

March 5, 2025

Todd Goodsell

Executive Project Director of the Coal, Industrial Aggregates and Resorts Sector
Environmental Assessment Office

SUBJECT: Response to What Matters in Our Valley Submission to EAO on July 3, 2024

Dear Todd,

Please find below Telkwa Mining Limited (TML) response to the submission by WMIOV to the EAO on July 3rd, 2024.

WMIOV REQUEST 1

What Matters in Our Valley (WMIOV) is responding to the communication we received from the BC Environmental Assessment Office (EAO) on March 27, 2024 cancelling our previously arranged series of meetings about the Telkwa Coal (TC) (now owned by Bathurst Resources, Ltd. and called Telkwa Mining, Ltd.) project. The intent of these meetings was to provide an opportunity for WMIOV to identify areas of concern arising from what we see as deficiencies in the information that has been so far requested by the EAO from TC.

This is a comment with no specific request for TML. However, TML's understanding is that EAO is establishing a Community Advisory Committee under the 2018 Assessment Act and has invited WMIOV to participate in this committee which should satisfy the above requirement.

WMIOV REQUEST 2

The EAO cancelled this series of meetings based on the conclusion that we should wait to see the responses from TC to outstanding information requests previously submitted to them by the EAO. We were surprised and disappointed in this decision since it seems to miss the point of the planned discussions. We are currently focusing on what was not asked for or addressed in the information requests. So, waiting for responses to non-existent information requests to see if they answer our questions seems pointless to us. Also, by asking us to wait until sometime just before the EAO initiates its final process for considering this proposal will only increase the perception that any further requests for information are simply no longer timely.

This is a comment with no specific request for TML. However, TML's understanding is that EAO is establishing a Community Advisory Committee under the 2018 Assessment Act and has invited WMIOV to participate in this committee which should satisfy the above requirement.

WMIOV REQUEST 3

As a consequence of the above, we have decided to replace our series of now unilaterally cancelled meetings with written statements outlining our position on why we think additional information is needed. We are doing this because we believe that without the missing information, the EAO cannot possibly conduct an adequate review of the environmental impact of this project. Conversely, without this missing information the community consultation process will be fatally flawed

since the community will not be made aware of the nature and extent of highly significant impacts on quality of life, health, socio-economic well-being and environmental effects of this project.

This is a comment with no specific request for TML. However, TML's understanding is that EAO is establishing a Community Advisory Committee under the 2018 Assessment Act and has invited WMIOV to participate in this committee which should satisfy the above requirement.

WMIOV REQUEST 4

The subject areas where we think there is crucial missing information that has not been requested are:

- a. Air, dust and noise;*
- b. Dam safety and effectiveness;*
- c. Caribou;*
- d. Full GHG emission analysis;*
- e. Analysis based on TC's projected total production volume;*
- f. A full cost-benefit analysis;*
- g. Monitoring beyond the 25 years identified in their mine plan;*
- h. TC's financial condition and the need for an adequate bond in light of their lack of financial stability and admitted uncertainty about the viability of the project.*

Since our plan was to address these issues one by one in each meeting, we will focus in this statement on the first subject area, which was air, dust and noise pollution.

This is a comment with no specific request for TML. However, TML's understanding is that EAO is establishing a Community Advisory Committee under the 2018 Assessment Act and has invited WMIOV to participate in this committee which should satisfy the above requirement.

WMIOV REQUEST 5

Quality of Life – *We have repeatedly asked for so-called nuisance or annoyance studies to be performed so that area residents will know whether their properties will be coated by dust and whether their quiet way of life will be disturbed by the explosions and other noise produced by the mine. Yet, notwithstanding the fact that this very type of information was required during the environmental review of the nearly identical coal mine proposal from Manalta Coal in the mid-1990's, notwithstanding the fact that Telkwa Coal itself acknowledged it could perform such studies when WMIOV met with them (a commitment it later reneged upon), notwithstanding the fact that surveys have established that preserving a quiet, peaceful way of life is one of the most important factors to many residents in this area, notwithstanding the fact that dust deposition and noise are well known disturbances in coal mining communities, notwithstanding the fact that these disturbances would also have an obvious impact on property values, notwithstanding the fact that outdoor recreation is highly important to area residents including at the local downhill ski hill and Nordic Skiing Centre which both face the mine and are directly downwind from it at a distance of about 10 kilometres, notwithstanding the fact that both the communities of Telkwa and Smithers are also downwind from the mine and in close proximity to it no such studies have been required. As a result, we face going into the final public consultation and assessment period without any way of knowing whether we face these types of impacts.*

TML hired Ausenco Sustainability ULC to act as a Qualified Professional to assist with responses to specific WMIOV requests from a technical standpoint as they completed the effects assessment related to the Atmospherics Valued Component in the Environmental Assessment Certificate Application submitted in May 2022 and the response to this request is provided in their letter enclosed.

WMIOV REQUEST 6

Air: Studies identifying how far, to where and to what degree dust from the mine, including during construction and all phases of the project (not just during operations which is the focus of the current information responses) will be deposited in all areas throughout the Valley. The absence of any information about construction impacts is of particular concern since it can be assumed that the use of explosives and other mine building activities that cause dust and other materials to become airborne will be most intense during this period. These reports need to take into account local atmospheric conditions such as wind, air pressure and other factors that influence these impacts.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 7

For the study on dust dispersion, it is essential to consider a broad spectrum of meteorological conditions. Dry deposition was modeled using particulate matter (PM) size parameters as specified in the Newfoundland Guideline for Plume Dispersion Modelling. Please clarify if there are any differences in the PM size parameters between the guidelines of Newfoundland and Labrador province and those of British Columbia. If there are differences, these reports should rely on BC air dispersion modelling and not models applied by other provinces as is the case with the information that has been provided up to now. Isopleth maps should illustrate not only the maximum predicted ambient concentrations and dustfall deposition rates but also integrate background environmental levels to provide a comprehensive view of air quality impacts.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 8

The potential impact of the coal dust on the recreational activities such as the ski areas and the quality of life for residents in Smithers and Telkwa is needed. An assessment of the economic and social impacts of air pollution on local businesses, property values and communities is required.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 9

Health Impacts – Our air here is poor. It is some of the worst in the province, especially when it comes to $PM < 2.5$ and $PM > 10$. Much of the air pollution is due to wood smoke.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 10

The TC operation will admittedly produce more of this pollution. TC dismisses this concern by claiming that since the air here already exceeds maximum Provincial objectives and the mine will not cause any further limits to be exceeded, then all is good. All is not good. Here are the deficiencies in the previously provided information.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 11

No information is provided for anything other than the operations phase. As noted above, the worst air pollution is very likely to occur during construction and no information has been supplied about this at all. Decommissioning may also produce substantial amounts of air contamination.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 12

No baseline health information is provided, and reports should use this information to then project additional health impacts from the added pollution produced by the mine. The cumulative impacts on health in an already degraded airshed need to be known.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 13

Reports so far rely on projections of maximum concentrations without accounting for frequency and duration. Health damage does not just arise from maximum exposures but also from how long and how often and at what levels exposure takes place.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 14

The previous reports identify both mercury and arsenic and other potential heavy metals, as well as ammonia from explosives as possible contaminants. Mercury and arsenic and heavy metals in general are well known as posing significant risks to human health. TC dismisses the concerns about mercury and arsenic as falling below threshold levels. This once again fails to account for cumulative impacts. Both mercury and arsenic are commonly associated with wood smoke exposure and, as noted, this is currently one of the primary sources of air pollution in the Valley.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 15

When it comes to ammonia, which is formed from materials associated with blasting, the reports so far do not identify the quantities of explosives that will be used. Therefore, it is impossible to tell if the contaminants will fall below thresholds as TC claims.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 16

The reports so far fail to apply BC air dispersion modelling in all places and instead apply Newfoundland and Labrador standards for wet and dry deposition. To the extent that they exist, all reports should refer to BC or Canadian standards whichever is most applicable.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 17

In summary, here are the deficiencies that we have found when it comes to the air studies:

- a. The assessment of effects on air quality, GHG emissions, and noise should encompass all phases of the project, not only the operational phase. The “annoyance” or “nuisance” impacts must be reported.*
- b. Isopleth maps should illustrate not only the maximum predicted ambient concentrations and dustfall deposition rates but also integrate background environmental levels to provide a comprehensive view of air quality impacts.*

- c. Identify the population density and distribution of the community (i.e., including all inhabited areas between Quick and Smithers) and wildlife areas in the isopleth maps to show the overlapping areas and identify the sensitive receptors (baseline incidence rates for the population, population exposure changes).
- d. A sensitivity analysis of the air pollution quantification is needed in the absence of the ability to conduct new measurements; estimates of variability are important.
- e. Emphasize the importance of a cumulative effects assessment perspective rather than focusing on percentage changes over high background levels.
- f. The dispersion modelling analysis needs to capture the interannual variability (multiple years, i.e., 3-5 years, is recommended), but has only been done for one meteorological year (2015).
- g. The Air Quality Health Index (AQHI) should be included in the report to give a picture of the current air quality in Smithers and Telkwa. AQHI is a scale designed to help people understand what the air quality around you means to your health. This index pays particular attention to people who are sensitive to air pollution and provides them with advice on how to protect their health during air quality levels associated with low, moderate, high and very high health risks.
This index will help the community better understand the health risks associated with each category.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 18

Noise: Similar nuisance or annoyance studies need to be performed to inform the public about noise impacts. Like dust pollution, the noise from blasting and other activities may be most intense and frequent during the construction phase, so the absence of information covering this, as well as all other phases is particularly worrisome. Times and annual hours of all activities must be specified so that it is known when during the day disruptive impacts might take place. To the extent that it is relevant to noise impacts, BC air dispersion modelling needs to be applied instead of the Newfoundland and Labrador standards which Telkwa Coal currently uses for some parameterization in its reports.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 19

Consider how local atmospheric conditions affect the noise levels, especially over long distances. The public needs to be made aware of how far and to what degree the noise from the mine will be distributed around the Valley.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 20

Here is a list of specific areas of concern:

- a. Inconsistent and vague statements regarding noise and vibration
 - i. Section 5.1 Project related effects (p. 32) asserts that the assessment of effects during the Operation Phase simultaneously accounts for "effects during the Construction, Decommissioning and Reclamation, and Post-closure phases are expected to be encompassed by effects during the Operation Phase and are effectively captured through the assessment of the Operation Phase." However, section 5.2.3 Potential Project Related Effects: Noise Subcomponent largely lacks specific breakdown of effects beyond dBA sound levels. Page 33 additionally states that effects during the decommissioning and reclamation and post-closure phases are expected to be minimal. This statement is used to relinquish responsibility of assessing the effects and no further explanation is given.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 21

ii. Comparison of baseline or background noise levels to predicted project related effects are inconsistently cumulated, being organized in table 4.2-5 Summary of Baseline Noise Measurements by “Populated area (Telkwa),” “rural residence,” and “remote,” which do not adequately characterize the locations utilized in Appendix 4.1-A, Table 3.1 Predicted Noise Levels at Sensitive Receptor Locations. Additionally, baseline noise levels reported in table 4.2-5 are significantly lower than those described as the “baseline noise levels,” in Table 3.1 of Appendix 4.1-A.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 22

iii. Appendix 4.1-A, Table 3.1 Predicted Noise Levels at Sensitive Receptor Locations displays baseline sound levels, as well as additional predicted sound levels from project disturbances. Some baseline values in this table already exceed permissible sound levels (PSLs), and therefore drastically exceed PSLs when predicted noise levels are added to the baseline levels. This table additionally excludes consideration of project impact on many remote areas surrounding the project area, which excludes consideration of the impact of noise on wildlife, including caribou.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 23

iv. Section 5.2.4 Potential Project Related Effects: Vibration states that vibration “may be transmitted by blasting operations,” but do not elaborate on specific measurements. They continue to state that effects from blasting “are expected to be limited,” with no scientific measurement or model to back up this statement beyond distances to which effects may be experienced, which again do not adequately describe the disruptions.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 24

b. Lack of mitigation measures

i. Section 5.3 Mitigation Measures states that proposed mitigation measures for adverse noise are described in table 5.3-1, and are limited to “limit project footprint and Project area,” “blasting measures,” and “vehicle and equipment fleet selection and maintenance (AQMP).” All of these measures are not elaborated on, and do not specify how the changes would occur or how the mitigation measures would be effective.

ii. Section 6.3.2 Additional Mitigation Measures states “additional mitigation is not expected to be required to minimize cumulative effects on the noise subcomponent,” with no further explanation of reasons of why mitigation measures would not be necessary. This section is followed by table 6.3-1, stating that an increase in ambient noise levels will occur with a “high likelihood,” and “Continuous Frequency.”

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 25

c. 4.1.2.4 existing conditions/background scientific info on Noise:

i. “existing” noise conditions in the region assessed, but the baseline noise survey was conducted in 1998. – is this normal for this type of assessment for a project like this to be so outdated? Noise levels have almost certainly changed since 1998?

ii. Other studies conducted from 2017-2019, described in appendix Appendix 4.1-C Tenas Project 2017 to 2019 Baseline Report.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 26

d. 4.2 description of existing conditions: 4.2.4 Noise: Baseline noise measurements from 1998 divide sites by "Populated Area (Telkwa), "Rural Residence" and "Remote." The "remote" site is likely to be most affected by an increase in noise pollution from the implementation of the coal mine, giving this area the greatest change in dBA levels. Regardless, these are loose designations and do not adequately portray the effects to the people who live here

Table 4.2-5: Summary of Baseline Noise Measurements, 1998

Site Type	L _d (dBA)	L _n (dBA)	L _{dn} (dBA)
Populated Area (Telkwa)	61.4	59.0	65.8
Rural Residence	45.6	42.1	49.2
Remote	26.4	19.3	27.7

Notes: L_d= daytime noise, L_n=nighttime noise, L_{dn}= day-night noise; dBA=a-weighted decibel

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 27

e. These baseline noise measurements from 2017-2018 studies separate survey sites by "S-plant," "S-TenasDep," and "S-rail," again largely ambiguous on how they are differentiating sites and noise conditions.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 28

f. 4.2.5 Vibration. They provide zero existing information despite the existence of the CNR rail line. They assert that all residences are located over 500 m from the rail line with the exception of one, using this as justification for all "existing vibration levels are expected to be low," with no further justification.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 29

g. 5.2.3 noise subcomponent. Again, this only covers the "Operation Phase with other phases such as during "Construction, Decommissioning and Reclamation, and Post-closure" largely excluded.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 30/31

h. What we do not understand from this table is the divisions made previously in the description of existing conditions prior to the implementation of the mine, where many levels are seen to be higher than the effects from the "maximum predicted noise levels."

a. 5.4.5 noise subcomponent. This table does not adequately account of effects of prolonged noise, such as effects to the housing market during and after closure of the mine.

Table 5.2-3: Maximum Predicted Noise Levels

Receptor	Project Contribution		Project plus Background		PSL	
	L _d (dBA)	L _n (dBA)	L _d (dBA)	L _n (dBA)	L _d (dBA)	L _n (dBA)
Residence near Minesite and Coal Processing Plant	42.1	24.1	43.0	26.6	50	40
Residence near Rail Loadout	41.8	41.8	44.6	43.3	55	45
Residential Subdivision	30.5	2.2	45.7	42.1	50	40
Telkwa Coal Recreation Camp	47.2	30.5	47.5	31.2	50	40

Notes: dBA=A-weighted decibel; L_d= daytime noise level; L_n=nighttime noise level; L_{dn}=day-night noise level; PSL= permissible sound level
Values in bold font exceed the PSL.

Please find the response in the enclosed Ausenco letter.

WMIOV REQUEST 32

As you can see, we believe there is a substantial amount of information that the public would need to obtain to properly evaluate the Telkwa Coal proposal. We were looking forward to having an iterative process with your agency so that we could discuss these issues in person. Since that is no longer possible we will have to make do with these written submissions.

This is a comment with no specific request for TML. However, TML's understanding is that EAO is establishing a Community Advisory Committee under the 2018 Assessment Act and has invited WMIOV to participate in this committee which should satisfy the above requirement.

CONCLUSION

Telkwa Mining believes that it has sufficiently responded to the requests provided by WMIOV, however if there are any further questions or comments, please feel free to contact me at 604 220 5703 or dan.farmer@telkwa-mining.ca. Telkwa Mining looks forward to further involvement via the Community Advisory Committee.

Sincerely yours,



Daniel J. Farmer
Project and Development Manager
Telkwa Mining Limited

Cc: Jessy Chaplin, Samuel Johnstone, File

Attachments: Ausenco Sustainability ULC Response to WMIOV comments

**ATTACHMENT 1: AUSENCO SUSTAINABILITY RESPONSE TO
WHAT MATTERS IN OUR VALLEY'S
COMMENTS TO EAO REGARDING THE
TENAS PROJECT EAC APPLICATION**



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February 20, 2025
File No. 103260-07

Telkwa Mining Limited
409 Granville Street
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Vancouver, BC V6T 1T2

Attention: Dan Farmer

Re: Response to Comments from WMIOV Regarding EAC Application – Telkwa Mining Ltd.

1.0 Introduction

Telkwa Mining Ltd. (TML) received comments from 'What Matters In Our Valley' (WMIOV) via the Environmental Assessment Office (EAO) on 3 July 2024. The comments are in response to TML's submission of their Environmental Assessment Certificate (EAC) Application for the Tenas Project (Project). This memo, developed by Ausenco Sustainability ULC (Ausenco), provides responses to the comments as they relate to air, dust, and noise. For ease, the responses are numbered and labelled below to directly correspond to the list of comments submitted to EAO by WMIOV.

2.0 Comment Response

2.1 Item 5

WMIOV Comment: Quality of Life – We have repeatedly asked for so-called nuisance or annoyance studies to be performed so that area residents will know whether their properties will be coated by dust and whether their quiet way of life will be disturbed by the explosions and other noise produced by the mine. Yet, notwithstanding the fact that this very type of information was required during the environmental review of the nearly identical coal mine proposal from Manalta Coal in the mid-1990's, notwithstanding the fact that Telkwa Coal itself acknowledged it could perform such studies when WMIOV met with them (a commitment it later reneged upon), notwithstanding the fact that surveys have established that preserving a quiet, peaceful way of life is one of the most important factors to many residents in this area, notwithstanding the fact that dust deposition and noise are well known disturbances in coal mining communities, notwithstanding the fact that these disturbances would also have an obvious impact on property values, notwithstanding the fact that outdoor recreation is highly important to area residents including at the local downhill ski hill and Nordic Skiing Centre which both face the mine and are directly downwind from it at a distance of about 10 kilometres, notwithstanding the fact that

both the communities of Telkwa and Smithers are also downwind from the mine and in close proximity to it no such studies have been required. As a result, we face going into the final public consultation and assessment period without any way of knowing whether we face these types of impacts.

Response: During the meeting with WMIOV in 2023, TML stated they had completed an assessment of ‘nuisance for noise’ in the EAC application. In Section 4.0, Chapter 1 of the EAC Application, the potential for nuisance effects associated with noise was assessed against the methodology and criteria provided by the Health Canada guidance¹. The ‘percent highly annoyed’ factor was estimated at all sensitive receptors in the assessment area for baseline conditions and future Project conditions. The change in factor of ‘percent highly annoyed’ was predicted to be 1% or less at all sensitive receptors, which is well below the Health Canada threshold of 6.5% for which noise mitigation measures should be considered.

Blasting will occur once per day maximum for a duration of approximately 10 minutes and will not contribute to the ‘percent highly annoyed’ factor as the assessment of nuisance is completed on a 24-hour basis as provided by the Health Canada guidance. Blasting noise is typically assessed separately as per Appendix 4.1A of the EAC Application which shows estimated noise levels as a function of distance. As part of the IR response related to Caribou, TML was requested to conduct detailed modelling for blasting in reference to residents which demonstrated that noise from blasting should be below the recommended target noise level of 55 dBA for humans at a maximum distance of 2 km. There are no identified permanent human receptors located within this distance. A copy of this report is enclosed with this report.

TML stated that it would research to determine if an assessment existed for ‘nuisance for dust.’ After review by Qualified Professionals, it was found that there is no established method for assessing nuisance related to dust exists. The potential for the Project to generate dust was assessed in Section 4.0, Chapter 1 of the EAC Application. The assessment was completed in accordance with provincial guidance². Nuisance dust will be managed in accordance with the Air Quality Monitoring & Management Plan found in Section 13.0, Chapter 2 of the EAC Application. Dustfall canister sampling will be conducted to ensure effectiveness of mitigation measures and to ensure dust remains below relevant air quality criteria even though these have been rescinded by regulatory bodies.

2.2 Item 6

WMIOV Comment: Studies identifying how far, to where and to what degree dust from the mine, including during construction and all phases of the Project (not just during operations which is the focus of the current information responses) will be deposited in all areas throughout the Valley. The absence of any information about construction impacts is of particular concern since it can be assumed that the use of explosives and other mine building activities that cause dust and other materials to become airborne will be most intense during this period. These reports need to take into account local atmospheric conditions such as wind, air pressure and other factors that influence these impacts.

¹ Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise.

² British Columbia Ministry of Environment and Climate Change Strategy. 2016. Memorandum: Dustfall Monitoring and Pollution Control Objectives.

Response: Potential effects on air quality and dust development were assessed using the peak operation year when the greatest amount of material (rock, coal, and overburden) is expected to be moved and the highest amount of equipment in operation. The peak year anticipates nearly 9 million cubic metres of non-coal material being transported, over 1 million tonnes of run-of-mine coal being transported and processed, and over 800,000 tonnes of ‘product coal’ transported to and handled at the rail loadout. The assessment for the peak operation year predicted that contaminant concentrations would remain below relevant air quality criteria and therefore effects were considered not significant. The modelling undertaken to support the assessment of potential effects on air quality and dust for the peak year incorporated local atmospheric and weather conditions that may influence effects.

Potential effects during the Construction Phase and/or the Decommissioning and Reclamation Phase will be less than those presented for the peak operation year. The amount of non-coal material moved during the initial construction period is approximately 1 million cubic metres per year. During the Decommissioning and Reclamation Phase, approximately 0.5 million cubic metres of non-coal material will be moved on an annual basis. No blasting is expected to occur, and no coal mining, processing, or handling will occur during either the Construction or the Decommissioning and Reclamation phases of the Project. Dust will be managed in accordance with the Air Quality Management Plan found in Section 13.0, Chapter 2 of the EAC Application. The Air Quality Monitoring & Management Plan is a “live” plan and will be updated regularly over the life-of-mine to meet EAC and permit conditions and requirements and account for the results of monitoring and stakeholder engagement and input.

2.3 Item #7

WMIOV Comment: For the study on dust dispersion, it is essential to consider a broad spectrum of meteorological conditions. Dry deposition was modeled using particulate matter (PM) size parameters as specified in the Newfoundland Guideline for Plume Dispersion Modelling. Please clarify if there are any differences in the PM size parameters between the guidelines of Newfoundland and Labrador province and those of British Columbia. If there are differences, these reports should rely on BC air dispersion modelling and not models applied by other provinces as is the case with the information that has been provided up to now. Isopleth maps should illustrate not only the maximum predicted ambient concentrations and dustfall deposition rates but also integrate background environmental levels to provide a comprehensive view of air quality impacts.

Response: Dispersion modelling was completed using one year of meteorological conditions, which is in line with the BC Air Quality Dispersion Modelling Guideline and was approved by the BC Ministry of Environment and Climate Change Strategy during the engagement and consultation process undertaken as part of developing the EAC application. One year of meteorological data provides a sufficiently broad spectrum of conditions that may be expected in the region. The PM size parameters for dry deposition were approved by the BC Ministry of Environment and Climate Change Strategy during the engagement and consultation process and is based on the BC Air Quality Dispersion Modelling Guideline which references the Newfoundland Guideline for Plume Dispersion Modelling. Therefore, there are no differences in PM size parameters between those used for this Project and the BC guidelines. Air quality concentrations, including background contribution, are tabulated in Table 5.2-1 of Section 4.0, Chapter 1 of the EAC Application and can be inferred from the isopleth maps.

2.4 Item #8

WMIOV Comment: The potential impact of the coal dust on the recreational activities such as the ski areas and the quality of life for residents in Smithers and Telkwa is needed. An assessment of the economic and social impacts of air pollution on local businesses, property values and communities are required.

Response: Based on results of the dispersion modelling, dust deposition on recreational areas, businesses, and residences including ski areas are expected to remain well below applicable regulatory guidelines.

2.5 Items #9 and 10

WMIOV Comment: Health Impacts – Our air here is poor. It is some of the worst in the province, especially when it comes to $PM < 2.5$ and $PM > 10$.

Much of the air pollution is due to wood smoke. The TC operation will admittedly produce more of this pollution. TC dismisses this concern by claiming that since the air here already exceeds maximum Provincial objectives and the mine will not cause any further limits to be exceeded, then all is good. All is not good. Here are the deficiencies in the previously provided information.

Response: TML acknowledges the historical air quality issues in the Bulkley Valley and is acting to prevent dust and to mitigate dust-causing activities during the life of the Project. Mitigation measures are found in the Air Quality Monitoring & Management Plan found in Section 13.0, Chapter 2 of the EAC Application. The Air Quality Monitoring & Management Plan is a “live” plan and will be updated regularly over the life-of-mine to meet EAC and permit conditions and requirements and account for the results of monitoring and stakeholder engagement and input.

TML has committed to not burn wood waste from logging activities as part of Project Development and is even using electrical heating units for much of its heating requirements versus propane to reduce the potential effects of the Project even further.

TML has committed to providing a funding program to assist personnel to replace their wood or oil burning stoves with alternative lower emission or higher efficiency heating systems, which will help improve air quality in the region. TML intends to partner with [the Airshed Management Society – cleanairplan.ca](http://theairshedmanagement.ca), which is already carrying out this program in the Bulkley Valley.

The Project is not expected to measurably increase average PM_{10} and $PM_{2.5}$ background concentrations. Maximum predicted PM_{10} concentrations from the Project in the Village of Telkwa are less than 3% of background concentrations. For $PM_{2.5}$, the maximum contribution of the Project to background concentrations is even less, at only 1%.

2.6 Item #11

WMIOV Comment: No information is provided for anything other than the operations phase. As noted above, the worst air pollution is very likely to occur during construction and no information has been supplied about this at all. Decommissioning may also produce substantial amounts of air contamination.

Response: See response to Item #6.

2.7 Item #12

WMIOV Comment: No baseline health information is provided, and reports should use this information to then Project additional health impacts from the added pollution produced by the mine. The cumulative impacts on health in an already degraded airshed need to be known.

Response: Baseline health information and assessment of health effects is provided in Section 8.0, Chapter 1 of the EAC Application. Based on the results of the human health risk assessment, cumulative effects on human health are low. Cumulative effects on human health were determined to be not significant.

2.8 Item #13

WMIOV Comment: Reports so far rely on projections of maximum concentrations without accounting for frequency and duration. Health damage does not just arise from maximum exposures but also from how long and how often and at what levels exposure takes place.

Response: Maximum concentrations associated with Project-related effects are predicted to exceed relevant guidelines only within a small area surrounding the Open Pit, active haul roads, and the Coal Processing Plant, as illustrated on Figure 5.2-1 to 5.2-5 in Section 4.0, Chapter 1 of the EAC Application. It is highly unlikely that land users will spend any substantial amount of time in these areas and therefore, the frequency and duration of exposure by humans at concentrations above guidelines is expected to be minimal and not result in any significant adverse health effects as described in the assessment of health effects provided in Section 8.0, Chapter 1 of the EAC Application.

2.9 Item #14

WMIOV Comment: The previous reports identify both mercury and arsenic and other potential heavy metals, as well as ammonia from explosives as possible contaminants. Mercury and arsenic and heavy metals in general are well known as posing significant risks to human health. TC dismisses the concerns about mercury and arsenic as falling below threshold levels. This once again fails to account for cumulative impacts. Both mercury and arsenic are commonly associated with wood smoke exposure and as noted, this is currently one of the primary sources of air pollution in the Valley.

Response: Based on the results of the human health risk assessment, the Project's effects on human health is low. Cumulative effects on human health were determined to be not significant by Qualified Professionals who completed the human health risk assessment. Metals, including mercury and arsenic, were assessed in the human health risk assessment, and discussed in Section 8.0, Chapter 1 of the EAC Application.

2.10 Item #15

WMIOV Comment: When it comes to ammonia, which is formed from materials associated with blasting, the reports so far do not identify the quantities of explosives that will be used. Therefore, it is impossible to tell if the contaminants will fall below thresholds as TC claims.

Response: The quantities of explosives used for the Project is expected to be between 1,500 and 9,150 tonnes per year for estimating modelled effects of blasting. This amount is below the amounts used at existing and/or future surface mines in the region. At the Tenas Project, only two thirds of the material is expected to require blasting because a third of the material is till/soils while the rock that does require

blasting has a low compressive strength of approximately 40 MPa versus 80 MPa that is typically found at other surface mines. Materials formed from potentially unexploded blasting agents is distributed between three species, ammonia, nitrate, and nitrite. Water in contact with blasted rock containing unexploded blasting agents or blasting agents in drillholes prior to blasting can affect water quality. As part of the response to Water IR from the EAO, TML has now demonstrated that there are no modelled exceedances of nitrates/nitrites at the prediction nodes in receiving environment compared to the BC Chronic Water Quality Guidelines for the Protection of Aquatic Life. TML has committed to the lining of drillholes with plastic liners to mitigate water encountering blasting agents and electronic blasting systems to reduce the potential for un-detonated blasting agents in the rock. Furthermore, the British Columbia Ministry of Environment and Climate Change Strategy has a detailed mine permitting process which requires companies to meet established BC Water Quality Objectives, including nitrates. TML will follow that process.

2.11 Item #16

WMIOV Comment: The reports so far fail to apply BC air dispersion modelling in all places and instead apply Newfoundland and Labrador standards for wet and dry deposition. To the extent that they exist, all reports should refer to BC or Canadian standards whichever is most applicable.

Response: The air quality assessment follows the BC Air Quality Dispersion Modelling Guidelines, and a model plan was submitted and approved by the BC Ministry of Environment and Climate Change Strategy. However, the BC Air Quality Dispersion Modelling Guideline references the Newfoundland Guideline for Plume Dispersion Modelling for PM size parameters.

2.12 Item #17

WMIOV Comment: In summary, here are the deficiencies that we have found when it comes to the air studies:

- a) The assessment of effects on air quality, GHG emissions, and noise should encompass all phases of the Project, not only the operational phase. The “annoyance” or “nuisance” impacts must be reported.
- b) Isopleth maps should illustrate not only the maximum predicted ambient concentrations and dustfall deposition rates but also integrate background environmental levels to provide a comprehensive view of air quality impacts.
- c) Identify the population density and distribution of the community (i.e., including all inhabited areas between Quick and Smithers) and wildlife areas in the isopleth maps to show the overlapping areas and identify the sensitive receptors (baseline incidence rates for the population, population exposure changes).
- d) A sensitivity analysis of the air pollution quantification is needed in the absence of the ability to conduct new measurements; estimates of variability are important.
- e) Emphasize the importance of a cumulative effects assessment perspective rather than focusing on percentage changes over high background levels.
- f) The dispersion modelling analysis needs to capture the interannual variability (multiple years, i.e., 3-5 years, is recommended), but has only been done for one meteorological year (2015).
- g) The Air Quality Health Index (AQHI) should be included in the report to give a picture of the current air quality in Smithers and Telkwa. AQHI is a scale designed to help people understand what the air quality around you means to your health. This index pays particular attention to people who are sensitive to air pollution and provides them with advice on how to protect their health during air quality levels associated with low, moderate, high, and very high health risks.

This index will help the community better understand the health risks associated with each category.

Response:

- a) The assessment of effects on air quality, GHG emissions, and noise were completed using the peak operation year. Effects during the other phases are expected to be less than those presented for the peak operation year. Nuisance effects have been considered where there are accepted established methods available (noise).
- b) Air quality concentrations, including background levels, are tabulated in Table 5.2-1 of Section 4.0, Chapter 1 of the EAC Application and can be inferred from the isopleth maps.
- c) Sensitive receptors representing all inhabited areas within the assessment area have been identified and are shown on the isopleth maps. Effects on wildlife are assessed in Section 4.0, Chapter 8 of the EAC Application.
- d) Dispersion modelling approximates atmospheric processes and are dependable for predicting maximum concentrations that may occur at some time somewhere in the model domain. Accuracy of the model relates to the accuracy of input data (e.g., emission rates, meteorological data). Conservative assumptions have been adopted in the air quality assessment such that one can be certain that maximum concentrations are not under predicted but rather are conservative.
- e) The effects assessment for air quality, GHG emissions, and noise considers both residual effects and cumulative effects in accordance with EAO guidance. In the Village of Telkwa, predicted maximum Project-related effects on PM concentrations are less than 3% of background concentrations while average Project-related effects would be even lower.
- f) Dispersion modelling was completed using one year of meteorological conditions, which is in line with the BC Air Quality Dispersion Modelling Guideline and was approved by the BC Ministry of Environment and Climate Change Strategy during the engagement and consultation process undertaken as part of developing the EAC application. One year of meteorological data provides a sufficiently broad spectrum of conditions that may be expected in the region. During the Environmental Management Act (EMA) permitting process, TML will be required to implement an Air Quality Monitoring & Management Plan which will include the set up of stations for noise and dust monitoring prior to construction with information available to the public that will gather even more baseline information and demonstrate what effects on air and dust levels, if any, are from the Project.
- g) The AQHI is a scale designed to help the public understand what real-time measured air quality concentration data means, and to communicate the health risk associated with real-time measured air quality concentration data. The air quality assessment considers measured and predicted air quality concentrations in comparison to relevant air quality guidelines and is consistent with regulatory guidance and standard industry practice. The AQHI is meant to inform people of the potential effects associated with overall air quality in an airshed. It is not meant to inform people of the effects associated with a Project. Assessment of effects to the community based on the AQHI is not standard practice, nor accepted by regulatory agencies, and does not provide a meaningful assessment of potential effects caused by the Project.

2.13 Item #18

WMIOV Comment: Noise: Similar nuisance or annoyance studies need to be performed to inform the public about noise impacts. Like dust pollution, the noise from blasting and other activities may be most intense and frequent during the construction phase, so the absence of information covering this, as well as all other phases is particularly worrisome. Times and annual hours of all activities must be specified so that it is known when during the day disruptive impacts might take place. To the extent that it is relevant to noise impacts, BC air dispersion modelling needs to be applied instead of the Newfoundland and Labrador standards which TML currently uses for some parameterization in its reports.

Response: Potential effects on noise were assessed using the peak operation year when the greatest amount of material is expected to be moved, with almost 9 million cubic metres of non-coal material (rock, coal, and overburden) is expected to be moved and the highest number of equipment in operation, over 1 million tonnes of coal being transported to and processed at the plant, and over 800,000 tonnes of product coal transported to and handled at the rail loadout. During the Construction Phase, the amount of non-coal material moved on an annual basis is expected to be approximately 1 million cubic metres. During the Decommissioning and Reclamation Phase, approximately 0.5 million cubic metres of non-coal material will be moved on an annual basis. No blasting is expected to occur during these two phases, and no coal mining, processing, or handling will occur during these two phases. Based on this information, it is appropriate to focus the assessment of potential effects of noise based on the peak operation year. Potential effects during the Construction and Decommissioning and Reclamation Phases will be less than those presented for the peak operation year. The noise assessment considers daytime noise levels, nighttime noise levels, low frequency noise, and percent highly annoyed in accordance with the Application Information Requirements, relevant guidance from Health Canada and the BC Energy Regulator, and industry standard practice. Furthermore, the noise assessment of potential effects based on the peak operation year assumes continuous operation of all equipment throughout daytime and nighttime at maximum production rates. Noise will be managed in accordance with the Air Quality Management Plan found in Section 13.0, Chapter 2 of the EAC Application. The Air Quality Monitoring & Management Plan is a “live” plan and will be updated regularly over the life-of-mine to meet EAC and permit conditions and requirements and account for the results of monitoring and stakeholder engagement and input.

The BC Air Quality Dispersion Modelling Guideline is not relevant to the noise assessment. In the absence of specific guidance relevant to the Project noise assessment, the noise assessment was completed based on available guidance from Health Canada and the BC Oil and Gas Commission (now the BC Energy Regulator) and aligns with standard industry practice and is accepted by the regulatory agencies.

2.14 Item #19

WMIOV Comment: Consider how local atmospheric conditions affect the noise levels, especially over long distances. The public needs to be made aware of how far and to what degree the noise from the mine will be distributed around the Valley.

Response: Noise modelling completed for the noise assessment considered the effect of atmospheric conditions that may be experienced in the region. Isopleth maps provided in Appendix 4.1-A of the EAC Application illustrate the noise propagation from the mine in the regional study area. Noise from the Project was predicted to decrease to 50 dBA (roughly equivalent to the noise in an average home) within 1 kilometre or less of the Project Area. There are no public sensitive receptors other than the Telkwa Coalmine Camp within this area.

2.15 Item #20

WMIOV Comment: Here is a list of specific areas of concern:

- a) Inconsistent and vague statements regarding noise and vibration
 - i) Section 5.1 Project related effects (p. 32) asserts that the assessment of effects during the Operation Phase simultaneously accounts for “effects during the Construction, Decommissioning and Reclamation, and Post- closure phases are expected to be encompassed by effects during the Operation Phase and are effectively captured through the assessment of the Operation Phase.” However, section 5.2.3 Potential Project Related Effects: Noise Subcomponent largely lacks specific breakdown of effects beyond dBA sound levels. Page 33 additionally states that effects during the decommissioning and reclamation and post-closure phases are expected to be minimal. This statement is used to relinquish responsibility of assessing the effects and no further explanation is given.

Response: Potential effects on noise were assessed using the peak operation year when the greatest amount of material is expected to be moved, with almost 9 million cubic metres of non-coal material (rock, coal, and overburden) is expected to be moved and highest number of equipment in operation, over 1 million tonnes of coal being transported to and processed at the plant, and over 800,000 tonnes of product coal transported to and handled at the rail loadout. During the Construction Phase, the amount of non-coal material moved on an annual basis is expected to be approximately 1 million cubic metres. During the Decommissioning and Reclamation Phase, approximately 0.5 million cubic metres of non-coal material will be moved on an annual basis. No blasting is expected to occur during these two phases, and no coal mining, processing, or handling will occur during these two phases. Based on this information, it is appropriate to focus the assessment of potential effects of noise based on the peak operation year. Potential effects during the Construction and Decommissioning and Reclamation Phases will be less than those presented for the peak operation year. The noise assessment considers daytime noise levels, nighttime noise levels, low frequency noise, and percent highly annoyed in accordance with the Application Information Requirements, relevant guidance from Health Canada and the BC Energy Regulator, and industry standard practice. Furthermore, the noise assessment of potential effects based on the peak operation year assumes continuous operation of all equipment throughout daytime and nighttime at maximum production rates. Noise will be managed in accordance with the Air Quality Management Plan found in Section 13.0, Chapter 2 of the EAC Application. The Air Quality Monitoring & Management Plan is a “live” plan and will be updated regularly over the life-of-mine to meet EAC and permit conditions and requirements and account for the results of monitoring and stakeholder engagement and input.

2.16 Item #21

WMIOV Comment: Comparison of baseline or background noise levels to predicted Project related effects are inconsistently cumulated, being organized in table 4.2-5 Summary of Baseline Noise Measurements by “Populated area (Telkwa),” “rural residence,” and “remote,” which do not adequately characterize the locations utilized in Appendix 4.1-A, Table 3.1 Predicted Noise Levels at Sensitive Receptor Locations. Additionally, baseline noise levels reported in table 4.2-5 are significantly lower than those described as the “baseline noise levels,” in Table 3.1 of Appendix 4.1-A.

Response: Table 4.2-5 presents the baseline noise levels as measured during the baseline noise survey completed in 1998 for Manalta Coal Ltd. Table 4.2-6 presents the baseline noise levels as measured during the Project-specific baseline noise monitoring program completed in 2017 to 2018. These baseline noise levels were assigned to each of the sensitive receptors in Appendix 4.1-A - Table 3.1 based on proximity of receptor to the monitoring locations and the classification of receptor. Receptors within the Village of

Telkwa (e.g., Telkwa Elementary School, The Ark Playday Center, Tot Spot Family Day Care) were based on measured data for the “Populated Area (Telkwa)” from 1998. Receptors located within rural subdivisions outside Telkwa were based on measured data for “Rural Residence” from 1998. Receptors located near the proposed rail loadout were based on measured data for “S-Rail” from 2017 to 2018. All other receptors located in remote locations were based on measured data for “S-Plant” from 2017 to 2018.

2.17 Item #22

WMIOV Comment: Appendix 4.1-A, Table 3.1 Predicted Noise Levels at Sensitive Receptor Locations displays baseline sound levels, as well as additional predicted sound levels from Project disturbances. Some baseline values in this table already exceed permissible sound levels (PSLs), and therefore drastically exceed PSLs when predicted noise levels are added to the baseline levels. This table additionally excludes consideration of project impact on many remote areas surrounding the Project Area, which excludes consideration of the impact of noise on wildlife, including caribou.

Response: TML acknowledges that baseline noise levels at some receptors already exceed PSLs. Based on a comparison of baseline noise levels and Project+baseline noise levels in Appendix 4.1-A, Table 3.1, the incremental increase associated with the Project at these receptors is predicted to be less than 0.1 dBA, well below the typical threshold of 3 dBA for an audible noise increase that is perceptible to humans. Therefore, the Project is not expected to measurably increase noise levels at these receptors. Please note that baseline noise levels and Project noise levels cannot be added arithmetically as dBA noise levels are expressed by a logarithmic scale. Effects on wildlife, including caribou, is assessed in Section 4.0, Chapter 8 of the EAC Application. Project effects are not expected to alter the viability, persistence, or integrity of caribou and other wildlife. Effects on caribou were determined to be not significant by independent Qualified Professionals.

2.18 Item #23

WMIOV Comment: “iv. Section 5.2.4 Potential Project Related Effects: Vibration” states that vibration “may be transmitted by blasting operations,” but do not elaborate on specific measurements. They continue to state that effects from blasting “are expected to be limited,” with no scientific measurement or model to back up this statement beyond distances to which effects may be experienced, which again do not adequately describe the disruptions.

Response: As per the approved Application Information Requirements, vibration has been screened out as a subcomponent and a qualitative discussion on vibration is included in the Application. Nonetheless, potential vibration effects are typically measured based on peak particle velocity (PPV). The PPV associated with blasting is dependent on the instantaneous charge weight and can be estimated based on the square root scaled distance formula from the United States Bureau of Mines³. Using a maximum charge weight of 495.5 kg as used for the blasting noise assessment, the estimated PPV at the property boundary is 5 mm/s, which is well below the Environment and Climate Change Canada guidance of 12.5 mm/s⁴. The estimated PPV at the nearest residence (PPR1) which is about 4.5 km from the project is 0.2 mm/s, which is below the accepted threshold of perception in residential environments (0.3 mm/s per BS 5228⁵).

³ Terrock Consulting Engineers. Blast Vibration Course, Measurement – Assessment – Control.

⁴ Environment and Climate Change Canada. Environmental Code of Practice for Metal Mines.

⁵ British Standards Institute. Code of Practice for Noise and Vibration Control on Construction and Open Sites – Vibration. BS 5228-2:2009.

2.19 Item #24

WMIOV Comment: b. Lack of mitigation measures

- i) Section 5.3 Mitigation Measures states that proposed mitigation measures for adverse noise are described in table 5.3-1 and are limited to “limit Project footprint and Project Area,” “blasting measures,” and “vehicle and equipment fleet selection and maintenance (AQMP).” All of these measures are not elaborated on, and do not specify how the changes would occur or how the mitigation measures would be effective.
- ii) Section 6.3.2 Additional Mitigation Measures states “additional mitigation is not expected to be required to minimize cumulative effects on the noise subcomponent,” with no further explanation of reasons of why mitigation measures would not be necessary. This section is followed by table 6.3-1, stating that an increase in ambient noise levels will occur with a “high likelihood,” and “Continuous Frequency.”

Response: b. Lack of mitigation measures

- i) Further discussion on mitigation measures is provided in Section 13.0, Chapter 2 of the EAC Application. To evaluate the effectiveness of mitigation measures and to ensure that noise levels remain below relevant guidelines, TML will conduct noise monitoring. The noise monitoring data will be communicated to the public and will be used in accordance with the Air Quality and Socio-economic Management Plans to determine the need for additional mitigation measures.
- ii) Additional mitigation is not likely needed because noise levels are expected to remain below relevant guidelines at the nearest receptors.

2.20 Item #25

WMIOV Comment: c. 4.1.2.4 existing conditions/background scientific info on Noise:

- i) “existing” noise conditions in the region assessed, but the baseline noise survey was conducted in 1998. – is this normal for this type of assessment for a Project like this to be so outdated? Noise levels have almost certainly changed since 1998?
- ii) Other studies conducted from 2017-2019, described in appendix 4.1-C Tenas Project 2017 to 2019 Baseline Report.

Response: Existing noise conditions are characterized based on the baseline noise survey completed in 1998 for Manalta Coal Ltd. as well as the Project-specific baseline noise monitoring program completed in 2017 to 2018. TML acknowledges that the 1998 data may not be representative of current day baseline noise levels in the region. However, given that the population of Telkwa has not increased substantially since 1998 and commercial activity has decreased, current day baseline noise levels are not expected to be substantially different. Furthermore, Telkwa was previously at the end of a large logging mainline and loading operation with potentially significant noise generating activities. Noise levels now compared with the 1990's are expected to be lower. For the receptors in Appendix 4.1, Table 3.1 that used baseline noise levels from the 1998 baseline noise survey, the increase in noise due to the Project is predicted to be negligible as it is less than 0.2 dBA. Therefore, the lack of current day baseline noise levels is not expected to change the overall conclusions of the assessment which were no adverse significant effect is expected due to the Project.

2.21 Item #26

WMIOV Comment: d. 4.2 description of existing conditions: 4.2.4 Noise: Baseline noise measurements from 1998 divide sites by “Populated Area (Telkwa),” “Rural Residence” and “Remote.” The “remote” site is likely to be most affected by an increase in noise pollution from the implementation of the coal mine, giving this area the greatest change in dBA levels. Regardless, these are loose designations and do not adequately portray the effects to the people who live here.

Response: Existing noise conditions are characterized based on the baseline noise survey completed in 1998 for Manalta Coal Ltd. as well as the Project-specific baseline noise monitoring program completed in 2017 to 2018. These baseline noise levels were assigned to each of the sensitive receptors in Appendix 4.1-A, Table 3.1 based on proximity of receptor to the monitoring locations and the classification of receptor to characterize potential effects to people who live in the area. Receptors within the Village of Telkwa (e.g., Telkwa Elementary School, The Ark Playday Center, Tot Spot Family Day Care) were based on measured data for the “Populated Area (Telkwa)” from 1998. Receptors located within rural subdivisions outside Telkwa were based on measured data for “Rural Residence” from 1998. Receptors located near the proposed rail loadout were based on measured data for “S-Rail” from 2017 to 2018. All other receptors located in remote locations were based on measured data for “S-Plant” from 2017 to 2018.

For all receptors, the potential increase in noise associated with Project activities is expected to remain well below thresholds for consideration of annoyance and is not expected to result in new exceedances of regulatory guidelines beyond current baseline conditions.

2.22 Item #27

WMIOV Comment: e. These baseline noise measurements from 2017-2018 studies separate survey sites by “S-plant,” “S-TenasDep,” and “S-rail,” again largely ambiguous on how they are differentiating sites and noise conditions.

Response: Baseline noise measurements were conducted at three locations identified as “S-plant” located near the proposed coal processing plant, “S-TenasDep” located near the proposed minesite/open pit, and “S-rail” located near the proposed rail loadout. These were used to supplement the baseline noise survey completed in 1998 for Manalta Coal Ltd. Baseline noise levels were assigned based on proximity of the receptor to the monitoring locations and the classification of receptor.

2.23 Item #28

WMIOV Comment: f. 4.2.5 Vibration. They provide zero existing information despite the existence of the CNR rail line. They assert that all residences are located over 500 m from the rail line with the exception of one, using this as justification for all “existing vibration levels are expected to be low,” with no further justification.

Response: As per the Application Information Requirements, vibration has been screened out as a subcomponent and a qualitative discussion on vibration is included in the Application. Guidelines from the Federation of Canadian Municipalities and the Railway Association of Canada provide a recommended vibration influence area of 75 m from a railway corridor or rail yard⁶. Within this vibration influence area, a vibration impact study is recommended. Since the nearest third-party residences are

⁶ Federation of Canadian Municipalities and Railway Association of Canada. 2013. Guidelines for New Development in Proximity to Railway Operations.

located over 500 m from the new rail loop to be constructed for the Project within the local study area potential vibration effects from the Project are expected to be minimal and a vibration impact study is not required. Despite this, TML is committed to conducting vibration monitoring related to both blasting and train operations and results will be communicated with the public. TML understands that there are several existing residences located within 500 m from the CNR rail line however the Project is not expected to increase vibration levels experienced at these locations versus current baseline conditions.

2.24 Item #29

WMIOV Comment: g. 5.2.3 noise subcomponent. Again, this only covers the “Operation Phase with other phases such as during “Construction, Decommissioning and Reclamation, and Post-closure” largely excluded.

Response: Potential effects on noise were assessed using the peak operation year when the greatest amount of material is expected to be moved, with almost 9 million cubic metres of non-coal material (rock, coal, and overburden) is expected to be moved and highest number of equipment in operation, over 1 million tonnes of coal being transported to and processed at the plant, and over 800,000 tonnes of product coal transported to and handled at the rail loadout. During the Construction Phase, the amount of non-coal material moved on an annual basis is expected to be approximately 1 million cubic metres. During the Decommissioning and Reclamation Phase, approximately 0.5 million cubic metres of non-coal material will be moved on an annual basis. No blasting is expected to occur during these two phases, and no coal mining, processing, or handling will occur during these two phases. Based on this information, it is appropriate to focus the assessment of potential effects of noise based on the peak operation year. Potential effects during the Construction and Decommissioning and Reclamation Phases will be less than those presented for the peak operation year. The noise assessment considers daytime noise levels, nighttime noise levels, low frequency noise, and percent highly annoyed in accordance with the Application Information Requirements, relevant guidance from Health Canada and the BC Energy Regulator, and industry standard practice. Furthermore, the noise assessment of potential effects based on the peak operation year assumes continuous operation throughout daytime and nighttime at maximum production rates and operating equipment. Noise will be managed in accordance with the Air Quality Management Plan found in Section 13.0, Chapter 2 of the EAC Application. The Air Quality Monitoring & Management Plan is a “live” plan and will be updated regularly over the life-of-mine to meet EAC and permit conditions and requirements and account for the results of monitoring and stakeholder engagement and input.

2.25 Items #30/31

WMIOV Comment: h. What we do not understand from this table is the divisions made previously in the description of existing conditions prior to the implementation of the mine, where many levels are seen to be higher than the effects from the “maximum predicted noise levels.”

- a) 5.4.5 noise subcomponent. This table does not adequately account of effects of prolonged noise, such as effects to the housing market during and after closure of the mine.

Response: Baseline noise levels in Appendix 4.1A, Table 3.1 represent estimated noise levels due to existing natural and anthropogenic sources prior to implementation of the Project. Project noise levels represent the predicted noise level due to Project activities during the peak operation year (without baseline). “Project plus Background” represents the predicted future noise level with the Project,

4.0 Results

Based on the current analysis, the maximum noise levels may exceed the target daytime noise level of 55 dBA up to 2 km from the blast site. Maximum noise levels may exceed the cautionary limit of 120 dBL up to 1 km from the blast site. We observe that the maximum noise levels at the nearest residence and at Camel Humps are modelled to be well below these noise criteria. Isopleths of maximum predicted noise levels are provided in Appendix A.

5.0 Closure

Ausenco appreciates the opportunity to have assisted you with this project. If there are any questions, please do not hesitate to call the undersigned.

Report prepared by:
Ausenco Sustainability Inc.



Nancy Chan, B.A.Sc., P.Eng.
Air Quality and Acoustic Specialist

Report reviewed by:
Ausenco Sustainability Inc.

A handwritten signature in blue ink, likely belonging to Gabriel Castillo.

Gabriel Castillo, PhD
Director, ESG and Climate Change

PERMIT TO PRACTICE	
RR/Delegate name: Nancy Chan	
RR/Delegate signature:	
Date: 03/05/2025	
PERMIT NUMBER: 1003471 EGBC Engineers & Geoscientists British Columbia	Ausenco Ausenco Sustainability ULC

Attachment



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July 21, 2023
File No. 103260-07

Telkwa Coal Limited
1410 – 409 Granville Street
Vancouver, BC V6C 1T2

Attention: Dan Farmer, Chief Operating Officer

Re: Tenas Project - Blasting Noise Assessment

1.0 Introduction

Telkwa Coal Limited is proposing to construct and operate the Tenas Project (the Project), located in northwestern British Columbia (BC), approximately 25 kilometres (km) south of the Town of Smithers, and 7 km southwest of the Village of Telkwa. The Tenas Project is an open pit coal mine with an estimated production rate of 750,000 to 825,000 tonnes of metallurgical coal per year and an expected lifespan of 25 years.

An Application for an Environmental Assessment Certificate was submitted for the Project in May 2022. A noise assessment was completed as part of the Application in which blasting air overpressure was assessed using an empirical formula. During the public comment period, information requests were received asking for more detailed noise modelling to consider the potential effects of blasting noise on residences and caribou. This report provides a description of the approach and findings of this detailed noise modelling to fulfill the information requests.

2.0 Noise Criteria

Noise is measured in decibels (dB), which express the ratio of the sound pressure level relative to a fixed reference value using a logarithmic scale. For environmental noise, the A-weighted decibel (dBA) is used because it represents the relative loudness perceived by the human ear. The C-weighted decibel (dBC) is sometimes used when low-frequency sounds are of concern. The unweighted decibel is denoted as dBL.

There are no provincial or federal regulations that apply to blasting noise from the Project. However, Environment and Climate Change Canada has developed an Environmental Code of Practice of Metal Mines (ECCC 2009) that provides target noise levels for mining operations including blasting. While these target noise levels were developed in consideration of potential effects on humans, the same target noise levels are recommended to protect against potential wildlife effects. As per recommendation R419 of the Environmental Code of Practice of Metal Mines, the target noise levels for

general mining operations are 55 dBA during the day and 45 dBA at night. For blasting, recommendation R420 states that the target maximum noise level is the limit for concussion of 128 dBL. In addition to this concussion limit, the Ontario Ministry of Environment Conservation and Parks also provides a cautionary limit of 120 dBL (MECP 1978). This assessment considers the daytime target noise level of 55 dBA from ECCC as well as the 120 dBL cautionary limit from the Ontario Ministry of Environment Conservation and Parks.

3.0 Model Approach

The empirical formula used to assess blasting air overpressure in the Application for an Environmental Assessment Certificate, as referenced in the Office of Surface Mining Reclamation and Enforcement and United States Bureau of Mines by Linehan and Wiss (1980), is as follows:

$$P = 6.31e^{-B} \left(\frac{D}{W^{1/3}} \right)^{-1.16} \quad \text{Equation 1}$$

Where:

P = peak overpressure, in kilopascals (kPa)

B = scaled depth of charge burial ($C/W^{1/3}$), in metres per cube root kilograms ($m/kg^{1/3}$)

C = depth to centre of gravity of charge, in metres (m)

W = maximum charge weight per delay, in kilograms (kg)

D = distance from the blast to the receiver, in metres (m)

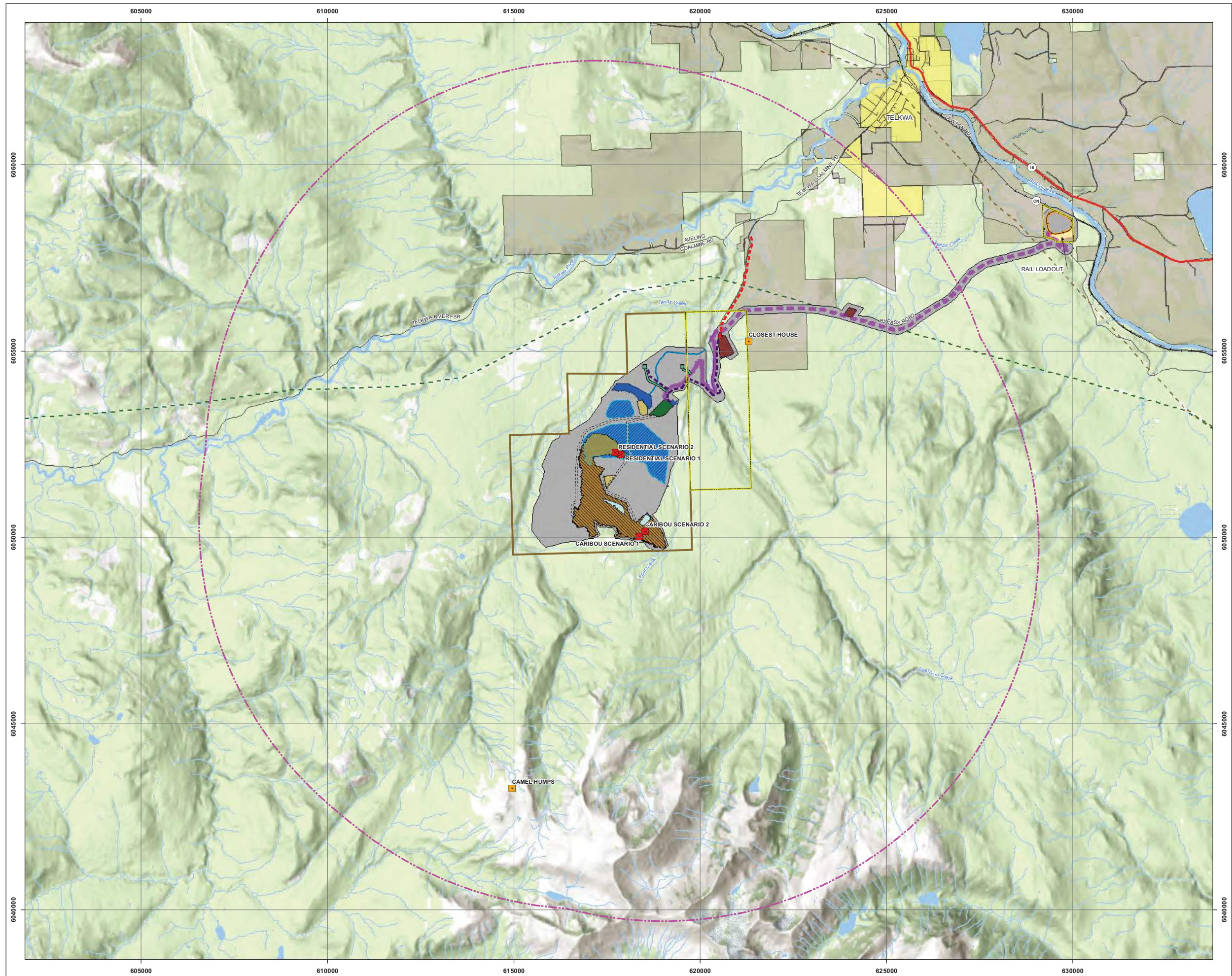
For this assessment, noise modelling was conducted using the DataKustik CadnaA noise prediction software to estimate maximum noise levels associated with blasting for the Project. The CadnaA model calculates outdoor sound propagation based on international standard ISO 9613-2. ISO 9613-2 accounts for the following factors:

- Sound power levels and frequency of noise content: Sound power levels associated with blasting are estimated based on the empirical formula in Equation 1 and are dependent on the maximum charge weight per delay and depth below ground. For a maximum charge weight per delay of 495.5 kg and a depth below ground of 8.875 m, the estimated sound power level is 147 dBL at the blast site. Sound waves from blasting typically have a low frequency content, predominantly below 20 hertz (Hz). The CadnaA model and ISO 9613-2 algorithms were designed to consider the range of octave bands with midband frequencies from 31.5 Hz to 8,000 Hz. For the purpose of this assessment, blasting noise was modelled with a midband frequency of 31.5 Hz.
- Distance attenuation between source and receptor: Two discrete receptors were specified in the model, one at the nearest residence to the mine site and one at Camel Humps, a key location for caribou.
- Meteorological effects: The CadnaA model and ISO 9613-2 considers maximum noise effects under downwind conditions and moderate temperature inversions.
- Topography: Topographical effects are considered by importing projected ground elevations within the mine site, obtained from Telkwa Coal, and existing ground elevations in the surrounding area, obtained from the Government of Canada.

Blasting may occur at different locations throughout the Project lifespan. For this assessment, noise modelling was completed at 4 different blast sites, two sites closest to the nearest residential receptor and two sites closest to Camel Humps (see Figure 1). Additionally, the sites were selected to assess two scenarios:

- Scenario 1: This scenario considers worst-case effects at the beginning of mining activity when blasting would occur near the ground surface.
- Scenario 2: This scenario considers effects as mining progresses when blasting would occur at pit floor below ground surface.

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Tenas Project

Blast Sites and Key Receptors
for Noise Assessment

Legend

Key Receptors

Blast Sites

Noise Study Area

Rail Line

Highway

Road

Watercourse

Wetland

Waterbody

Municipal Area

General Private Property

138 kV Transmission Line

500 kV Transmission Line

Backfill Area

Control and Plant Sedimentation Pond

Explosive Infrastructure

Management Pond

Mine Infrastructure Complex

Open Pit

Pit Lake

Quarry

Rail Infrastructure

Topsoil Stockpile

Tenas Coal Licenses

Telkwa Coal Limited Private Property

Project Area

Project Features

Existing 25 kV Power Line

25 kV Power Line

Haul Road

Rail Loop

Discharge Path

Tenas Access Corridor

Notes

1. All mapped features are approximate and should be used for discussion purposes only.

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Sources

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- Basemap: World Topo Base

N

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0 1 2 3 4 5

Kilometers

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

103260-07

Production Date: Jul 18, 2023

Figure 1

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4.0 Results

Based on the current analysis, the maximum noise levels may exceed the target daytime noise level of 55 dBA up to 2 km from the blast site. Maximum noise levels may exceed the cautionary limit of 120 dBL up to 1 km from the blast site. We observe that the maximum noise levels at the nearest residence and at Camel Humps are modelled to be well below these noise criteria. Isopleths of maximum predicted noise levels are provided in Appendix A.

5.0 Closure

Ausenco appreciates the opportunity to have assisted you with this project. If there are any questions, please do not hesitate to call the undersigned.

Report prepared by:
Ausenco Sustainability Inc.



Nancy Chan, B.A.Sc., P.Eng.
Air Quality and Acoustic Specialist

Report reviewed by:
Ausenco Sustainability Inc.

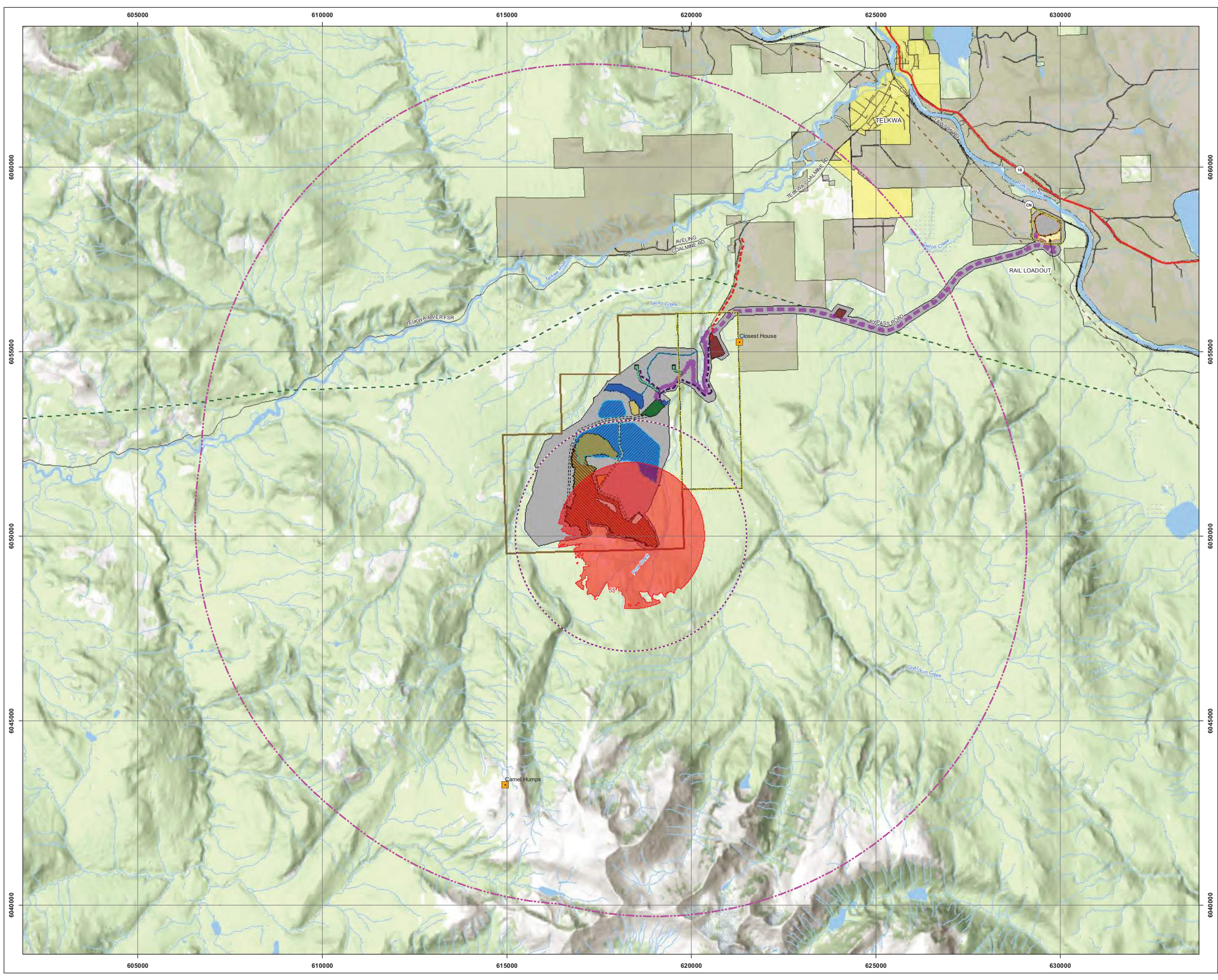
Gabriel Castillo, PhD
Director, ESG and Climate Change

PERMIT TO PRACTICE	
RR/Delegate name: Nancy Chan	
RR/Delegate signature: 	
Date: 03/05/2025	
PERMIT NUMBER: 1003471 EGBC Engineers & Geoscientists British Columbia	Ausenco Ausenco Sustainability ULC

Appendix A

Noise Level Isopleths

Path: S:\GIS\mxd\Project\103260\07\Noise\Noise_modelling\Fig_1_1_103260_07_Noise_Caribou.dwg; LAeq_230718.mxd



Tenas Project

A-Weighted Noise Levels from Blasting Caribou Scenario 1

Legend

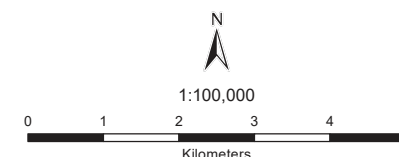
- | | |
|---------------------------|--|
| Key Receptors | Backfill Area |
| Noise Study Area | Control and Plant Sedimentation Pond |
| Rail Line | Explosive Infrastructure |
| Highway | Management Pond |
| Road | Mine Infrastructure Complex |
| Watercourse | Open Pit |
| Wetland | Pit Lake |
| Waterbody | Quarry |
| Municipal Area | Rail Infrastructure |
| General Private Property | Topsoil Stockpile |
| 138 kV Transmission Line | Tenas Coal Licenses |
| 500 kV Transmission Line | Telkwa Coal Limited Private Property |
| Project Features | Project Area |
| Existing 25 kV Power Line | Predicted Noise Level (dBA) |
| 25 kV Power Line | Equal to or Above Noise Level Objective (55 dBA) |
| Haul Road | Area of Exceedance |
| Rail Loop | Screening Level Area of Exceedance |
| Discharge Path | |
| Tenas Access Corridor | |

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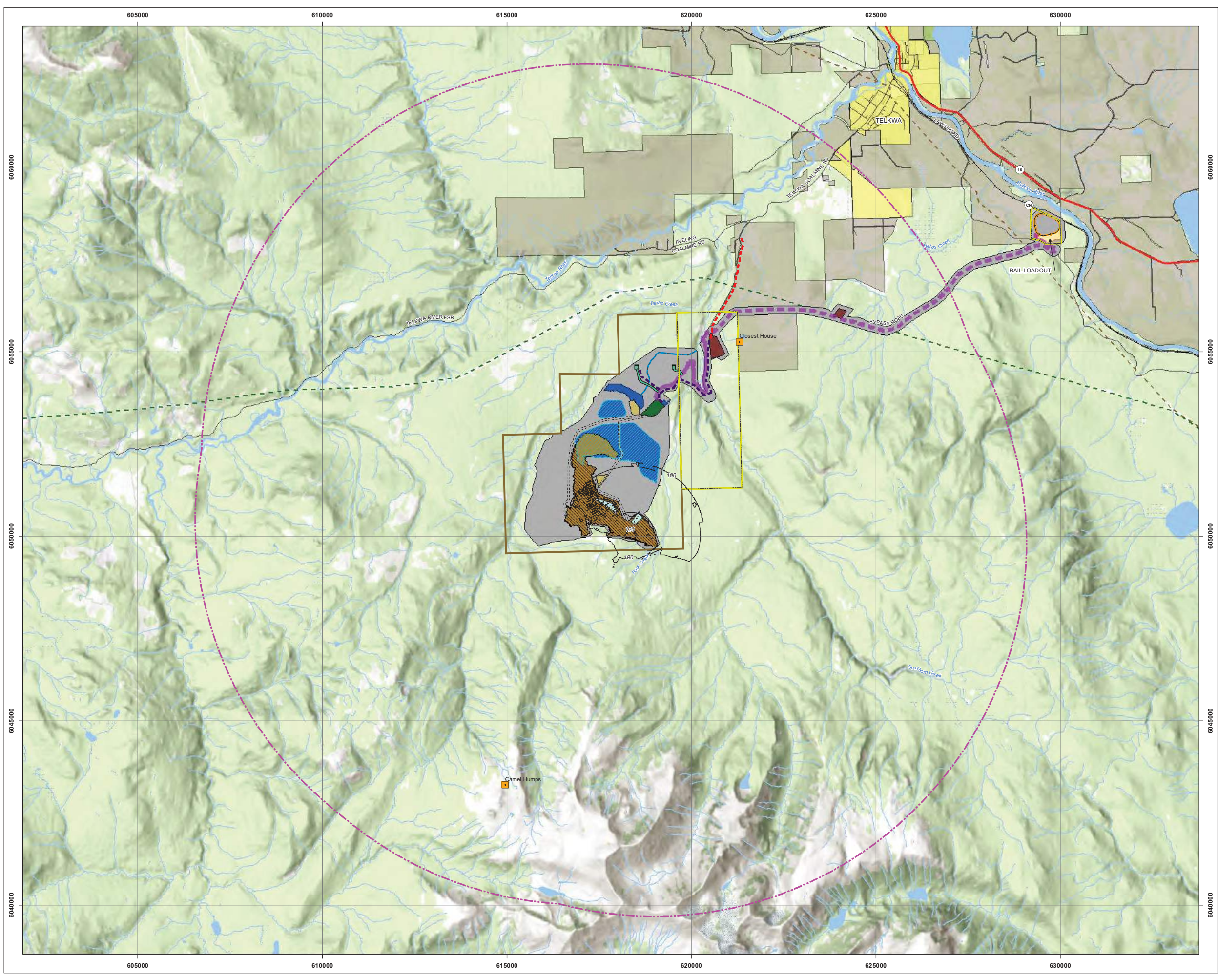
Production Date: Jul 18, 2023

Figure 1-1



Ausenco

Path: S:\GIS\mxd\Project\103260-07\mxd\noise_modelling\Fig_1_2_103260_07_Note_Caribou.dwg, LCoq, 230718.mxd



Tenas Project

C-Weighted Noise Levels from Blasting Caribou Scenario 1

Legend

Key Receptors	Backfill Area
Noise Study Area	Control and Plant Sedimentation Pond
Rail Line	Explosive Infrastructure
Highway	Management Pond
Road	Mine Infrastructure Complex
Watercourse	Open Pit
Wetland	Pit Lake
Waterbody	Quarry
Municipal Area	Rail Infrastructure
General Private Property	Topsoil Stockpile
138 kV Transmission Line	Tenas Coal Licenses
500 kV Transmission Line	Telkwa Coal Limited Private Property
Project Features	
Existing 25 kV Power Line	Project Area
25 kV Power Line	Predicted Noise Level (dBC)
Haul Road	Noise Level Isopleth
Rail Loop	
Discharge Path	
Tenas Access Corridor	

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Kilometers

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

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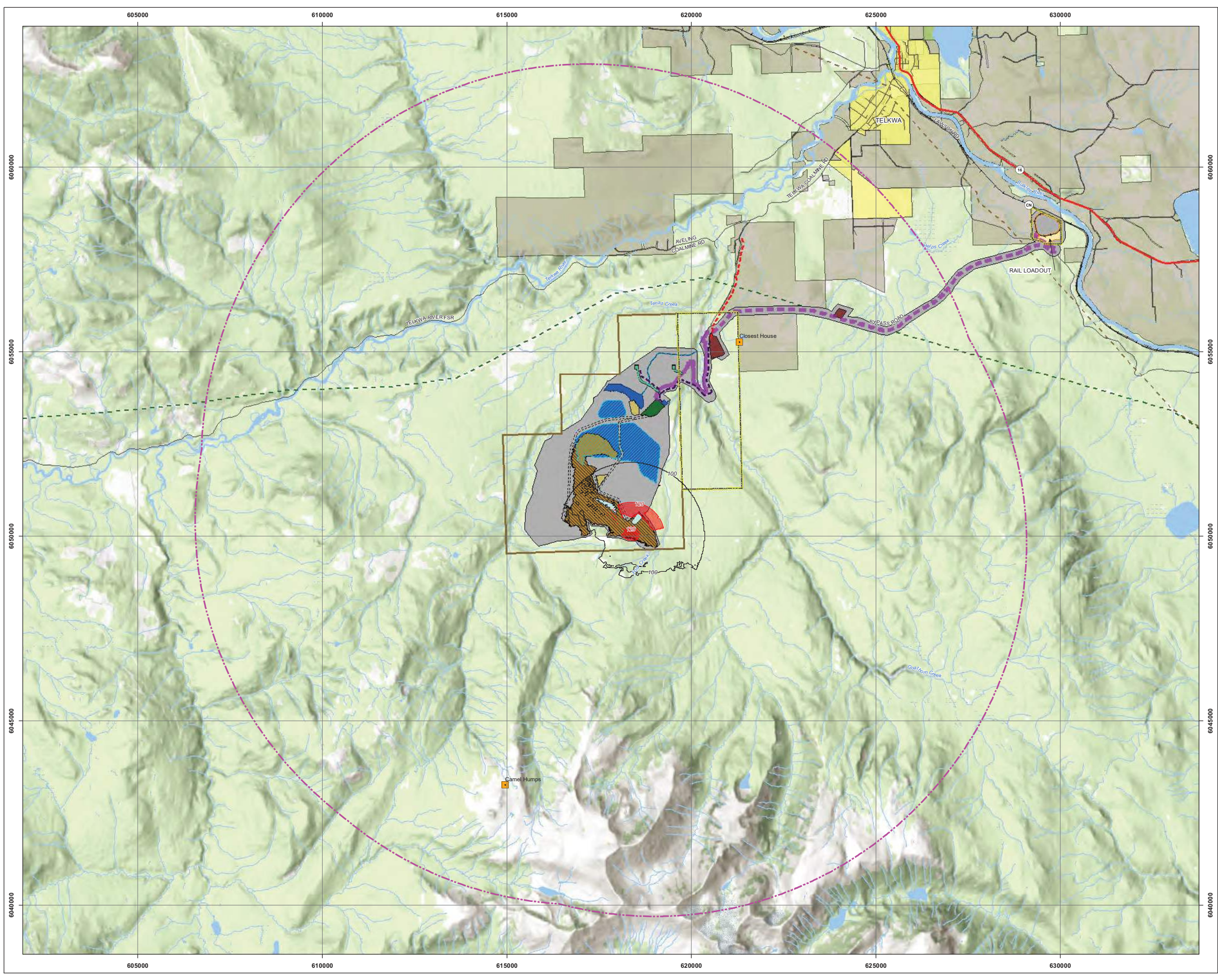
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Figure 1-2

TELKWA COAL LIMITED

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Path: S:\GIS\mxd\Project\103260-07\mxd\noise_modelling\Fig_1_3_103260_07_Note_Caribou.dwg; LLen: 230718.mxd



Tenas Project

Linear-Weighted Noise Levels from Blasting
Caribou Scenario 1

Legend

Key Receptors

Noise Study Area

Rail Line

Highway

Road

Watercourse

Wetland

Waterbody

Municipal Area

General Private Property

138 kV Transmission Line

500 kV Transmission Line

Existing 25 kV Power Line

25 kV Power Line

Haul Road

Rail Loop

Discharge Path

Tenas Access Corridor

Backfill Area

Control and Plant Sedimentation Pond

Explosive Infrastructure

Management Pond

Mine Infrastructure Complex

Open Pit

Pit Lake

Quarry

Rail Infrastructure

Topsoil Stockpile

Tenas Coal Licenses

Telkwa Coal Limited Private Property

Project Area

Predicted Noise Level (dBL)

Below Noise Level Objective

Equal to or Above Noise Level Objective (120 dBL)

Area of Exceedance

Project Features

Existing 25 kV Power Line

25 kV Power Line

Haul Road

Rail Loop

Discharge Path

Tenas Access Corridor

Notes

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- Basemap: World Topo Base

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Kilometers

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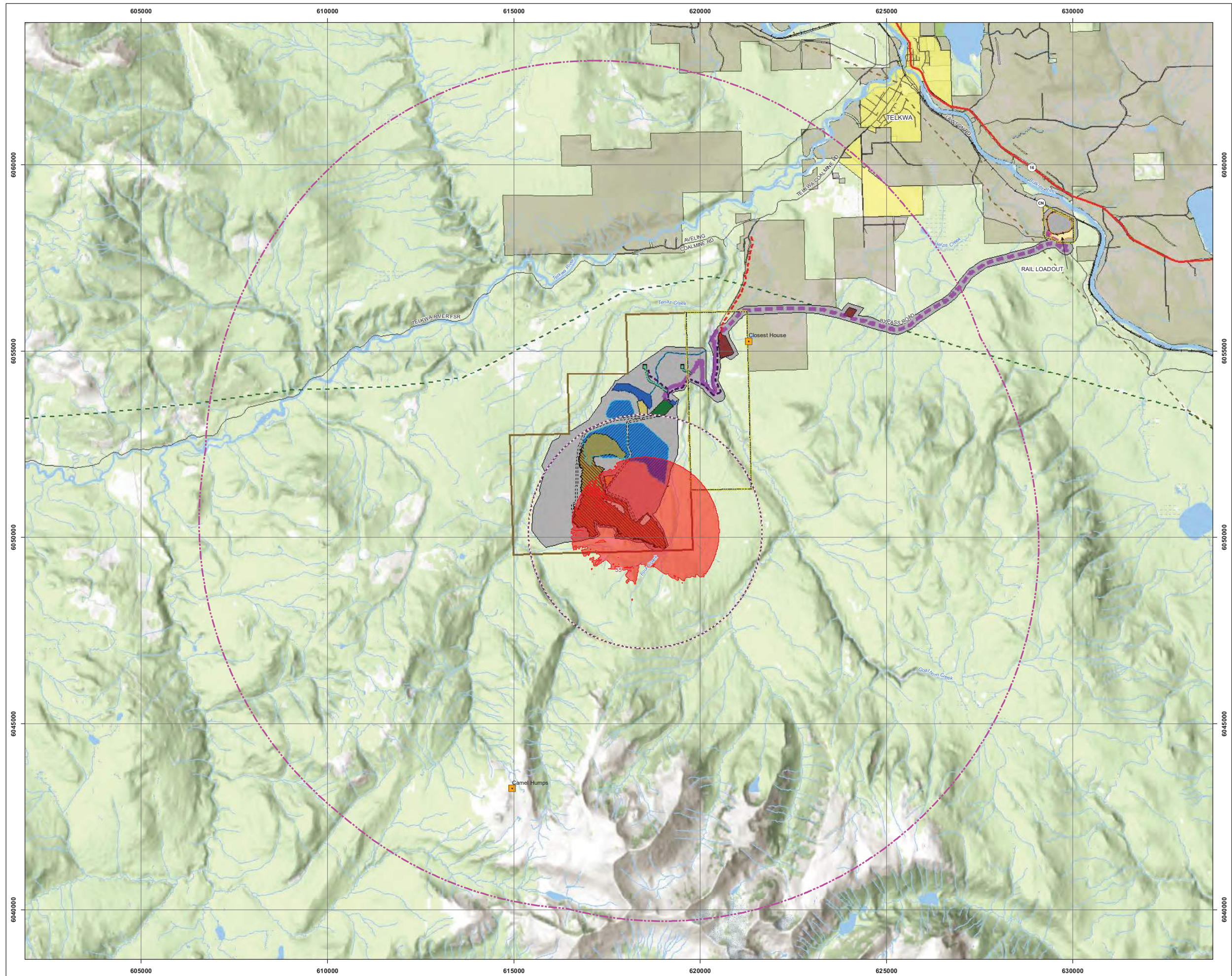
Production Date: Jul 18, 2023

Figure 1-3

TELKWA COAL LIMITED

Ausenco

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Tenas Project

A-Weighted Noise Levels from Blasting Caribou Scenario 2

Legend

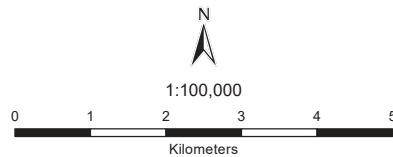
Key Receptors	Backfill Area
Noise Study Area	Control and Plant Sedimentation Pond
Rail Line	Explosive Infrastructure
Highway	Management Pond
Road	Mine Infrastructure Complex
Watercourse	Open Pit
Wetland	Pit Lake
Waterbody	Quarry
Municipal Area	Rail Infrastructure
General Private Property	Topsoil Stockpile
138 kV Transmission Line	Tenas Coal Licenses
500 kV Transmission Line	Telkwa Coal Limited Private Property
Project Features	Project Area
Existing 25 kV Power Line	Predicted Noise Level (dBA)
25 kV Power Line	Equal to or Above Noise Level Objective (55 dBA)
Haul Road	Area of Exceedance
Rail Loop	Screening Level Area of Exceedance
Discharge Path	
Tenas Access Corridor	

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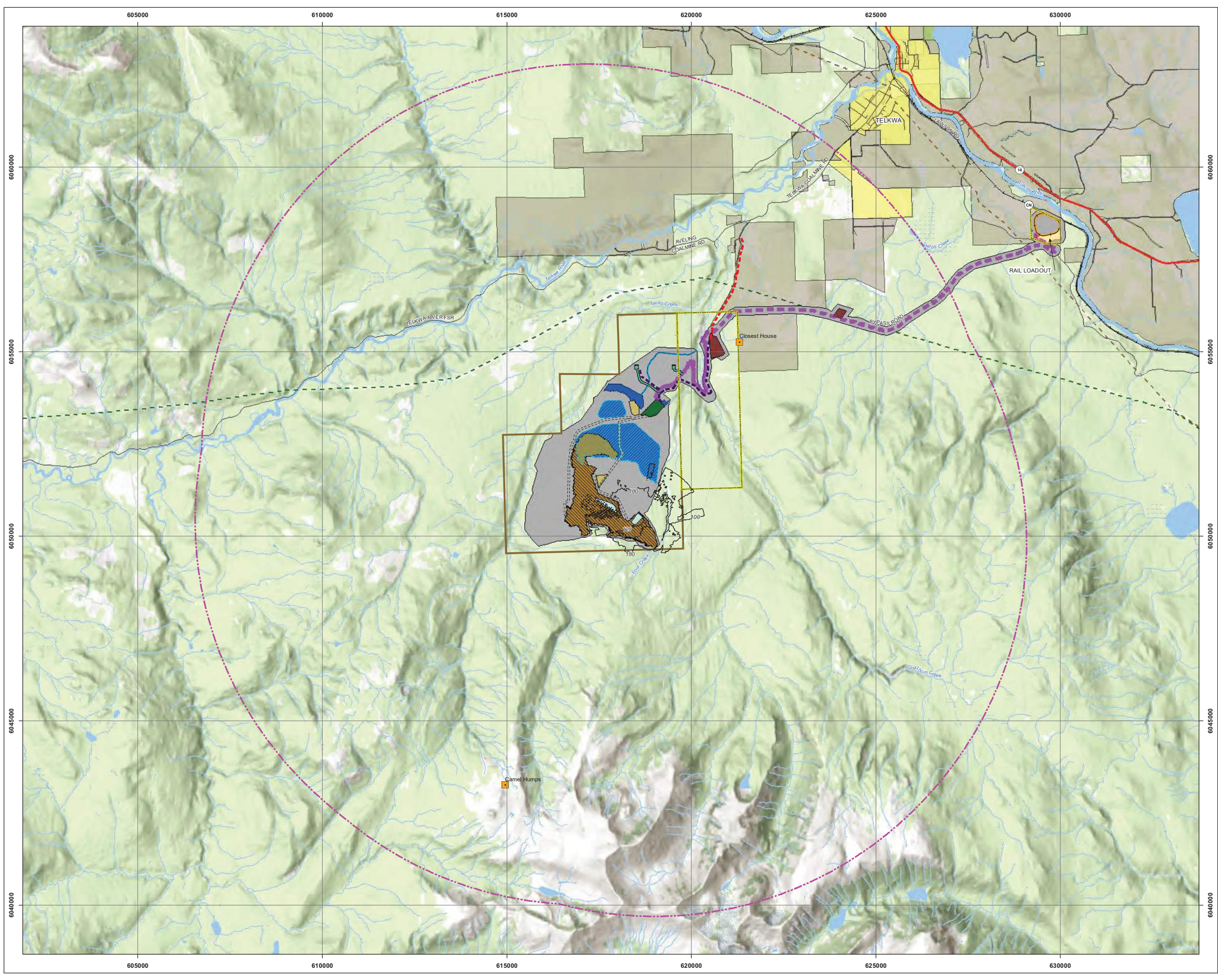
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Production Date: Jul 18, 2023

Figure 1-4



Path: S:\GIS\mxd\Project\103260\07\Noise\Noise modelling\Fig_1_5_103260_07_Noise_Caribou.dwg, LQ=, 230718.mxd



Tenas Project

C-Weighted Noise Levels from Blasting
Caribou Scenario 2

Legend

Key Receptors

Noise Study Area

Rail Line

Highway

Road

Watercourse

Wetland

Waterbody

Municipal Area

General Private Property

138 kV Transmission Line

500 kV Transmission Line

Existing 25 kV Power Line

25 kV Power Line

Haul Road

Rail Loop

Discharge Path

Tenas Access Corridor

Backfill Area

Control and Plant Sedimentation Pond

Explosive Infrastructure

Management Pond

Mine Infrastructure Complex

Open Pit

Pit Lake

Quarry

Rail Infrastructure

Topsoil Stockpile

Tenas Coal Licenses

Telkwa Coal Limited Private Property

Project Area

Project Features

Existing 25 kV Power Line

25 kV Power Line

Haul Road

Rail Loop

Discharge Path

Tenas Access Corridor

Predicted Noise Level (dBC)

Noise Level Isopleth

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Kilometers

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

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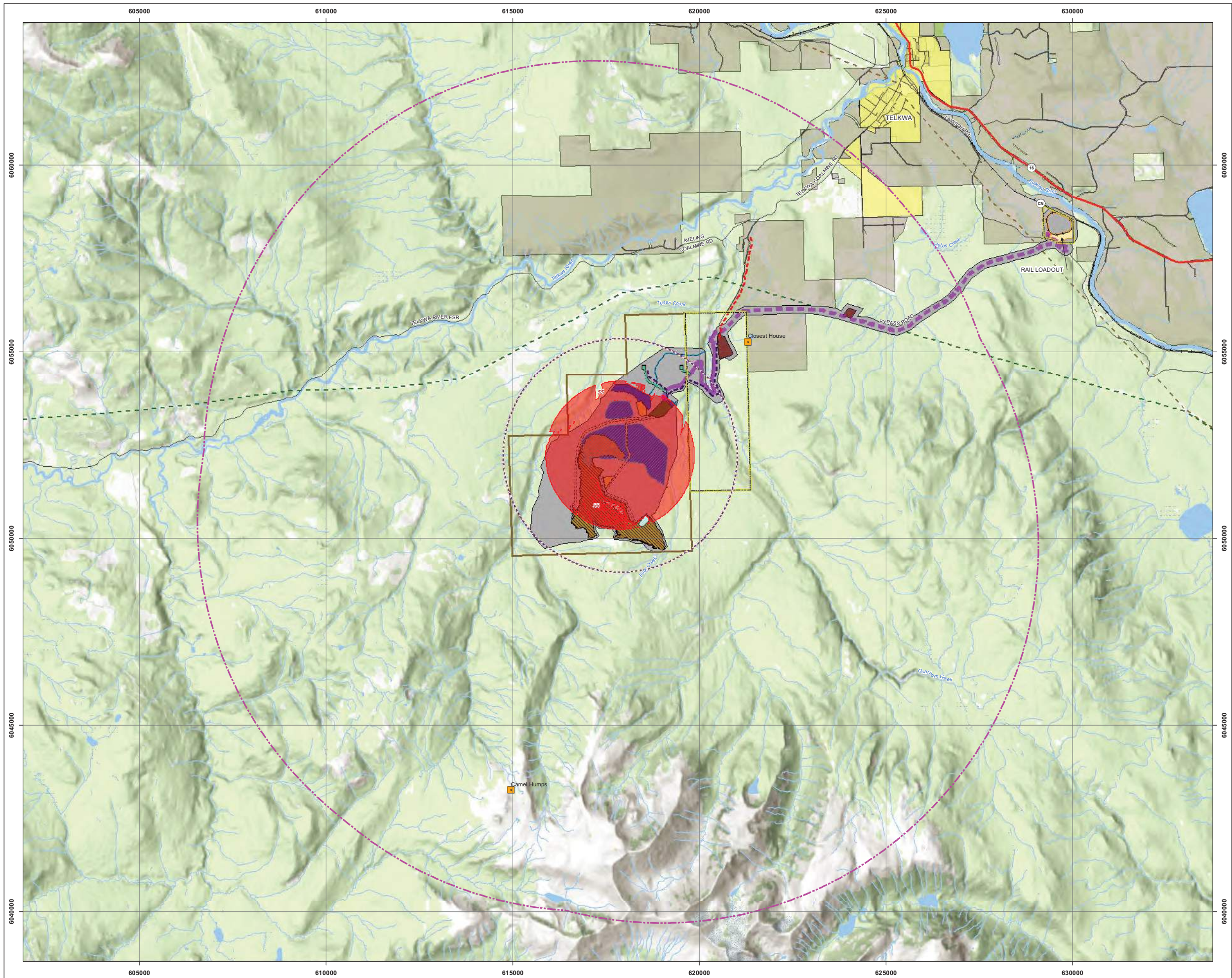
Production Date: Jul 18, 2023

Figure 1-5

TELKWA COAL LIMITED

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Tenas Project

A-Weighted Noise Levels from Blasting Residential Scenario 1

Legend

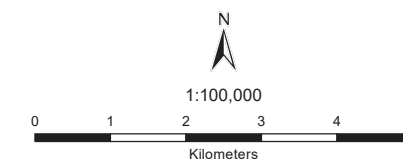
Key Receptors	Backfill Area
Noise Study Area	Control and Plant Sedimentation Pond
Rail Line	Explosive Infrastructure
Highway	Management Pond
Road	Mine Infrastructure Complex
Watercourse	Open Pit
Wetland	Pit Lake
Waterbody	Quarry
Municipal Area	Rail Infrastructure
General Private Property	Topsoil Stockpile
138 kV Transmission Line	Tenas Coal Licenses
500 kV Transmission Line	Telkwa Coal Limited Private Property
Project Features	Project Area
Existing 25 kV Power Line	Predicted Noise Level (dBA)
25 kV Power Line	Equal to or Above Noise Level Objective (55 dBA)
Haul Road	Area of Exceedance
Rail Loop	Screening Level Area of Exceedance
Discharge Path	
Tenas Access Corridor	

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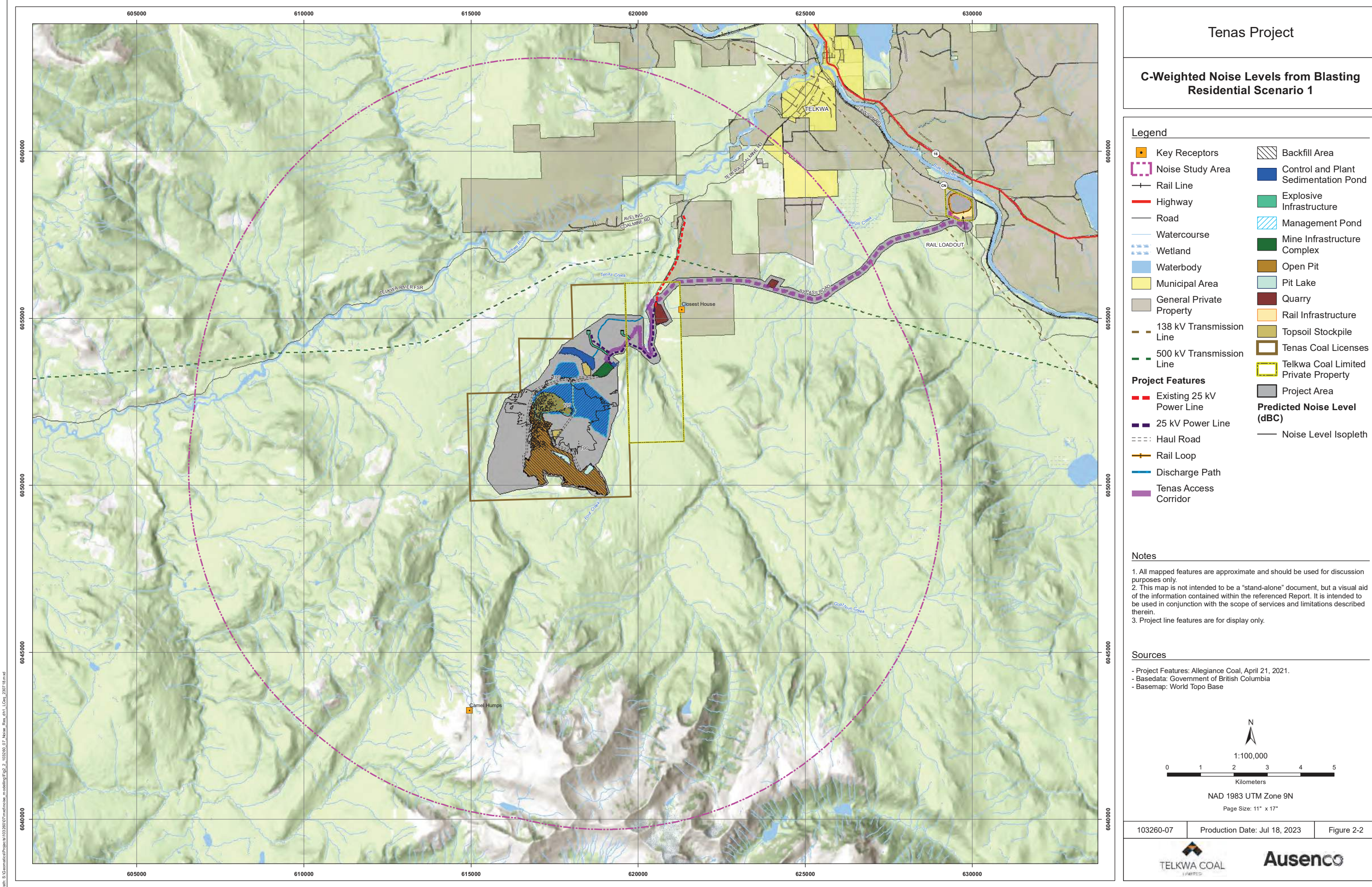
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Production Date: Jul 18, 2023

Figure 2-1

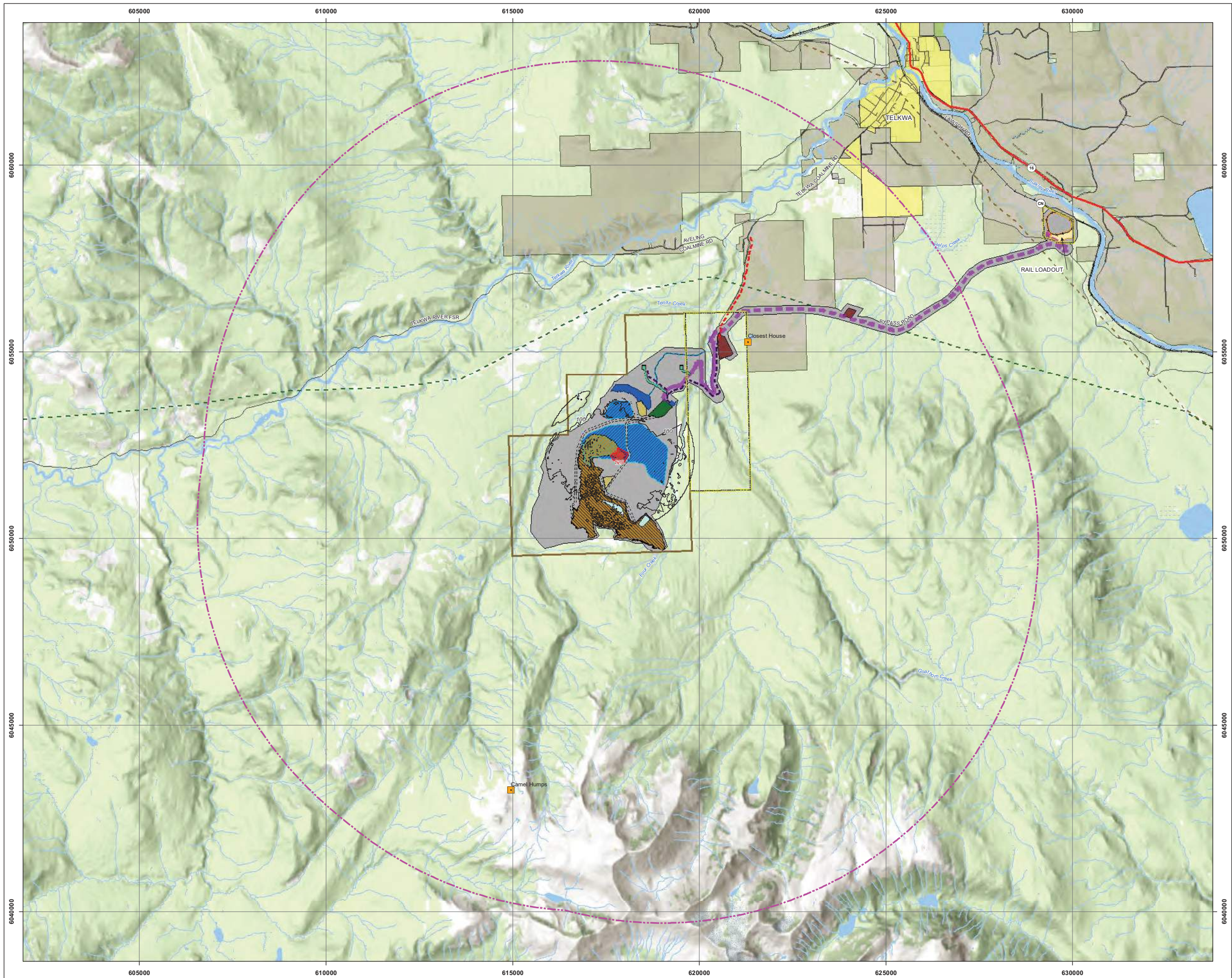


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Path: S:\GIS\mxd\Project\103260-07\mxd\noise_modelling\Fig_3_103260_07_Noise_Res.d11_L1.mxd 230718.mxd



Tenas Project

Linear-Weighted Noise Levels from Blasting Residential Scenario 1

Legend

Key Receptors

Noise Study Area

Rail Line

Highway

Road

Watercourse

Wetland

Waterbody

Municipal Area

General Private Property

138 kV Transmission Line

500 kV Transmission Line

Existing 25 kV Power Line

25 kV Power Line

Haul Road

Rail Loop

Discharge Path

Tenas Access Corridor

Backfill Area

Control and Plant Sedimentation Pond

Explosive Infrastructure

Management Pond

Mine Infrastructure Complex

Open Pit

Pit Lake

Quarry

Rail Infrastructure

Topsoil Stockpile

Tenas Coal Licenses

Telkwa Coal Limited Private Property

Project Area

Predicted Noise Level (dBL)

Below Noise Level Objective

Equal to or Above Noise Level Objective (120 dBL)

Area of Exceedance

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Kilometers

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

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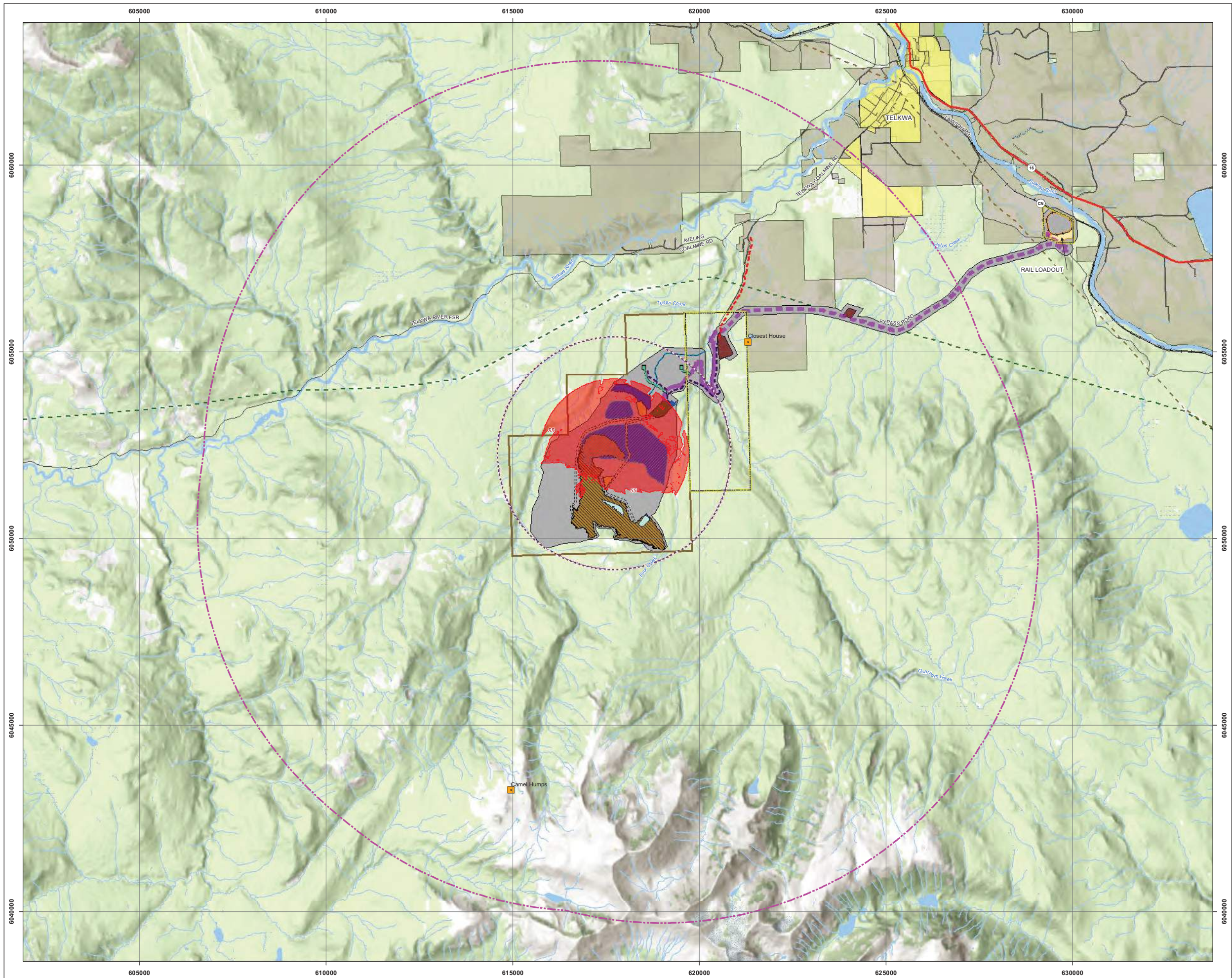
Production Date: Jul 18, 2023

Figure 2-3

TELKWA COAL LIMITED

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Tenas Project

A-Weighted Noise Levels from Blasting Residential Scenario 2

Legend

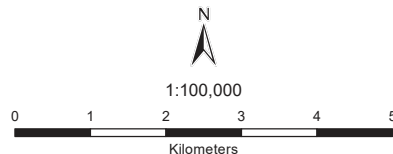
- | | |
|---------------------------|--|
| Key Receptors | Backfill Area |
| Noise Study Area | Control and Plant Sedimentation Pond |
| Rail Line | Explosive Infrastructure |
| Highway | Management Pond |
| Road | Mine Infrastructure Complex |
| Watercourse | Open Pit |
| Wetland | Pit Lake |
| Waterbody | Quarry |
| Municipal Area | Rail Infrastructure |
| General Private Property | Topsoil Stockpile |
| 138 kV Transmission Line | Tenas Coal Licenses |
| 500 kV Transmission Line | Telkwa Coal Limited Private Property |
| Project Features | Project Area |
| Existing 25 kV Power Line | Predicted Noise Level (dBA) |
| 25 kV Power Line | Equal to or Above Noise Level Objective (55 dBL) |
| Haul Road | Area of Exceedance |
| Rail Loop | Screening Level Area of Exceedance |
| Discharge Path | |
| Tenas Access Corridor | |

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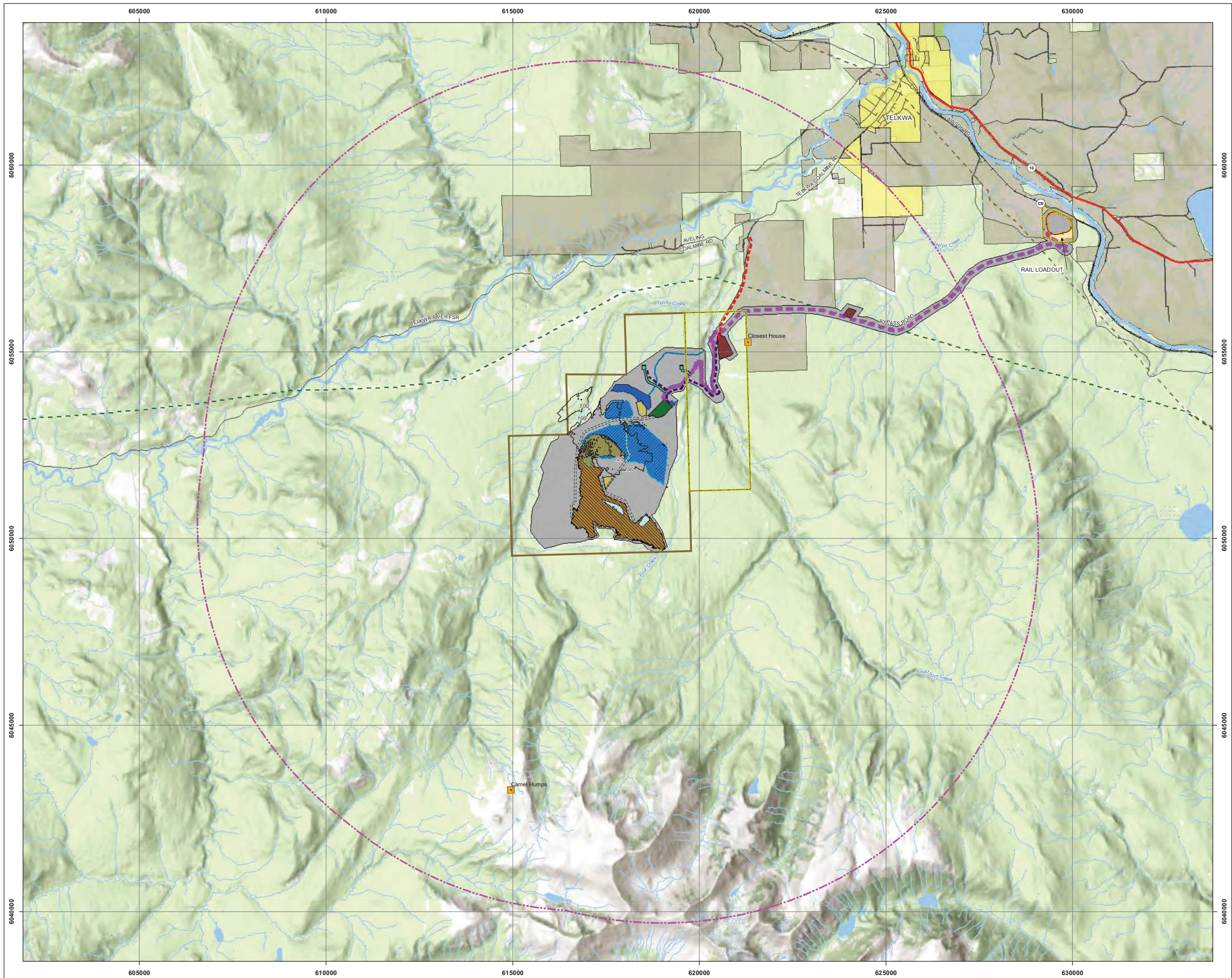
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Production Date: Jul 18, 2023

Figure 2-4



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Tenas Project

C-Weighted Noise Levels from Blasting Residential Scenario 2

Legend

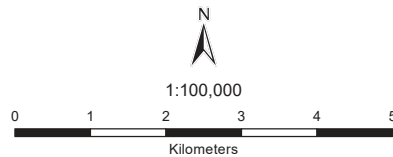
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|---------------------------|--------------------------------------|
| Key Receptors | Backfill Area |
| Noise Study Area | Control and Plant Sedimentation Pond |
| Rail Line | Explosive Infrastructure |
| Highway | Management Pond |
| Road | Mine Infrastructure Complex |
| Watercourse | Open Pit |
| Wetland | Pit Lake |
| Waterbody | Quarry |
| Municipal Area | Rail Infrastructure |
| General Private Property | Topsoil Stockpile |
| 138 kV Transmission Line | Tenas Coal Licenses |
| 500 kV Transmission Line | Telkwa Coal Limited Private Property |
| Existing 25 kV Power Line | Project Area |
| 25 kV Power Line | Predicted Noise Level (dBC) |
| Haul Road | Noise Level Isopleth |
| Rail Loop | |
| Discharge Path | |
| Tenas Access Corridor | |

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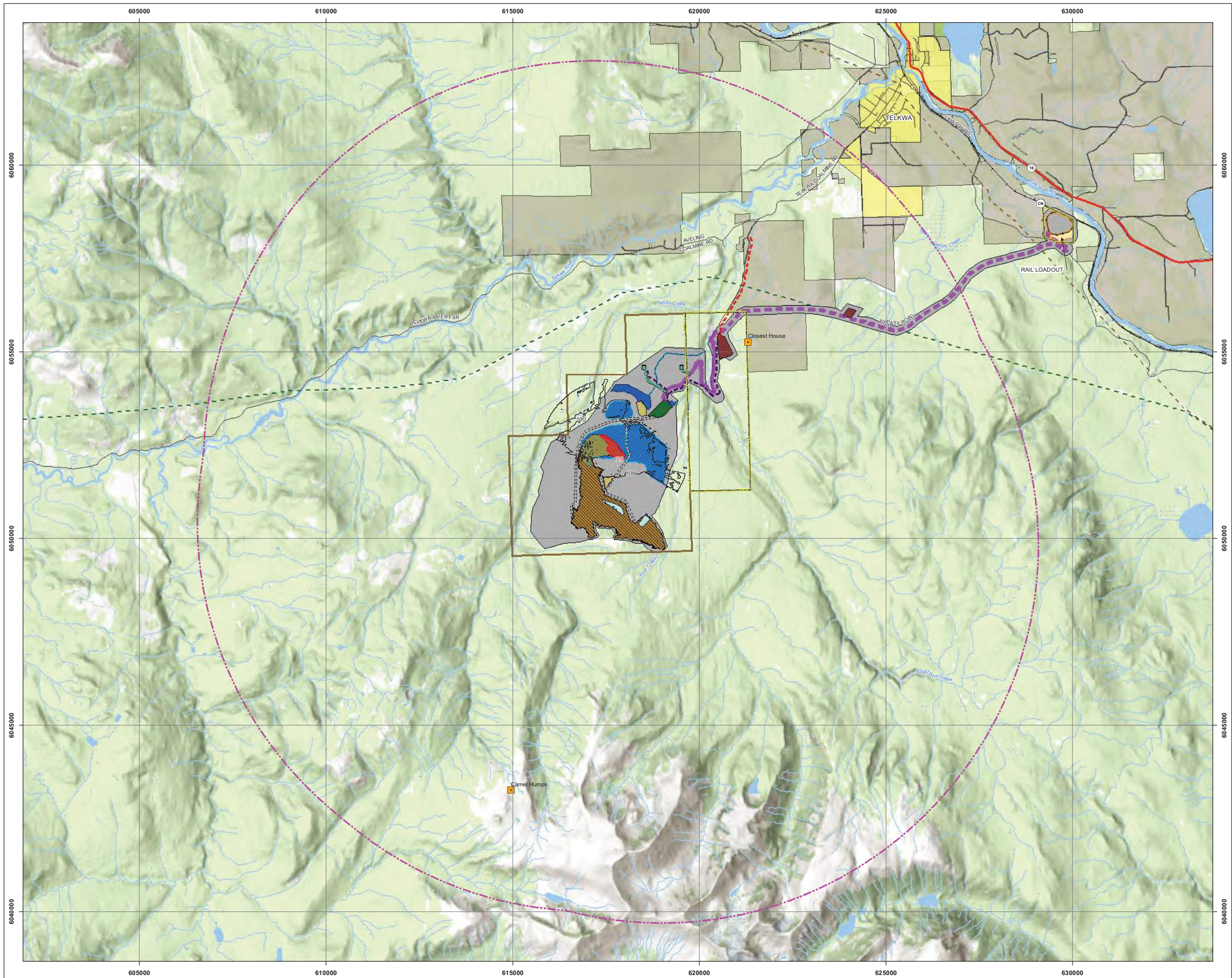
Production Date: Jul 18, 2023

Figure 2-5



Ausenco

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Tenas Project

Linear-Weighted Noise Levels from Blasting Residential Scenario 2

Legend

Key Receptors	Backfill Area
Noise Study Area	Control and Plant Sedimentation Pond
Rail Line	Explosive Infrastructure
Highway	Management Pond
Road	Mine Infrastructure Complex
Watercourse	Open Pit
Wetland	Pit Lake
Waterbody	Quarry
Municipal Area	Rail Infrastructure
General Private Property	Topsoil Stockpile
138 kV Transmission Line	Tenas Coal Licenses
500 kV Transmission Line	Telkwa Coal Limited Private Property
Project Features	
Existing 25 kV Power Line	Project Area
25 kV Power Line	Predicted Noise Level (dBL)
Haul Road	Below Noise Level Objective
Rail Loop	Equal to or Above Noise Level Objective (120 dBL)
Discharge Path	Noise Level Objective (120 dBL)
Tenas Access Corridor	Area of Exceedance

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Kilometers

NAD 1983 UTM Zone 9N

Page Size: 11" x 17"

103260-07

Production Date: Jul 18, 2023

Figure 2-6

TELKWA COAL LIMITED

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