780	317631	7358706	11	52	26
R0500	204SP155988	317601	7358710	11	52	26
R0501	203SP155988	317607	7358724	11	52	26
R0502	202SP155988	317617	7358744	11	52	26
R0503	1SP162147	317648	7358729	11	52	26
R0504	254SP160766	317678	7358722	11	52	26
R0505	243SP160766	317705	7358697	11	52	26
R0506	244SP160766	317718	7358712	11	52	26
R0507	245SP160766	317720	7358743	11	52	26
R0508	246SP160766	317722	7358759	11	52	26
R0509	247SP160766	317724	7358779	11	52	26
R0510	248SP160766	317728	7358799	11	52	26
R0511	249SP160766	317734	7358824	11	52	26
R0512	250SP160766	317734	7358838	11	52	26
R0513	181SP152411	317742	7358885	11	52	26
R0514	195SP155988	317719	7358883	11	52	27
R0515	196SP155988	317700	7358869	11	52	27
R0516	197SP155988	317679	7358855	11	52	27
R0517	12SP160782	317668	7358829	11	52	27
R0518	199SP155988	317659	7358810	11	52	27
R0519	200SP155988	317650	7358794	11	52	27
R0520	1SP159698	317636	7358773	11	52	26
R0521	253SP160766	317665	7358772	11	52	26
R0522	252SP160766	317681	7358769	11	52	26
R0523	251SP160766	317688	7358803	11	52	26

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0524	180SP152411	317765	7358889	11	52	26
R0525	2SP155873	317782	7358884	11	52	26
R0526	156SP152411	317773	7358860	11	52	26
R0527	157SP152411	317769	7358842	11	52	26
R0528	158SP152411	317767	7358820	11	52	26
R0529	159SP152411	317767	7358793	11	52	26
R0530	160SP152411	317766	7358775	11	52	26
R0531	239SP160766	317763	7358757	11	52	26
R0532	240SP160766	317759	7358739	11	52	26
R0533	241SP160766	317758	7358719	11	52	26
R0534	242SP160766	317746	7358698	11	51	26
R0535	117SP264615	317738	7358679	10	51	26
R0536	116SP264615	317735	7358667	10	51	26
R0537	115SP264615	317734	7358656	10	51	26
R0538	114SP264615	317737	7358640	10	51	25
R0539	113SP264615	317780	7358639	10	51	25
R0540	1SP311640	317791	7358659	10	51	25
R0541	235SP160766	317791	7358684	10	51	25
R0542	236SP160766	317805	7358714	10	51	25
R0543	237SP160766	317804	7358732	10	51	26
R0544	238SP160766	317809	7358753	10	51	26
R0545	161SP152411	317810	7358770	11	51	26
R0546	162SP152411	317811	7358790	11	52	26
R0547	163SP152411	317818	7358809	11	52	26
R0548	164SP152411	317819	7358830	11	52	26
R0549	165SP152411	317825	7358852	11	52	26
R0550	166SP152411	317826	7358870	11	52	26
R0551	2SP155998	317831	7358885	11	52	26
R0552	1SP171130	317865	7358884	11	52	26

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0553	169SP152411	317865	7358865	11	52	26
R0554	170SP152411	317861	7358843	11	51	26
R0555	171SP152411	317861	7358829	10	51	26
R0556	172SP152411	317858	7358808	10	51	26
R0557	173SP152411	317855	7358782	10	51	25
R0558	174SP152411	317852	7358767	10	51	25
R0559	233SP160766	317851	7358747	10	51	25
R0560	234SP160766	317842	7358727	10	51	25
R0561	27SP264615	317843	7358703	10	51	25
R0562	177SP152411	317906	7358874	10	51	26
R0563	178SP152411	317924	7358875	10	51	25
R0564	179SP152411	317946	7358871	10	51	25
R0565	85SP118308	317977	7358871	10	51	25
R0566	84SP118308	317976	7358846	10	51	25
R0571	175SP152411	317906	7358820	10	51	25
R0572	78SP118308	317977	7358777	10	51	25
R0573	77SP118308	317980	7358761	10	51	25
R0574	76SP118308	317985	7358740	10	51	25
R0583	2SP108917	318067	7358858	10	51	25
R0585	68SP118308	318031	7358861	10	51	25
R0586	69SP118308	318019	7358845	10	51	25
R0587	70SP118308	318019	7358824	10	51	25
R0588	71SP118308	318016	7358810	10	51	25
R0589	72SP118308	318022	7358791	10	51	25
R0632	1RP836458	309980	7360083	18	58	33
R0633	3SP132833	309396	7359635	17	58	32
R0635	8MPH22996	287863	7354078	11	51	25
R0636	44CTN260	288187	7352954	19	59	34
R0637	3RP617919	310030	7354969	13	53	27

Receptor ID	Lot Plan	X	Y	Sc.1 Operational – Corona Discharge	Sc.2 Maintenance – Helicopter inspection	Sc.3 Maintenance – Vegetation clearing
R0681	1SP130659	305298	7351474	15	55	29
R0682	52CTN198	305195	7351674	16	56	31
R0883	139CTN2130	313507	7362057	24	65	39
R0884	12SP239343	313565	7362316	22	62	37
R0885	140CTN2130	313616	7362610	20	60	34
R0886	138CTN2123	313363	7362511	20	60	34
R0887	141CTN2144	313093	7363328	13	53	27
R0961	3MPH22996	287010	7352298	20	61	35

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