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September 9, 2013

Ontario Ministry of the Environment
Environmental Assessment and Approvals Branch
2 St. Clair Avenue West
Floor 12A
Toronto, ON
M4V 1L5

Attention: Director

Dear Sir/Madam:

Re: Acoustic Assessment Report
Proposed Vicdom Utica Pit
3900 Lakeridge Rd
Part Lot 15, Concession 7 & 8, and Part of the Road Allowances between Lots 15 and 16 and between Concessions 7 & 8
Township of Uxbridge, Region of Durham
In support of an Application for Environmental Compliance Approval

Please find attached an acoustic assessment report with supporting information. This report has been prepared in support for an application for Environmental Compliance Approval for this proposed aggregate pit, as part of a Class A, Category 3 License under the Aggregate Resources Act.

If you require clarification or any further information with respect to any material within this report, please do not hesitate to contact me.

Sincerely,

Colin Novak PhD, PEng.

Table of Contents

Statement of Liability

Akoustik Engineering Limited prepared this report for R. J. Burnside & Associates Limited for submission to the Ontario Ministry of the Environment. The material in it reflects Peter D'Angela and Colin Novak's judgement in light of the information available to them and Akoustik Engineering Limited at the time of the measurements, under the stated test conditions. Any use that a Third Party makes of this report, or any reliance on decisions made based on it, is the responsibility of such Third Parties. Akoustik Engineering Limited accepts no responsibility for damages, if any, suffered by any Third Party resulting from decisions made or actions based on this report.

Introduction

This report is an Acoustic Assessment Report for the proposed Vicdom Utica Pit to be located at 3900 Lakeridge Rd (Part Lot 15, Concession 7 & 8 and Part of the Road Allowances between Lots 15 and 16 and between Concessions 7 & 8), in the Township of Uxbridge, Region of Durham, Ontario. This acoustic assessment report has been prepared in support of an Environmental Compliance Approval application for potential noise sources to be located at the pit and to be submitted to the Ministry of the Environment approvals branch. This assessment is part of complete package pertaining to a License application under the Aggregate Resources Act. There are no sources of vibration to be present at this site, and as such, none are considered. The intent of this study is to predict the expected worst case noise levels resulting from the daily operations of the proposed pit and to determine if these operations comply with the guidelines specified by the Ministry of the Environment (MOE). For this report, noise prediction modeling was carried out based on the noise emissions for the proposed sources at the pit to determine the noise impact at the nearest representative sensitive receptors. Any problem areas, which may prevent allowable operations of the proposed pit with respect to noise emissions, have been identified.

Facility Description

The proposed Vicdom Utica Pit is to be located at 3900 Lakeridge Rd (Part Lot 15, Concession 7 & 8 and Part of the Road Allowances between Lots 15 and 16 and between Concessions 7 & 8), in the Township of Uxbridge, Region of Durham, Ontario. An aerial view of the proposed pit location is provided in Appendix A. The proposed site is located in a mixed area containing industrial manufacturing, commercial, and residential. A zoning-map illustrating the classification of the area is provided in Appendix B. The operations of the proposed pit are to be aggregate extraction and transfer related operations. The licence sought is for a pit with an extraction depth restricted to 1.5 m above the water table. The site is not a processing facility, all aggregate excavated will be transferred to the Vicdom Sand and Gravel site. The location of that facility is illustrated in Appendix A. A topsoil and/or overburden berm is to be constructed along the east, south, and south west edges of the property, roughly 30 m inside the property line. The minimum height of the proposed berm is to be 4 m. This height will be raised if required based on the assessment. The operating hours of the pit are scheduled from Monday to Saturday during the hours from 6am to 6pm, which includes the nighttime period (6am to 7am). The operations are to be split into two phases, with Phase 1 beginning at the north area of the property and moving south parallel to Lakeridge Rd until the berm is reached. Phase 2 operations progress in the west and northwest directions, parallel to Goodwood Rd. Drawings which detail the pit layout and operational plan, including the location of the proposed noise sources, are given in Appendix C. The information contained in Appendix C is used to assume the approximate locations of the identified noise sources to represent the worst-case scenario.

Evaluation of Noise Sources

The proposed pit will have several noise sources identified as follows: truck traffic transporting the excavated aggregate from the site, an excavator, a pair of Volvo front end wheel loaders, a screener and a conveyor/stacker unit. Manufacturer's specifications for the equipment are included in Appendix D.

The most dominant of the identified noise sources is due to the combined emissions from the screening unit and conveyor/stacker unit. The units are grouped together due to their close proximity to one other during operation. The screening plant is a McCloskey S130 High Energy Vibrating Screener. The type and model for the stacker was not obtained. These two pieces of equipment represent the bulk of the major operations to occur at the site.

A pair of Volvo Type L220E front wheel loaders is also proposed to be used at the proposed site. Based on the information provided, as well as discussions pertaining to the operational plan, it is proposed that the two loaders will be present on-site and operated simultaneously. One loader is to be within close proximity to the screening plant and conveyor/stacker unit and will be grouped with these pieces of equipment, and as such, was measured as a single major source. The other loader is to be located near to the other pieces of equipment but is identified as a separate source.

An excavator will also be used for the operation processes at the site. The excavator will be generally within the same operating area as the previously mentioned equipment but will still be measured and modeled individually. No manufacturer information was obtained for this unit.

A last identified noise source is the on-site vehicle traffic. Based on the per day proposed vehicle traffic volume, a maximum of 150 haul trucks will enter/exit the site to transport the excavated material. All personal vehicle-related traffic noise has been omitted from the assessment as the noise contribution is considered to be insignificant. For the truck noise, previously measured noise data used for a previous assessment, for transport trucks travelling at 40 km/h, was used and is provided in Appendix E. The vehicle flow was modeled as a moving noise source at worst-case conditions based on the hours of operation. The travel path of the vehicles is modeled in accordance with the proposed path given in the site layout drawing and also with the intention of representing the worst-case condition.

Calculation tables, which show the calculated sound power levels used as inputs into the noise model are provided in Appendix E. The noise data for these actual equipment was measured at the applicant's other site. Photographs for each source, taken during the measurement period, are provided in Appendix F. A list of the measurement equipment used for the study is provided in Appendix G. All measurement equipment was calibrated before and after the measurements were carried out and the meteorological conditions were measured to ensure appropriate conditions.

Table 1 is a summary list of the noise source data considered for this report, including their characteristics.

Table 1: Noise Source Data Summary

Source Description	Sound Level (dBA)	Distance Measured (m)	Sound Characteristics	Noise Control Measures
Loader	77	10	S	S
Excavator	77.93	10	S	S
Stacker, Screening Plant, & Loader	77.89	30	S	S
Truck Traffic	66.62	20	S	S

Where:

N/N	No noise	C	Cyclic
N/A	Not available	S	Silencer, acoustic louver, muffler
O	Located/installed outside the building (i.e. roof)	A	Acoustic lining, plenum
I	Located/installed inside the building	B	Barrier, berm, screening
S	Steady	L	Lagging
Q	Quasi steady impulsive	E	Acoustic Enclosure
I	Impulsive	O	Other
B	Buzzing	U	Uncontrolled
T	Tonal		

Evaluation of Points of Reception

The Ministry of the Environment defines a Point of Reception (POR) as an existing, or zoned for future use, residence, hotel, nursing or retirement home, hospital, campground or other sensitive building within 500 metres of the pit. An aerial photo has been included in Appendix A, which provides an illustration of the current land use surrounding the pit, including the nearby PORs. For this pit, three representative sensitive residential receptors have been identified; all of which are located off of Goodwood Rd. These POR 1, POR 2, and POR 3 represent the nearest residential houses that may potentially be impacted by the noise from the operations of the proposed pit.

In order to predict the noise levels in the outdoor living areas (OLA) of a given POR, an assessment requires that noise impact calculations for both daytime and evening noise levels be made. For a residence, the OLA is the position on a backyard patio at a distance of 3 metres from the residential dwelling. The nighttime point of impact is the plane of a second-story open, bedroom window. Given the large distance between the PORs and the pit, the daytime and nighttime point of impact are taken to be the same at the OLA. The daytime and nighttime assessments are modeled at heights of 1.5 metres and 4.5 metres respectively.

Initial prediction modeling was carried out which confirmed that the nighttime levels will be exceeded by over 4 dB for the worst case conditions for both phases. Mitigation measures to

meet the nighttime guidelines would require the berm height be raised 3 m (bringing the total berm height to 7 m). As raising the berm to this height was not deemed feasible, it was decided to have the operations hours restricted to the daytime period only, i.e. 7am to 7pm. With this adjustment to the assessment, nighttime predictions are no longer required; however, the impact at the 4.5 m receptor height is still included in the prediction modeling, as the dwellings are two-story developments.

As discussed previously, two phases of the project have been identified, and as such, two worst-case prediction models have been completed. It should also be noted that based on the proposed pit operational plan (provided in Appendix C) that the extraction limit boundary at the west property (near the haul truck entrance on Bowles Rd) extends beyond the design of the berm. In other words, extraction operations are planned to occur within a segment of the property where line of sight is present between the excavation equipment and POR's 1 and 2. Operations in this area will result in levels which exceed the daytime noise exclusion guidelines. For the purposes of the assessment, this area was viewed as restricted. Through discussions with the applicant, it was decided to restrict operations at any areas where there is a line of sight between any identified equipment and POR's 1 and 2 exists. In other words, the operations for the pit cannot exceed the berm boundary at the west end of the property. An illustration of the area to be restricted from excavation is provided in Appendix C. An alternative would be to extend the existing barrier another 60 m (also illustrated), but this option was not chosen.

Table's 2 and 3 are the Point of Reception Noise Impact Tables, for Phase's 1 and 2, respectively. The purpose of these tables is to present the predicted daytime levels at 1.5 m and 4.5 m impact heights that the applicable noise sources, identified as significant in the Noise Source Summary Table (Table 1), have at the identified points of reception. The noise modeling software used for this study is the Brüel & Kjær Predictor Type 7810 software, which follows the procedure specified by ISO 9613. As such, the prediction model takes into account the sound level attenuation of the inputted sound power data with distance as well as the any attenuation provided by shielding and absorption. Appendix H illustrates the input data used for the Predictor model. The model assumed that the sources ran based on the specifications and duty cycles previously detailed to represent the worst-case conditions.

Table 2: POR Noise Impact Table – Phase 1

Source Description	POR 1			POR 2			POR 3		
	Distance (m)	Daytime Level (dBA)		Distance (m)	Daytime Level (dBA)		Distance (m)	Daytime Level (dBA)	
		1.5 m Receptor Height	4.5 m Receptor Height		1.5 m Receptor Height	4.5 m Receptor Height		1.5 m Receptor Height	4.5 m Receptor Height
Loader	816	29.5	29.7	670	31.5	31.7	330	38.5	38.8
Excavator	810	28.5	28.9	666	30.6	31	324	37.9	38.4
Stacker, Screening Plant, & Loader	801	37.8	38.1	660	40	40.3	326	47.2	47.6
Truck Traffic	328	26.2	26.4	234	28.6	28.6	368	21.6	22.2
TOTAL	N/A	39.1	39.3	N/A	41.3	41.5	N/A	48.2	48.6

Table 3: POR Noise Impact Table – Phase 2

Source Description	POR 1			POR 2			POR 3		
	Distance (m)	Daytime Level (dBA)		Distance (m)	Daytime Level (dBA)		Distance (m)	Daytime Level (dBA)	
		1.5 m Receptor Height	4.5 m Receptor Height		1.5 m Receptor Height	4.5 m Receptor Height		1.5 m Receptor Height	4.5 m Receptor Height
Loader	432	35.9	36.1	317	38.7	39.1	631	32.2	32.4
Excavator	425	35.2	35.6	307	37.7	38.4	630	31.2	31.6
Stacker, Screening Plant, & Loader	421	44.8	45.1	305	47.5	48	640	40.3	40.6
Truck Traffic	328	26.2	24.6	234	28.6	28.6	368	21.6	22.2
TOTAL	N/A	45.8	46.1	N/A	48.4	49	N/A	41.4	41.7

Note: For both Table's 2 and 3, distances from the on-site vehicle traffic to the POR's are taken from the closest point on the travel path to the particular receptor

For the identified noise sources, the source sound-power data is corrected for distance, directional characteristics, and other absorption effects in order to predict the sound level at the points of reception. To accomplish this, the model uses the following general equation:

$$L_w = L_P + 20\log(r) + 11 \pm DI_\theta \pm ground\ \&\ atmospheric\ corrections$$

Through utilization of the Brüel & Kjær Predictor software, the impact on the identified PORs from the noise sources, in absence of any ambient noise contributors from nearby road traffic or stationary noise sources was calculated. Appendix I provides the output from the Predictor model, which includes the identifying labels for the three representative points of reception (PORs). It is worthy to note that every effort was taken in the above analysis to present the worst-case scenario.

Acoustic Assessment

All of the measured noise source emissions considered in this study fall within the definition of a stationary noise source. The site location is an urban environment classified as Class 2 as defined by the MOE in the Model Municipal Noise Control By-Law NPC-205, and further expanded on in NPC-232. No site noise monitoring was performed at the nearby PORs, and as such, the MOE noise exclusion limits will be used for determination of compliance. For a steady stationary noise source, the allowable exclusion limits at the nearest residential receptor during the day from 07:00 to 19:00 hours is 50 dBA. The 50 dBA limit is applicable during daytime hours at the 1.5 m receptor height but the 4.5 receptor height is also included to appropriately represent worst-case operating conditions during the daytime at the residential dwellings.

Table 4 is an Acoustic Assessment Summary Table, which summarizes the predicted worst-case sound levels at the points of reception based on the modeling of the noise sources for the proposed pit.

Table 4: Acoustic Assessment Summary

POR ID	Predicted Sound Level at POR, 1.5 m Height (dBA)	Predicted Sound Level at POR, 4.5 m Height (dBA)	Verified by Acoustic Audit (Yes/No)	Performance Limit (LAeq) Day	Compliance with Performance Limits (Yes/No)
POR 1	45.8	46.1	No	50	Yes
POR 2	48.4	49	No	50	Yes
POR 3	48.2	48.6	No	50	Yes

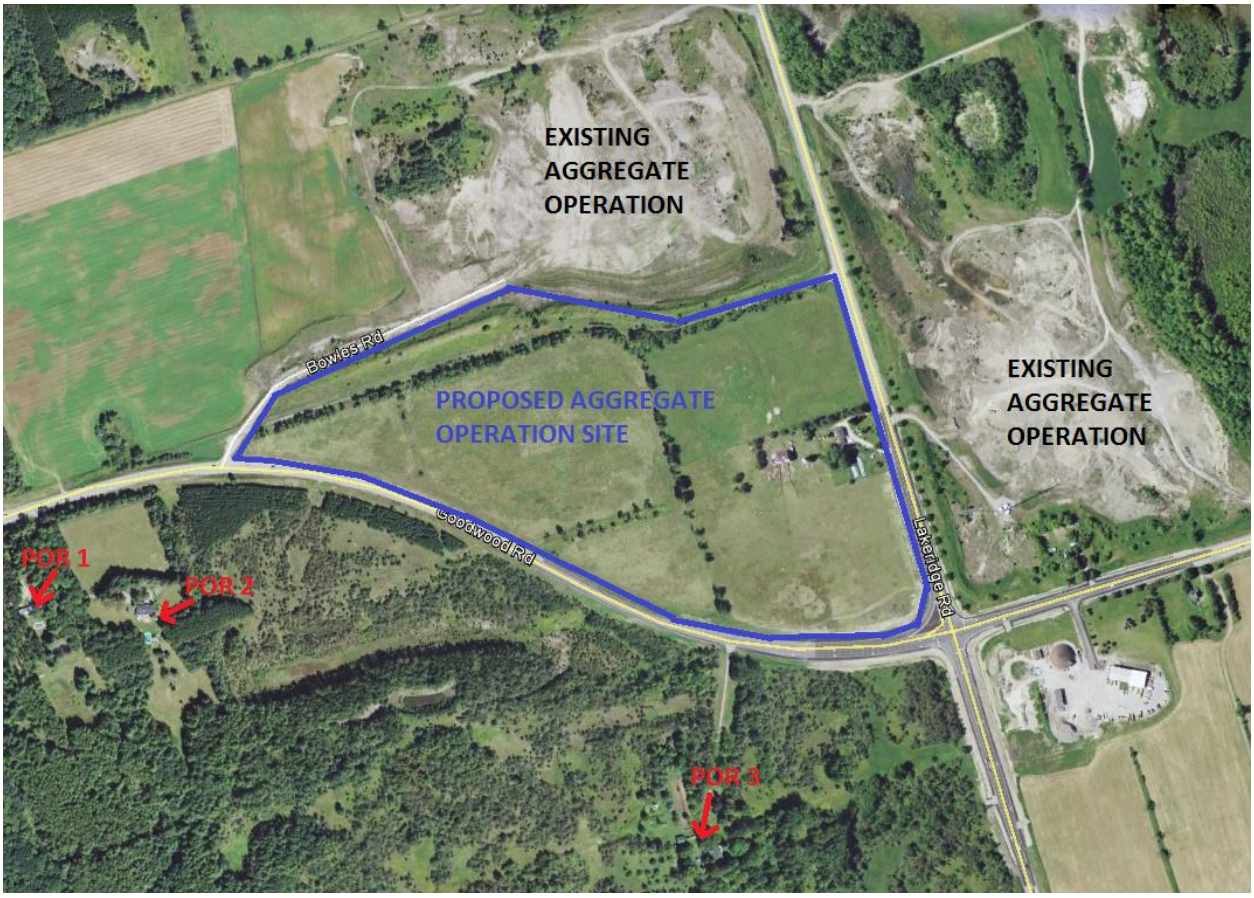
From the Predictor noise propagation modeling results, using the measured equipment noise data, it is demonstrated that the proposed aggregate pit meets all noise requirements for daytime operations given the conditions detailed in this report. That is, the predicted worst-case sound levels are less than the above established limit, as defined by NPC-205 and NPC-232 provided that operations are during the daytime period only and that the Phase 2 excavation operations do not exceed the berm boundary at the west end of the property as given in Appendix C4. It should be noted that effort was taken to represent the worst case operating conditions. A contour plot of the calculated model results for each phase of operation is provided in Appendix I. Modeling was also completed for operations at the west corner of the property, with and without the recommended 60 m extension of the berm. Contour plots for these two cases are provided in Appendix I.

Conclusions

A noise impact analysis using a noise propagation model for the representative residential receptors has demonstrated that the expected worst-case noise emissions from the proposed pit comply with all requirements of the applicable NPC documents for the restricted operation period to daytime hours, being 7am to 7pm. As such, the operations of this pit do not require mitigation procedures, permitting that the Phase 2 excavation operations do not exceed the berm boundary at the west end of the property.

For akoustik engineering limited		
	Prepared by: **Peter D'Angela, BASc., EIT**	**Reviewed by:** **Colin Novak, Ph.D., PEng**

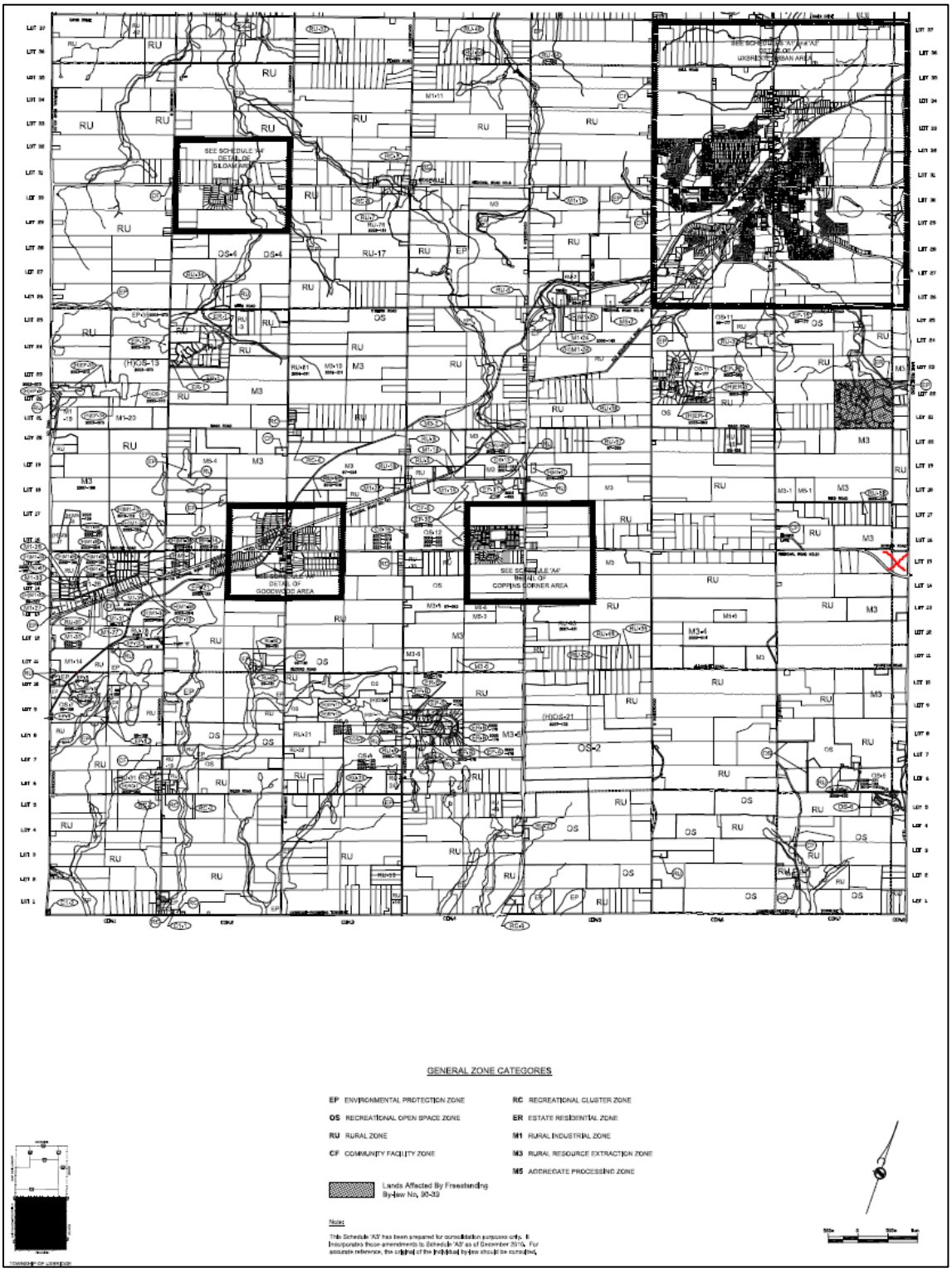
Appendix A: Proposed Site Location



A1: Aerial View of Proposed Pit Location and Nearby Points of Reception

A2: Proposed Site Location and Vicdom Processing Facility

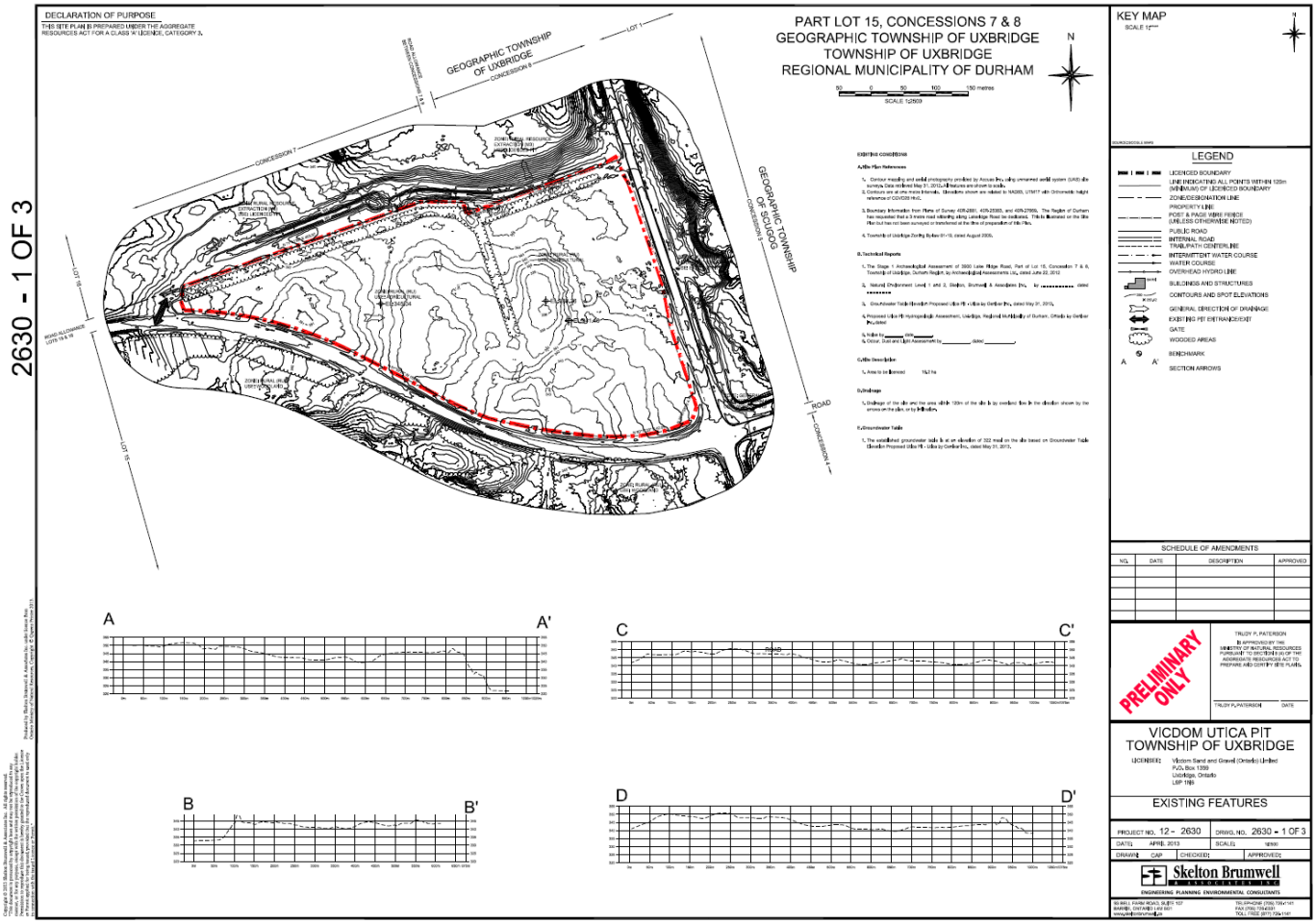
Appendix B: Zoning Map Layout



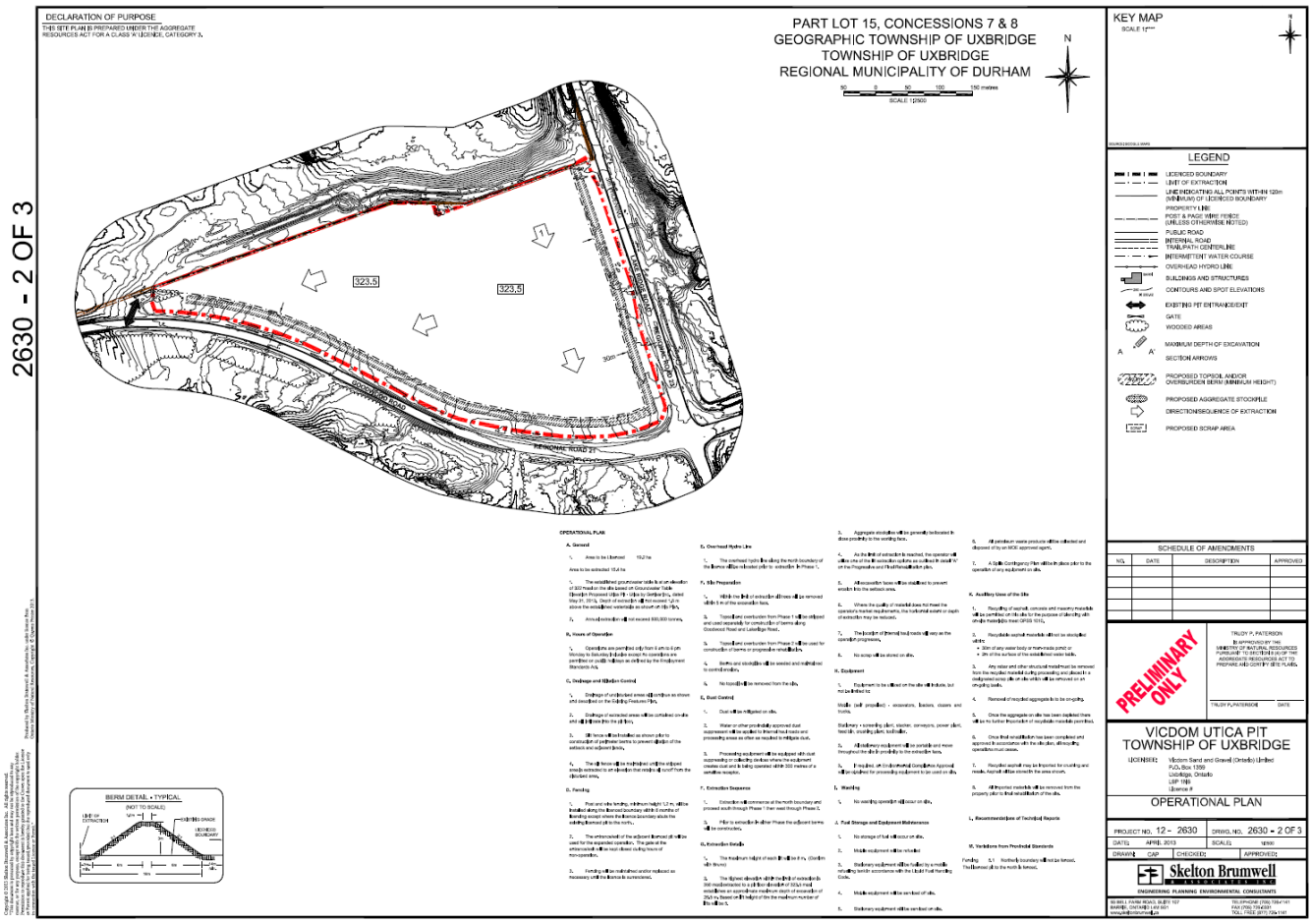
B1: Zoning Map – Schedule A3 Township of Uxbridge (Proposed Pit Marked with red "X")

Appendix C: Proposed Pit Layout

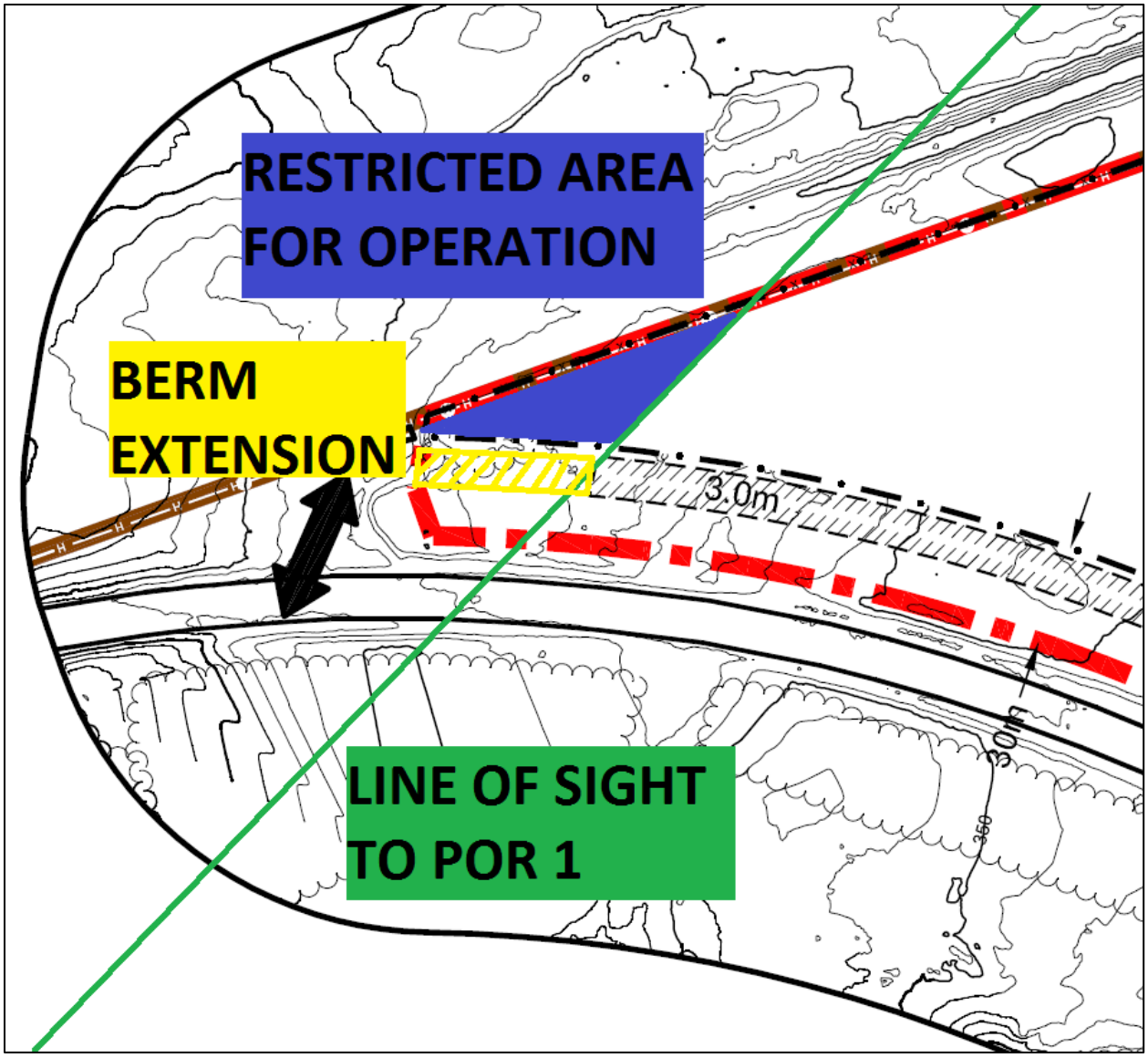
C1: Proposed Pit Concept Plan Layout



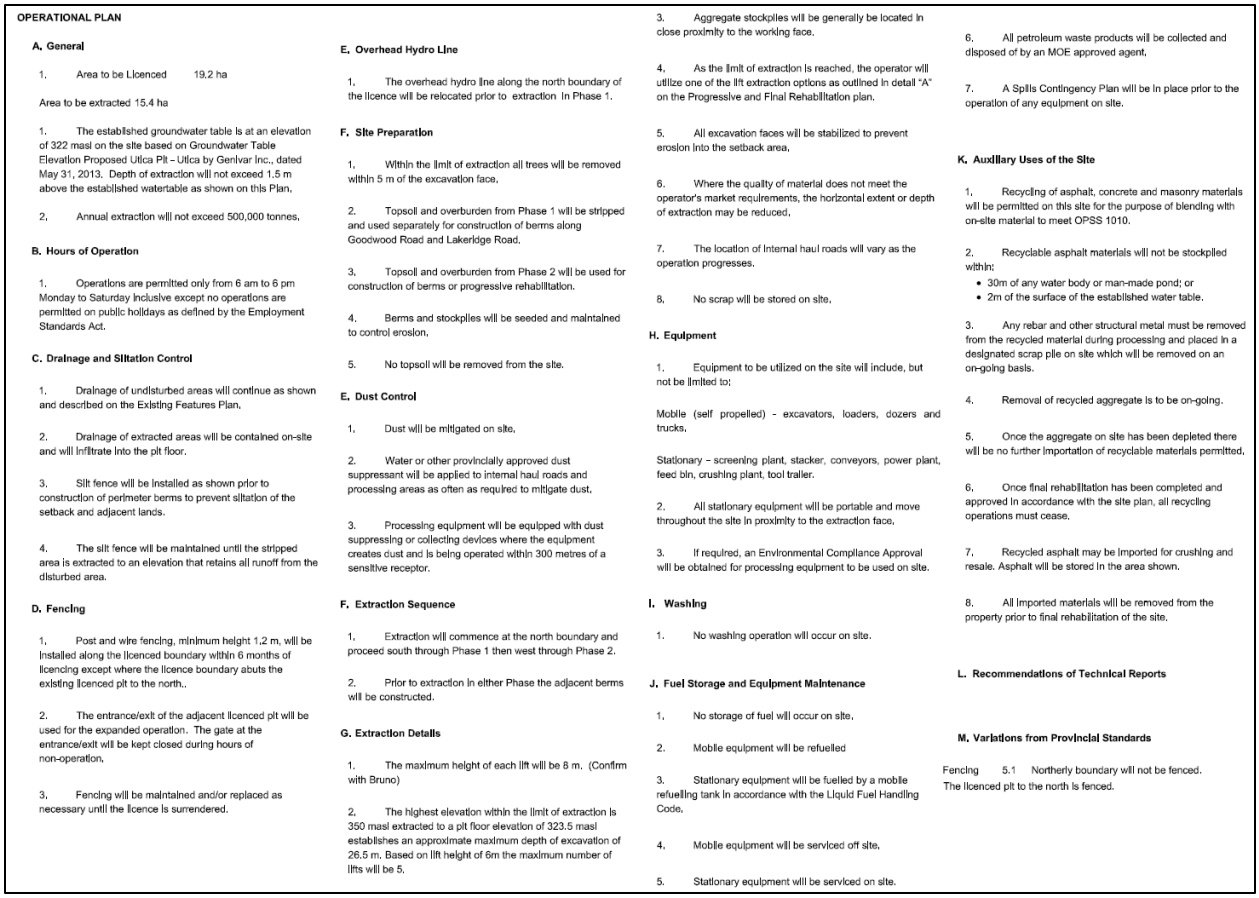
C2: Existing Features of Proposed Pit



C3: Proposed Pit Operational Plan Layout



C4: Restricted Area for Operation and Proposed Berm Extension (60 m) at West End of Property, Based on Acoustical Assessment



OPERATIONAL PLAN

A. General

1. Area to be Licenced 19.2 ha

Area to be extracted 15.4 ha

1. The established groundwater table is at an elevation of 322 masl on the site based on Groundwater Table Elevation Proposed Utica Pit – Utica by Genivar Inc., dated May 31, 2013. Depth of extraction will not exceed 1.5 m above the established watertable as shown on this Plan.

2. Annual extraction will not exceed 500,000 tonnes.

B. Hours of Operation

1. Operations are permitted only from 6 am to 6 pm Monday to Saturday inclusive except no operations are permitted on public holidays as defined by the Employment Standards Act.

C. Drainage and Siltation Control

1. Drainage of undisturbed areas will continue as shown and described on the Existing Features Plan.

2. Drainage of extracted areas will be contained on-site and will infiltrate into the pit floor.

3. Silt fence will be installed as shown prior to construction of perimeter berms to prevent siltation of the setback and adjacent lands.

4. The silt fence will be maintained until the stripped area is extracted to an elevation that retains all runoff from the disturbed area.

D. Fencing

1. Post and wire fencing, minimum height 1.2 m, will be installed along the licenced boundary within 6 months of licencing except where the licence boundary abuts the existing licenced pit to the north..

2. The entrance/exit of the adjacent licenced pit will be used for the expanded operation. The gate at the entrance/exit will be kept closed during hours of non-operation.

3. Fencing will be maintained and/or replaced as necessary until the licence is surrendered.

E. Overhead Hydro Line

1. The overhead hydro line along the north boundary of the licence will be relocated prior to extraction in Phase 1.

F. Site Preparation

1. Within the limit of extraction all trees will be removed within 5 m of the excavation face.

2. Topsoil and overburden from Phase 1 will be stripped and used separately for construction of berms along Goodwood Road and Lakeridge Road.

3. Topsoil and overburden from Phase 2 will be used for construction of berms or progressive rehabilitation.

4. Berms and stockpiles will be seeded and maintained to control erosion.

5. No topsoil will be removed from the site.

E. Dust Control

1. Dust will be mitigated on site.

2. Water or other provincially approved dust suppressant will be applied to internal haul roads and processing areas as often as required to mitigate dust.

3. Processing equipment will be equipped with dust suppressing or collecting devices where the equipment creates dust and is being operated within 300 metres of a sensitive receptor.

F. Extraction Sequence

1. Extraction will commence at the north boundary and proceed south through Phase 1 then west through Phase 2.

2. Prior to extraction in either Phase the adjacent berms will be constructed.

G. Extraction Details

1. The maximum height of each lift will be 8 m. (Confirm with Bruno)

2. The highest elevation within the limit of extraction is 350 masl extracted to a pit floor elevation of 323.5 masl establishes an approximate maximum depth of excavation of 26.5 m. Based on lift height of 6m the maximum number of lifts will be 5.

3. Aggregate stockpiles will be generally be located in close proximity to the working face.

4. As the limit of extraction is reached, the operator will utilize one of the lift extraction options as outlined in detail "A" on the Progressive and Final Rehabilitation plan.

5. All excavation faces will be stabilized to prevent erosion into the setback area.

6. Where the quality of material does not meet the operator's market requirements, the horizontal extent or depth of extraction may be reduced.

7. The location of internal haul roads will vary as the operation progresses.

8. No scrap will be stored on site.

H. Equipment

1. Equipment to be utilized on the site will include, but not be limited to:

Mobile (self propelled) - excavators, loaders, dozers and trucks.

Stationary – screening plant, stacker, conveyors, power plant, feed bin, crushing plant, tool trailer.

2. All stationary equipment will be portable and move throughout the site in proximity to the extraction face.

3. If required, an Environmental Compliance Approval will be obtained for processing equipment to be used on site.

I. Washing

1. No washing operation will occur on site.

J. Fuel Storage and Equipment Maintenance

1. No storage of fuel will occur on site.

2. Mobile equipment will be refuelled

3. Stationary equipment will be fuelled by a mobile refuelling tank in accordance with the Liquid Fuel Handling Code.

4. Mobile equipment will be serviced off site.

5. Stationary equipment will be serviced on site.

6. All petroleum waste products will be collected and disposed of by an MOE approved agent.

7. A Spills Contingency Plan will be in place prior to the operation of any equipment on site.

K. Auxillary Uses of the Site

1. Recycling of asphalt, concrete and masonry materials will be permitted on this site for the purpose of blending with on-site material to meet OPSS 1010.

2. Recyclable asphalt materials will not be stockpiled within:
   - 30m of any water body or man-made pond; or
   - 2m of the surface of the established water table.

3. Any rebar and other structural metal must be removed from the recycled material during processing and placed in a designated scrap pile on site which will be removed on an on-going basis.

4. Removal of recycled aggregate is to be on-going.

5. Once the aggregate on site has been depleted there will be no further importation of recyclable materials permitted.

6. Once final rehabilitation has been completed and approved in accordance with the site plan, all recycling operations must cease.

7. Recycled asphalt may be imported for crushing and resale. Asphalt will be stored in the area shown.

8. All imported materials will be removed from the property prior to final rehabilitation of the site.

L. Recommendations of Technical Reports

M. Variations from Provincial Standards

Fencing 5.1 Northerly boundary will not be fenced. The licenced pit to the north is fenced.

C5: Proposed Pit Operation Plan Information

Appendix D: Manufacturer Equipment Specifications

L220E – BUILT FOR HIGH PRODUCTIVITY

The Volvo L220E is a smart machine. Perhaps the smartest ever. And we're not just referring to all the innovative solutions we've built into it. After all, the point of any wheel loader is moving material as cheaply and quickly as possible. And this is where the L220E excels. Thanks to its low rev engine, perfectly matched drivetrain and wide range of attachments, the L220E can move more material per unit of fuel than any competing wheel loader. Ultimately, it's the machine that allows you to get a lot more done with a lot less effort.

The Volvo L220E features an electronically-controlled, high-performance, low-emission Volvo engine, fully automatic countershaft transmission, a load sensing hydraulic system, Volvo's unique Torque Parallel Linkage (TP Linkage) and the comfortable Volvo Care Cab. The L220E is a concentration of smart solutions, making it an extremely powerful and operator friendly machine. At the end of the day, it's the only choice if you want to move more material for every unit of fuel.

More work, less effort
The interplay between a powerful engine and a smart transmission always ensures rapid response, while the steering system makes maneuvering smooth and precise at all times. TP Linkage, with its superior breakout torque and penetration, allows the L220E to attack the material and fill the bucket to capacity. The result is quicker, more relaxed work cycles. In fact, the L220E is an operator's dream - a truth that becomes immediately apparent as soon as you step into the cab. All the levers and controls are exactly where you expect them to be – ergonomically-designed, easy-to-use and easy-to-read. The air is clean and fresh and noise levels are low. Volvo's Care Cab is quite simply the most advanced operator environment on the loader market today.

A great deal for your investment
Proven reliability, excellent financing, extremely low fuel consumption and a high trade-in value provide the cornerstones of a safe investment. Add to that outstanding handling and productivity, a market-leading operator environment to protect the person in the machine, quick and simple daily maintenance and modest service requirements.

And what do you get? The most cost efficient loader in its class, delivering unparalleled profitability – both now and in years to come.

With the L220E, everybody is a winner. Quite simply, a great deal for your money.

Specifications L220E

Engine:	Volvo D12C LB E2	
Max. power at	26,7 r/s	**(1600 r/min)**
SAE J1995 gross:	259 kW	**(352 hp)**
ISO 9249, SAE J1349 net:	258 kW	**(351 hp)**
Breakout force:	222,9 kN*	**(50,110 lbf)**
Static tipping load at full turn:	20 740 kg*	**(45,720 lb)**
Buckets:	4,5-14,0 m^3	**(5.9–18.3 yd^3)**
Log grapples:	1,7-4,0 m^2	**(18.3–43.1 ft^2)**
Operating weight:	31,0-33,0 t	**(68,340–72,750 lb)**
Tires:	29.5 R25 875/65 R29	

* Bucket: 5,4 m^3 **(7.1 yd^3)** with bolt-on edges, Tires: 29,5 R25 L4, Standard boom

D1: Volvo L220E Wheel Loader Specifications, Page 2

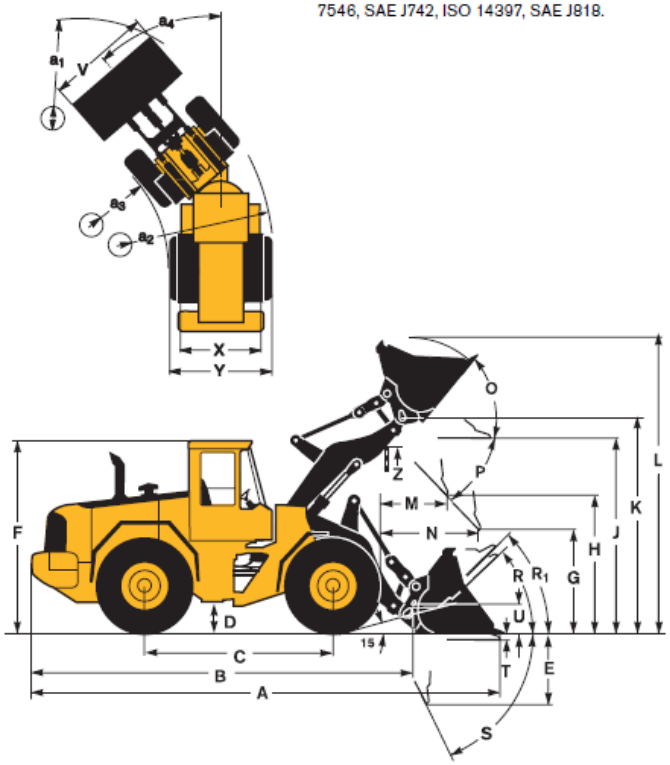
SPECIFICATIONS

Tires: 29.5 R25 L4

	Standard boom		Long boom	
B	7440 mm	24'5"	7750 mm	25'5"
C	3700 mm	12'2"	———	
D	510 mm	1'8"	———	
F	3730 mm	12'3"	———	
G	2130 mm	7'0"	———	
J	4260 mm	14'0"	4620 mm	15'2"
K	4680 mm	15'4"	5050 mm	16'7"
O	56 °		———	
P_{max}	47 °		———	
R	43 °		44 °	
R_1*	47 °		———	
S	65 °		62 °	
T	90 mm	0'3.6"	———	
U	590 mm	1'11"	———	
X	2400 mm	7'10"	———	
Y	3170 mm	10'5"	———	
Z	4060 mm	13'4"	4400 mm	14'5"
a_2	7110 mm	23'4"	———	
a_3	3940 mm	12'11"	———	
a_4	±37 °		———	

* Carry position SAE

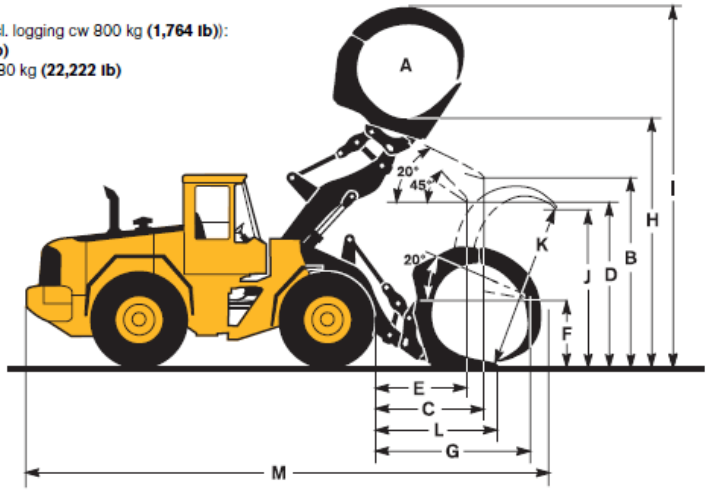
Where applicable, specifications and dimensions are in accordance with ISO 7131, SAE J732, ISO 7546, SAE J742, ISO 14397, SAE J818.



Tires: 875/65 R29 L4

A	4,0 m²	43,1 ft²
B	3900 mm	12'9"
C	2280 mm	7'6"
D	3140 mm	10'4"
E	1780 mm	5'9"
F	1620 mm	5'4"
G	3230 mm	10'7"
H	5330 mm	17'6"
I	7700 mm	25'3"
J	3620 mm	11'11"
K	3940 mm	12'11"
L	2650 mm	8'8"
M	10 380 mm	34'1"

Operating weight (incl. logging cw 800 kg **(1,764 lb)**):
32 490 kg **(71,628 lb)**
Operating load: 10 080 kg **(22,222 lb)**

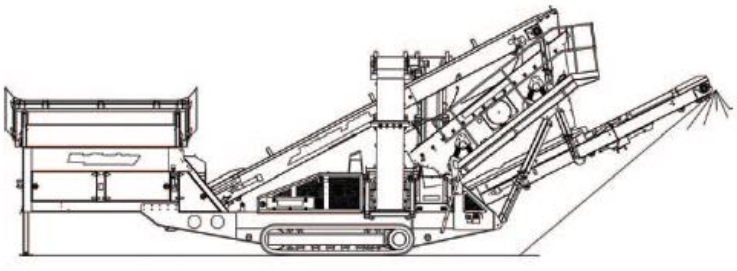


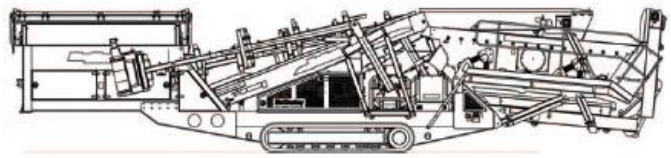
Supplemental Operating Data

Tires 29.5 R25 L4			Standard Boom						Long Boom					
			29.5 R25 L3		29.5 R25 L5		875/65 R29		29.5 R25 L3		29.5 R25 L5		875/65 R29	
Width over tires	mm	in	−20	**−0.8**	+35	**+1.4**	+95	**+3.7**	−20	**−0.8**	+35	**+1.4**	+95	**+3.7**
Ground clearance	mm	in	−20	**−0.8**	+35	**+1.4**	−25	**−1.0**	−20	**−0.8**	+35	**+1.4**	−25	**−1.0**
Tipping load, full turn	kg	lb	−240	**−530**	+855	**+1,880**	+65	**+140**	−230	**−510**	+780	**+1,720**	+70	**+150**
Operating weight	kg	lb	−445	**−980**	+1130	**+2,490**	+290	**+640**	−445	**−980**	+1130	**+2,490**	+290	**+640**

16 (L220E)

D2: Volvo L220E Wheel Loader Specifications, Page 16





S130 Dimensions and weight

Length - transport	15.09m (49'- 6")
Width - transport	2.90m (9'- 6")
Height - transport 2 deck track	3.40m (11'- 2")
Height - transport 2 deck wheel	3.68m (12' - 1")
Weight - 2 deck track	27,200kgs (59,965 lbs) - estimated
Weight - 2 deck wheel	23,000kgs (50,706 lbs) - estimated

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Standard Features

Durability

Branded components throughout- CAT Engine, David Brown Pumps, 2 Pack Paint system.

Heavy duty hardox steel.

Innovative design.

High efficiency diesel hydraulic system allows higher throughput and lower fuel consumption.

Maintenance/User friendly

Accessible engine bays.

Fixed galvanised walkways.

Universal user friendly controls throughout the McCloskey line.

10min setup time.

Highly maneuverable onsite.

Unique user friendly belt adjusters.

Universal dimensions allow meshes to be used throughout the McCloskey S Line.

Authorised dealer.

D3: McCloskey S130 High Energy Screener Specifications, Page 4

Appendix E: Measured Noise Data

E1: Volvo Loader Measured Noise Data

Frequency	LZeq (dB)	A-weighting Correction (dBA)	LAeq (dBA)	Surface Correction (dBA)	Measurement Distance (m)	Calculated Sound Power (dBA)
12.5 Hz	55.85	-63.4	-7.55	2.5	10	20.95
16 Hz	56.57	-63.4	-6.83	2.5	10	21.67
20 Hz	54.31	-50.5	3.81	2.5	10	32.31
25 Hz	55.77	-44.7	11.07	2.5	10	39.57
31.5 Hz	65.39	-39.4	25.99	2.5	10	54.49
40 Hz	60.18	-34.6	25.58	2.5	10	54.08
50 Hz	63.11	-30.2	32.91	2.5	10	61.41
63 Hz	65.93	-26.2	39.73	2.5	10	68.23
80 Hz	70.41	-22.5	47.91	2.5	10	76.41
100 Hz	78.41	-19.1	59.31	2.5	10	87.81
125 Hz	69.02	-16.1	52.92	2.5	10	81.42
160 Hz	71.12	-13.4	57.72	2.5	10	86.22
200 Hz	74.99	-10.9	64.09	2.5	10	92.59
250 Hz	67.87	-8.6	59.27	2.5	10	87.77
315 Hz	67.61	-6.6	61.01	2.5	10	89.51
400 Hz	67	-4.8	62.2	2.5	10	90.70
500 Hz	73.27	-3.2	70.07	2.5	10	98.57
630 Hz	71.75	-1.9	69.85	2.5	10	98.35
800 Hz	67.08	-0.8	66.28	2.5	10	94.78
1 kHz	66.05	0	66.05	2.5	10	94.55
1.25 kHz	68.02	0.6	68.62	2.5	10	97.12
1.6 kHz	65.66	1	66.66	2.5	10	95.16
2 kHz	64.15	1.2	65.35	2.5	10	93.85
2.5 kHz	61.62	1.3	62.92	2.5	10	91.42
3.15 kHz	58.74	1.2	59.94	2.5	10	88.44
4 kHz	57.17	1	58.17	2.5	10	86.67
5 kHz	53.81	0.5	54.31	2.5	10	82.81
6.3 kHz	50.79	-0.1	50.69	2.5	10	79.19
8 kHz	47.34	-1.1	46.24	2.5	10	74.74
10 kHz	44.06	-2.5	41.56	2.5	10	70.06
12.5 kHz	40.93	-4.3	36.63	2.5	10	65.13
16 kHz	36.2	-6.6	29.6	2.5	10	58.10
20 kHz	31.65	-9.3	22.35	2.5	10	50.85
						105.95

E2: Excavator Measured Noise Data

Frequency	LZeq (dB)	A-weighting Correction (dBA)	LAeq (dBA)	Surface Correction (dBA)	Measurement Distance (m)	Calculated Sound Power (dBA)
12.5 Hz	64.40	-63.4	1.003215	2.5	10	29.50
16 Hz	68.27	-63.4	4.874553	2.5	10	33.37
20 Hz	61.95	-50.5	11.45175	2.5	10	39.95
25 Hz	61.53	-44.7	16.82609	2.5	10	45.33
31.5 Hz	63.16	-39.4	23.75945	2.5	10	52.26
40 Hz	62.23	-34.6	27.63071	2.5	10	56.13
50 Hz	63.52	-30.2	33.3234	2.5	10	61.82
63 Hz	65.28	-26.2	39.07908	2.5	10	67.58
80 Hz	67.74	-22.5	45.23758	2.5	10	73.74
100 Hz	80.23	-19.1	61.13248	2.5	10	89.63
125 Hz	68.58	-16.1	52.47995	2.5	10	80.98
160 Hz	80.07	-13.4	66.66788	2.5	10	95.17
200 Hz	69.26	-10.9	58.35518	2.5	10	86.86
250 Hz	66.52	-8.6	57.92087	2.5	10	86.42
315 Hz	69.78	-6.6	63.18142	2.5	10	91.68
400 Hz	66.72	-4.8	61.92206	2.5	10	90.42
500 Hz	70.18	-3.2	66.97919	2.5	10	95.48
630 Hz	72.02	-1.9	70.12387	2.5	10	98.62
800 Hz	68.75	-0.8	67.95449	2.5	10	96.45
1 kHz	67.90	0	67.89639	2.5	10	96.40
1.25 kHz	67.48	0.6	68.08099	2.5	10	96.58
1.6 kHz	65.99	1	66.99408	2.5	10	95.49
2 kHz	65.99	1.2	67.18805	2.5	10	95.69
2.5 kHz	62.37	1.3	63.66667	2.5	10	92.17
3.15 kHz	60.28	1.2	61.48381	2.5	10	89.98
4 kHz	61.15	1	62.15417	2.5	10	90.65
5 kHz	57.51	0.5	58.0105	2.5	10	86.51
6.3 kHz	56.06	-0.1	55.95664	2.5	10	84.46
8 kHz	53.92	-1.1	52.81777	2.5	10	81.32
10 kHz	51.47	-2.5	48.97243	2.5	10	77.47
12.5 kHz	47.41	-4.3	43.11301	2.5	10	71.61
16 kHz	42.81	-6.6	36.2118	2.5	10	64.71
20 kHz	38.27	-9.3	28.96795	2.5	10	57.47
						106.43

E3: Volvo Loader, Screening Plant, and Conveyor/Stacker Unit Measured Noise Data

Frequency	LZeq (dB)	A-weighting Correction (dBA)	LAeq (dBA)	Surface Correction (dBA)	Measurement Distance (m)	Calculated Sound Power (dBA)
12.5 Hz	58.09	-63.4	-5.31	2.5	30	32.73
16 Hz	74.35	-63.4	10.95	2.5	30	48.99
20 Hz	64.95	-50.5	14.45	2.5	30	52.49
25 Hz	61.56	-44.7	16.86	2.5	30	54.90
31.5 Hz	68.1	-39.4	28.7	2.5	30	66.74
40 Hz	77.73	-34.6	43.13	2.5	30	81.17
50 Hz	75.83	-30.2	45.63	2.5	30	83.67
63 Hz	72.56	-26.2	46.36	2.5	30	84.40
80 Hz	72	-22.5	49.5	2.5	30	87.54
100 Hz	77.83	-19.1	58.73	2.5	30	96.77
125 Hz	72.09	-16.1	55.99	2.5	30	94.03
160 Hz	69.17	-13.4	55.77	2.5	30	93.81
200 Hz	69.26	-10.9	58.36	2.5	30	96.40
250 Hz	67.21	-8.6	58.61	2.5	30	96.65
315 Hz	69.46	-6.6	62.86	2.5	30	100.90
400 Hz	63.55	-4.8	58.75	2.5	30	96.79
500 Hz	61.96	-3.2	58.76	2.5	30	96.80
630 Hz	66.37	-1.9	64.47	2.5	30	102.51
800 Hz	66.91	-0.8	66.11	2.5	30	104.15
1 kHz	66.4	0	66.4	2.5	30	104.44
1.25 kHz	69.55	0.6	70.15	2.5	30	108.19
1.6 kHz	68.25	1	69.25	2.5	30	107.29
2 kHz	66.18	1.2	67.38	2.5	30	105.42
2.5 kHz	65.86	1.3	67.16	2.5	30	105.20
3.15 kHz	66.57	1.2	67.77	2.5	30	105.81
4 kHz	64.27	1	65.27	2.5	30	103.31
5 kHz	63.21	0.5	63.71	2.5	30	101.75
6.3 kHz	61.76	-0.1	61.66	2.5	30	99.70
8 kHz	59.78	-1.1	58.68	2.5	30	96.72
10 kHz	57.25	-2.5	54.75	2.5	30	92.79
12.5 kHz	53.05	-4.3	48.75	2.5	30	86.79
16 kHz	46.34	-6.6	39.74	2.5	30	77.78
20 kHz	38.13	-9.3	28.83	2.5	30	66.87
						115.93

E4: Truck Measured Noise Data at 40 km/h

Frequency	LZeq (dB)	A-weighting Correction (dBA)	LAeq (dBA)	Surface Correction (dBA)	Measurement Distance (m)	Calculated Sound Power (dBA)
12.5 Hz	72.6	-63.4	9.2	3	20	43.22
16 Hz	73.1	-63.4	9.7	3	20	43.72
20 Hz	73.7	-50.5	23.2	3	20	57.22
25 Hz	68.9	-44.7	24.2	3	20	58.22
31.5 Hz	66.9	-39.4	27.5	3	20	61.52
40 Hz	68.3	-34.6	33.7	3	20	67.72
50 Hz	67.4	-30.2	37.2	3	20	71.22
63 Hz	72.7	-26.2	46.5	3	20	80.52
80 Hz	65.7	-22.5	43.2	3	20	77.22
100 Hz	63.6	-19.1	44.5	3	20	78.52
125 Hz	63.2	-16.1	47.1	3	20	81.12
160 Hz	57.2	-13.4	43.8	3	20	77.82
200 Hz	57.7	-10.9	46.8	3	20	80.82
250 Hz	57.6	-8.6	49	3	20	83.02
315 Hz	53.9	-6.6	47.3	3	20	81.32
400 Hz	53.7	-4.8	48.9	3	20	82.92
500 Hz	57.9	-3.2	54.7	3	20	88.72
630 Hz	56.1	-1.9	54.2	3	20	88.22
800 Hz	57	-0.8	56.2	3	20	90.22
1 kHz	57.8	0	57.8	3	20	91.82
1.25 kHz	58.2	0.6	58.8	3	20	92.82
1.6 kHz	57.2	1	58.2	3	20	92.22
2 kHz	56.3	1.2	57.5	3	20	91.52
2.5 kHz	53.2	1.3	54.5	3	20	88.52
3.15 kHz	51	1.2	52.2	3	20	86.22
4 kHz	47.5	1	48.5	3	20	82.52
5 kHz	45.3	0.5	45.8	3	20	79.82
6.3 kHz	43.7	-0.1	43.6	3	20	77.62
8 kHz	41.8	-1.1	40.7	3	20	74.72
10 kHz	38.6	-2.5	36.1	3	20	70.12
12.5 kHz	35	-4.3	30.7	3	20	64.72
16 kHz	29.9	-6.6	23.3	3	20	57.32
20 kHz	12.37	-9.3	3.07	3	20	37.09
						100.64

Appendix F: Photographs of Noise Sources

F1: Volvo Front Wheel Loader

F2: Excavator

F3: McCloskey Screener

F4: Conveyor/Stacker Unit

F5: Volvo Front Wheel Loader (Left), McCloskey Screener (Middle), and Conveyor/Stacker Unit (Right)

F6: Haul Truck

Appendix G: Measurement Equipment List

The following is the list of equipment used to perform the noise measurements:

Type 2250 Light Brüel & Kjær Sound Level Meter	Serial No. 2602712
Type 2250 Light Brüel & Kjær Sound Level Meter	Serial No. 2602713
Type 2250 Light Brüel & Kjær Sound Level Meter	Serial No. 2602714
Type 4231 Brüel & Kjær Microphone Calibrator	Serial No. 2699470

Both meters were checked for calibration before and after the measurement period and were found to be within the calibration limits specified by the guidelines published in the Ontario Ministry of the Environment and Energy guidelines of the Model Municipal Noise Control By-Law, Final Report, August, 1978 and other subsequent guidelines published thereafter by the Ministry. The battery levels remained within the acceptable levels during the measuring period.

Appendix H: Predictor Input Data

Model: initial model
version of Area – Area

Listing of: Grids, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Desc. Height Terrain L DeltaX DeltaY
G1 Grid 1 1.50 0.00 50 50

Listing of: Height lines, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Desc. ISO H
HL1 Height Line 1 0.00
HL2 Height Line 1 4.00
HL-Pit Pit 0.00
HL-Outer Outside of Pit 0.00

Listing of: Moving source, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Desc. ISO H ISO Terr. HDef. Flow(D) Flow(N) Cb(D) Cb(N) Avg.speed Max.dist. Lw 1
MS1 Trucks 1.00 0.00 Relative to Objects 150 -- 15.51 -- 40 100.00 --

Listing of: Moving source, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Lw 2 Lw 3 Lw 4 Lw 5 Lw 6 Lw 7 Lw 8 Lw 9 Lw 10 Lw 11 Lw 12 Lw 13 Lw 14 Lw 15 Lw 16
MS1 -- -- 82.52 -- -- 84.17 -- -- 86.60 -- -- 92.05 -- -- 96.52

Listing of: Moving source, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Lw 17 Lw 18 Lw 19 Lw 20 Lw 21 Lw 22 Lw 23 Lw 24 Lw 25 Lw 26 Lw 27 Red 1 Red 2 Red 3
MS1 -- -- 95.80 -- -- 88.41 -- -- 79.90 -- -- 0.00 0.00 0.00

Listing of: Moving source, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Red 4 Red 5 Red 6 Red 7 Red 8 Red 9 Red 10 Red 11 Red 12 Red 13 Red 14 Red 15
MS1 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Listing of: Moving source, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Red 16 Red 17 Red 18 Red 19 Red 20 Red 21 Red 22 Red 23 Red 24 Red 25 Red 26 Red 27
MS1 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Listing of: Point sources, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Desc. Height Terrain L HDef. Type Dir. Angle
PS1 Volvo Loader 2.00 0.00 Relative to Objects Normal point source 0.00 360.00
PS2 Excavator 2.00 0.00 Relative to Objects Normal point source 0.00 360.00
PS3 Stacker and Screening Plant 2.00 0.00 Relative to Objects Normal point source 0.00 360.00

Listing of: Point sources, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Ca(D) Ca(N) No refl. No building No ind.site Lw 1 Lw 2 Lw 3 Lw 4 Lw 5 Lw 6 Lw 7 Lw 8 Lw 9
PS1 0.00 0.00 No No No -- -- -- 77.14 -- -- 90.65 -- --
PS2 0.00 0.00 No No No -- -- -- 63.22 -- -- 89.77 -- --
PS3 0.00 0.00 No No No -- -- -- 90.32 -- -- 99.86 -- --

Listing of: Point sources, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Lw 10 Lw 11 Lw 12 Lw 13 Lw 14 Lw 15 Lw 16 Lw 17 Lw 18 Lw 19 Lw 20 Lw 21 Lw 22 Lw 23 Lw 24
PS1 95.19 -- -- 101.82 -- -- 100.42 -- -- 98.51 -- -- 91.32 -- --
PS2 95.91 -- -- 94.79 -- -- 101.83 -- -- 100.95 -- -- 98.03 -- --
PS3 103.28 -- -- 104.38 -- -- 110.78 -- -- 110.85 -- -- 108.72 -- --

Listing of: Point sources, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Lw 25 Lw 26 Lw 27 Red 1 Red 2 Red 3 Red 4 Red 5 Red 6 Red 7 Red 8 Red 9 Red 10
PS1 80.90 -- -- 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PS2 92.76 -- -- 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PS3 102.03 -- -- 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

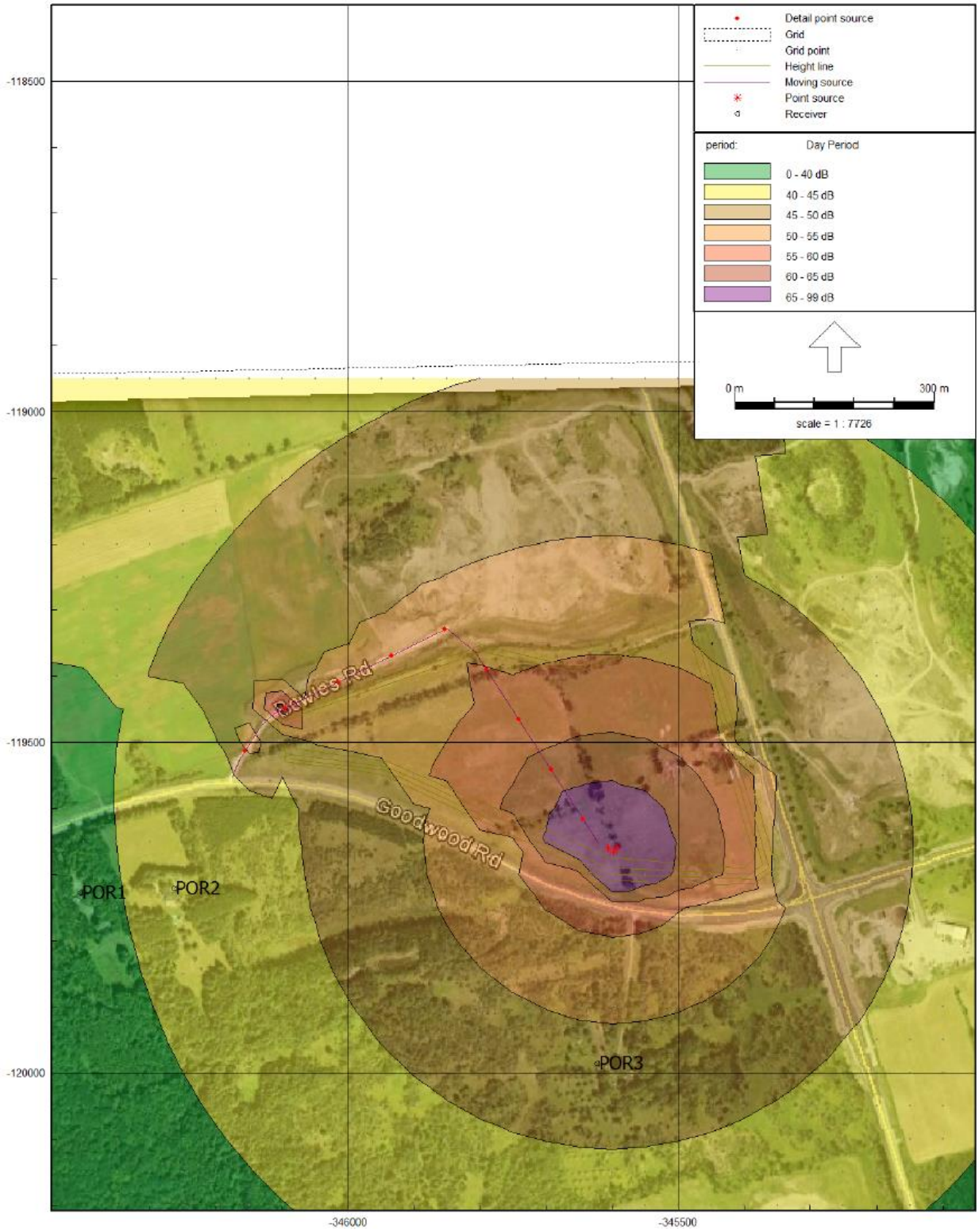
Listing of: Point sources, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Red 11 Red 12 Red 13 Red 14 Red 15 Red 16 Red 17 Red 18 Red 19 Red 20 Red 21 Red 22
PS1 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PS2 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
PS3 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Listing of: Point sources, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Red 23 Red 24 Red 25 Red 26 Red 27
PS1 0.00 0.00 0.00 0.00 0.00
PS2 0.00 0.00 0.00 0.00 0.00
PS3 0.00 0.00 0.00 0.00 0.00

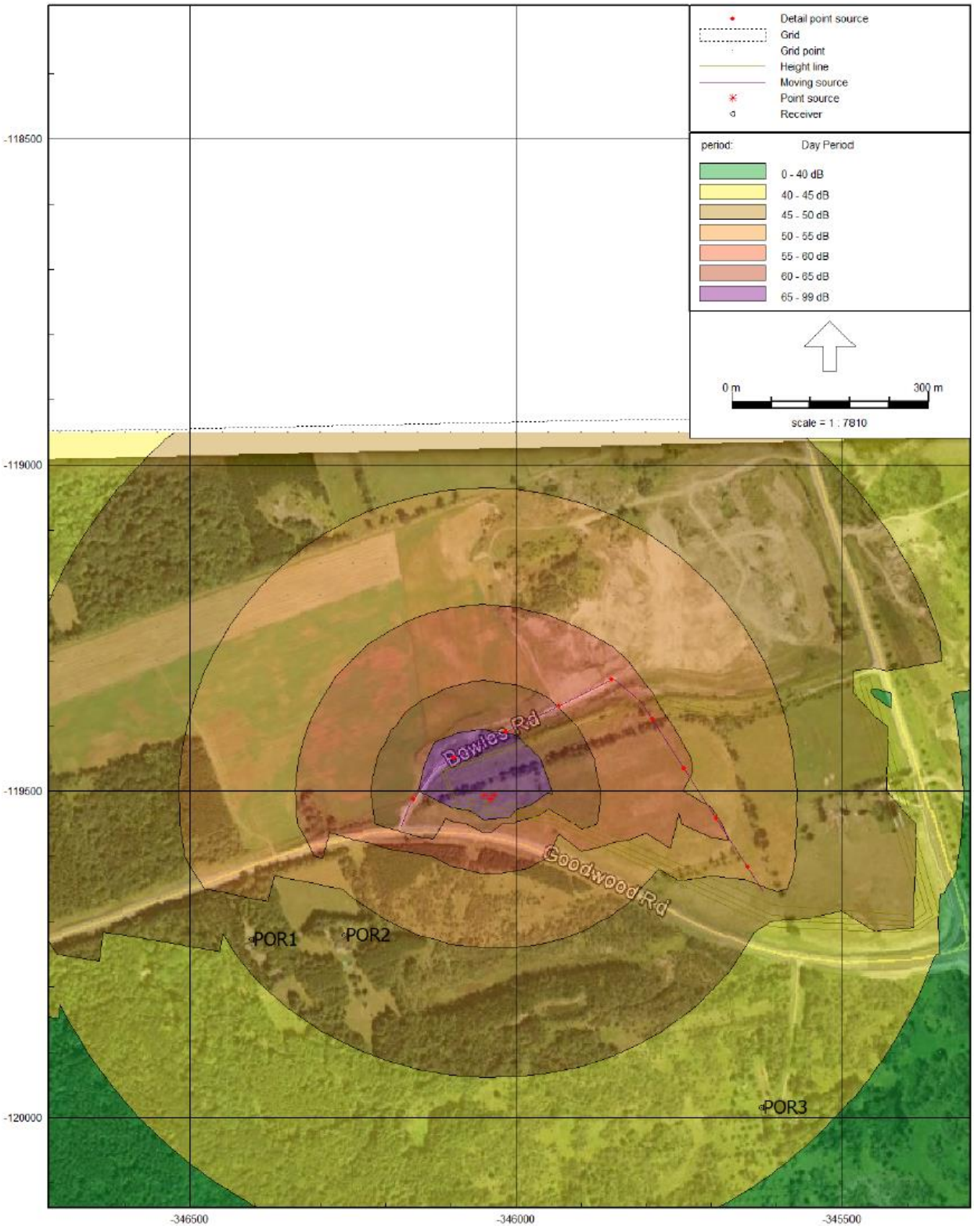
Listing of: Receivers, for method Industrial noise - ISO 9613.1/2 (1/3 Octave)
Name Desc. Terrain L HDef. Height A Height B Height C Height D Height E Height F Façade
POR1 Receiver 1 0.00 Relative 1.50 4.50 -- -- -- -- Yes
POR2 Receiver 2 0.00 Relative 1.50 4.50 -- -- -- -- Yes
POR3 Receiver 3 0.00 Relative 1.50 4.50 -- -- -- -- Yes

03/Predictor V9.01 09/2013 5:29:20 PM

Appendix I: Predictor Output Results



I1: Predictor Modeling Contour Plot – Phase 1



I2: Predictor Modeling Contour Plot – Phase 2

Phase 1

Report: Table of Results
Model: initial model

LAeq: by Source for receiver POR1_A - Receiver 1
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR1_A Receiver 1 1.50 39.1
MS1 Trucks 1.00 26.2
PS1 Volvo Loader 2.00 29.5
PS2 Excavator 2.00 28.5
PS3 Stacker and Screening Plant 2.00 37.8

LAeq: by Source for receiver POR2_A - Receiver 2
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR2_A Receiver 2 1.50 41.3
MS1 Trucks 1.00 28.6
PS1 Volvo Loader 2.00 31.5
PS2 Excavator 2.00 30.6
PS3 Stacker and Screening Plant 2.00 40.0

LAeq: by Source for receiver POR3_A - Receiver 3
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR3_A Receiver 3 1.50 48.2
MS1 Trucks 1.00 21.6
PS1 Volvo Loader 2.00 38.5
PS2 Excavator 2.00 37.9
PS3 Stacker and Screening Plant 2.00 47.2

LAeq: by Source for receiver POR1_B - Receiver 1
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR1_B Receiver 1 4.50 39.3
MS1 Trucks 1.00 26.4
PS1 Volvo Loader 2.00 29.7

PS2 Excavator 2.00 28.9
PS3 Stacker and Screening Plant 2.00 38.1

LAeq: by Source for receiver POR2_B - Receiver 2
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR2_B Receiver 2 4.50 41.5
MS1 Trucks 1.00 28.6
PS1 Volvo Loader 2.00 31.7
PS2 Excavator 2.00 31.0
PS3 Stacker and Screening Plant 2.00 40.3

LAeq: by Source for receiver POR3_B - Receiver 3
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR3_B Receiver 3 4.50 48.6
MS1 Trucks 1.00 22.2
PS1 Volvo Loader 2.00 38.8
PS2 Excavator 2.00 38.4
PS3 Stacker and Screening Plant 2.00 47.6

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Note: A and B refer to 1.5 m and 4.5 m impact height respectively (all values shown are dBA)

Phase 2

Report: Table of Results
Model: initial model

LAeq: by Source for receiver POR1_A - Receiver 1
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR1_A Receiver 1 1.50 45.8
MS1 Trucks 1.00 26.2
PS1 Volvo Loader 2.00 35.9
PS2 Excavator 2.00 35.2
PS3 Stacker and Screening Plant 2.00 44.8

LAeq: by Source for receiver POR1_B - Receiver 1
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR1_B Receiver 1 4.50 46.1
MS1 Trucks 1.00 26.4
PS1 Volvo Loader 2.00 36.1
PS2 Excavator 2.00 35.6
PS3 Stacker and Screening Plant 2.00 45.1

LAeq: by Source for receiver POR2_A - Receiver 2
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR2_A Receiver 2 1.50 48.4
MS1 Trucks 1.00 28.6
PS1 Volvo Loader 2.00 38.7
PS2 Excavator 2.00 37.7
PS3 Stacker and Screening Plant 2.00 47.5

LAeq: by Source for receiver POR2_B - Receiver 2
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR2_B Receiver 2 4.50 49.0
MS1 Trucks 1.00 28.6
PS1 Volvo Loader 2.00 39.1

PS2 Excavator 2.00 38.4
PS3 Stacker and Screening Plant 2.00 48.0

LAeq: by Source for receiver POR3_A - Receiver 3
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR3_A Receiver 3 1.50 41.4
MS1 Trucks 1.00 21.6
PS1 Volvo Loader 2.00 32.2
PS2 Excavator 2.00 31.2
PS3 Stacker and Screening Plant 2.00 40.3

LAeq: by Source for receiver POR3_B - Receiver 3
Group: (main group)
Group Reduction: No
Name
Source Description Height Day
POR3_B Receiver 3 4.50 41.7
MS1 Trucks 1.00 22.2
PS1 Volvo Loader 2.00 32.4
PS2 Excavator 2.00 31.6
PS3 Stacker and Screening Plant 2.00 40.6

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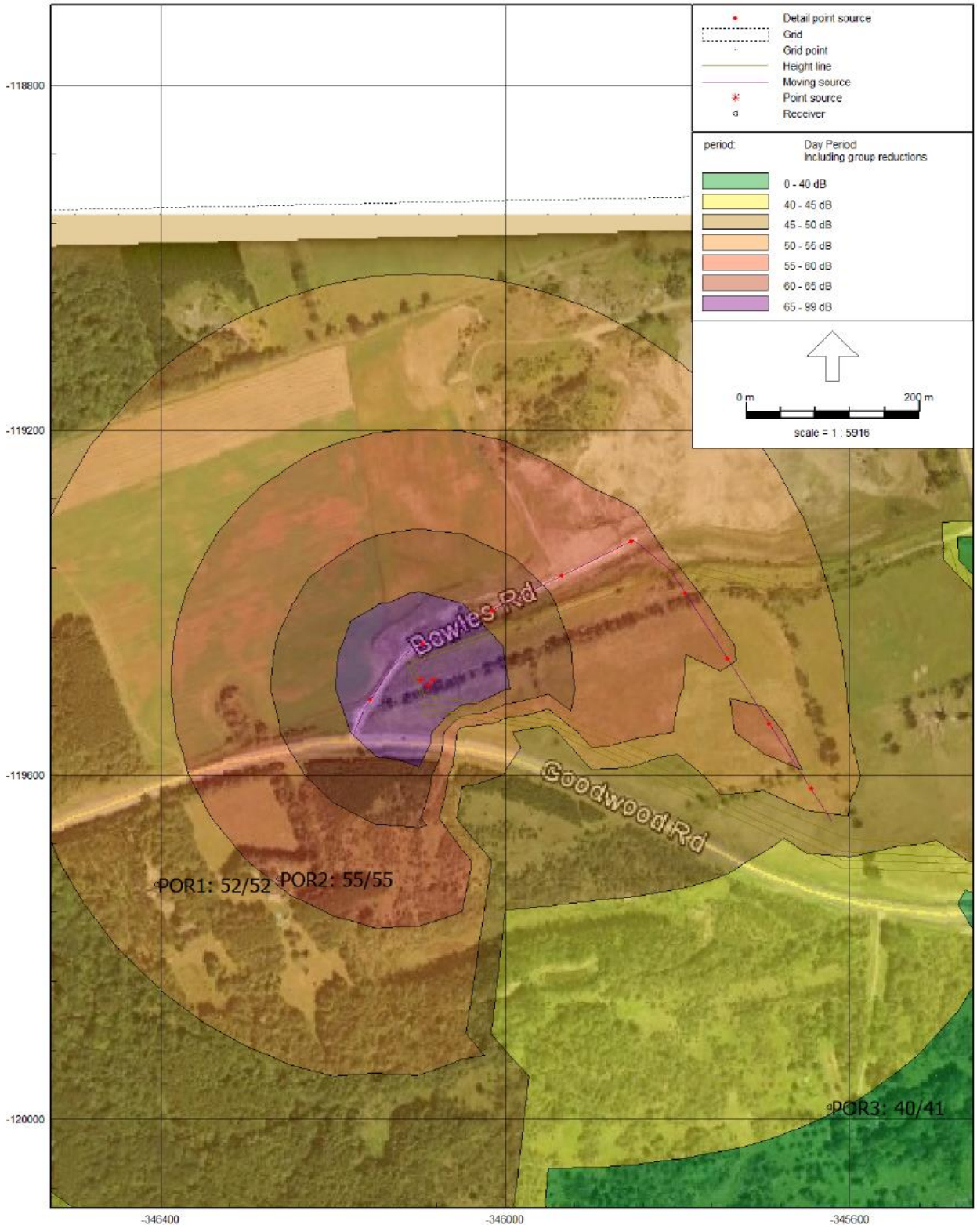
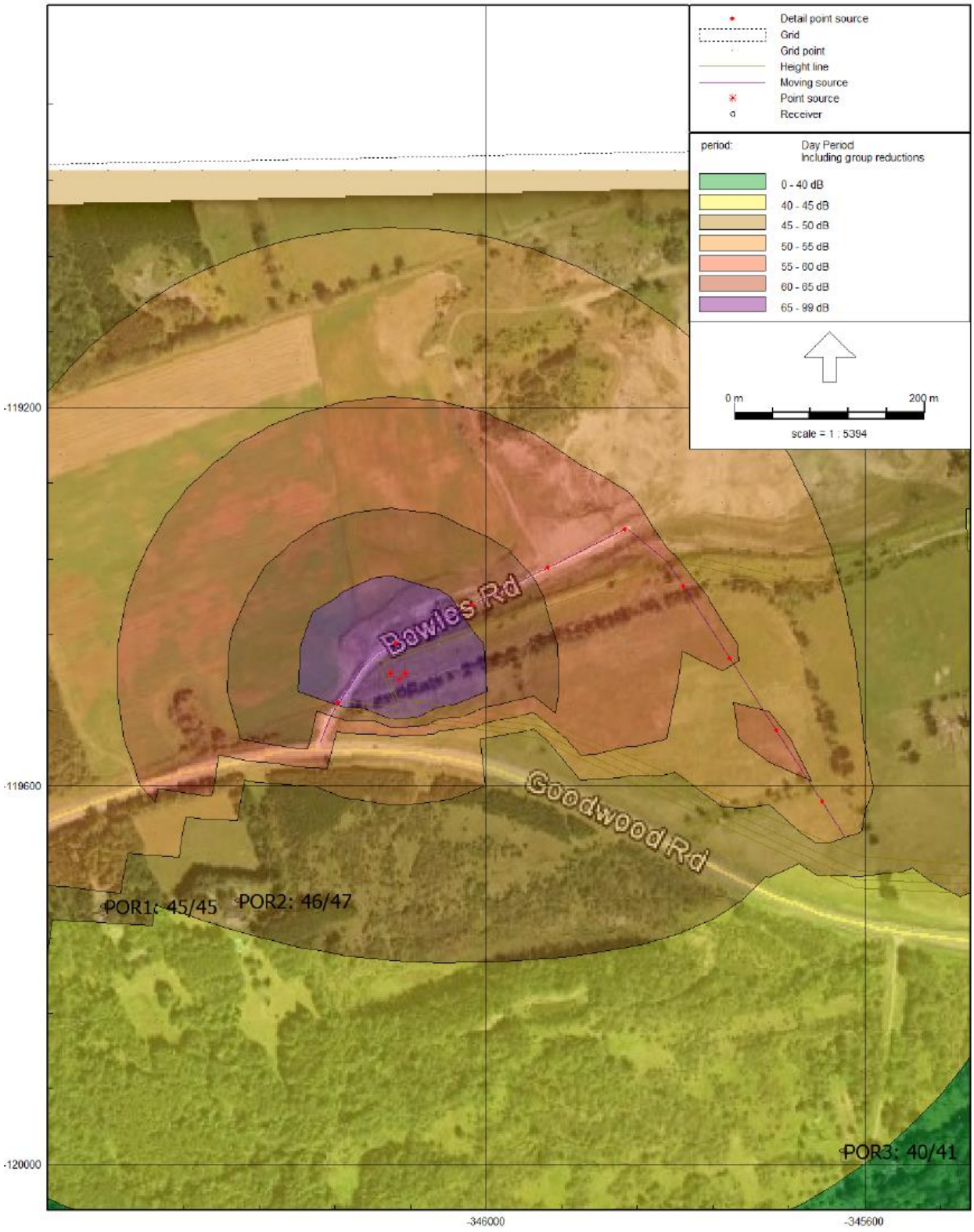
Note: A and B refer to 1.5 m and 4.5 m impact height respectively (all values shown are dBA)



I3: Predictor Modeling Contour Plot – Phase 2 Operation in Restricted Area with No Berm Extension, 1.5 m and 4.5 m Impact Levels



I4: Predictor Modeling Contour Plot – Phase 2 Operation in Restricted Area with 60 m Berm Extension, 1.5 m and 4.5 m Impact Levels