Rix's Creek South

Continuation of Mining Project

Trade-off Study Noise Assessment

Prepared for

Rix's Creek Pty Limited

Global Acoustics

Noise and Vibration Analysis and Solutions

Global Acoustics Pty Ltd
PO Box 3115 | Thornton NSW 2322
Telephone +61 2 4966 4333
Email global@globalacoustics.com.au
ABN 94 094 985 734

Rix's Creek South

Continuation of Mining Project
Trade-off Study Noise Assessment

Reference: 18345_R01_Draft01_iDraft01.docx
Report date: 28 November 2018

Prepared for

Rix's Creek Pty Limited
PO Box 4
East Maitland NSW 2323

Prepared by

Global Acoustics Pty Ltd
PO Box 3115
Thornton NSW 2322

Prepared:	Jeremy Welbourne Consultant	QA Review:	Tony Welbourne Director

Global Acoustics Pty Ltd ~ Environmental noise modelling and impact assessment ~ Sound power testing ~ Noise control advice ~ Noise and vibration monitoring ~ OHS noise monitoring and advice ~ Expert evidence in Land and Environment and Compensation Courts ~ Architectural acoustics ~ Blasting assessments and monitoring ~ Noise management plans (NMP) ~ Sound level meter and noise logger sales and hire

Contents

Appendices

1 INTRODUCTION

1.1 Project Overview

Rix's Creek Mine (RCM), which consists of Rix's Creek South (RCS) and Rix's Creek North (RCN) (formerly Integra Open Cut), is owned and operated by Bloomfield Collieries Pty Limited (Bloomfield). It is an open cut coal mine approximately 5 km north-west of Singleton in the Hunter Valley Coalfields of NSW.

In 2015, RCM submitted an Environmental Impact Statement (EIS) for the Rix's Creek South Continuation of Mining Project (the Project). Global Acoustics prepared a noise impact assessment to accompany the EIS titled *Rix's Creek Coal Mine, Continuation of Mining Project, Environmental Noise Assessment* (Global Acoustics, 2015) (the EIS noise impact assessment).

A recent stage in the approval process for the Project was a review by the Independent Planning Commission of NSW (IPCN). The IPCN review includes the following recommendation:

> *That the applicant prepare a trade-off study assessing the benefits of removing the western overburden emplacement area against the potential environmental impacts associated with increasing the heights of the existing North Pit Dump and South Pit Dump. Any outcomes of the trade-off study, including an assessment of any environmental impacts, would need to be submitted and considered as part of the final assessment of the Project.*

This report describes a noise impact assessment prepared to evaluate changes to predicted site noise emission associated with reducing or eliminating the Western out of pit dump relative to the dump configurations used for the EIS noise impact assessment. Two alternatives for waste emplacement were considered for this trade-off study, as follows:

1. Option 1 considers a case where all waste that would have been sent to the Western out of pit dump (in the EIS models) goes to either the North Pit dump (on top of existing rehabilitated area), or to the South Pit dump; and

2. Option 2 considers a case where approximately half of the waste that would have been sent to the Western out of pit dump (in the EIS models) continues to go to part of the Western out of pit dump, with the remainder going to the North Pit dump.

These two options were assessed for each of the 2020, 2023 and 2026 stage plans, as these stages cover the period that the Western out of pit dump would be used in accordance with the EIS stage plans. The revised stage plans include development of a noise and visual bund on the North Pit dump.

Figure 1 provides an overview of private receptors and noise assessment groups (NAG) included in the EIS noise impact assessment. Figure 2 and Figure 3 provide a more detailed view of modelled receptors; these figures cover the areas south and north of RCM respectively. Fifty-three receptors included in the trade-off study are indicated by red ovals.

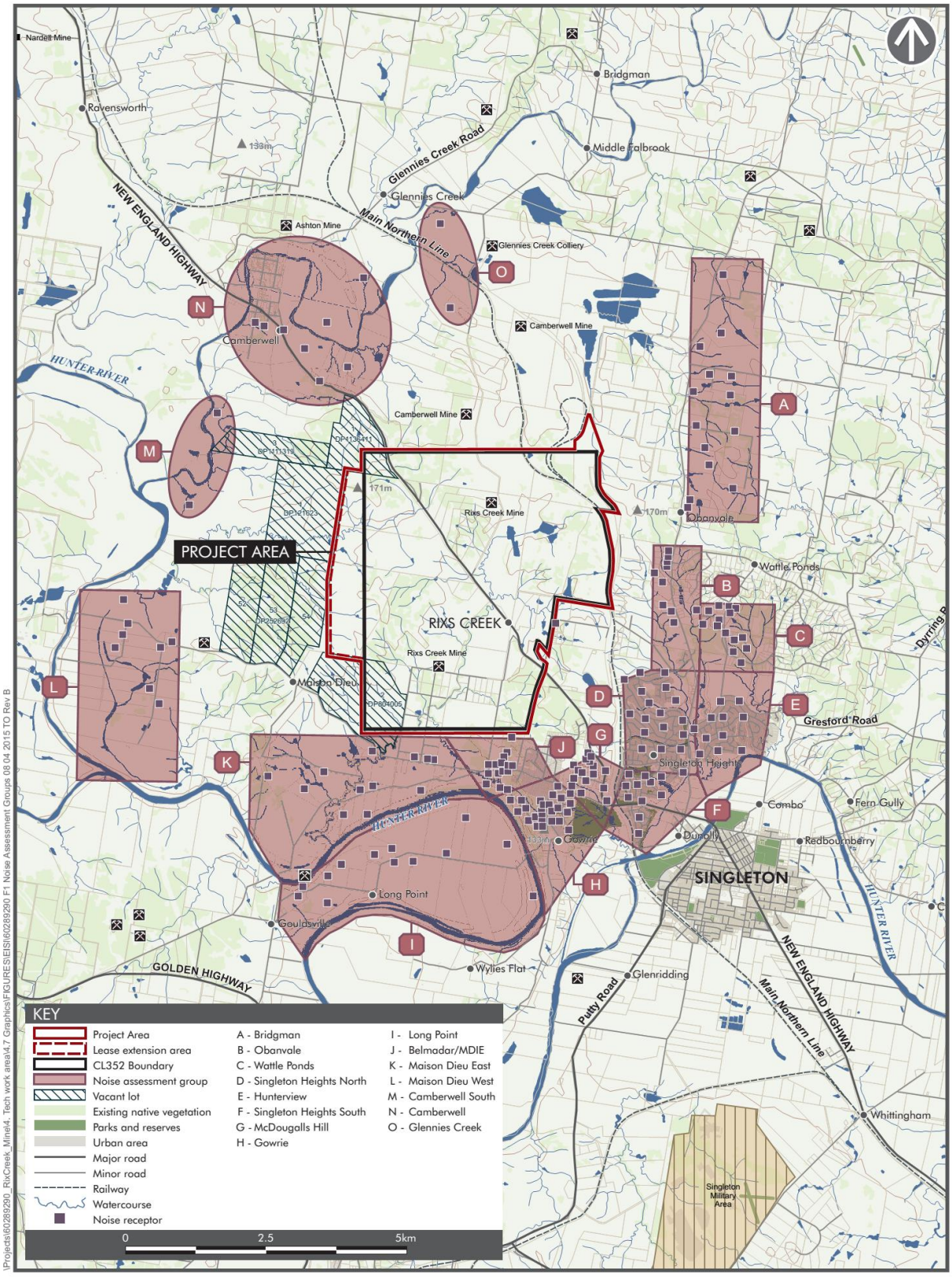

Figure 1: Surrounding Environment, EIS Noise Assessment Groups and Receptor Locations

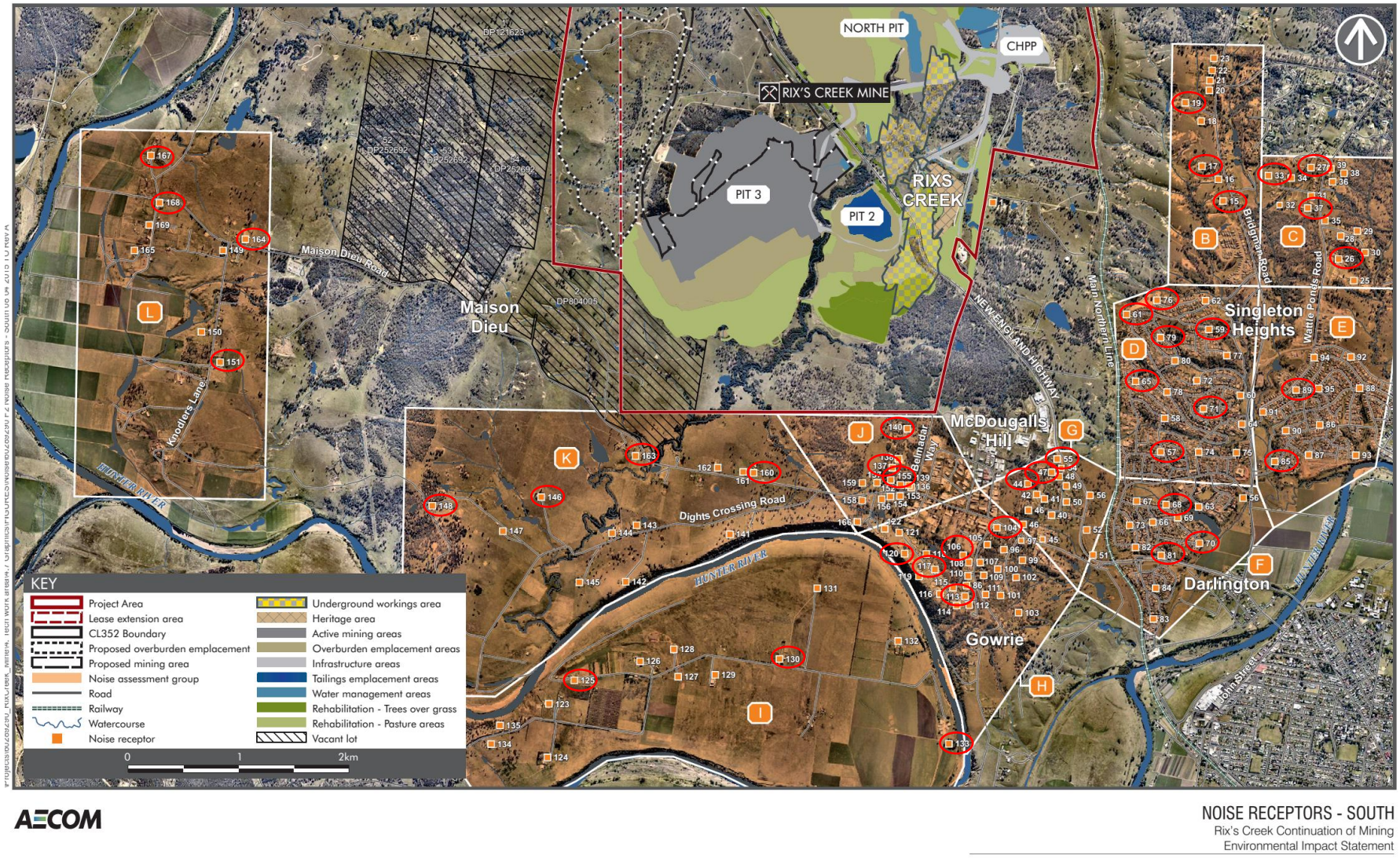

Figure 2: Modelled Receptors - South

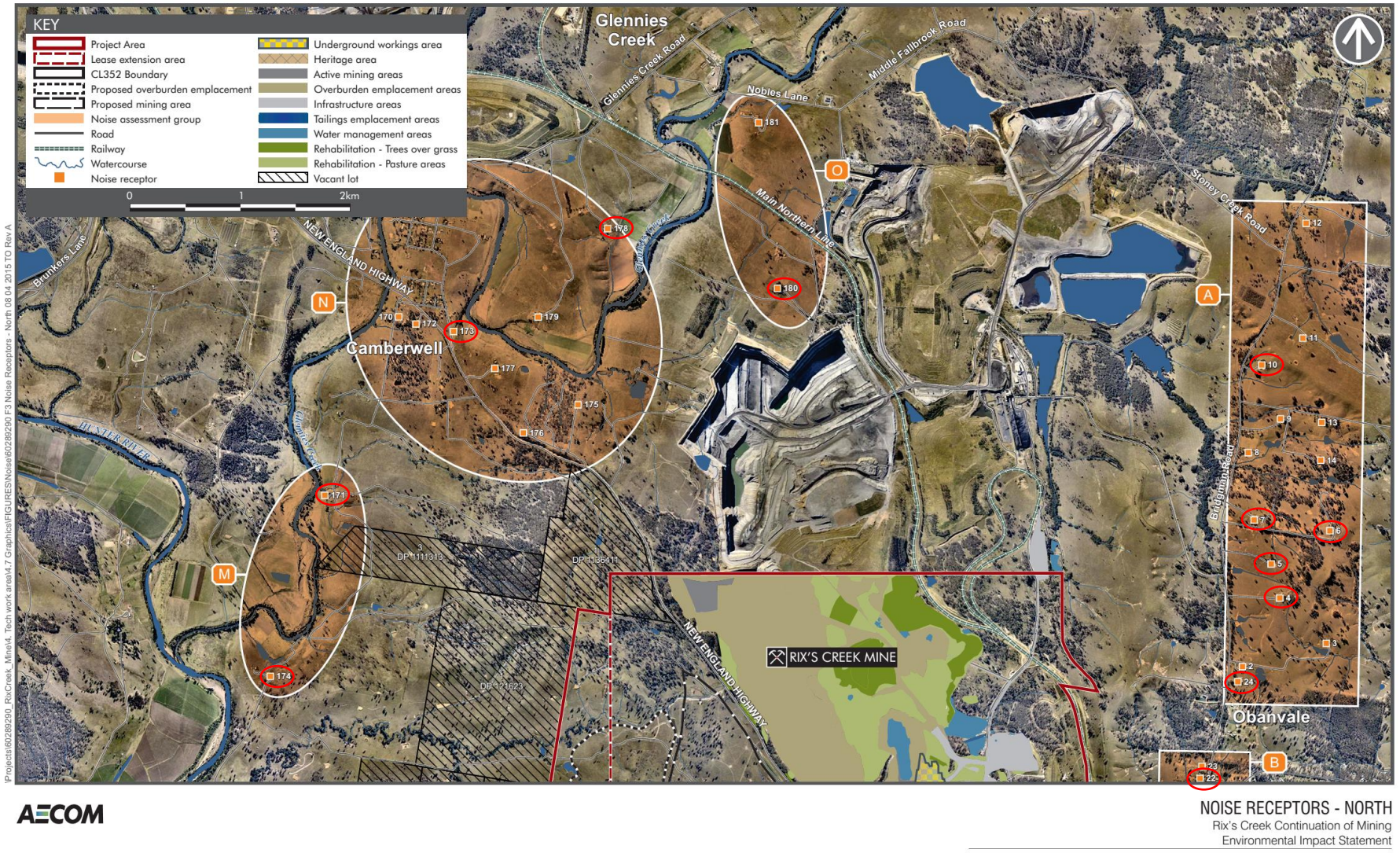

Figure 3: Modelled Receptors – North

1.2 Terminology & Abbreviations

Some definitions of acoustic terminology which may be used in this document are as follows:

- L_A, the A-weighted root mean squared (RMS) noise level at any instant;
- L_{A1}, the noise level which is exceeded for 1 per cent of the time;
- $L_{A1,1minute,}$ corresponds to the highest noise level generated for 0.6 second during one minute. In practical terms, this represents the maximum measured level, and is often used to assess sleep disturbance;
- L_{A10}, the noise level which is exceeded for 10 per cent of the time, which is approximately the average of the maximum noise levels;
- L_{A90}, the level exceeded for 90 per cent of the time, which is approximately the average of the minimum noise levels. The L_{A90} level is often referred to as the "background" noise level and is commonly used to determine noise criteria for assessment purposes;
- L_{Aeq}, the average noise energy during a measurement period;
- dB(A), noise level measurement units are decibels (dB). The "A" weighting scale is used to describe human response to noise;
- dB(C), noise level measurement units are decibels (dB). The "C" weighting scale is used as a measure of human response to high noise levels. It includes more of the low frequency range of sounds. It is often used to assess low frequency noise impact;
- sound power level (L_W denotes linear, L_{WA} denotes A-weighted), 10 times the logarithm of energy radiated from a source (as noise) divided by a reference power, the reference power being 1 picowatt;
- sound pressure level (Lp), fluctuations in pressure measured as 10 times a logarithmic scale, the reference pressure being 20 micropascals;
- sound exposure level (SEL), the A-weighted noise energy during a measurement period normalised to one second.;
- Hertz (Hz), cycles per second, the frequency of fluctuations in pressure, sound is usually a combination of many frequencies together;
- ABL, the 10th percentile background noise level for a single period (day, evening or night) of a 24 hour monitoring period;
- RBL, the background noise level for a period (day, evening or night) determined from ABL data.

2 CRITERIA

Table 2.1 lists receptors included in the trade-off study models, and the NAG each receptor was allocated to in the EIS noise impact assessment. Receptors were selected to ensure those with the highest predicted impact within each NAG were assessed, based on the EIS noise impact assessment results. Where clusters of receptors exist with similar levels of predicted impact, a single receptor representative of the cluster was assessed. Details of modelled receptors are included in Appendix D.

Figure 1 shows an overview of modelled receptors and NAG. Figure 2 and Figure 3 provide a more detailed view of modelled receptors; these figures cover the areas south and north of RCM respectively.

RCM operate in accordance with Environment Protection Licence (EPL) 3391, which prescribes noise criteria for groups of receptors termed Noise Monitoring Groups (NMG). Each NMG covers the same area as one or more NAG. Table 2.1 relates the EPL NMG to the NAG used in the EIS noise impact assessment. EPL noise criteria are also listed.

The most recent project approval for RCS is DA 49/94 approved by the Minister for Urban Affairs and Planning in October 1995. The project approval has been modified on a number of occasions since that time, the most recent being in September 2017. Criteria in the project approval use the L_{A10} statistical noise descriptor; L_{A10} criteria are one of the former ways of assessing noise impacts. These criteria are less stringent than EPL criteria.

Table 2.1: MODELLED RECEPTORS AND EPL CRITERIA

NAG ID	NAG Name	Modelled Receptors	NMG ID	EPL Criteria (dB)	
				$L_{Aeq,15minute}$	$L_{A1,1minute}$
A	Bridgman	4, 5, 6, 7, 10, 24	NMG05	41	47
B	Obanvale	15, 17, 19, 22	NMG06	42	47
C	Wattle Ponds	26, 27, 33, 37	NMG06	42	47
D	Singleton Heights North	57, 59, 61, 65, 71, 76, 79	NMG07	40	45
E	Hunterview	85, 89	NMG07	40	45
F	Singleton Heights South	68, 70, 81	NMG07	40	45
G	McDougalls Hill	44, 47, 55	NMG08	40	47
H	Gowrie	104, 106, 113, 117, 120	NMG08	40	47
I	Long Point	125, 130, 133	NMG10	40	47
J	Belmadar	137, 140, 155	NMG08	40	47
K	Maison Dieu East	146, 148, 160, 163	NMG11	40	47
L	Maison Dieu West	51, 164, 167, 168	NMG12	40	47
M	Camberwell South	171, 174	NMG01	40	48
N	Camberwell	173, 178	NA	NA	NA
O	Glennies Creek	180	NA	NA	NA

3 NOISE MODEL PARAMETERS

To allow a comparison of 'like with like', as many model parameters as possible were retained from the EIS noise impact assessment. In this way, any predicted differences between the EIS models and trade-off study models are due to differences in the stage plans (topography and equipment configurations), rather than changes to model input parameters.

The following points discuss model parameters used for both the EIS and trade-off study assessments:

- RTA Technology's Environmental Noise Model (ENM), a computer based environmental noise model was used to predict mining noise levels at off-site receptor locations. The model is described in Section 2.3 of the EIS noise impact assessment;
- The cumulative distribution of results methodology was employed for both assessments. This method is described in Section 2.3 of the EIS noise impact assessment;
- Meteorological conditions input to models (260 conditions) were unchanged. Meteorology is described in Section 4.1.1 of the EIS noise impact assessment;
- Historical meteorological distributions used to determine the cumulative distribution of model predictions were unchanged. Meteorology is described in Section 4.1.1 of the EIS noise impact assessment;
- Sound power of equipment was unchanged. Modelled sound powers are described in Section 4.1.4 of the EIS noise impact assessment;
- Noise controls and management strategies applied to the modelling process were unchanged. Modelled noise controls are described in Section 2.4 of the EIS noise impact assessment;
- Coal Handling and Preparation Plant (CHPP) sources were unchanged;
- Regional topography was unchanged;
- The RCS rail infrastructure option from the EIS noise impact assessment was retained. It should be noted that the approved RCS rail loop is unlikely to proceed, as RCM has since acquired RCN and have unrestricted access to the RCN rail loop. However, as EIS noise impact assessment outcomes were primarily based on the RCS rail option, and the RCN option was not modelled for all receptors, the RCS option has been retained for the trade-off study to allow comparison of 'like with like' for all receptors. Rail infrastructure options are described in Section 4.2.2 of the EIS noise impact assessment;
- Receptors locations were unchanged. However, a reduced set of 53 key receptors was assessed for the trade-off study to reduce model processing times. These are indicated by red ovals in Figure 2 and Figure 3. Receptors were selected to ensure the potentially most affected receptors in each NAG were assessed. This is considered adequate for evaluating relative change between the EIS and trade-off study stage plans;

- Equipment quantities were unchanged, except where modified quantities were required to service alternate operating configurations associated with the trade-off study options, for example shorter or longer haul routes. Further detail regarding modelled equipment quantities is included in Section 4 of this report; and

- Trade-off study scenarios were equivalent to EIS study scenarios. That is, where the EIS scenarios included mitigation controls such as partial fleet shut down, the trade-off study scenarios included the same controls. Scenario development is described in Section 4.1.2 of the EIS noise impact assessment.

Operational A-weighted noise and potential sleep disturbance impact associated with each mine plan stage was assessed.

4 EQUIPMENT QUANTITIES

Table 4.1 provides a comparison of representative typical plant quantities included in each model stage for the EIS and trade-off study options. Quantities are generally very similar between the EIS and trade-off study models. Values in bold type indicate an increase relative to the EIS quantity. Modelled equipment quantities are indicative to allow for assessment, and relevant to each specific scenario modelled. Different equipment quantities may be required at various times during the life of mine when alternate operating configurations are in effect.

Table 4.2 and Table 4.3 list CHPP and rail infrastructure modelled. There is no change for the trade-off study models relative to the EIS.

Figures showing modelled source locations and topography are included in Appendix B. Figures are provided for the EIS and each of the trade-off study options, for each stage and time period.

Table 4.1: OPEN CUT PLANT ITEMS INCLUDED IN MODELS

	Equipment Quantities								
	2020			2023			2026		
Description	EIS	Option 1	Option 2	EIS	Option 1	Option 2	EIS	Option 1	Option 2
Liebherr R9800 excavator	1	1	1	1	1	1	1	1	1
Hitachi EX5500 excavator	1	1	1	2	2	2	1	1	1
Caterpillar 994 front end loader	1	1	1	1	1	1	1	1	1
Caterpillar 992K front end loader	1	1	1	1	1	1	1	1	1
Caterpillar 16G grader	1	1	1	2	2	2	1	1	1
Caterpillar 24H grader	2	2	2	2	2	2	2	2	2
Caterpillar D10/D11 dozer	5	5	5	7	7	7	5	5	5
Bucyrus SK98 blast hole drill	1	1	1	1	1	1	1	1	1
Reedrill SK50 blast hole drill	1	1	1	1	1	1	1	1	1
Reedrill SK75 blast hole drill	1	1	1	1	1	1	1	1	1
Caterpillar 793FXQ rear dump truck	10	**13**	**12**	14	**17**	**16**	13	13	13
Caterpillar 789CXQ rear dump truck	2	2	2	4	4	4	5	5	5
Caterpillar 785CXQ watercart	1	1	1	2	2	2	2	2	2
Caterpillar 793B,C,D rear dump truck	0	0	0	2	2	2	0	0	0
Caterpillar 793F rear dump truck	1	1	1	1	1	1	0	0	0
Caterpillar 789C rear dump truck	3	3	3	1	1	1	0	0	0
Caterpillar 785C watercart	2	2	2	1	1	1	0	0	0
Caterpillar 777 watercart	1	1	1	1	1	1	1	1	1

Notes:

1. *Table shows representative typical plant to allow for assessment; and*
2. *Values in bold type indicate an increase relative to the EIS quantity.*

Table 4.2: CHPP PLANT ITEMS INCLUDED IN MODELS (all stages, both assessments)

Description	Quantity
CPP building (wash plant)	1
Breaker	1
Conveyors	6
Transfer stations with conveyor drives	6

Table 4.3: RAIL INFRASTRUCTURE INCLUDED IN MODELS (all stages, both assessments)

Description	Quantity
Stockpile dozers	1
Locomotives on rail loop (idle)	3
Rail load out bin	1
Conveyors	4
Transfer stations with conveyor drives	3

5 OPERATIONAL NOISE ASSESSMENT

5.1 A-weighted Predictions

Table 5.1, Table 5.2 and Table 5.3 present a summary of 90th percentile $L_{Aeq,15minute}$ operational noise predictions for the three modelled stages (2020, 2023 and 2026) respectively. Each table includes the following:

- NAG identification tag as used in the EIS noise impact assessment;
- NMG identification tag as used in the current EPL;
- The relevant EPL criterion for each NAG based on the NMG to which it is allocated in the EPL;
- The 90th percentile EIS noise impact assessment prediction for each NAG (based on the key set of 53 receptors);
- The 90th percentile trade-off study Option 1 prediction for each NAG, and, the difference relative to the EIS prediction; and
- The 90th percentile trade-off study Option 2 prediction for each NAG, and, the difference relative to the EIS prediction.

Where an increase relative to the EIS is predicted for a trade-off study prediction, the result is highlighted orange. Negative differences are highlighted green. For each NAG, the result presented is the highest prediction for each of the receptors within the NAG. Predictions for each individual receptor modelled for this assessment are included in Appendix A.

For each set of predictions, results for two night scenarios are presented (N1 and N2). The first represents normal night operations with all proposed night plant operational. The second scenario represents a modified night period scenario, where coaling equipment and reject haulage is excluded. As stated previously, trade-off study scenarios are equivalent to and consistent with EIS scenarios.

Predictions for neutral atmospheric conditions have not been presented in this report, as they have little to no bearing on overall assessment outcomes. Predictions for neutral atmospheric conditions included in the EIS noise impact assessment were in the order of 10 to 13 dB lower than 90th percentile predictions. Any change to model results due to the trade-off study options during these conditions would have no relevance to the evaluation of impact, as all predictions are well below EPL criteria.

Table 5.1: Year 2020 90th PERCENTILE OPERATIONAL PREDICTIONS - $L_{Aeq,15minute}$ dB

NAG	NMG	EPL Criterion	EIS				Option 1 (change relative to EIS)				Option 2 (change relative to EIS)			
			Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2
A	NMG05	41	39	39	40	38	40 (1)	39 (0)	40 (0)	38 (0)	39 (0)	39 (0)	40 (0)	38 (0)
B	NMG06	42	41	41	43	40	42 (1)	41 (0)	43 (0)	40 (0)	41 (0)	41 (0)	43 (0)	40 (0)
C	NMG06	42	41	41	43	38	42 (1)	41 (0)	43 (0)	38 (0)	41 (0)	41 (0)	43 (0)	38 (0)
D	NMG07	40	39	43	44	37	41 (2)	43 (0)	44 (0)	37 (0)	40 (1)	43 (0)	44 (0)	37 (0)
E	NMG07	40	38	39	39	34	38 (0)	39 (0)	39 (0)	34 (0)	38 (0)	39 (0)	39 (0)	34 (0)
F	NMG07	40	35	37	38	31	38 (3)	37 (0)	38 (0)	31 (0)	37 (2)	37 (0)	38 (0)	31 (0)
G	NMG08	40	43	42	44	40	44 (1)	42 (0)	44 (0)	40 (0)	43 (0)	42 (0)	44 (0)	40 (0)
H	NMG08	40	42	42	42	39	42 (0)	42 (0)	42 (0)	39 (0)	42 (0)	42 (0)	42 (0)	39 (0)
I	NMG10	40	38	36	35	33	36 (-2)	36 (0)	35 (0)	33 (0)	36 (-2)	36 (0)	35 (0)	33 (0)
J	NMG08	40	45	44	44	42	46 (1)	44 (0)	44 (0)	42 (0)	46 (1)	44 (0)	44 (0)	42 (0)
K	NMG11	40	42	43	43	37	42 (0)	43 (0)	43 (0)	37 (0)	41 (-1)	43 (0)	43 (0)	37 (0)
L	NMG12	40	38	38	35	33	35 (-3)	37 (-1)	35 (0)	33 (0)	37 (-1)	37 (-1)	35 (0)	33 (0)
M	NMG01	40	38	35	34	30	36 (-2)	35 (0)	34 (0)	30 (0)	36 (-2)	35 (0)	34 (0)	30 (0)
N	NA	40	35	35	35	33	37 (2)	35 (0)	35 (0)	33 (0)	35 (0)	35 (0)	35 (0)	33 (0)
O	NA	40	36	37	38	35	37 (1)	37 (0)	38 (0)	36 (1)	36 (0)	36 (-1)	38 (0)	35 (0)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

Table 5.2: Year 2023 90th PERCENTILE OPERATIONAL PREDICTIONS - $L_{Aeq,15minute}$ dB

NAG	NMG	EPL Criterion	EIS				Option 1 (change relative to EIS)				Option 2 (change relative to EIS)			
			Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2
A	NMG05	41	38	38	39	39	39 (1)	38 (0)	39 (0)	39 (0)	38 (0)	38 (0)	39 (0)	39 (0)
B	NMG06	42	40	40	42	41	40 (0)	40 (0)	42 (0)	41 (0)	40 (0)	40 (0)	42 (0)	41 (0)
C	NMG06	42	40	39	42	41	41 (1)	40 (1)	42 (0)	41 (0)	40 (0)	40 (1)	42 (0)	41 (0)
D	NMG07	40	38	39	40	38	39 (1)	39 (0)	40 (0)	38 (0)	39 (1)	39 (0)	40 (0)	38 (0)
E	NMG07	40	36	36	37	35	37 (1)	36 (0)	37 (0)	35 (0)	37 (1)	36 (0)	37 (0)	35 (0)
F	NMG07	40	34	33	33	29	35 (1)	33 (0)	33 (0)	29 (0)	34 (0)	33 (0)	33 (0)	30 (1)
G	NMG08	40	41	41	42	40	42 (1)	41 (0)	42 (0)	40 (0)	41 (0)	41 (0)	42 (0)	40 (0)
H	NMG08	40	39	39	40	38	41 (2)	39 (0)	40 (0)	38 (0)	40 (1)	39 (0)	40 (0)	38 (0)
I	NMG10	40	33	32	32	30	33 (0)	32 (0)	32 (0)	30 (0)	33 (0)	32 (0)	32 (0)	30 (0)
J	NMG08	40	42	40	41	37	43 (1)	40 (0)	42 (1)	38 (1)	42 (0)	40 (0)	42 (1)	38 (1)
K	NMG11	40	36	37	37	33	38 (2)	37 (0)	38 (1)	34 (1)	36 (0)	37 (0)	38 (1)	34 (1)
L	NMG12	40	36	39	35	34	36 (0)	39 (0)	35 (0)	34 (0)	36 (0)	39 (0)	35 (0)	34 (0)
M	NMG01	40	32	34	33	32	36 (4)	35 (1)	34 (1)	33 (1)	34 (2)	35 (1)	34 (1)	33 (1)
N	NA	40	34	36	36	35	38 (4)	36 (0)	37 (1)	35 (0)	35 (1)	36 (0)	37 (1)	35 (0)
O	NA	40	35	35	37	36	39 (4)	36 (1)	38 (1)	37 (1)	35 (0)	36 (1)	37 (0)	37 (1)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

Table 5.3: Year 2026 90th PERCENTILE OPERATIONAL PREDICTIONS - $L_{Aeq,15minute}$ dB

NAG	NMG	EPL Criterion	EIS				Option 1 (change relative to EIS)				Option 2 (change relative to EIS)			
			Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2
A	NMG05	41	38	38	39	38	38 (0)	38 (0)	39 (0)	38 (0)	38 (0)	38 (0)	39 (0)	38 (0)
B	NMG06	42	40	40	42	41	40 (0)	40 (0)	42 (0)	41 (0)	40 (0)	40 (0)	42 (0)	41 (0)
C	NMG06	42	39	39	41	40	39 (0)	39 (0)	42 (1)	40 (0)	39 (0)	39 (0)	42 (1)	40 (0)
D	NMG07	40	38	39	39	38	38 (0)	39 (0)	39 (0)	38 (0)	38 (0)	39 (0)	39 (0)	38 (0)
E	NMG07	40	36	36	37	35	36 (0)	36 (0)	37 (0)	35 (0)	36 (0)	36 (0)	37 (0)	35 (0)
F	NMG07	40	33	34	35	32	33 (0)	34 (0)	34 (-1)	32 (0)	33 (0)	34 (0)	35 (0)	32 (0)
G	NMG08	40	40	40	41	39	40 (0)	40 (0)	41 (0)	39 (0)	40 (0)	40 (0)	41 (0)	39 (0)
H	NMG08	40	38	38	38	37	38 (0)	38 (0)	38 (0)	36 (-1)	38 (0)	38 (0)	38 (0)	36 (-1)
I	NMG10	40	34	34	34	32	34 (0)	34 (0)	34 (0)	32 (0)	34 (0)	34 (0)	34 (0)	32 (0)
J	NMG08	40	42	41	42	39	42 (0)	41 (0)	42 (0)	39 (0)	42 (0)	41 (0)	42 (0)	39 (0)
K	NMG11	40	39	37	38	33	39 (0)	38 (1)	38 (0)	33 (0)	39 (0)	38 (1)	38 (0)	33 (0)
L	NMG12	40	35	37	33	32	35 (0)	37 (0)	35 (2)	34 (2)	35 (0)	37 (0)	34 (1)	33 (1)
M	NMG01	40	33	32	31	30	33 (0)	32 (0)	31 (0)	30 (0)	33 (0)	32 (0)	31 (0)	29 (-1)
N	NA	40	34	35	35	34	34 (0)	35 (0)	35 (0)	34 (0)	34 (0)	35 (0)	35 (0)	34 (0)
O	NA	40	35	35	36	36	35 (0)	36 (1)	37 (1)	36 (0)	35 (0)	36 (1)	37 (1)	36 (0)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

5.2 Discussion

Model predictions in Table 5.1, Table 5.2 and Table 5.3 generally indicate the two trade-off study options would provide a similar level of impact to the EIS for the most impacted receptors within each NAG, particularly for the evening and night periods.

Evening and night period predictions are all within +/- 1 dB of EIS predictions, except for NAG L in Year 2026 for Option 1 during the night period, for which an increase of 2 dB is predicted. In that case, predictions are well below the EPL criterion, so the increase is immaterial.

For the day period, the haul alignments associated with the Option 1 and Option 2 alternatives result in increases of up to 4 dB for the 2023 stage plan relative to the EIS, and up to 3 dB for the 2020 stage plan. No differences are predicted for the 2026 stage plan, as the day period scenario is relatively unchanged relative to the EIS model. Decreases of up to 3 dB are predicted for the 2020 stage plan for some NAG (I, L and M) due to redistribution of waste haulage from the Western OOPD to the South Pit and North Pit dumps.

Predicted increases for the trade-off study options are primarily due to increased exposure for haul trucks whilst hauling waste to the North Pit dump, as well as a requirement for additional trucks to service the longer and higher hauls. Changes to the degree of topographical shielding, which is increased for some receptors and decreased for others, is also a contributing factor.

Of the two trade-off study options, Option 1 generally causes greater increases relative to EIS predictions than Option 2, largely due to increased dumping height on the North Pit dump and lesser topographical shielding to the west.

6 SLEEP DISTURBANCE ASSESSMENT

6.1 Sleep Disturbance Methodology

Potential sleep disturbance impact was assessed in the EIS noise impact assessment by predicting levels from plant items known to generate noise that at times stands out above the general mining continuum. Shovel and excavator bucket noise, first pass loads into empty truck trays, rear dump truck exhaust and dozer track noise are recognised as sources which can generate high, short term noise levels that may cause sleep disturbance.

The following sources were modelled to assess sleep disturbance:

- Impact noise generated by excavator buckets impacting hard ground material, or rocks impacting the bottom of empty haul truck trays was modelled at each dig location. A maximum sound power of L_{WA} 130 dB was adopted for each impact event;

- Dozer track slap was modelled at each exposed dozer operating location, typically overburden emplacement areas. A maximum sound power of L_{WA} 119 dB representing dozer operation in 1st gear reverse was adopted; and

- Haul truck exhaust surges were modelled by assessing a maximum sound power event of L_{WA} 118 dB at each overburden emplacement area, and at exposed sections along haul routes.

Assessment of sleep disturbance for each model stage involved modelling each of these sources, and then combining the highest prediction with results for the remainder of operational plant to obtain an estimate of possible short-term maximum noise emission.

6.2 Sleep Disturbance Results

Table 6.1, Table 6.2 and Table 6.3 present 90th percentile $L_{A1,1minute}$ sleep disturbance noise predictions for the three modelled stages (2020, 2023 and 2026) respectively. The tables provide the same information as the operational noise tables above, with the exception that day and evening period results are not relevant for sleep disturbance, so are omitted.

For each NAG, the result presented is the highest prediction for each of the receptors within the NAG.

As for operational noise, results generally indicate the two trade-off study options would provide a similar level of impact to the EIS for the most impacted receptors within each NAG. Predictions are all within +/- 1 dB of EIS predictions, except for NAG L in Year 2026 for Option 1, for which an increase of 2 dB is predicted. In that case, predictions are well below the EPL criterion, so the increase is immaterial.

Table 6.1: Year 2020 SLEEP DISTURBANCE PREDICTIONS - $L_{A1,1minute}$ dB

NAG	NMG	EPL Criterion	EIS		Option 1 (change relative to EIS)		Option 2 (change relative to EIS)	
			Night 1	Night 2	Night 1	Night 2	Night 1	Night 2
A	NMG05	47	40	38	40 (0)	38 (0)	40 (0)	38 (0)
B	NMG06	47	44	41	44 (0)	41 (0)	44 (0)	41 (0)
C	NMG06	47	44	42	44 (0)	42 (0)	44 (0)	42 (0)
D	NMG07	45	45	42	45 (0)	42 (0)	45 (0)	42 (0)
E	NMG07	45	41	39	41 (0)	39 (0)	41 (0)	39 (0)
F	NMG07	45	41	38	41 (0)	38 (0)	41 (0)	38 (0)
G	NMG08	47	46	44	46 (0)	44 (0)	46 (0)	44 (0)
H	NMG08	47	45	43	45 (0)	43 (0)	45 (0)	43 (0)
I	NMG10	47	39	38	39 (0)	38 (0)	39 (0)	38 (0)
J	NMG08	47	48	46	48 (0)	46 (0)	48 (0)	46 (0)
K	NMG11	47	46	43	46 (0)	43 (0)	46 (0)	43 (0)
L	NMG12	47	38	37	38 (0)	37 (0)	38 (0)	37 (0)
M	NMG01	48	38	36	38 (0)	36 (0)	38 (0)	36 (0)
N	NA	45	38	37	38 (0)	37 (0)	38 (0)	37 (0)
O	NA	45	38	36	38 (0)	36 (0)	38 (0)	36 (0)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

Table 6.2: Year 2023 SLEEP DISTURBANCE PREDICTIONS - $L_{A1,1minute}$ dB

NAG	NMG	EPL Criterion	EIS		Option 1 (change relative to EIS)		Option 2 (change relative to EIS)	
			Night 1	Night 2	Night 1	Night 2	Night 1	Night 2
A	NMG05	47	39	39	39 (0)	39 (0)	39 (0)	39 (0)
B	NMG06	47	43	42	43 (0)	42 (0)	43 (0)	42 (0)
C	NMG06	47	43	42	43 (0)	42 (0)	43 (0)	42 (0)
D	NMG07	45	43	42	43 (0)	42 (0)	43 (0)	42 (0)
E	NMG07	45	40	39	40 (0)	39 (0)	40 (0)	39 (0)
F	NMG07	45	38	37	38 (0)	37 (0)	38 (0)	37 (0)
G	NMG08	47	45	44	45 (0)	44 (0)	45 (0)	44 (0)
H	NMG08	47	44	43	44 (0)	43 (0)	44 (0)	43 (0)
I	NMG10	47	37	37	37 (0)	37 (0)	37 (0)	37 (0)
J	NMG08	47	46	46	47 (1)	46 (0)	47 (1)	46 (0)
K	NMG11	47	43	43	43 (0)	43 (0)	43 (0)	43 (0)
L	NMG12	47	38	38	38 (0)	38 (0)	38 (0)	38 (0)
M	NMG01	48	37	37	38 (1)	37 (0)	38 (1)	37 (0)

N	NA	45	38	38	39 (1)	38 (0)	39 (1)	38 (0)
O	NA	45	37	36	38 (1)	37 (1)	37 (0)	37 (1)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

Table 6.3: Year 2026 SLEEP DISTURBANCE PREDICTIONS - $L_{A1,1minute}$ dB

NAG	NMG	EPL Criterion	EIS		Option 1 (change relative to EIS)		Option 2 (change relative to EIS)	
			Night 1	Night 2	Night 1	Night 2	Night 1	Night 2
A	NMG05	47	39	38	39 (0)	38 (0)	39 (0)	38 (0)
B	NMG06	47	43	42	43 (0)	42 (0)	43 (0)	42 (0)
C	NMG06	47	42	42	43 (1)	42 (0)	43 (1)	42 (0)
D	NMG07	45	42	41	42 (0)	41 (0)	42 (0)	41 (0)
E	NMG07	45	39	38	39 (0)	38 (0)	39 (0)	38 (0)
F	NMG07	45	38	37	38 (0)	37 (0)	38 (0)	37 (0)
G	NMG08	47	43	42	43 (0)	42 (0)	43 (0)	42 (0)
H	NMG08	47	42	41	42 (0)	41 (0)	42 (0)	41 (0)
I	NMG10	47	39	38	39 (0)	38 (0)	39 (0)	38 (0)
J	NMG08	47	45	44	45 (0)	44 (0)	45 (0)	44 (0)
K	NMG11	47	42	41	42 (0)	41 (0)	42 (0)	41 (0)
L	NMG12	47	34	34	36 (2)	35 (1)	35 (1)	34 (0)
M	NMG01	48	31	30	31 (0)	30 (0)	31 (0)	30 (0)
N	NA	NA	35	35	35 (0)	35 (0)	35 (0)	35 (0)
O	NA	NA	36	36	37 (1)	36 (0)	37 (1)	36 (0)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

7 CONCLUSION

A primary outcome of the EIS noise impact assessment was that, during periods of strong meteorological enhancement, noise management strategies would need to be employed to maintain off-site noise levels at acceptable levels. RCM are well aware of this requirement, and operate under a comprehensive and industry best practice noise management system, which is documented in the site Noise Management Plan. Should the trade-off study options have been included in the EIS noise impact assessment, no material differences to overall noise impact assessment outcomes would have occurred, and a similar degree of noise management would be required to ensure noise compliance during adverse weather conditions regardless.

Global Acoustics Pty Ltd

Appendix

A OPERATIONAL NOISE RESULTS

Table A.1: YEAR 2020 90th PERCENTILE OPERATIONAL PREDICTIONS- $L_{Aeq,15minute}$ dB

ID	NAG	NMG	EPL Criterion	EIS				Option 1 (change relative to EIS)				Option 2 (change relative to EIS)			
				Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2
4	A	NMG05	41	38	39	39	37	39 (1)	39 (0)	39 (0)	37 (0)	38 (0)	39 (0)	39 (0)	37 (0)
5	A	NMG05	41	39	39	40	38	40 (1)	39 (0)	40 (0)	38 (0)	39 (0)	39 (0)	40 (0)	38 (0)
6	A	NMG05	41	37	37	38	37	38 (1)	37 (0)	38 (0)	37 (0)	37 (0)	37 (0)	38 (0)	37 (0)
7	A	NMG05	41	38	39	39	36	38 (0)	39 (0)	39 (0)	36 (0)	38 (0)	39 (0)	39 (0)	36 (0)
10	A	NMG05	41	34	34	36	33	34 (0)	34 (0)	36 (0)	33 (0)	34 (0)	34 (0)	36 (0)	33 (0)
24	A	NMG05	41	37	36	38	35	38 (1)	36 (0)	38 (0)	35 (0)	37 (0)	36 (0)	38 (0)	35 (0)
15	B	NMG06	42	40	41	43	36	41 (1)	41 (0)	43 (0)	36 (0)	41 (1)	41 (0)	43 (0)	36 (0)
17	B	NMG06	42	41	41	43	37	42 (1)	41 (0)	43 (0)	37 (0)	41 (0)	41 (0)	43 (0)	37 (0)
19	B	NMG06	42	41	41	43	38	42 (1)	41 (0)	43 (0)	38 (0)	41 (0)	41 (0)	43 (0)	38 (0)
22	B	NMG06	42	41	41	43	40	42 (1)	41 (0)	43 (0)	40 (0)	41 (0)	41 (0)	43 (0)	40 (0)
26	C	NMG06	42	34	32	34	27	34 (0)	32 (0)	34 (0)	27 (0)	34 (0)	32 (0)	34 (0)	27 (0)
27	C	NMG06	42	41	41	42	38	42 (1)	41 (0)	42 (0)	38 (0)	41 (0)	41 (0)	42 (0)	38 (0)
33	C	NMG06	42	41	40	43	37	41 (0)	40 (0)	43 (0)	37 (0)	41 (0)	40 (0)	43 (0)	37 (0)
37	C	NMG06	42	41	41	42	38	41 (0)	41 (0)	42 (0)	38 (0)	41 (0)	41 (0)	42 (0)	38 (0)
57	D	NMG07	40	36	39	40	33	38 (2)	39 (0)	40 (0)	33 (0)	38 (2)	39 (0)	40 (0)	33 (0)
59	D	NMG07	40	39	42	43	37	41 (2)	42 (0)	43 (0)	37 (0)	40 (1)	42 (0)	43 (0)	37 (0)
61	D	NMG07	40	37	42	43	31	39 (2)	42 (0)	43 (0)	31 (0)	38 (1)	42 (0)	43 (0)	31 (0)
65	D	NMG07	40	37	40	41	32	38 (1)	40 (0)	41 (0)	32 (0)	36 (-1)	40 (0)	41 (0)	32 (0)
71	D	NMG07	40	38	40	41	34	40 (2)	40 (0)	41 (0)	34 (0)	39 (1)	40 (0)	41 (0)	34 (0)
76	D	NMG07	40	39	43	44	35	41 (2)	43 (0)	44 (0)	35 (0)	40 (1)	43 (0)	44 (0)	35 (0)
79	D	NMG07	40	38	42	43	35	41 (3)	42 (0)	43 (0)	35 (0)	40 (2)	42 (0)	43 (0)	35 (0)
85	E	NMG07	40	36	38	38	33	38 (2)	38 (0)	38 (0)	33 (0)	37 (1)	38 (0)	38 (0)	33 (0)

89	E	NMG07	40	38	39	39	34	38 (0)	39 (0)	39 (0)	34 (0)	38 (0)	39 (0)	39 (0)	34 (0)
68	F	NMG07	40	35	37	38	31	38 (3)	37 (0)	38 (0)	31 (0)	37 (2)	37 (0)	38 (0)	31 (0)
70	F	NMG07	40	35	36	38	31	37 (2)	36 (0)	38 (0)	31 (0)	36 (1)	36 (0)	38 (0)	31 (0)
81	F	NMG07	40	33	36	37	31	35 (2)	36 (0)	37 (0)	31 (0)	34 (1)	36 (0)	37 (0)	31 (0)
44	G	NMG08	40	42	41	43	38	43 (1)	41 (0)	42 (-1)	37 (-1)	43 (1)	41 (0)	42 (-1)	37 (-1)
47	G	NMG08	40	42	41	44	39	44 (2)	41 (0)	43 (-1)	39 (0)	43 (1)	41 (0)	43 (-1)	39 (0)
55	G	NMG08	40	43	42	44	40	44 (1)	42 (0)	44 (0)	40 (0)	43 (0)	42 (0)	44 (0)	40 (0)
104	H	NMG08	40	41	41	42	39	42 (1)	41 (0)	42 (0)	39 (0)	42 (1)	41 (0)	42 (0)	39 (0)
106	H	NMG08	40	42	42	42	39	42 (0)	42 (0)	42 (0)	39 (0)	42 (0)	42 (0)	42 (0)	39 (0)
113	H	NMG08	40	41	41	41	38	41 (0)	41 (0)	41 (0)	38 (0)	40 (-1)	41 (0)	41 (0)	38 (0)
117	H	NMG08	40	41	40	40	35	41 (0)	40 (0)	40 (0)	35 (0)	41 (0)	40 (0)	40 (0)	35 (0)
120	H	NMG08	40	41	37	37	34	41 (0)	37 (0)	37 (0)	34 (0)	41 (0)	37 (0)	37 (0)	34 (0)
125	I	NMG10	40	35	36	35	33	34 (-1)	36 (0)	35 (0)	33 (0)	34 (-1)	36 (0)	35 (0)	33 (0)
130	I	NMG10	40	38	34	33	29	36 (-2)	34 (0)	33 (0)	29 (0)	36 (-2)	34 (0)	33 (0)	29 (0)
133	I	NMG10	40	36	31	31	29	36 (0)	31 (0)	31 (0)	29 (0)	35 (-1)	31 (0)	31 (0)	29 (0)
137	J	NMG08	40	44	44	44	42	45 (1)	44 (0)	44 (0)	42 (0)	44 (0)	44 (0)	44 (0)	42 (0)
140	J	NMG08	40	45	43	44	40	46 (1)	43 (0)	44 (0)	40 (0)	46 (1)	43 (0)	44 (0)	40 (0)
155	J	NMG08	40	44	42	42	37	44 (0)	42 (0)	42 (0)	37 (0)	44 (0)	42 (0)	42 (0)	37 (0)
146	K	NMG11	40	37	39	37	33	36 (-1)	39 (0)	37 (0)	33 (0)	35 (-2)	39 (0)	37 (0)	33 (0)
148	K	NMG11	40	38	38	37	35	35 (-3)	38 (0)	37 (0)	35 (0)	35 (-3)	38 (0)	37 (0)	35 (0)
160	K	NMG11	40	42	43	43	37	42 (0)	43 (0)	43 (0)	37 (0)	41 (-1)	43 (0)	43 (0)	37 (0)
163	K	NMG11	40	38	40	39	33	38 (0)	40 (0)	39 (0)	33 (0)	37 (-1)	40 (0)	39 (0)	33 (0)
151	L	NMG12	40	34	31	28	25	32 (-2)	31 (0)	28 (0)	25 (0)	31 (-3)	31 (0)	28 (0)	25 (0)
164	L	NMG12	40	38	33	31	29	32 (-6)	32 (-1)	29 (-2)	25 (-4)	35 (-3)	32 (-1)	29 (-2)	25 (-4)
167	L	NMG12	40	38	37	35	33	35 (-3)	37 (0)	35 (0)	33 (0)	37 (-1)	37 (0)	35 (0)	33 (0)

168	L	NMG12	40	38	38	35	33	35 (-3)	37 (-1)	35 (0)	33 (0)	37 (-1)	37 (-1)	35 (0)	33 (0)
171	M	NMG01	40	36	35	34	30	36 (0)	35 (0)	34 (0)	30 (0)	36 (0)	35 (0)	34 (0)	30 (0)
174	M	NMG01	40	38	33	31	24	34 (-4)	33 (0)	31 (0)	22 (-2)	36 (-2)	33 (0)	31 (0)	22 (-2)
173	N	NA	NA	35	35	34	32	35 (0)	35 (0)	34 (0)	32 (0)	35 (0)	35 (0)	34 (0)	32 (0)
178	N	NA	NA	34	35	35	33	37 (3)	35 (0)	35 (0)	33 (0)	35 (1)	35 (0)	35 (0)	33 (0)
180	O	NA	NA	36	37	38	35	37 (1)	37 (0)	38 (0)	36 (1)	36 (0)	36 (-1)	38 (0)	35 (0)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

Table A.2: YEAR 2023 90th PERCENTILE OPERATIONAL PREDICTIONS- $L_{Aeq,15minute}$ dB

ID	NAG	NMG	EPL Criterion	EIS				Option 1 (change relative to EIS)				Option 2 (change relative to EIS)			
				Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2
4	A	NMG05	41	37	38	39	38	39 (2)	38 (0)	39 (0)	38 (0)	37 (0)	38 (0)	39 (0)	38 (0)
5	A	NMG05	41	38	38	39	39	39 (1)	38 (0)	39 (0)	39 (0)	38 (0)	38 (0)	39 (0)	39 (0)
6	A	NMG05	41	36	37	38	37	37 (1)	37 (0)	38 (0)	37 (0)	36 (0)	37 (0)	38 (0)	37 (0)
7	A	NMG05	41	36	37	37	37	38 (2)	37 (0)	38 (1)	37 (0)	36 (0)	37 (0)	38 (1)	37 (0)
10	A	NMG05	41	32	33	34	34	35 (3)	33 (0)	35 (1)	34 (0)	33 (1)	33 (0)	35 (1)	34 (0)
24	A	NMG05	41	35	36	37	35	37 (2)	36 (0)	37 (0)	36 (1)	35 (0)	36 (0)	37 (0)	36 (1)
15	B	NMG06	42	39	38	40	38	40 (1)	38 (0)	40 (0)	39 (1)	39 (0)	38 (0)	40 (0)	39 (1)
17	B	NMG06	42	39	39	41	39	39 (0)	39 (0)	41 (0)	39 (0)	39 (0)	39 (0)	41 (0)	39 (0)
19	B	NMG06	42	40	40	42	41	40 (0)	40 (0)	42 (0)	41 (0)	40 (0)	40 (0)	42 (0)	41 (0)
22	B	NMG06	42	40	40	42	41	40 (0)	40 (0)	42 (0)	41 (0)	40 (0)	40 (0)	42 (0)	41 (0)
26	C	NMG06	42	31	30	31	29	32 (1)	30 (0)	31 (0)	29 (0)	32 (1)	30 (0)	31 (0)	30 (1)
27	C	NMG06	42	40	39	42	41	41 (1)	40 (1)	42 (0)	41 (0)	40 (0)	40 (1)	42 (0)	41 (0)
33	C	NMG06	42	39	39	41	39	40 (1)	39 (0)	41 (0)	40 (1)	39 (0)	39 (0)	41 (0)	40 (1)
37	C	NMG06	42	40	39	41	40	40 (0)	39 (0)	41 (0)	40 (0)	40 (0)	39 (0)	41 (0)	40 (0)
57	D	NMG07	40	34	34	35	31	35 (1)	34 (0)	35 (0)	31 (0)	34 (0)	34 (0)	35 (0)	31 (0)
59	D	NMG07	40	38	39	40	38	39 (1)	39 (0)	40 (0)	38 (0)	39 (1)	39 (0)	40 (0)	38 (0)
61	D	NMG07	40	35	35	36	32	37 (2)	35 (0)	36 (0)	33 (1)	35 (0)	35 (0)	36 (0)	33 (1)
65	D	NMG07	40	34	34	35	32	36 (2)	34 (0)	35 (0)	33 (1)	35 (1)	34 (0)	35 (0)	33 (1)
71	D	NMG07	40	36	35	36	33	37 (1)	36 (1)	36 (0)	34 (1)	37 (1)	36 (1)	36 (0)	34 (1)
76	D	NMG07	40	37	37	39	37	38 (1)	37 (0)	39 (0)	37 (0)	37 (0)	37 (0)	39 (0)	37 (0)
79	D	NMG07	40	37	37	38	36	38 (1)	37 (0)	39 (1)	36 (0)	37 (0)	37 (0)	39 (1)	37 (1)
85	E	NMG07	40	35	34	35	32	36 (1)	34 (0)	35 (0)	33 (1)	35 (0)	34 (0)	35 (0)	33 (1)

89	E	NMG07	40	36	36	37	35	37 (1)	36 (0)	37 (0)	35 (0)	37 (1)	36 (0)	37 (0)	35 (0)
68	F	NMG07	40	33	32	33	26	35 (2)	32 (0)	33 (0)	26 (0)	34 (1)	33 (1)	33 (0)	26 (0)
70	F	NMG07	40	34	33	33	29	35 (1)	33 (0)	33 (0)	29 (0)	34 (0)	33 (0)	33 (0)	30 (1)
81	F	NMG07	40	31	31	32	27	33 (2)	31 (0)	33 (1)	28 (1)	31 (0)	31 (0)	33 (1)	28 (1)
44	G	NMG08	40	40	40	40	38	42 (2)	40 (0)	40 (0)	39 (1)	40 (0)	40 (0)	40 (0)	39 (1)
47	G	NMG08	40	41	41	41	39	42 (1)	41 (0)	41 (0)	39 (0)	41 (0)	41 (0)	41 (0)	39 (0)
55	G	NMG08	40	41	41	42	40	42 (1)	41 (0)	42 (0)	40 (0)	41 (0)	41 (0)	42 (0)	40 (0)
104	H	NMG08	40	39	39	40	38	41 (2)	39 (0)	40 (0)	38 (0)	40 (1)	39 (0)	40 (0)	38 (0)
106	H	NMG08	40	39	38	40	38	40 (1)	39 (1)	40 (0)	38 (0)	39 (0)	39 (1)	40 (0)	38 (0)
113	H	NMG08	40	38	37	39	38	39 (1)	38 (1)	39 (0)	38 (0)	38 (0)	38 (1)	39 (0)	38 (0)
117	H	NMG08	40	38	37	38	36	39 (1)	37 (0)	38 (0)	36 (0)	38 (0)	37 (0)	38 (0)	36 (0)
120	H	NMG08	40	37	35	36	33	37 (0)	35 (0)	36 (0)	33 (0)	36 (-1)	35 (0)	36 (0)	33 (0)
125	I	NMG10	40	31	32	32	27	32 (1)	32 (0)	32 (0)	27 (0)	31 (0)	32 (0)	32 (0)	27 (0)
130	I	NMG10	40	33	31	32	25	33 (0)	31 (0)	32 (0)	25 (0)	33 (0)	31 (0)	32 (0)	26 (1)
133	I	NMG10	40	33	32	32	30	33 (0)	32 (0)	32 (0)	30 (0)	33 (0)	32 (0)	32 (0)	30 (0)
137	J	NMG08	40	41	40	41	37	42 (1)	40 (0)	41 (0)	37 (0)	41 (0)	40 (0)	41 (0)	37 (0)
140	J	NMG08	40	42	40	41	37	43 (1)	40 (0)	42 (1)	38 (1)	42 (0)	40 (0)	42 (1)	38 (1)
155	J	NMG08	40	40	40	40	36	42 (2)	40 (0)	40 (0)	37 (1)	40 (0)	40 (0)	40 (0)	37 (1)
146	K	NMG11	40	28	34	31	29	32 (4)	34 (0)	31 (0)	29 (0)	29 (1)	34 (0)	31 (0)	29 (0)
148	K	NMG11	40	30	36	33	29	33 (3)	35 (-1)	33 (0)	30 (1)	30 (0)	35 (-1)	33 (0)	30 (1)
160	K	NMG11	40	36	37	37	33	38 (2)	37 (0)	38 (1)	34 (1)	36 (0)	37 (0)	38 (1)	34 (1)
163	K	NMG11	40	31	33	32	30	34 (3)	33 (0)	32 (0)	31 (1)	31 (0)	33 (0)	33 (1)	31 (1)
151	L	NMG12	40	28	27	24	21	30 (2)	28 (1)	25 (1)	22 (1)	28 (0)	28 (1)	25 (1)	22 (1)
164	L	NMG12	40	31	33	30	27	34 (3)	33 (0)	30 (0)	27 (0)	32 (1)	33 (0)	30 (0)	27 (0)
167	L	NMG12	40	36	39	35	34	36 (0)	39 (0)	35 (0)	34 (0)	36 (0)	39 (0)	35 (0)	34 (0)

168	L	NMG12	40	36	39	35	34	36 (0)	38 (-1)	33 (-2)	31 (-3)	35 (-1)	38 (-1)	33 (-2)	31 (-3)
171	M	NMG01	40	32	34	33	32	36 (4)	35 (1)	34 (1)	33 (1)	34 (2)	35 (1)	34 (1)	33 (1)
174	M	NMG01	40	28	34	29	28	34 (6)	35 (1)	30 (1)	30 (2)	33 (5)	34 (0)	30 (1)	29 (1)
173	N	NA	NA	32	33	32	31	36 (4)	33 (0)	33 (1)	32 (1)	33 (1)	33 (0)	33 (1)	32 (1)
178	N	NA	NA	34	36	36	35	38 (4)	36 (0)	37 (1)	35 (0)	35 (1)	36 (0)	37 (1)	35 (0)
180	O	NA	NA	35	35	37	36	39 (4)	36 (1)	38 (1)	37 (1)	35 (0)	36 (1)	37 (0)	37 (1)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

Table A.3: YEAR 2026 90th PERCENTILE OPERATIONAL PREDICTIONS- $L_{Aeq,15minute}$ dB

ID	NAG	NMG	EPL Criterion	EIS				Option 1 (change relative to EIS)				Option 2 (change relative to EIS)			
				Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2	Day	Eve	Night 1	Night 2
4	A	NMG05	41	37	38	38	38	37 (0)	38 (0)	38 (0)	38 (0)	37 (0)	38 (0)	38 (0)	38 (0)
5	A	NMG05	41	38	38	39	38	38 (0)	38 (0)	39 (0)	38 (0)	38 (0)	38 (0)	39 (0)	38 (0)
6	A	NMG05	41	36	36	37	37	36 (0)	36 (0)	37 (0)	37 (0)	36 (0)	36 (0)	37 (0)	37 (0)
7	A	NMG05	41	36	37	37	36	36 (0)	37 (0)	37 (0)	37 (1)	36 (0)	37 (0)	37 (0)	37 (1)
10	A	NMG05	41	32	33	34	34	32 (0)	33 (0)	35 (1)	34 (0)	32 (0)	34 (1)	35 (1)	34 (0)
24	A	NMG05	41	36	35	37	35	35 (-1)	34 (-1)	36 (-1)	35 (0)	35 (-1)	34 (-1)	36 (-1)	35 (0)
15	B	NMG06	42	39	39	41	39	39 (0)	39 (0)	41 (0)	39 (0)	39 (0)	39 (0)	41 (0)	39 (0)
17	B	NMG06	42	39	39	41	39	40 (1)	39 (0)	41 (0)	39 (0)	40 (1)	39 (0)	41 (0)	39 (0)
19	B	NMG06	42	40	40	42	40	40 (0)	40 (0)	42 (0)	40 (0)	40 (0)	40 (0)	42 (0)	40 (0)
22	B	NMG06	42	40	40	42	41	40 (0)	40 (0)	42 (0)	41 (0)	40 (0)	40 (0)	42 (0)	41 (0)
26	C	NMG06	42	31	29	31	29	31 (0)	29 (0)	31 (0)	29 (0)	31 (0)	29 (0)	31 (0)	29 (0)
27	C	NMG06	42	39	39	41	40	39 (0)	39 (0)	42 (1)	40 (0)	39 (0)	39 (0)	42 (1)	40 (0)
33	C	NMG06	42	39	39	41	40	39 (0)	39 (0)	41 (0)	40 (0)	39 (0)	39 (0)	41 (0)	40 (0)
37	C	NMG06	42	39	39	41	40	39 (0)	39 (0)	41 (0)	40 (0)	39 (0)	39 (0)	41 (0)	40 (0)
57	D	NMG07	40	35	36	36	34	35 (0)	36 (0)	36 (0)	34 (0)	35 (0)	36 (0)	36 (0)	34 (0)
59	D	NMG07	40	38	39	39	38	38 (0)	39 (0)	39 (0)	38 (0)	38 (0)	39 (0)	39 (0)	38 (0)
61	D	NMG07	40	37	37	37	32	37 (0)	37 (0)	37 (0)	32 (0)	37 (0)	37 (0)	37 (0)	32 (0)
65	D	NMG07	40	35	36	37	33	35 (0)	36 (0)	37 (0)	33 (0)	35 (0)	36 (0)	37 (0)	33 (0)
71	D	NMG07	40	36	37	37	35	35 (-1)	36 (-1)	37 (0)	34 (-1)	35 (-1)	36 (-1)	37 (0)	34 (-1)
76	D	NMG07	40	37	38	39	36	37 (0)	38 (0)	39 (0)	36 (0)	37 (0)	38 (0)	39 (0)	36 (0)
79	D	NMG07	40	37	38	38	35	37 (0)	38 (0)	38 (0)	36 (1)	37 (0)	38 (0)	38 (0)	36 (1)
85	E	NMG07	40	35	35	36	34	35 (0)	35 (0)	35 (-1)	34 (0)	35 (0)	35 (0)	35 (-1)	34 (0)

89	E	NMG07	40	36	36	37	35	36 (0)	36 (0)	37 (0)	35 (0)	36 (0)	36 (0)	37 (0)	35 (0)
68	F	NMG07	40	33	34	35	32	33 (0)	34 (0)	34 (-1)	32 (0)	33 (0)	34 (0)	35 (0)	32 (0)
70	F	NMG07	40	33	34	34	32	33 (0)	34 (0)	34 (0)	32 (0)	33 (0)	34 (0)	34 (0)	32 (0)
81	F	NMG07	40	31	32	33	29	32 (1)	33 (1)	34 (1)	31 (2)	32 (1)	33 (1)	34 (1)	31 (2)
44	G	NMG08	40	39	39	39	37	39 (0)	39 (0)	39 (0)	37 (0)	39 (0)	39 (0)	39 (0)	37 (0)
47	G	NMG08	40	39	39	40	38	39 (0)	39 (0)	40 (0)	38 (0)	39 (0)	39 (0)	40 (0)	38 (0)
55	G	NMG08	40	40	40	41	39	40 (0)	40 (0)	41 (0)	39 (0)	40 (0)	40 (0)	41 (0)	39 (0)
104	H	NMG08	40	38	38	38	36	38 (0)	38 (0)	38 (0)	36 (0)	38 (0)	38 (0)	38 (0)	36 (0)
106	H	NMG08	40	38	37	38	37	38 (0)	38 (1)	38 (0)	36 (-1)	38 (0)	38 (1)	38 (0)	36 (-1)
113	H	NMG08	40	37	37	38	36	37 (0)	37 (0)	38 (0)	36 (0)	37 (0)	37 (0)	38 (0)	36 (0)
117	H	NMG08	40	38	37	38	36	38 (0)	37 (0)	38 (0)	36 (0)	38 (0)	37 (0)	38 (0)	36 (0)
120	H	NMG08	40	38	37	37	35	38 (0)	37 (0)	37 (0)	35 (0)	38 (0)	37 (0)	37 (0)	35 (0)
125	I	NMG10	40	31	32	32	28	31 (0)	32 (0)	32 (0)	28 (0)	31 (0)	32 (0)	32 (0)	28 (0)
130	I	NMG10	40	34	34	34	32	34 (0)	34 (0)	34 (0)	32 (0)	34 (0)	34 (0)	34 (0)	32 (0)
133	I	NMG10	40	33	32	32	30	33 (0)	32 (0)	32 (0)	30 (0)	33 (0)	32 (0)	32 (0)	30 (0)
137	J	NMG08	40	41	41	41	39	41 (0)	41 (0)	41 (0)	39 (0)	41 (0)	41 (0)	41 (0)	39 (0)
140	J	NMG08	40	42	41	42	39	42 (0)	41 (0)	42 (0)	39 (0)	42 (0)	41 (0)	42 (0)	39 (0)
155	J	NMG08	40	41	41	41	39	41 (0)	41 (0)	41 (0)	39 (0)	41 (0)	41 (0)	41 (0)	39 (0)
146	K	NMG11	40	33	35	34	27	33 (0)	35 (0)	34 (0)	27 (0)	33 (0)	35 (0)	34 (0)	27 (0)
148	K	NMG11	40	33	34	32	28	33 (0)	35 (1)	33 (1)	27 (-1)	33 (0)	35 (1)	33 (1)	27 (-1)
160	K	NMG11	40	39	37	38	33	39 (0)	38 (1)	38 (0)	33 (0)	39 (0)	38 (1)	38 (0)	33 (0)
163	K	NMG11	40	32	33	33	27	33 (1)	34 (1)	33 (0)	27 (0)	33 (1)	34 (1)	33 (0)	27 (0)
151	L	NMG12	40	29	25	23	20	30 (1)	26 (1)	23 (0)	20 (0)	30 (1)	26 (1)	23 (0)	20 (0)
164	L	NMG12	40	30	33	30	27	31 (1)	32 (-1)	29 (-1)	26 (-1)	31 (1)	33 (0)	30 (0)	27 (0)
167	L	NMG12	40	35	37	33	32	35 (0)	37 (0)	35 (2)	34 (2)	35 (0)	37 (0)	34 (1)	33 (1)

168	L	NMG12	40	34	37	33	31	35 (1)	37 (0)	35 (2)	34 (3)	35 (1)	37 (0)	34 (1)	33 (2)
171	M	NMG01	40	33	32	31	30	33 (0)	32 (0)	31 (0)	30 (0)	33 (0)	32 (0)	31 (0)	29 (-1)
174	M	NMG01	40	28	28	26	23	28 (0)	28 (0)	26 (0)	23 (0)	28 (0)	28 (0)	26 (0)	23 (0)
173	N	NA	NA	33	34	34	34	33 (0)	34 (0)	34 (0)	33 (-1)	33 (0)	34 (0)	34 (0)	33 (-1)
178	N	NA	NA	34	35	35	34	34 (0)	35 (0)	35 (0)	34 (0)	34 (0)	35 (0)	35 (0)	34 (0)
180	O	NA	NA	35	35	36	36	35 (0)	36 (1)	37 (1)	36 (0)	35 (0)	36 (1)	37 (1)	36 (0)

Notes:

1. *Result in brackets is difference between EIS prediction and prediction for relevant option;*
2. *Orange highlight indicates positive change (increase); and*
3. *Green highlight indicates negative change (decrease).*

APPENDIX

B MODELLED SOURCE LOCATIONS

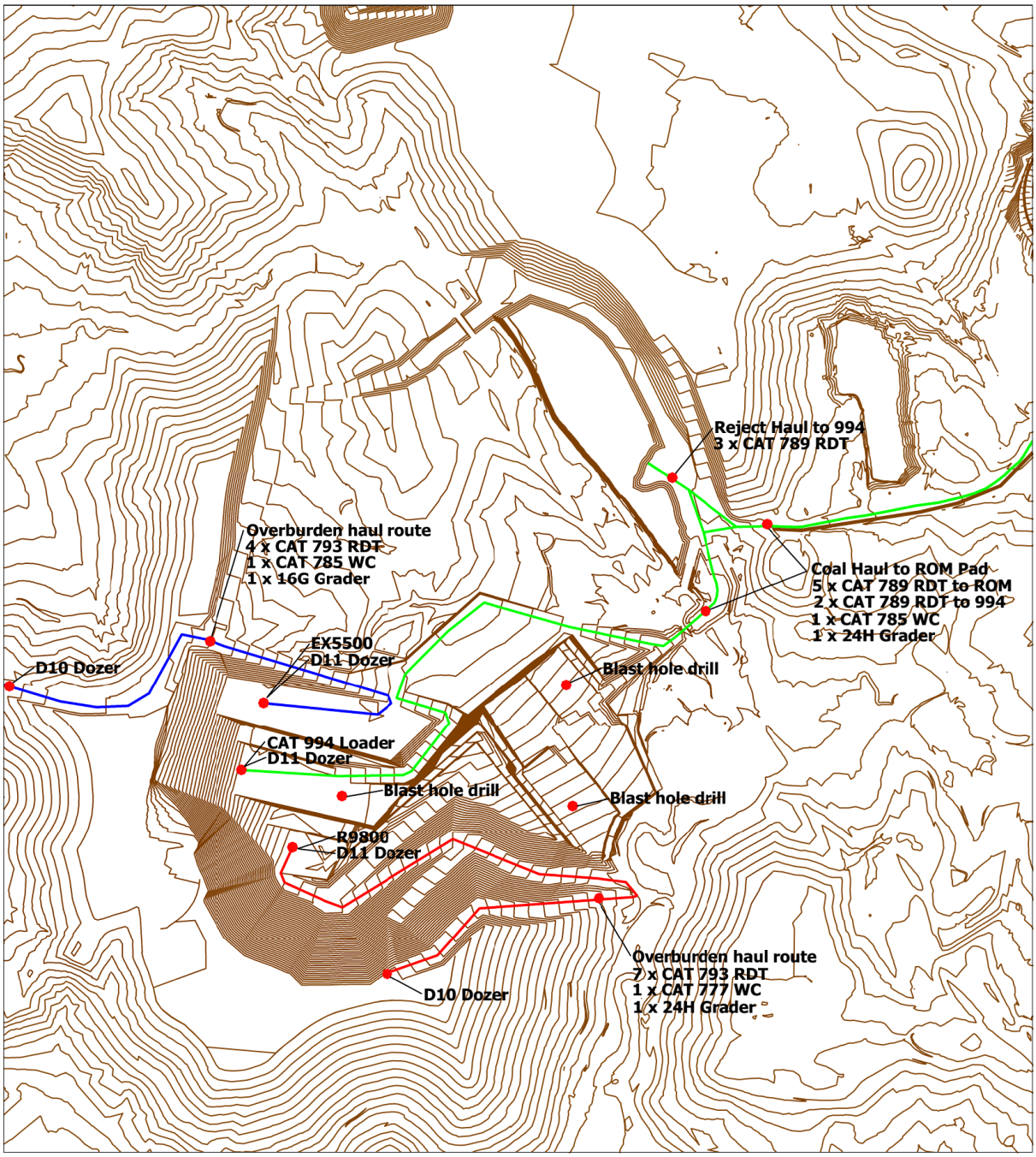

Figure B-1 Source Locations - 2020 Day Period Scenario – EIS

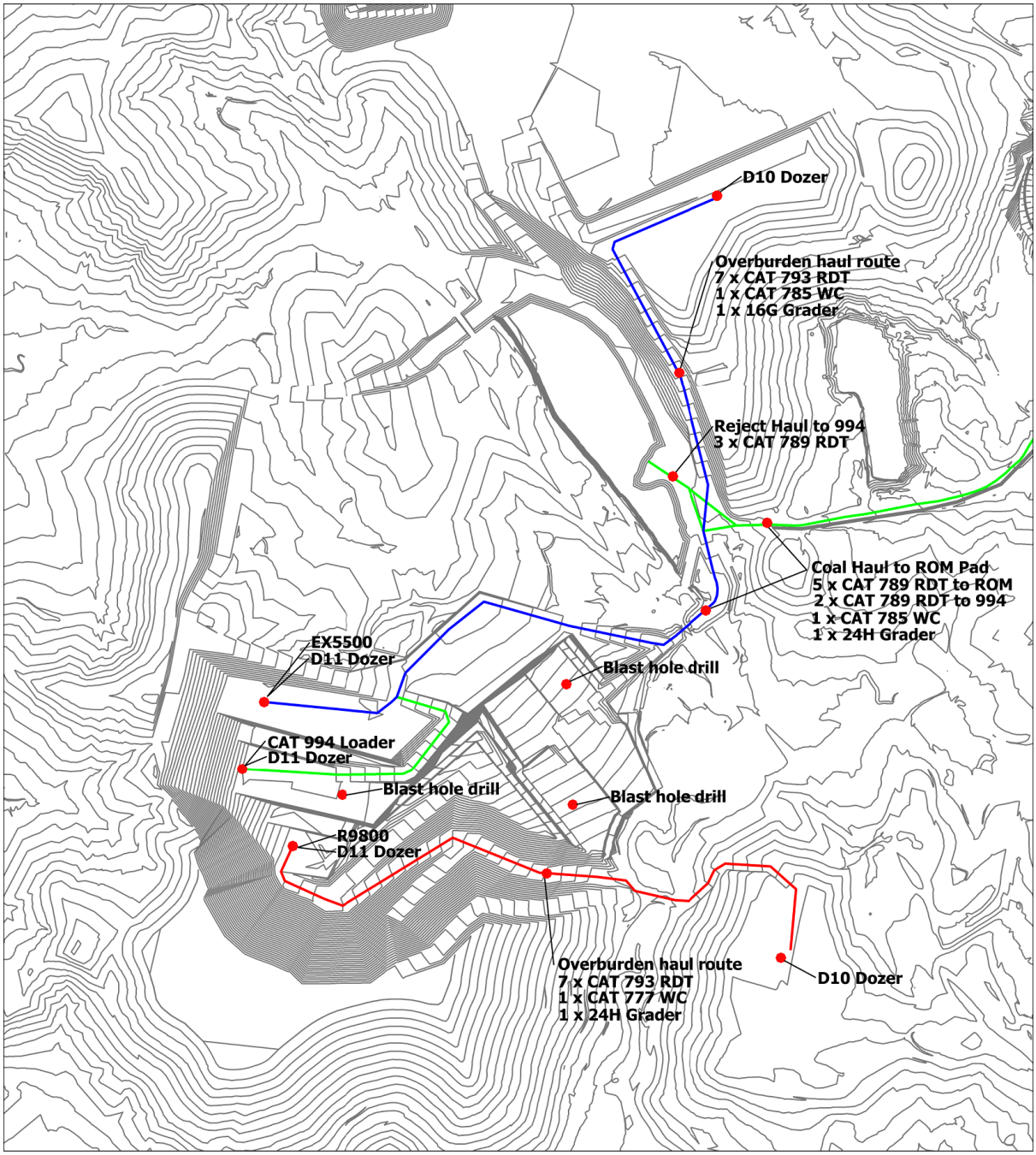

Figure B-2 Source Locations - 2020 Day Period Scenario – Trade-off Study Option 1

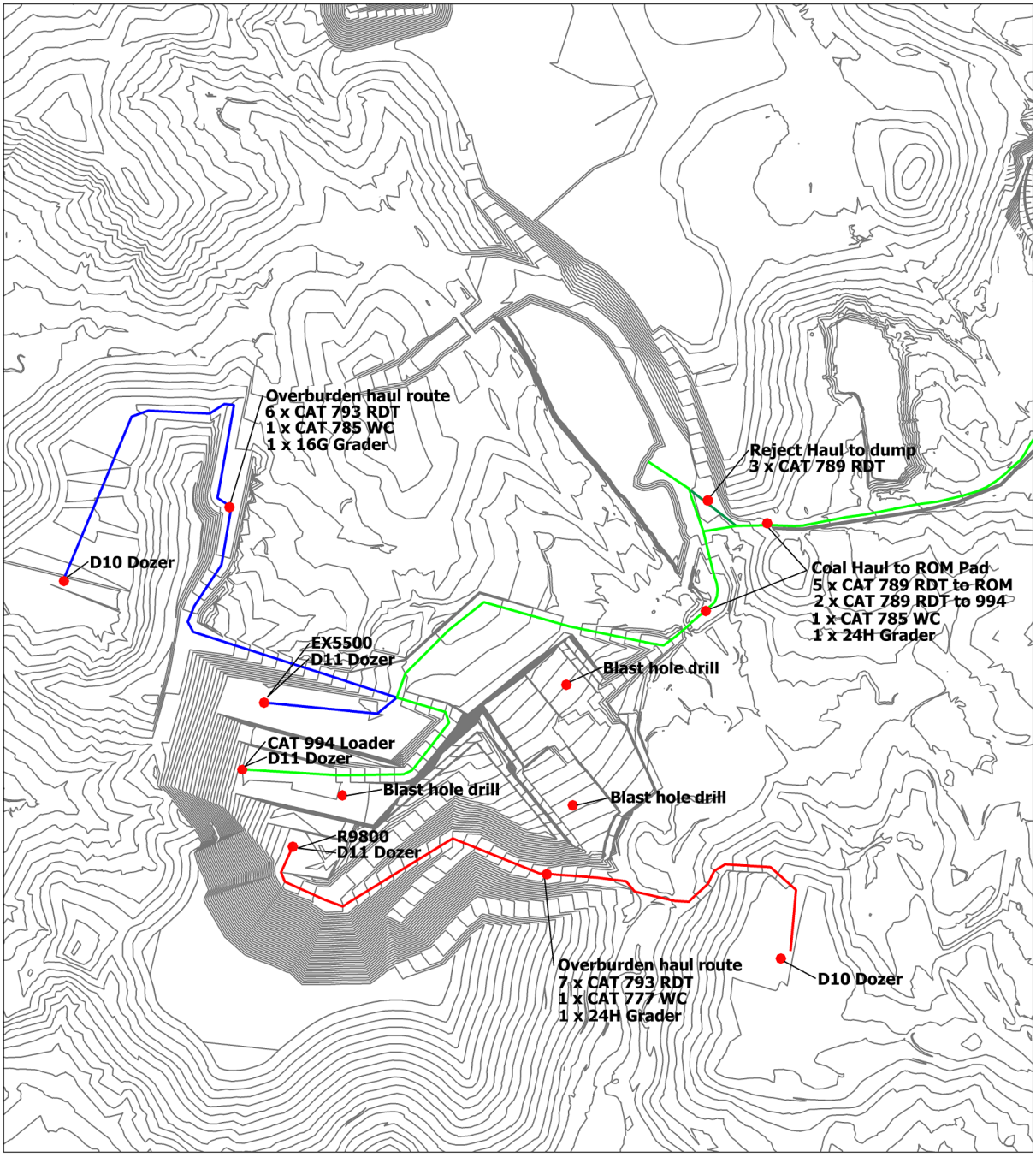

Figure B-3 Source Locations - 2020 Day Period Scenario - Trade-off Study Option 2

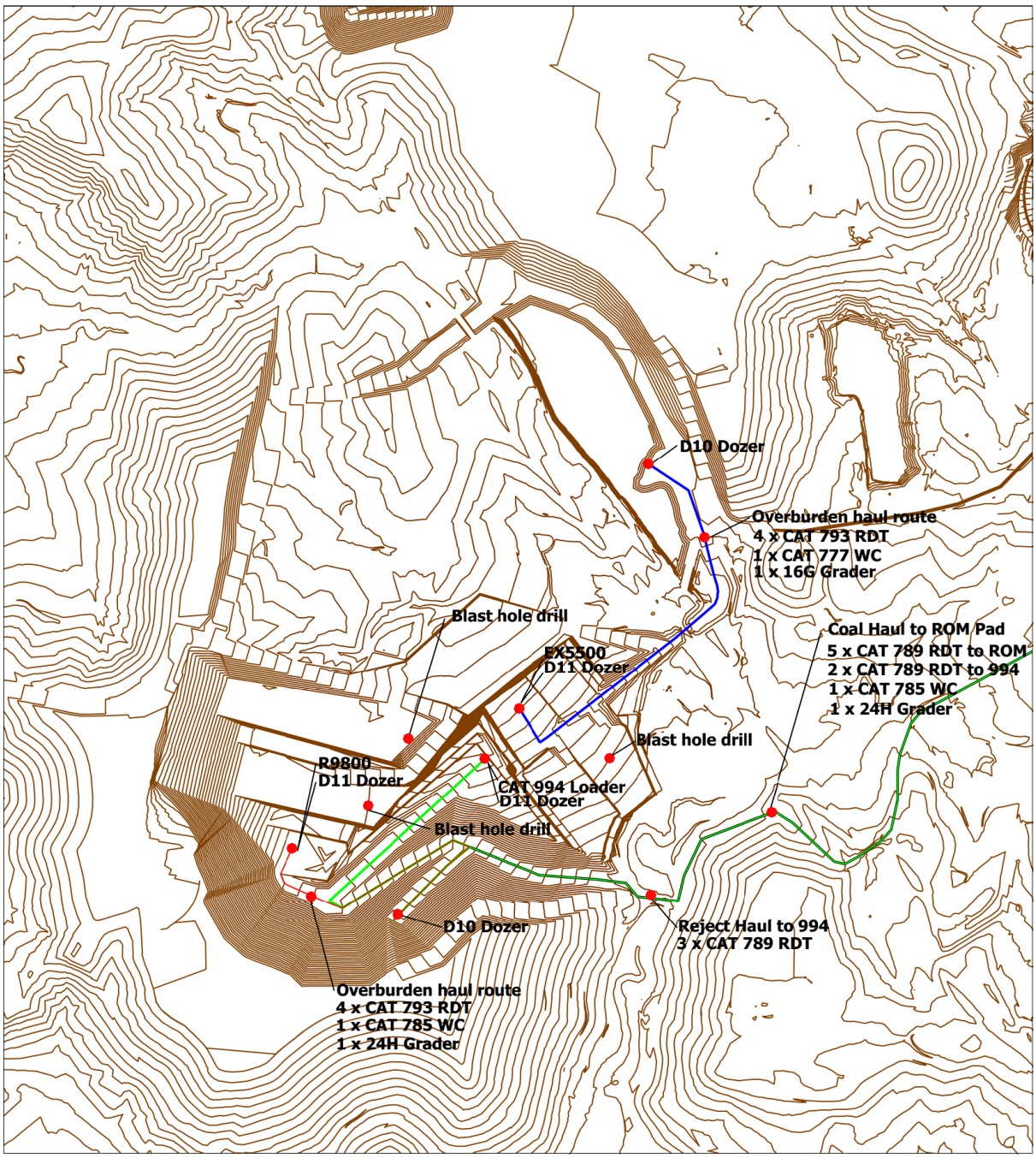

Figure B-4 Source Locations - 2020 Evening/Night Period Scenario – EIS

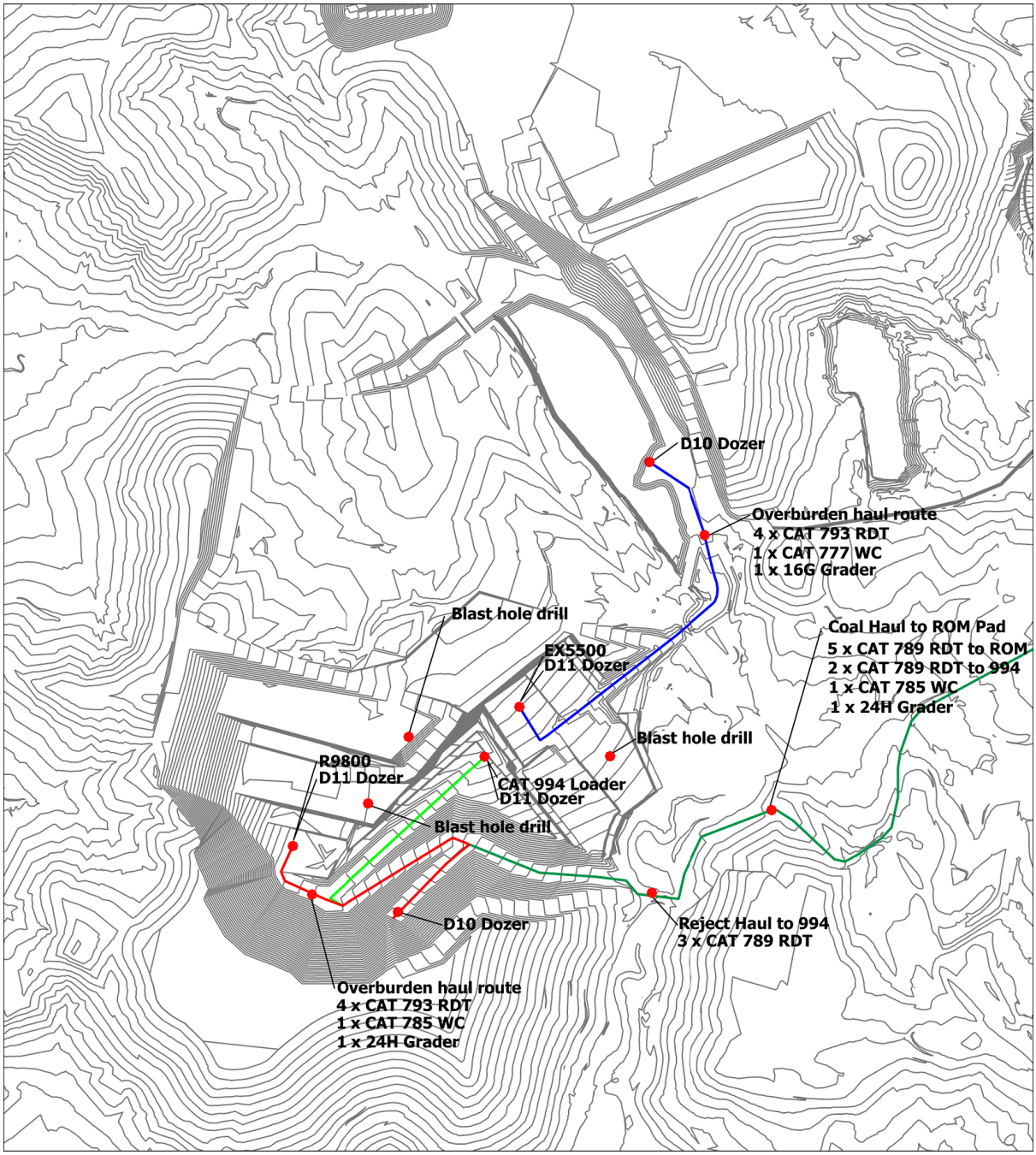

Figure B-5 Source Locations - 2020 Evening/Night Period Scenario - Trade-off Study Option 1

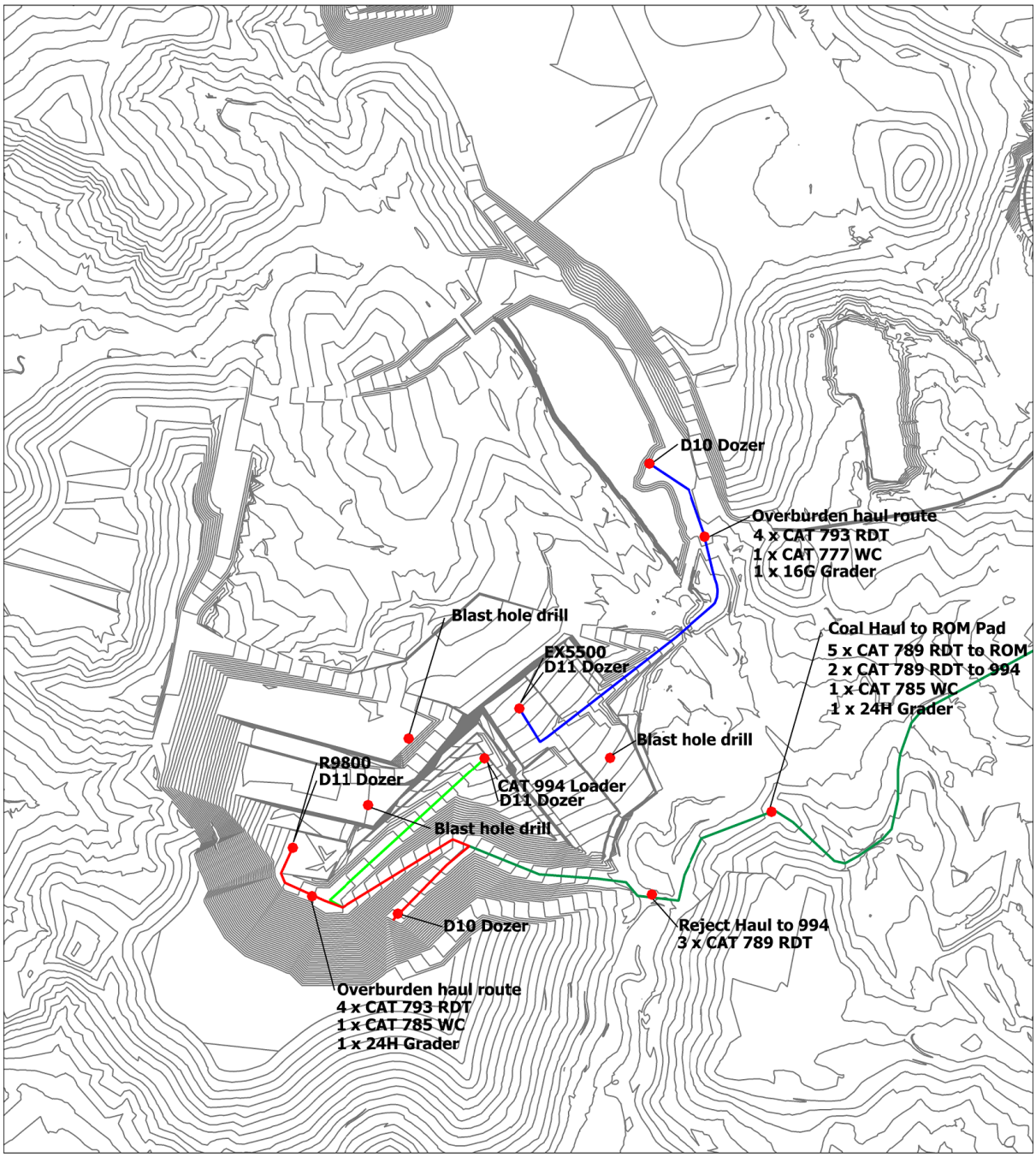

Figure B-6 Source Locations - 2020 Evening/Night Period Scenario - Trade-off Study Option 2

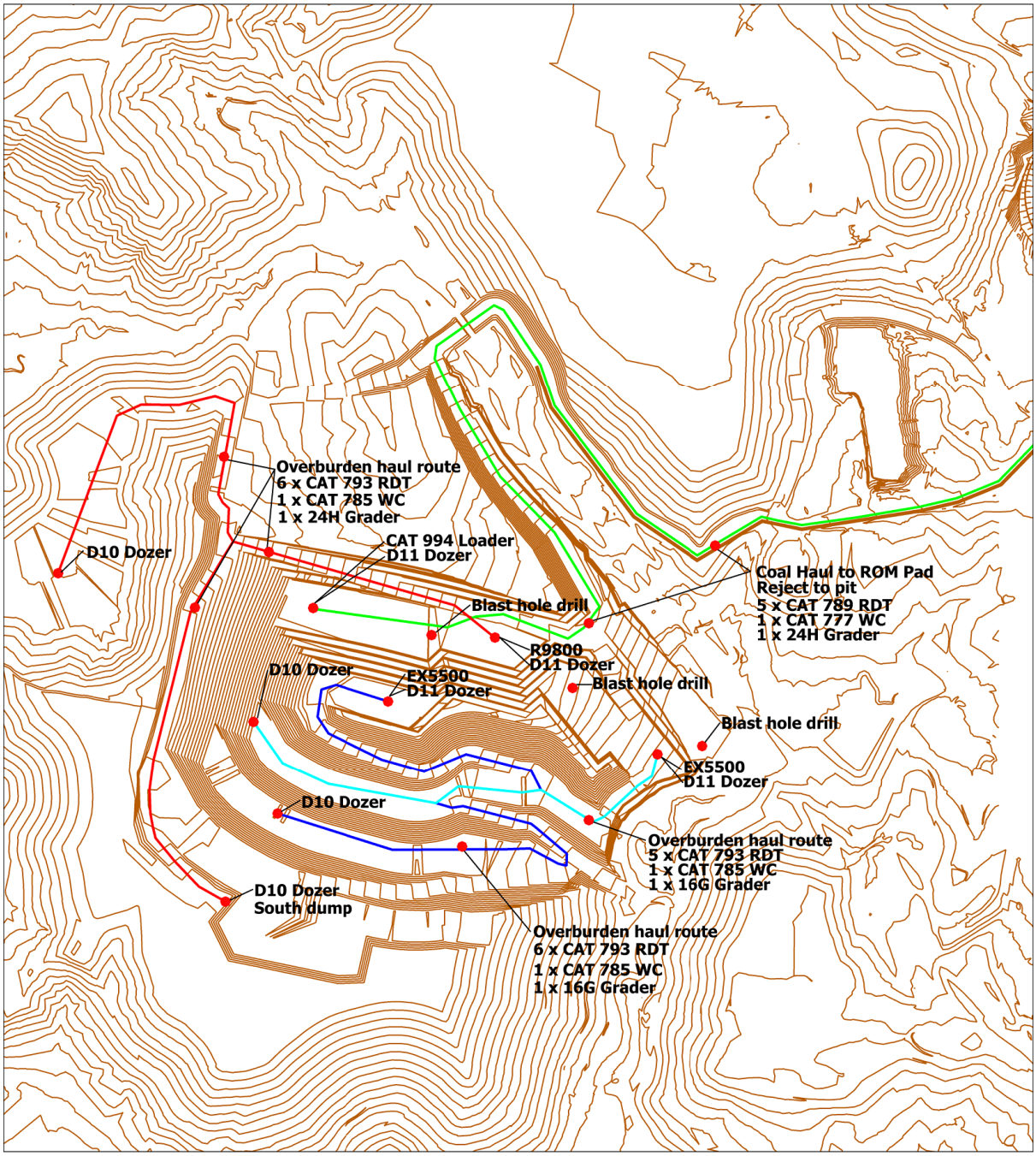

Figure B-7 Source Locations - 2023 Day Period Scenario – EIS

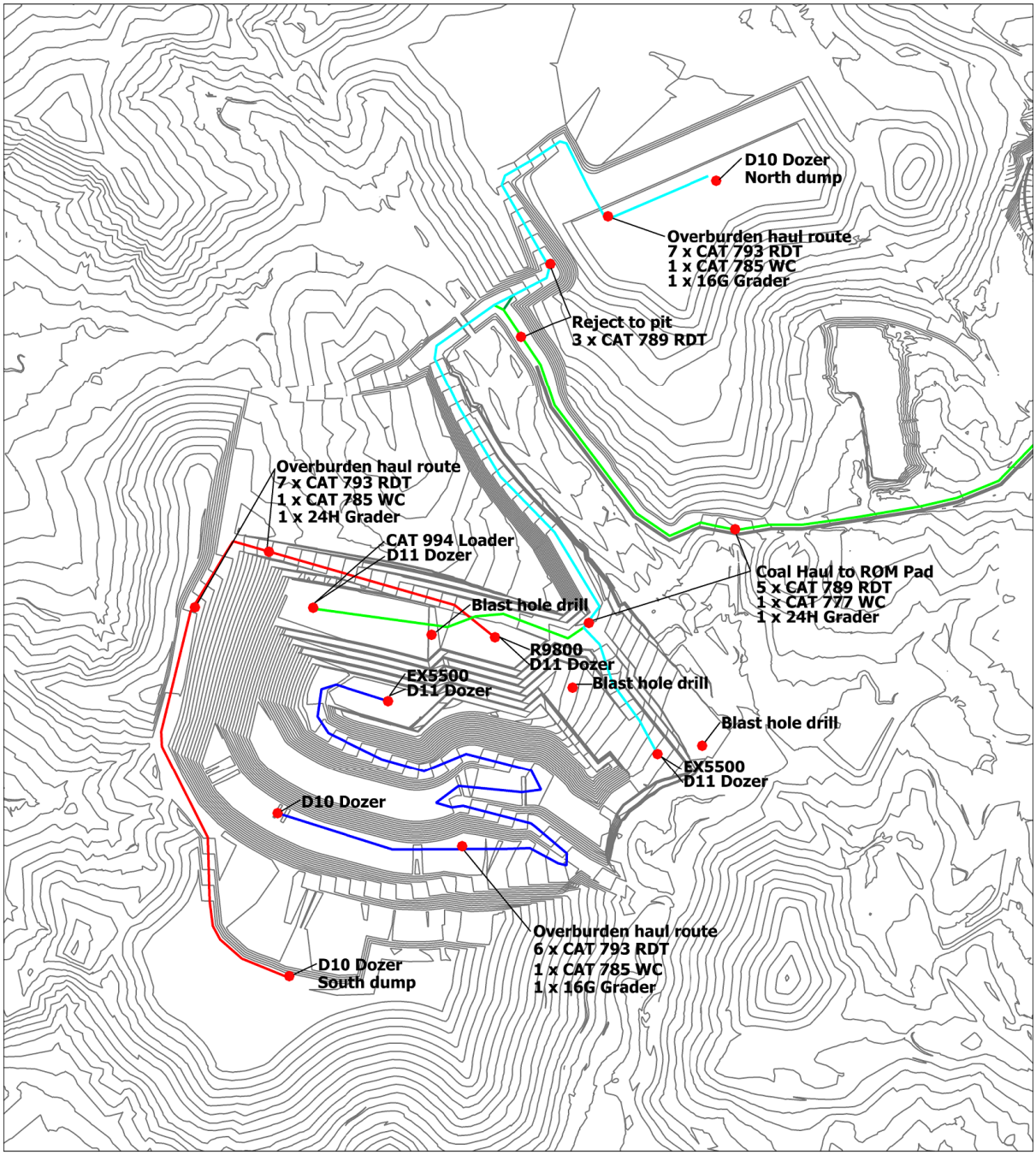

Figure B-8 Source Locations - 2023 Day Period Scenario - Trade-off Study Option 1

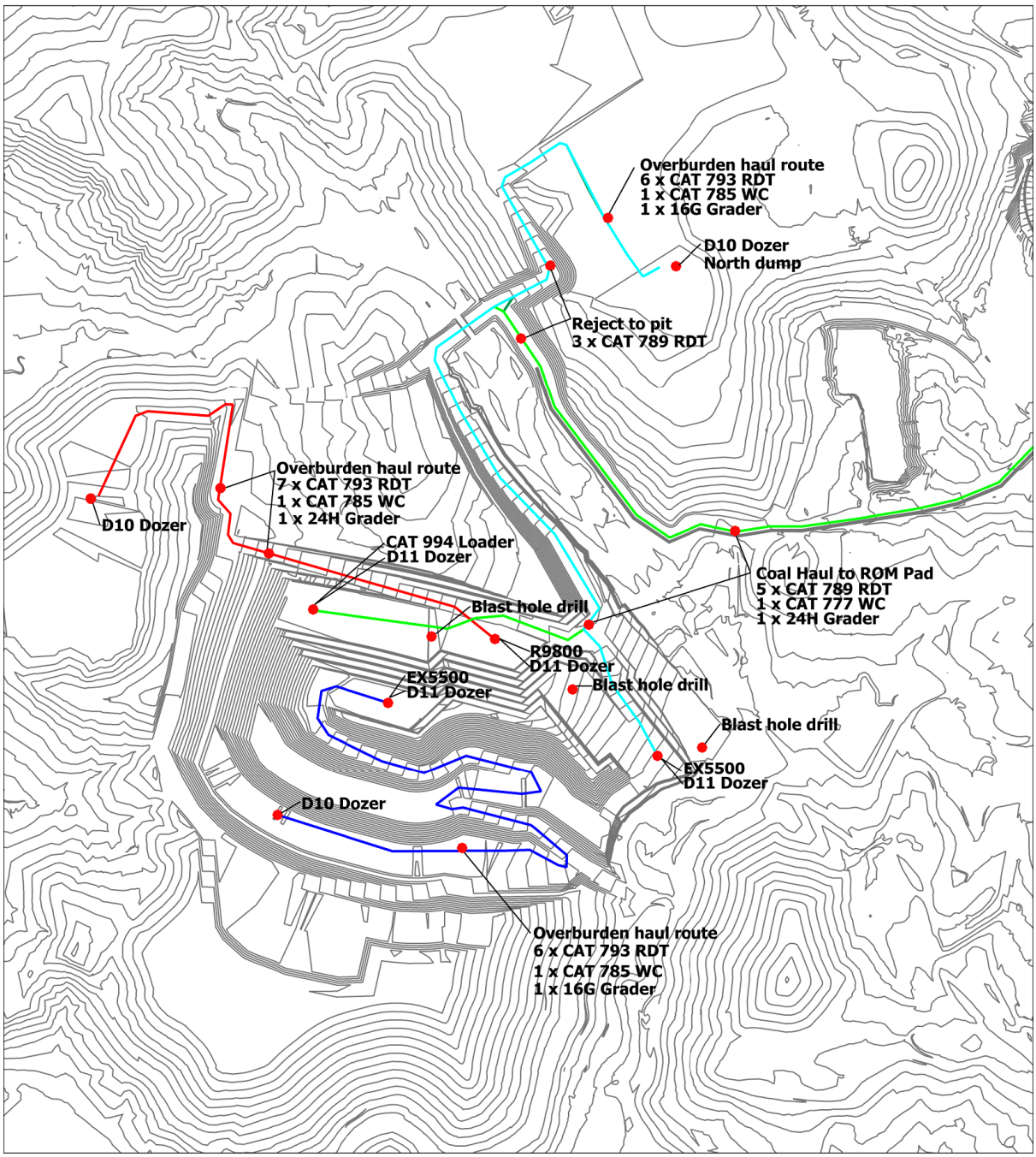

Figure B-9 Source Locations - 2023 Day Period Scenario - Trade-off Study Option 2

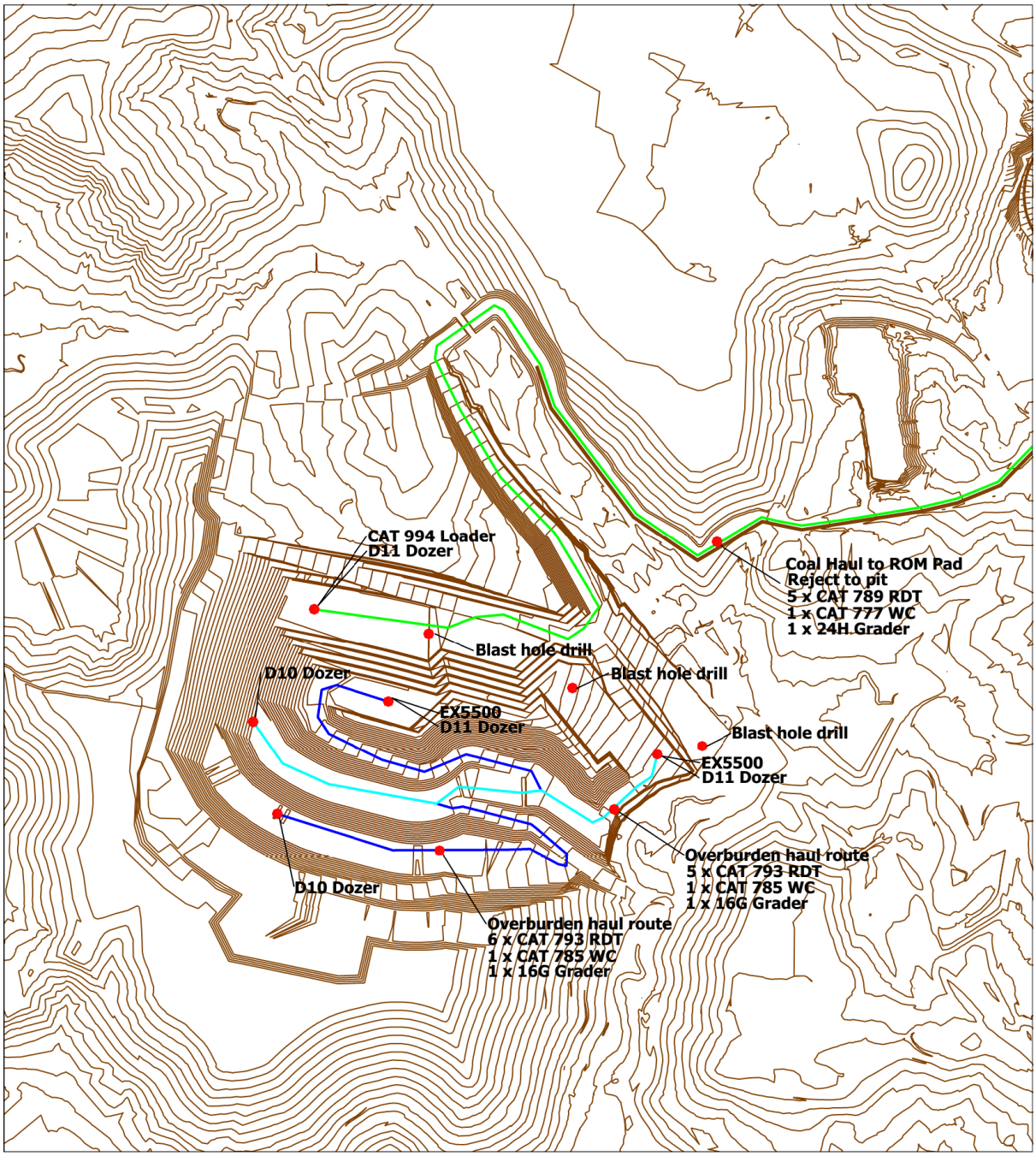

Figure B-10 Source Locations - 2023 Evening/Night Period Scenario - EIS (modified operations)

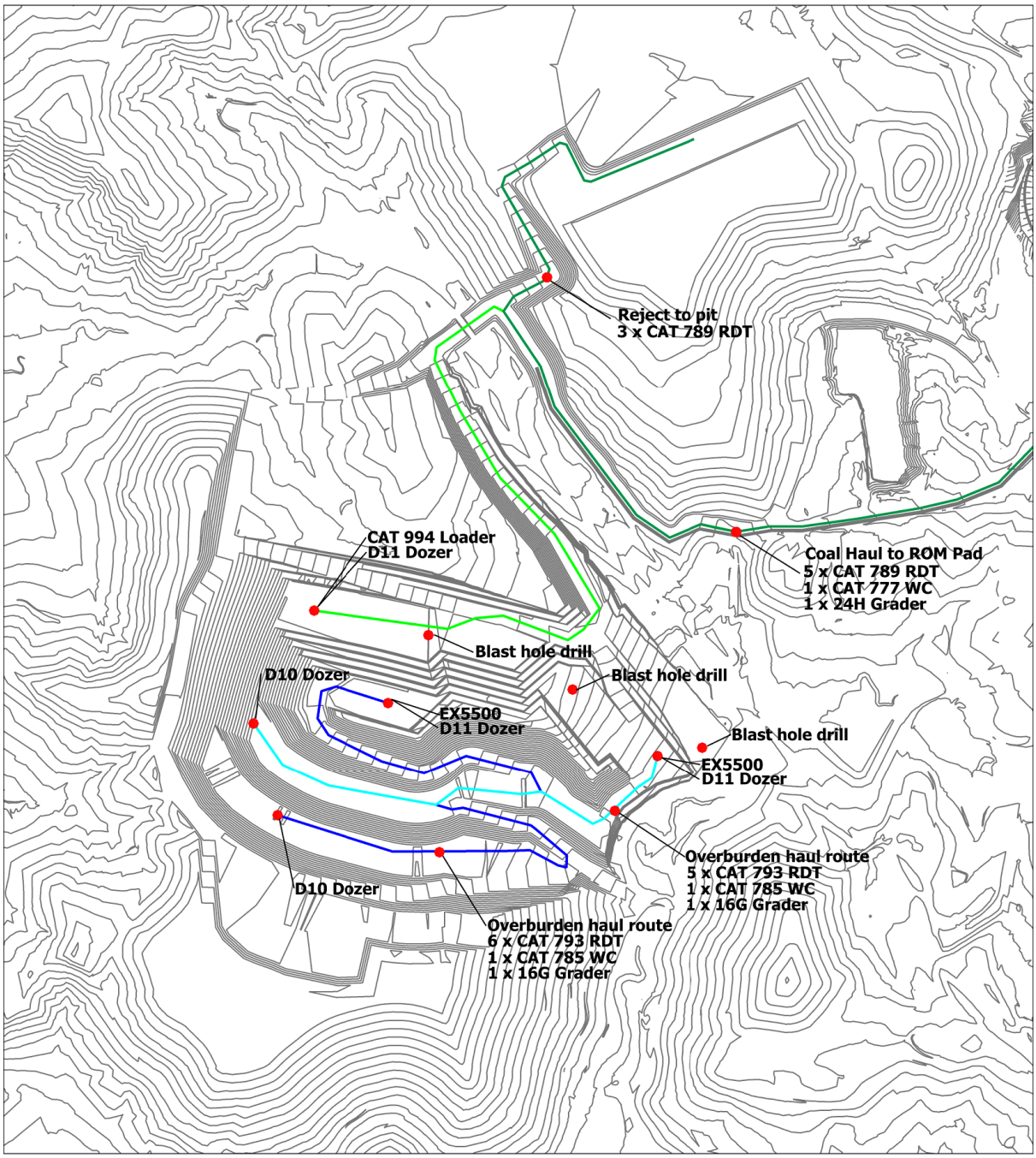

Figure B-11 Source Locations - 2023 Evening/Night Period Scenario - Trade-off Study Option 1 (modified operations)

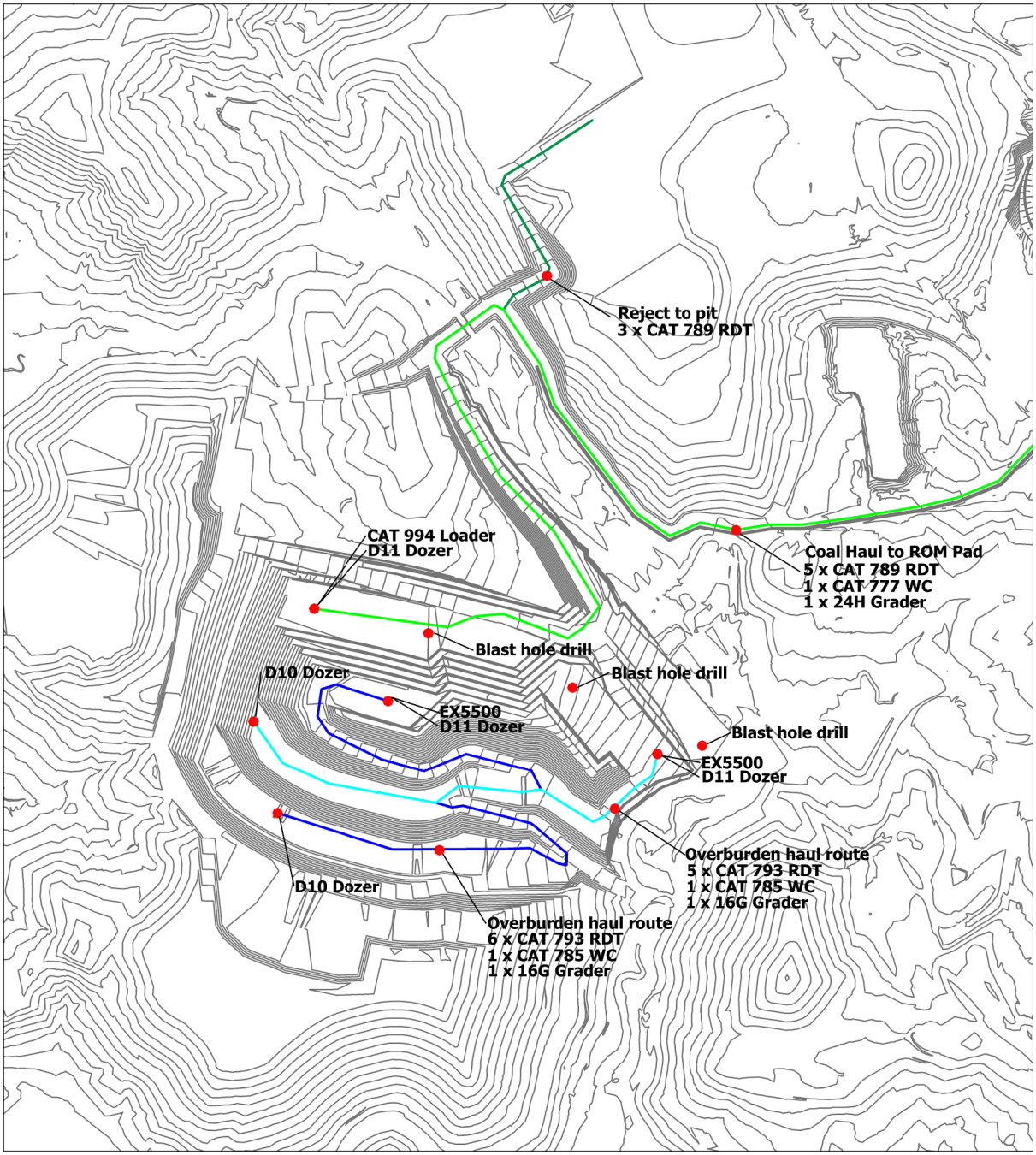

Figure B-12 Source Locations - 2023 Evening/Night Period Scenario - Trade-off Study Option 2 (modified operations)

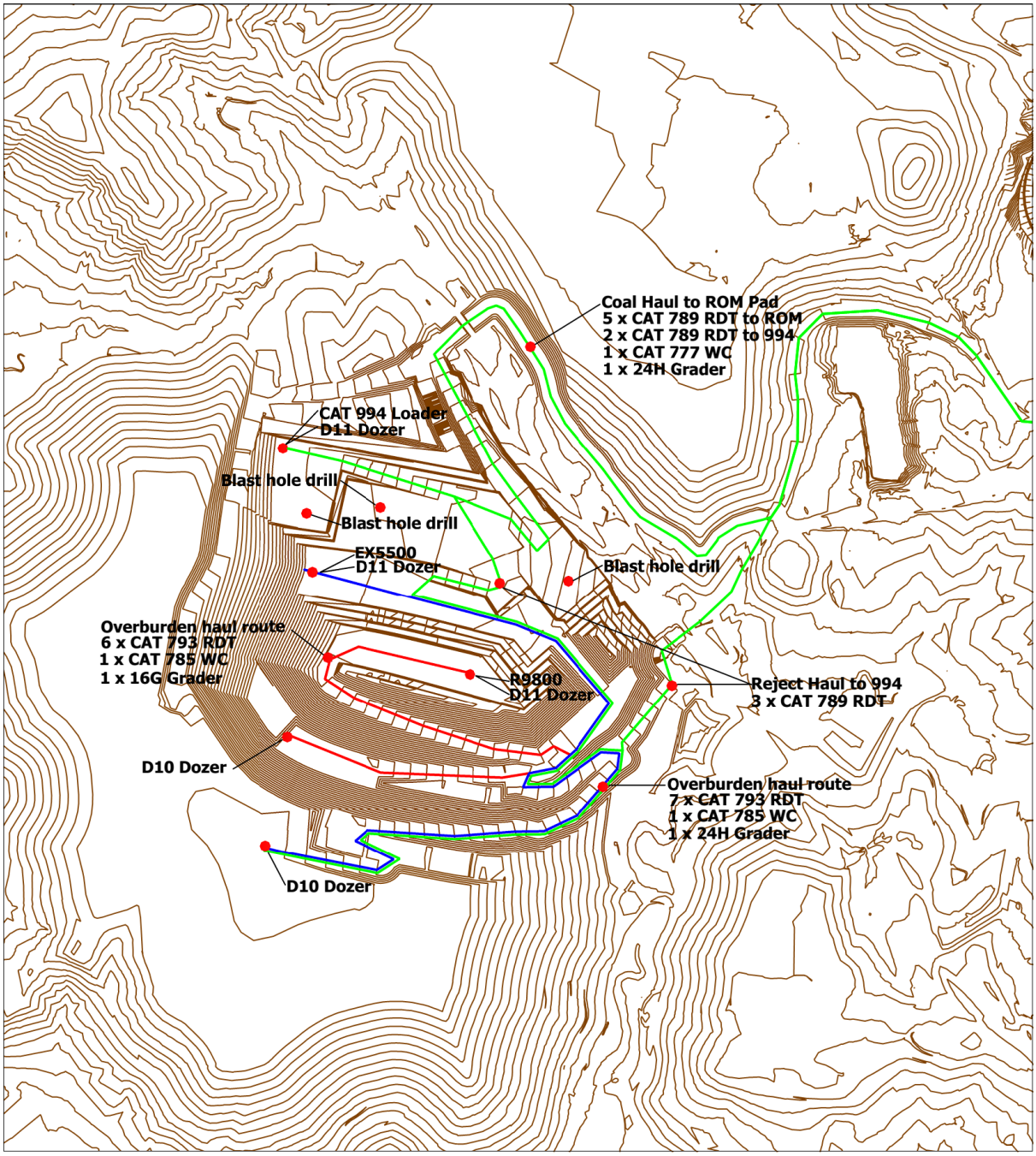

Figure B-13 Source Locations - 2026 Day Period Scenario – EIS

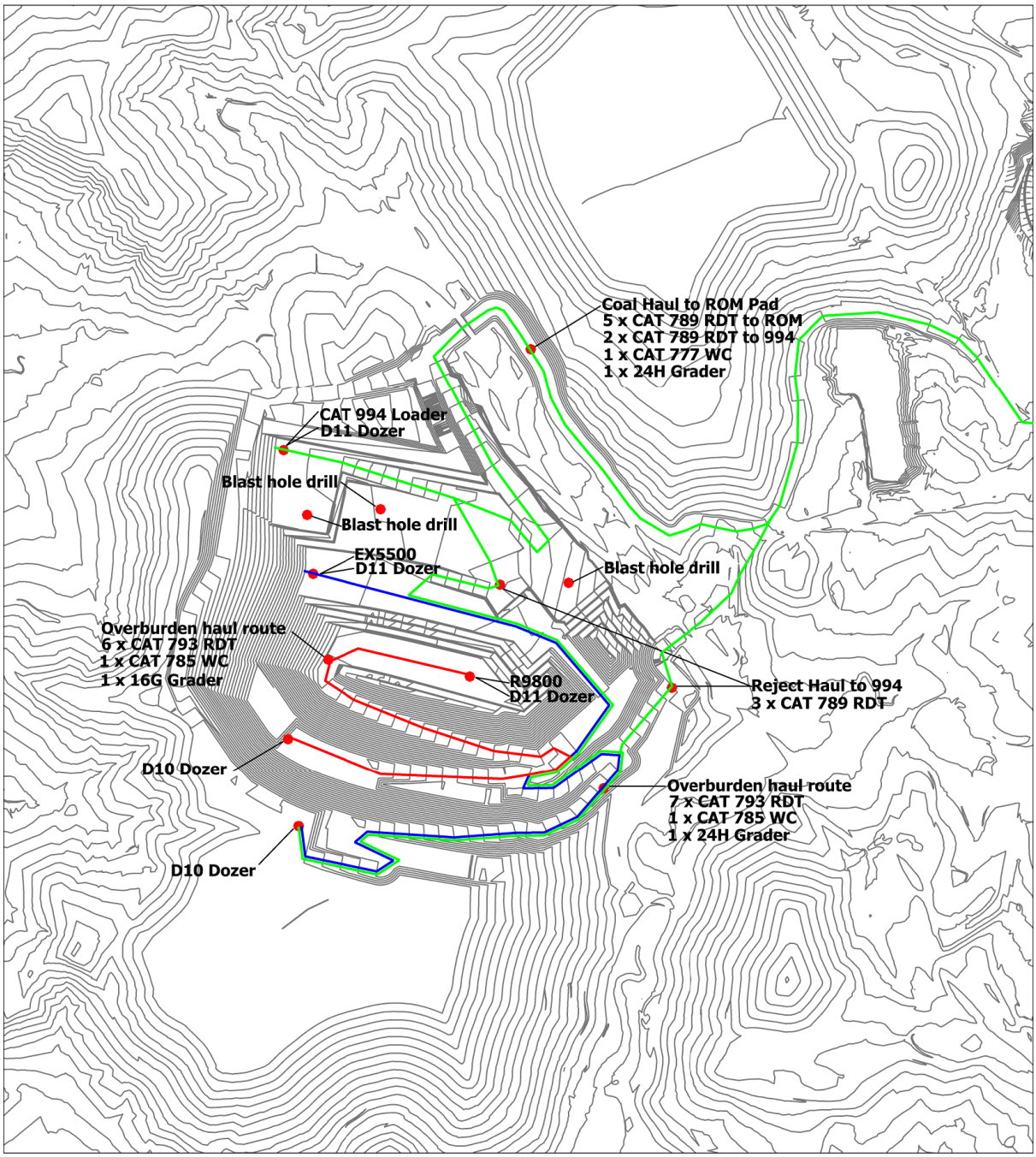

Figure B-14 Source Locations - 2026 Day Period Scenario - Trade-off Study Option 1

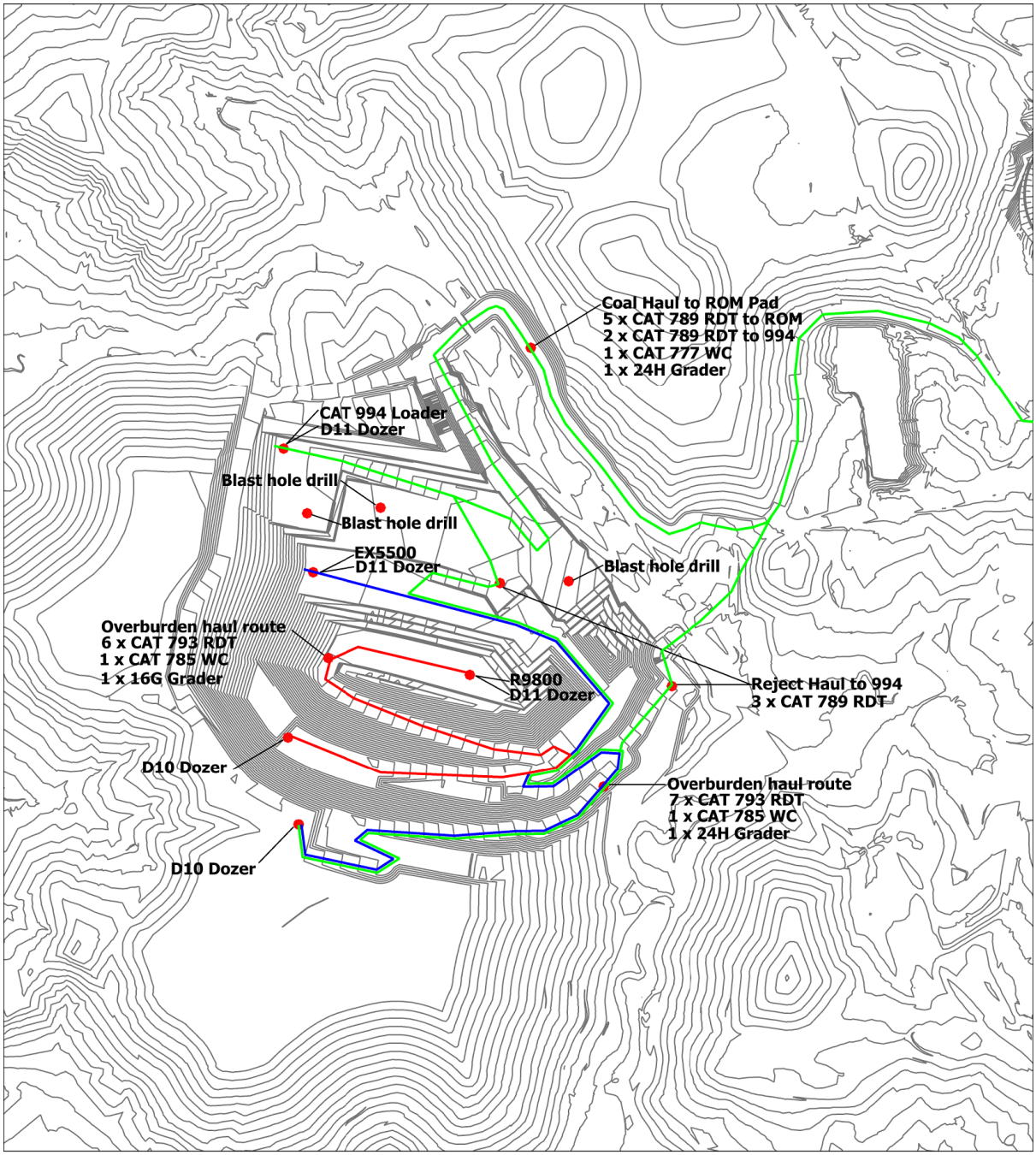

Figure B-15 Source Locations - 2026 Day Period Scenario - Trade-off Study Option 2

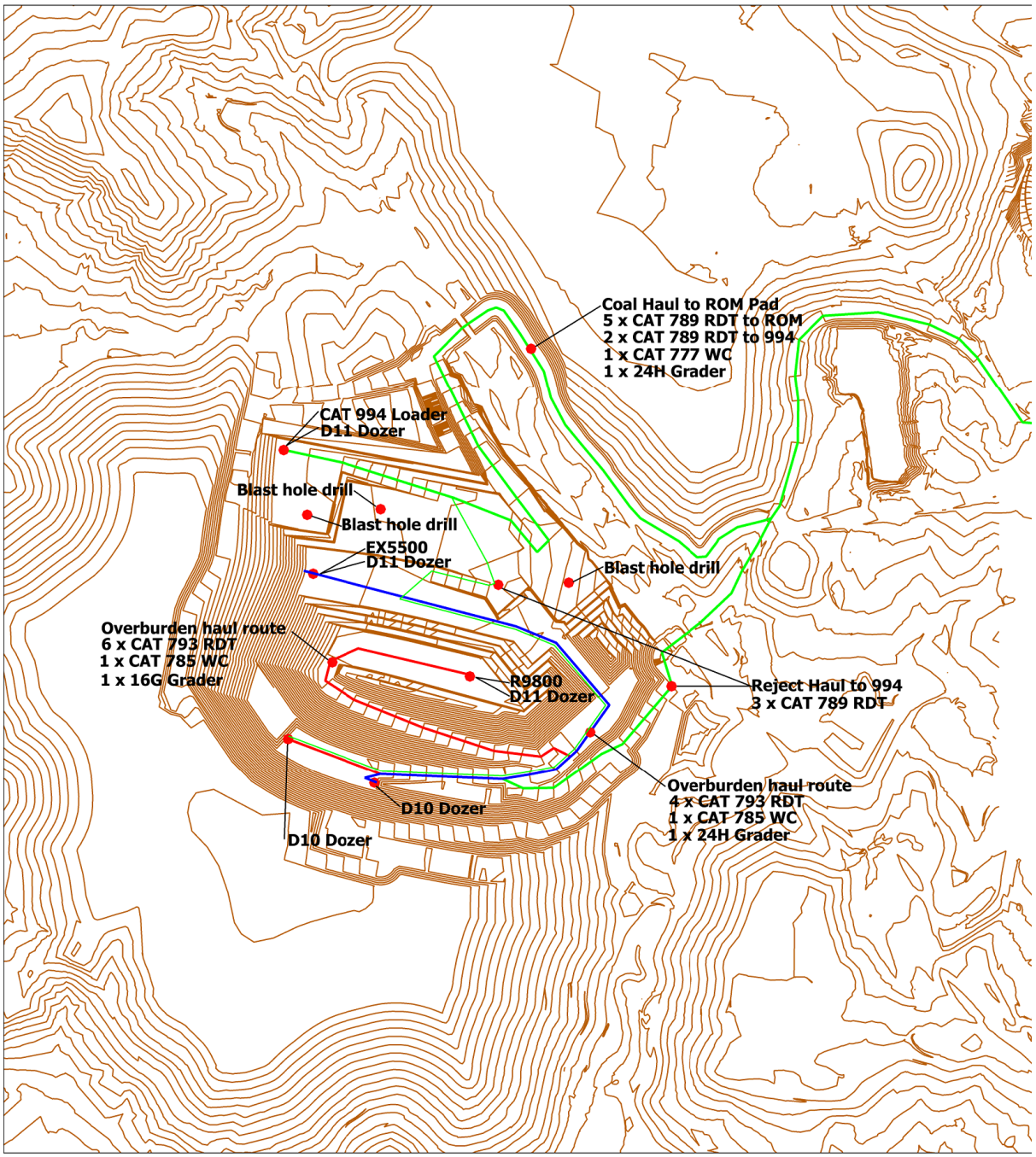

Figure B-16 Source Locations - 2026 Evening/Night Period Scenario - EIS

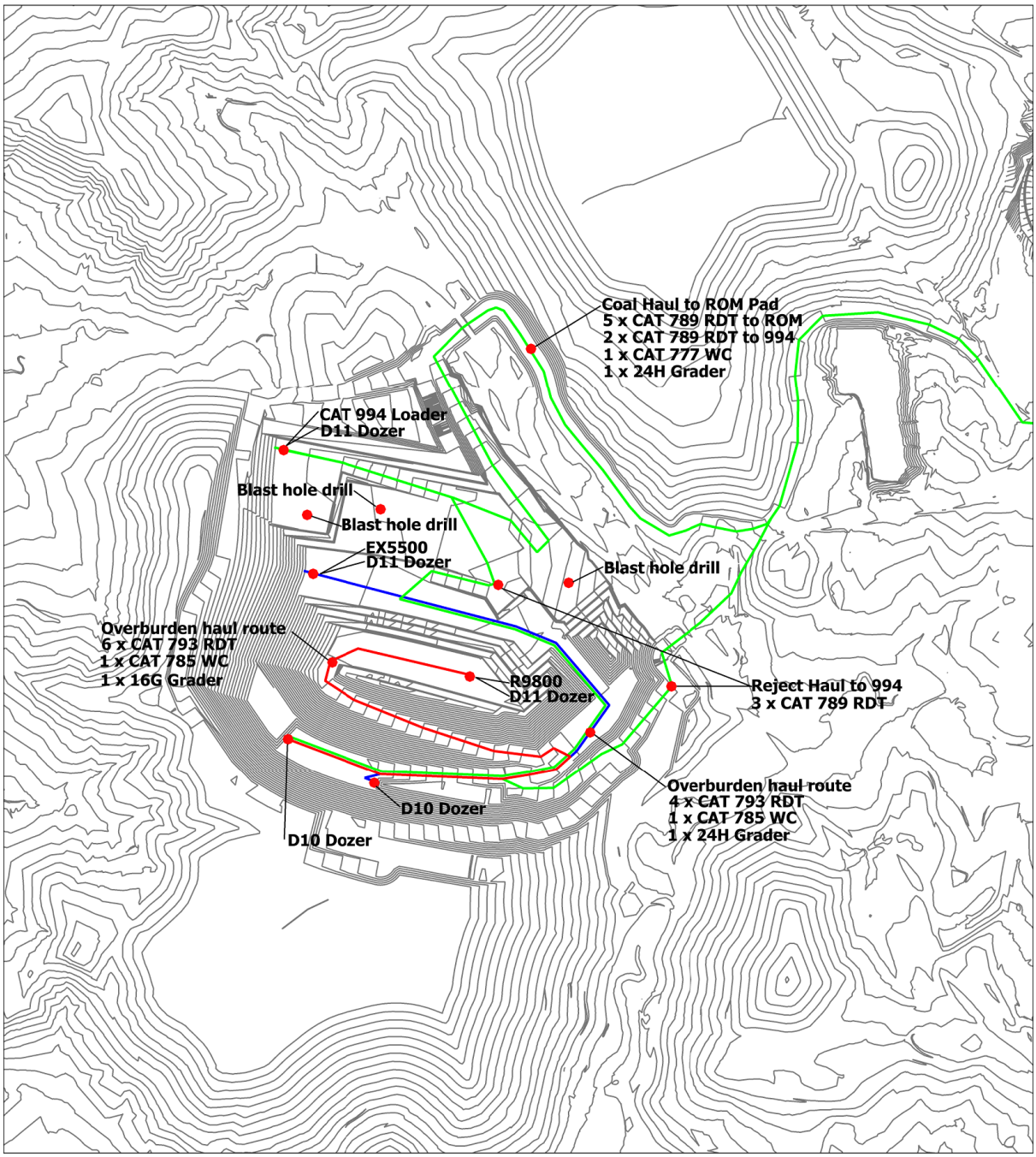

Figure B-17 Source Locations - 2026 Evening/Night Period Scenario - Trade-off Study Option 1

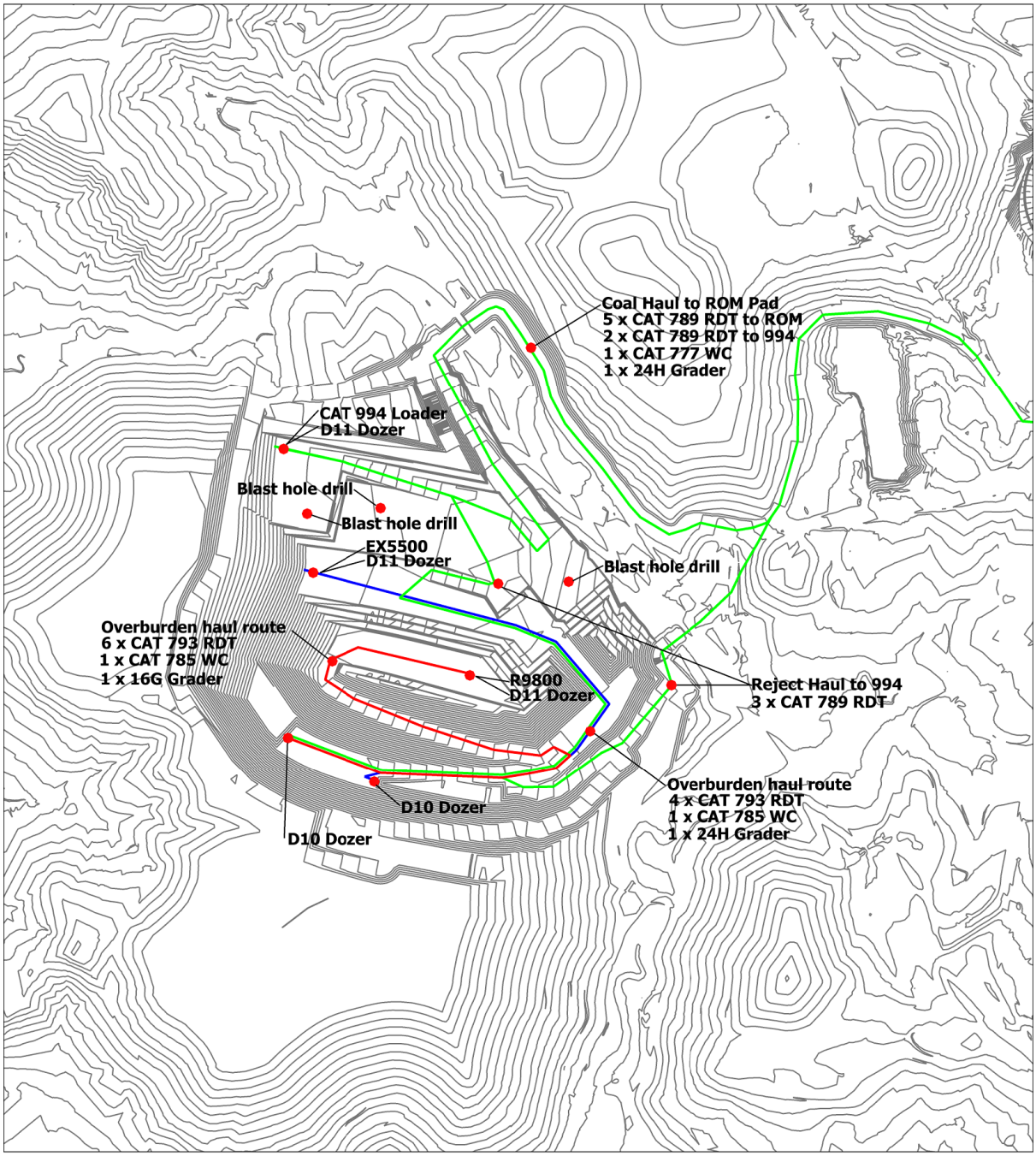

Figure B-18 Source Locations - 2026 Evening/Night Period Scenario - Trade-off Study Option 2

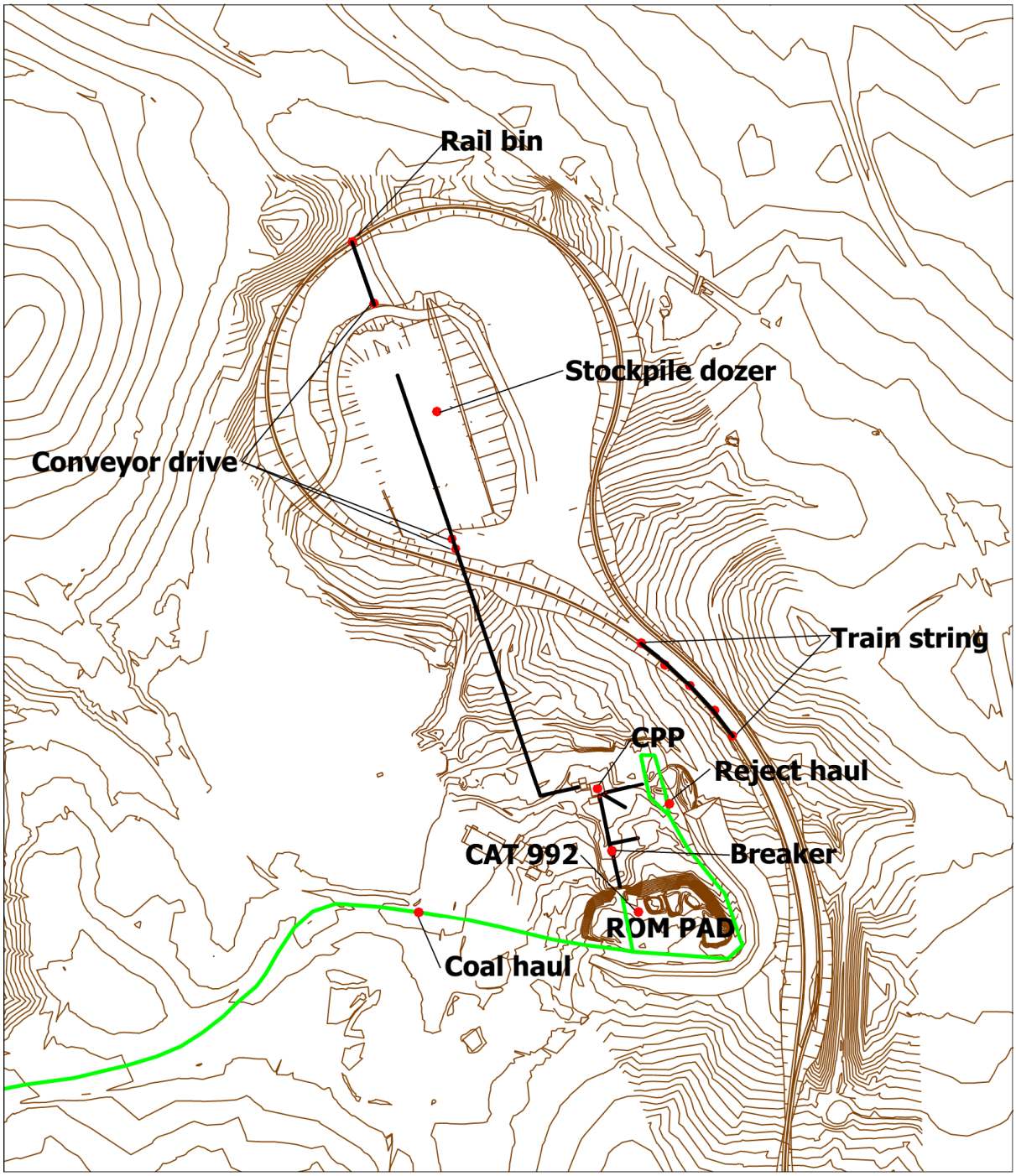

Figure B-19 Source Locations - CHPP and RCS Rail Infrastructure All Stages

APPENDIX

C MODELLED METEOROLOGICAL CONDITIONS

Table C.1: MODELLED METEOROLOGICAL CONDITIONS

Temperature ^{0}C	Humidity %	Wind Speed m/s	Wind Direction (degrees)	VTG ^{0}C/100m
10	80	0	0	-0.5
10	80	0	0	1.5
10	80	0	0	4
10	80	0	0	8
10	80	0.75	0	-0.5
10	80	0.75	22.5	-0.5
10	80	0.75	45	-0.5
10	80	0.75	67.5	-0.5
10	80	0.75	90	-0.5
10	80	0.75	112.5	-0.5
10	80	0.75	135	-0.5
10	80	0.75	157.5	-0.5
10	80	0.75	180	-0.5
10	80	0.75	202.5	-0.5
10	80	0.75	225	-0.5
10	80	0.75	247.5	-0.5
10	80	0.75	270	-0.5
10	80	0.75	292.5	-0.5
10	80	0.75	315	-0.5
10	80	0.75	337.5	-0.5
10	80	1.5	0	-0.5
10	80	1.5	22.5	-0.5
10	80	1.5	45	-0.5
10	80	1.5	67.5	-0.5
10	80	1.5	90	-0.5
10	80	1.5	112.5	-0.5
10	80	1.5	135	-0.5
10	80	1.5	157.5	-0.5
10	80	1.5	180	-0.5
10	80	1.5	202.5	-0.5
10	80	1.5	225	-0.5
10	80	1.5	247.5	-0.5
10	80	1.5	270	-0.5
10	80	1.5	292.5	-0.5
10	80	1.5	315	-0.5
10	80	1.5	337.5	-0.5
10	80	2.25	0	-0.5

Temperature ^{0}C	Humidity %	Wind Speed m/s	Wind Direction (degrees)	VTG ^{0}C/100m
10	80	2.25	22.5	-0.5
10	80	2.25	45	-0.5
10	80	2.25	67.5	-0.5
10	80	2.25	90	-0.5
10	80	2.25	112.5	-0.5
10	80	2.25	135	-0.5
10	80	2.25	157.5	-0.5
10	80	2.25	180	-0.5
10	80	2.25	202.5	-0.5
10	80	2.25	225	-0.5
10	80	2.25	247.5	-0.5
10	80	2.25	270	-0.5
10	80	2.25	292.5	-0.5
10	80	2.25	315	-0.5
10	80	2.25	337.5	-0.5
10	80	3	0	-0.5
10	80	3	22.5	-0.5
10	80	3	45	-0.5
10	80	3	67.5	-0.5
10	80	3	90	-0.5
10	80	3	112.5	-0.5
10	80	3	135	-0.5
10	80	3	157.5	-0.5
10	80	3	180	-0.5
10	80	3	202.5	-0.5
10	80	3	225	-0.5
10	80	3	247.5	-0.5
10	80	3	270	-0.5
10	80	3	292.5	-0.5
10	80	3	315	-0.5
10	80	3	337.5	-0.5
10	80	0.75	0	1.5
10	80	0.75	22.5	1.5
10	80	0.75	45	1.5
10	80	0.75	67.5	1.5
10	80	0.75	90	1.5
10	80	0.75	112.5	1.5
10	80	0.75	135	1.5

Temperature ^{0}C	Humidity %	Wind Speed m/s	Wind Direction (degrees)	VTG ^{0}C/100m
10	80	0.75	157.5	1.5
10	80	0.75	180	1.5
10	80	0.75	202.5	1.5
10	80	0.75	225	1.5
10	80	0.75	247.5	1.5
10	80	0.75	270	1.5
10	80	0.75	292.5	1.5
10	80	0.75	315	1.5
10	80	0.75	337.5	1.5
10	80	1.5	0	1.5
10	80	1.5	22.5	1.5
10	80	1.5	45	1.5
10	80	1.5	67.5	1.5
10	80	1.5	90	1.5
10	80	1.5	112.5	1.5
10	80	1.5	135	1.5
10	80	1.5	157.5	1.5
10	80	1.5	180	1.5
10	80	1.5	202.5	1.5
10	80	1.5	225	1.5
10	80	1.5	247.5	1.5
10	80	1.5	270	1.5
10	80	1.5	292.5	1.5
10	80	1.5	315	1.5
10	80	1.5	337.5	1.5
10	80	2.25	0	1.5
10	80	2.25	22.5	1.5
10	80	2.25	45	1.5
10	80	2.25	67.5	1.5
10	80	2.25	90	1.5
10	80	2.25	112.5	1.5
10	80	2.25	135	1.5
10	80	2.25	157.5	1.5
10	80	2.25	180	1.5
10	80	2.25	202.5	1.5
10	80	2.25	225	1.5
10	80	2.25	247.5	1.5
10	80	2.25	270	1.5

Temperature ^{0}C	Humidity %	Wind Speed m/s	Wind Direction (degrees)	VTG ^{0}C/100m
10	80	2.25	292.5	1.5
10	80	2.25	315	1.5
10	80	2.25	337.5	1.5
10	80	3	0	1.5
10	80	3	22.5	1.5
10	80	3	45	1.5
10	80	3	67.5	1.5
10	80	3	90	1.5
10	80	3	112.5	1.5
10	80	3	135	1.5
10	80	3	157.5	1.5
10	80	3	180	1.5
10	80	3	202.5	1.5
10	80	3	225	1.5
10	80	3	247.5	1.5
10	80	3	270	1.5
10	80	3	292.5	1.5
10	80	3	315	1.5
10	80	3	337.5	1.5
10	80	0.75	0	4
10	80	0.75	22.5	4
10	80	0.75	45	4
10	80	0.75	67.5	4
10	80	0.75	90	4
10	80	0.75	112.5	4
10	80	0.75	135	4
10	80	0.75	157.5	4
10	80	0.75	180	4
10	80	0.75	202.5	4
10	80	0.75	225	4
10	80	0.75	247.5	4
10	80	0.75	270	4
10	80	0.75	292.5	4
10	80	0.75	315	4
10	80	0.75	337.5	4
10	80	1.5	0	4
10	80	1.5	22.5	4
10	80	1.5	45	4

Temperature ^{0}C	Humidity %	Wind Speed m/s	Wind Direction (degrees)	VTG ^{0}C/100m
10	80	1.5	67.5	4
10	80	1.5	90	4
10	80	1.5	112.5	4
10	80	1.5	135	4
10	80	1.5	157.5	4
10	80	1.5	180	4
10	80	1.5	202.5	4
10	80	1.5	225	4
10	80	1.5	247.5	4
10	80	1.5	270	4
10	80	1.5	292.5	4
10	80	1.5	315	4
10	80	1.5	337.5	4
10	80	2.25	0	4
10	80	2.25	22.5	4
10	80	2.25	45	4
10	80	2.25	67.5	4
10	80	2.25	90	4
10	80	2.25	112.5	4
10	80	2.25	135	4
10	80	2.25	157.5	4
10	80	2.25	180	4
10	80	2.25	202.5	4
10	80	2.25	225	4
10	80	2.25	247.5	4
10	80	2.25	270	4
10	80	2.25	292.5	4
10	80	2.25	315	4
10	80	2.25	337.5	4
10	80	3	0	4
10	80	3	22.5	4
10	80	3	45	4
10	80	3	67.5	4
10	80	3	90	4
10	80	3	112.5	4
10	80	3	135	4
10	80	3	157.5	4
10	80	3	180	4

Temperature ^{0}C	Humidity %	Wind Speed m/s	Wind Direction (degrees)	VTG ^{0}C/100m
10	80	3	202.5	4
10	80	3	225	4
10	80	3	247.5	4
10	80	3	270	4
10	80	3	292.5	4
10	80	3	315	4
10	80	3	337.5	4
10	80	0.75	0	8
10	80	0.75	22.5	8
10	80	0.75	45	8
10	80	0.75	67.5	8
10	80	0.75	90	8
10	80	0.75	112.5	8
10	80	0.75	135	8
10	80	0.75	157.5	8
10	80	0.75	180	8
10	80	0.75	202.5	8
10	80	0.75	225	8
10	80	0.75	247.5	8
10	80	0.75	270	8
10	80	0.75	292.5	8
10	80	0.75	315	8
10	80	0.75	337.5	8
10	80	1.5	0	8
10	80	1.5	22.5	8
10	80	1.5	45	8
10	80	1.5	67.5	8
10	80	1.5	90	8
10	80	1.5	112.5	8
10	80	1.5	135	8
10	80	1.5	157.5	8
10	80	1.5	180	8
10	80	1.5	202.5	8
10	80	1.5	225	8
10	80	1.5	247.5	8
10	80	1.5	270	8
10	80	1.5	292.5	8
10	80	1.5	315	8

Temperature ^{0}C	Humidity %	Wind Speed m/s	Wind Direction (degrees)	VTG ^{0}C/100m
10	80	1.5	337.5	8
10	80	2.25	0	8
10	80	2.25	22.5	8
10	80	2.25	45	8
10	80	2.25	67.5	8
10	80	2.25	90	8
10	80	2.25	112.5	8
10	80	2.25	135	8
10	80	2.25	157.5	8
10	80	2.25	180	8
10	80	2.25	202.5	8
10	80	2.25	225	8
10	80	2.25	247.5	8
10	80	2.25	270	8
10	80	2.25	292.5	8
10	80	2.25	315	8
10	80	2.25	337.5	8
10	80	3	0	8
10	80	3	22.5	8
10	80	3	45	8
10	80	3	67.5	8
10	80	3	90	8
10	80	3	112.5	8
10	80	3	135	8
10	80	3	157.5	8
10	80	3	180	8
10	80	3	202.5	8
10	80	3	225	8
10	80	3	247.5	8
10	80	3	270	8
10	80	3	292.5	8
10	80	3	315	8
10	80	3	337.5	8

APPENDIX

D MODELLED RECEPTOR LOCATIONS

Table D.1: MODELLED RECEPTOR LOCATIONS

ID	NAG	Title	Address	Easting	Northing
4	A	Lot 1332, DP813851	636 Bridgman Rd, Bridgman	328302	6402615
5	A	Lot 1331, DP813851	676 Bridgman Rd, Bridgman	328222	6402921
6	A	Lot 94, DP752455	702 Bridgman Rd, Bridgman	328750	6403231
7	A	Lot 93, DP752455	722 Bridgman Rd, Bridgman	328060	6403313
10	A	Lot 6, DP1174101	812 Bridgman Rd, Bridgman	328107	6404721
24	A	Lot 11, DP603197	560 Bridgman Rd, Wattle Ponds	327942	6401850
15	B	Lot 33, DP634692	349 Bridgman Rd, Obanvale	327732	6399795
17	B	Lot 1, DP606098	381 Bridgman Rd, Obanvale	327534	6400103
19	B	Lot 2, DP621647	427 Bridgman Rd, Obanvale	327374	6400673
22	B	Lot 62, DP830270	465 Bridgman Rd, Obanvale	327612	6400969
26	C	Lot 225, DP1120621	214 Brigadier Road, Wattle Ponds	328789	6399292
27	C	Lot 5, DP846673	2 Druce Smith Place, Wattle Ponds	328522	6400109
33	C	Lot 220, DP867908	7 Martin View Court, Wattle Ponds	328140	6400031
37	C	Lot 1, DP625695	255 Wattle Ponds Road, Wattle Ponds	328500	6399744
57	D	Lot 110, DP253252	24 Cunningham Parade, Singleton Heights	327207	6397529
59	D	Lot 1672, DP1035063	1 Dargin Close, Singleton Heights	327624	6398640
61	D	Lot 3, DP827621	120 Gardner Circuit, Singleton Heights	326876	6398764
65	D	Lot 971, DP263524	39 Henry Drive, Singleton Heights	326968	6398160
71	D	Lot 869, DP262536	12 Lloyd Jones Drive, Singleton Heights	327586	6397927
76	D	Lot 1649, DP1065611	1 Partridge Place, Singleton Heights	327151	6398893
79	D	Lot 507, DP837313	20 Robinson Way, Singleton Heights	327187	6398558
85	E	Lot 1, DP717790	1 Acacia Circuit, Hunterview	328241	6397461
89	E	Lot 16, DP1107543	3 Drury Close, Hunterview	328422	6398106
68	F	Lot 46, DP239655	46 Lawson Avenue, Singleton Heights	327262	6397056
70	F	Lot 2, DP244540	94 Lawson Avenue, Singleton Heights	327573	6396718
81	F	Lot 1, DP30367	2 White Avenue, Singleton Heights	327227	6396602
44	G	Lot 633, DP876854	14 Park View Cresent, Mcdougalls Hill	326009	6397222
47	G	Lot 123, DP858085	5 Mcdougall Close, Mcdougalls Hill	326220	6397330
55	G	Lot 61, DP813433	4945 New England Hwy, Mcdougalls Hill	326269	6397452
104	H	Lot 22, DP262702	5 Hambledon Hill Rd, Gowrie	325736	6396824
106	H	Lot 1, DP709363	34 Hambledon Hill Rd, Gowrie	325437	6396572
113	H	Lot 1, DP864039	2 Llanrian Dr, Gowrie	325461	6396205
117	H	Lot 212, DP105064	12 Llanrian Dr, Gowrie	325184	6396437
120	H	Lot 302, DP1069985	31 Llanrian Dr, Gowrie	324907	6396578
125	I	Lot 16, DP736075	263 Long Point Rd, East Long Point	321936	6395384
130	I	Lot 19, DP736075	383 Long Point Rd, East Long Point	323794	6395608
133	I	Lot 1, DP37628	528 Long Point Rd, East Long Point	325339	6394874

ID	NAG	Title	Address	Easting	Northing
137	J	Lot 54, DP1006564	17 Belmadar Way, Maison Dieu	324778	6397344
140	J	Lot 57, DP1006564	47 Belmadar Way, Maison Dieu	324910	6397699
155	J	Lot 521, DP1166274	208 Maison Dieu Rd, Maison Dieu	324765	6397237
146	K	Lot 3, DP261349	230 Dights Crossing Rd, Maison Dieu	321606	6397025
148	K	Lot 4, DP261349	266B Dights Crossing Rd, Maison Dieu	320621	6396931
160	K	Lot 1003, DP811415	320 Maison Dieu Rd, Maison Dieu	323524	6397279
163	K	Lot 102, DP777898	437 Maison Dieu Rd, Maison Dieu	322455	6397410
151	L	Lot 1, DP937751	109 Knodlers Lane, Maison Dieu	318677	6398187
164	L	Lot 101, DP817010	868 Maison Dieu Rd, Maison Dieu	318885	6399294
167	L	Lot 104, DP817010	956b Maison Dieu Rd, Maison Dieu	318017	6400033
168	L	Lot 16, DP3005	41 Shearers Lane, Maison Dieu	318103	6399609
171	M	Lot 2, DP1111313	96D Glennie St, Camberwell	319612	6403390
174	M	Lot 75, DP1124347	New England Highway, Camberwell	319147	6401741
173	N	Lot 1, DP701968	14 Mcinerney Rd, Camberwell	320758	6404892
178	N	Lot 1, DP745211	298 Glennies Creek Rd, Glennies Creek	322139	6405852
180	O	Lot 8, DP246434	485 Middle Falbrook Rd, Glennies Creek	323690	6405337