APPENDIX C
COMMITMENTS REGISTRY

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
1	The RRM (RRM) will monitor and mitigate air emissions, particularly dust, through implementation of current industry best management practices.	The air quality monitoring program consists of two air quality monitoring stations located east and south-east of the project site. Monitoring of relevant air emissions parameters dictated in ECA 04172-A2LR4V is conducted by New Gold Environment staff. During 2017, there was one exceedance of the dustfall MOECC AAQC measured in April at the Gallinger station. The laboratory noted some particulate, flies and black particles in the jar upon reception. The second exceedance was reported in October at the Gallinger station. An ash analysis performed at the lab indicated that 96% to 98% was organic material such as bird droppings, insects and pollen. Therefore the two reported exceedances in 2017 were actually not air quality exceedances. Fugitive Dust Best Management Practices Plan (BMP) for both construction and operations were implemented during 2017. Best management practices followed included using water as dust suppressant on major haul roads, application of calcium chloride on major light vehicle routes during non-freezing conditions. In addition, speed limits on and around site are controlled. Baghouses and other dust suppression equipment are used at the processing plant and crusher. Drills used in the open pit are equipped with dust curtains or cyclone dust capture systems. Auxiliary aggregate crushers also use water dispersed by spray bars during non-freezing conditions. Commercial traffic is limited to site access along the east access or Teeple Road.	Air Quality Stations installed May 2015 Monitoring is ongoing for life of mine.

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2	Dust Management Plan 2. A fugitive dust best management practices plan will be prepared to identify all potential sources of fugitive dusts, outline mitigative measures that will be employed to control dust generation, and detail the inspection and recordkeeping required to demonstrate that fugitive dusts are being effectively managed.	Fugitive dust best management practices plan was prepared as per ECA #0412-A2LR4V in February 2016 for both construction and operations phases of the RRM. The plans identify all potential sources of dust and mitigation measures to be employed. The plans also provide inspection schedules and recordkeeping documents.	ECA Application Submission – November 14, 2014; Fugitive Dust Best Management Plants submitted to MOECC February 4, 2016; Updated Water Use Plan for dust submitted to MOEC December 14, 2016.

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3	Sound will be monitored during construction, operations and active closure phases consistent with Ministry of the Environment (MOE) requirements	Equipment sound level measurements at the RRM site were conducted by Amec Foster Wheeler on September 27 through 29, 2017. A Larson Davis Sound Track 831 Type I sound level meter equipped with a windscreen was used for the measurement. The Model 831 uses a Larson Davis Model PRML831 preamplifier and a PCB Electronics Model 377B02 precision microphone, which have been factory calibrated with the SLM unit. The SLM meets IEC 61672-1 Type 1 requirements. The sound level meter was field calibrated with a Larson-Davis Model CA200 precision acoustic calibrator before and after the measurements. All measurements were conducted in accordance with MOECC NPC-103 measurement protocols. The sound level meter was programmed to record 1-second Leq, Lmin and Lmax. The applicable guideline for the RRM site is the Ministry of the Environment and Climate Change (MOECC) Environmental Noise Guideline NPC-300, ''Noise Assessment Criteria for Stationary Sources and for Land Use Planning." The RRM site is located in a rural area which is best described as a Class 3 area in accordance with the area classifications defined within Publication NPC-300. On January 24, 2018 an updated Acoustic Assessment Report for Early Operations was submitted to MOECC as per ECA#0412-A2LR4V Cond. 4.1(b)	Annual onsite sound level monitoring conducted September 27 to 29, 2017.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
4	NG (NG; previously Rainy River Resources) expect that the monitoring required will include: total suspended particulate (TSP) and metals on the TSP size fraction, PM10, dustfall and passive monitoring for NO2 and SO2. NG commits to conducting this monitoring which is also expected to be an approval requirement.	Initiated in May 2015, air quality monitoring occurs at two locations on the project site that have been reviewed and approved by MOECC. These two monitoring locations assess for all of the parameters outlined in this condition. In February 2016 New Gold submitted an Ambient Air Quality Plan to the MOECC as per Environmental Compliance Conditions which was approved by the Ministry in November 2016. Since the installation of the stations MOECC has been onsite to inspect them in September 2015 and July 2016. These inspections revealed no significant deficiencies.	Ambient Air Quality Plan submitted February 2016 and approved by MOECC in November 2016.

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5	The best management plan related to fugitive dust management, source control and operational constraints required by the Provincial Environmental Compliance Approval will be provided to Environment Canada (EC) for review and will be fully implemented prior to the construction phase.	The Canadian Environmental Assessment Agency was notified that a plan dated July 23, 2014 was submitted in support of the ECA application. This same plan was provided to the MOECC for review and approval in 2014. An updated version of the Fugitive Dust Management Plan for operations and for construction was submitted to MOECC in 2015 and implemented during 2015 (early construction phase). As per condition 5(11) of ECA No. 5178-9TUPD9 an updated Management Plan of water used for dust suppression and other industrial uses was submitted to MOECC in December 2016.	ECA Application Submission – November 14, 2014; Fugitive Dust Best Management Plants submitted to MOECC February 4, 2016; Updated Water Use Plan for dust submitted to MOEC December 14, 2016.
6	A transboundary notification under the Canada - U.S. Air Quality Agreement will be filed prior to operation.	This notification was filed on September 17, 2014.	Completed September 17, 2014

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
7	Planning measures aimed at reducing fuel and power consumption for the RRM site include the following: • Using larger, more fuel efficient trucks for material transport; • Using optimum insulation in buildings to reduce heat loss and heat recovery from equipment where practical; and • Maintaining site equipment and vehicles in good working order through regular preventative maintenance.	In 2017 the following measures and plans were implemented to reduce fuel and power consumption; • Energy Management Plan developed; • maintenance plans for fleet were redesigned; • more frequent air and fuel filter servicing was conducted; • purchased emission testing equipment for fleet and • on site mechanics and preventative maintenance personal. Energy reduction from heating will continue to be developed as we replace temporary structures such as the truck wash and maintenance shop with permanent buildings.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
8	Monitoring of air quality will occur during construction, operations and active closure phases per Section 13.1.1 of the Final EA Report.	Monitoring has been ongoing at the RRM since May 2015. Two air quality sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 re-route on Tait Road, and one to the east of the site on Gallinger Road. During 2017, there was one exceedance of the dustfall MOECC AAQC measured in April at the Gallinger station. The laboratory noted some particulate, flies and black particles in the jar upon reception. The second exceedance was reported in October at the Gallinger station. An ash analysis performed at the lab indicated that 96% to 98% was organic material such as bird droppings, insects and pollen. Therefore the two reported exceedances in 2017 were actually not related to air quality. Air Quality Monitoring Reports for each quarter of 2017 can be found in the supporting documentation in Appendix C.	

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9	Sound mitigation measures will be used, such as selection of quieter equipment. Implementation of sound abatement strategies to dampen sound infiltrating habitats and migratory bird nesting areas surrounding high traffic areas of the mine.	Measures that were implemented during 2015 and continued into 2017 to reduce sound included; - Specific trucks that allow exhaust to pass through the truck box rather than directly through the exhaust pipe (can muffle sound); - Reducing size of blasts where appropriate and scheduling those blast only at 1100 and 1500; - Tree buffers maintained where practical; - A qualified consulting firm was contracted to update the acoustic model in 2017.	Ongoing
10	Should the final equipment selections determine through detailed engineering and sound level assumptions vary materially from those presented in the Environmental Assessment (EA), an updated assessment with the new information will be prepared as part of the detailed design and approvals application(s) for the RRM.	Equipment selections determined through detailed engineering and sound level assumptions varied materially from those presented in the Environmental Assessment (EA). An updated acoustical assessment was researched and prepared during Q4 of 2017 as Rainy River Project transitioned from construction to operations. A copy of this assessment can be found in the supporting documentation Appendix C.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
11	The maximum charge size per delay for blasting is limited to 1,000 kg as the vibration and overpressure mitigation option. If the charge size is larger than 1,000 kg per delay, the vibration and overpressure levels emanating from RRM blasting operations will be reassessed in a detailed study to confirm that the predicted levels are within guideline limits.	In the 5.5 - 6 3/4 inch drill patterns, it's planned to have 3 holes (199kg each) going off in close proximity (within 8ms of each other). On 9 inch, the design have 2 holes on average going off (330kg each) in close proximity. Therefore our average MIC can be estimated at 597-660kg per shot.	
12	NG will continue to work actively with local residents throughout the period of mine construction, operation and active closure to further manage and reduce any disturbances due to air and sound emissions to the extent possible, as well as for other effects.	Through regular communication, New Gold has established positive relationships with neighbours who are closest to the project mine site. When neighbours have any concerns or comments, they contact the Community Coordinator or Community Manager directly, who then ensure follow-up and closeout. In 2017, neighbours joined the New Gold team for a site visit and lunch at the accommodation facility. New Gold continues to communicate with Emcon regarding dust management issues when advised by local neighbours of dust concerns. In late summer 2017, some neighbours commented on noise and vibration from one blast. No exceedances were recorded, which was communicated back to the neighbours.	Ongoing

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
13	Collectively and individually, the processes and water management strategies proposed for the RRM are Best Management Practices and/or Best Available Technology Economically Achievable (BATEA), and NG has committed to the use of such processes and water management strategies in the Final EA Report. Examples of such BATEA committed to by NG: • Use of the in-plant SO2/Air process for cyanide destruction and metal precipitation, as well as to extended post SO2/Air treatment effluent aging in the TMA (TMA) and water management ponds, followed by constructed wetland treatment; • Detailed plans and designs to manage potentially acid generating rock (PAG) on site, including ongoing progressive reclamation at the stockpile to limit acid generation, with drainage from this stockpile reporting to the mine rock pond, for re-use as part of the mill process water supply	During 2017 the mill began operating. In plant treatment of tailings is done using SO2/air in the cyanide destruction tank, where cyanide and metallo-cyanide complexes are oxidized to cyanate ion using copper sulphate as a catalyst. The cyanate reacts with water to form ammonia and carbon dioxide. Free metal ions are precipitated with the addition of lime to form insoluble metal hydroxides and absorbed onto tailings particle solids, settling out of the slurry in the tailings management area. Excess SO2 is used in the process to ensure complete stoichiometric oxidation of cyanide. In 2017 Cell 1 of the Tailings Management Area (TMA) was constructed and currently treated tailings are pumped from the mill to the cell. The remaining TMA will be completed in 2018. The constructed wetlands and water discharge pond are scheduled for construction 2018. Potentially acid generating rock (PAG) was managed by identification through chemical testing and segregation into stockpiles within the low grade and East Mine Rock stockpile areas, as per requirements of the geochemical monitoring plan. Progression reclamation will begin along lower levels of the low grade stockpile as discussed in the Rainy River Project Closure Plan (January 2015). Drainage from low grade and east mine rock PAG stockpiles will report into the Mine Rock Pond in 2018. Construction and commissioning of this structure was not completed until mid December of 2017. Recycling of water from the Mine Rock Pond for re-use in the mill process water supply will commence in 2018. The current drilling and blasting contractor on site, Dyno Nobel, made switch from using an ANFO emulsion to a straight emulsion at the beginning of 2017.	

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	thereby reducing fresh water requirements. Dissolved metals associated with east mine rock stockpile drainage would ultimately report to the process plant SO2/Air and hydroxide precipitation circuit, and then to tailings; • Use of emulsion and/or emulsion blend explosives as a means of limiting ammonia residuals from the use of blasting agents at source; and • Collection of site runoff and seepage as per MMER (MMER), and to maximize the use of near 100% contact water recycle for the processing plant water supply.	As per MMER regulations, collection of site runoff and seepage was directed into the Water Management Pond and other on-site holding ponds. Discharges to the environment from on-site holding ponds was permitted after laboratory results confirmed that water contained in these structures met effluent discharge criteria as per ECA 5178-9VJQ2J.	

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14	Surface water runoff will be diverted from entering the pit or flowing through stockpiles by ditching or other means.	During 2017, surface water was diverted from stockpiles and the open pit via temporary ditching systems. Due to construction setbacks associated with permitting delays, the completion of permanent open pit dewatering systems caused the project to develop temporary in pit sumps to handle runoff. Water contained within these sumps was sampled per ECA and MMER requirements and when necessary treated for suspended solids and ammonia. If discharge to the environment was not required, it was sent to either the Mine Rock Pond or the Water Management Pond to be used in ore processing.	Ongoing
15	Open pit dewatering water will be contained and if necessary, treated before it is discharged to the environment.	Construction delays in 2017 forced the implementation of temporary water management plans to reduce the volume of water entering the open pit. These plans included construction of temporary in-pit water collection sumps. Approvals from required regulatory agencies were obtained. This water was then recycled for process plant start up. In the event that water was discharged to the environment it was first sampled as per ECA and MMER requirements and if necessary treated for suspended solids and ammonia.	

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16	In regards to final reclamation, the open pit will be flooded at closure to create a pit lake either passively through natural groundwater entry and precipitation inputs; or by active enhanced flooding. Discussions will be held with the various government agencies to determine the optimal balance between maintaining Pinewood River flows and filling the open pit on an expedited basis.	In October 2018 a draft closure plan amendment was submitted to the Ministry of Northern Development and Mines for the Rainy River Mine. The reason for the amendment was to address the transition of the mine from its construction phase to its operational phase. Section 9.3.1 discusses the staged approach to flooding the open pit at closure which is expected to take between 60 to 75 years. Water inputs will include water from the Mine Rock Pond, seeps from beneath the East Mine Rock stockpile and potential water runoff from the TMA dams. Additional inputs will be from natural sources (ie; rain, snow, groundwater).	
17	Enhanced pit flooding using the West Creek source is not under consideration by NG and has been clarified in the Draft Closure Plan submitted for review, pending discussions and further direction from various government agencies.	The process for flooding the open pit at mine closure is discussed in commitment number 16. The use of West Creek as a source to provide water for flooding the open pit is not being considered by New Gold.	
18	Pit lake water quality will be monitored regularly as part of the post-closure monitoring program.	The mine is currently in an operational phase and ore is being extracted from the open. This commitment will be addressed at mine closure.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
19	Should it be determined that future treatment is needed for stockpile runoff / seepage and overflow from the pit at closure, passive treatment options would be fully considered during the detailed design stage.	This commitment will be reviewed at the time of mine closure.	
20	Ditches (and ponds as appropriate), will be established around the stockpiles to collect and manage runoff. Diversions will be sized to convey the environmental design flood. All sedimentation ponds will be designed with a retention period to meet the MMER discharge requirement for total suspended solids. The design criteria for perimeter ditching in this area (east mine rock stockpile and low grade ore stockpile) has been increased to the 100-year return period condition, as these stockpiles will contain PAG materials.	During the construction phase (2015 to 2017) temporary ditches and sedimentation ponds also referred to as sumps were constructed in various locations around the project. The intent of these structures was to collect and manage runoff. These structures were designed by qualified engineers and reviewed and approvals obtained by government agencies where applicable. Water captured in these systems was sampled, in some cases treated for suspended solids or ammonia and discharged accordingly to meet Provincial Water Quality Objectives (PWQO) and the Metal Mining Effluent Regulation (MMER). As construction has advanced and the mine has entered into an operational phase permanent systems are being designed, permitted by government agencies and constructed. In 2017 a design was created for the East Mine Rock Stockpile that satisfies this commitment. The construction of the permanent collection ditches is scheduled for 2018.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
21	The retention time for sediment ponds 1 and 2 has been increased to 12 days, subject to review and acceptance by the MOECC.	Design of structures in accordance with this commitment was initiated during 2015 or as refined through the Provincial environmental approval process. During 2016, temporary ponds were constructed to capture runoff from small overburden piles which continues to be used in 2017. The construction of the permanent Sediment Ponds 1 and 2 is scheduled for 2018 and will be subject to approvals from MNRF and MOECC.	Scheduled for 2018
22	PAG mine rock (and ore) will be managed, with drainage from the PAG mine rock and ore stockpile reporting to the mine rock pond, for re-use as part of the process plant water supply.	The Mine Rock Pond (MRP) was not completed and commissioned until late in December of 2017. Prior to that date, drainage from PAG mine rock and ore stockpiles was collected into the Mine Rock Pond seepage collection system before discharge to the environment, as per provincial regulatory approval ECA# 5781-9VJQ2J requirements.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
23	The deepest local till layer resting directly on bedrock contains PAG material and will be visually segregated and treated as PAG material unless otherwise determined, and will be stockpiled within the east mine rock stockpile, or disposed of in a manner where acid rock drainage (ARD) potentials will be controlled. A detailed mine rock segregation program / management strategy will be developed around the distribution of non-potentially acid generating (NPAG) and PAG materials, and a program of ongoing testing to be carried out during mining operations of the mine rock being removed. NG proposes to utilize visual and geochemical data to identify that portion of the till overlying the bedrock which requires handling as PAG material, based on the characteristics of the clasts (loose stones) contained therein. Segregation is commonly utilized and MEND 5.4.2d (MEND Manual, Volume 4, Prevention and Control) indicates that segregation is	A Geochemical Monitoring Plan for the Construction and Operation Phases was issued in accordance with MOECC ECA 5178-9TUPD9 requirements, and has been implemented at the RRM site. Monitoring was ongoing during 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	applicable where a clean separation can be made and where a disposal location is available for the PAG material - both of which apply to the RRM. This PAG till would be treated as PAG material and would be directed to the east mine rock stockpile for disposal along with PAG mine rock.		
23 cont	NG is conducting a detailed sampling and analysis program of the overburden within the pit area. The study will be used to delineate the thickness of till over the bedrock that may contain locally derived PAG rock	Periodic sampling of till is ongoing during open pit stripping of till. Results have been in line with the initial interpretations.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	materials so that these materials can be segregated during operations and placed into the East Mine Rock stockpile, or otherwise maintained in a saturated condition. Periodic confirmation analysis will be conducted during the (open pit) stripping program to ensure that the initial interpretation of the thickness of till requiring handling as PAG remains accurate. A draft mine rock and overburden management plan was submitted with the Draft Closure Plan that will be finalized and submitted with the Final Closure Plan for filing with the MNDM later in 2014. It will also be provided to EC per their request. The plan will be revised during operations if necessary to ensure it remains current and as part of future Closure Plan amendments.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
24	Geochemistry monitoring: • Runoff and seepage related to tailings and stockpiles will be monitored as per surface and groundwater monitoring; • Blast hole sampling from open pit operations for mine rock segregation will be carried out throughout the open pit operations phase; • Tailings samples will be collected at regular intervals during the mine operations phase; and • Field trials will be carried out during all or a portion of the mine construction and operations phases as required to generate data need to confirm modeling results.	A Geochemical Monitoring Plan for the Construction and Operation Phases was issued in accordance with MOECC ECA 5178-9TUPD9 requirements, and has been implemented at the RRM site. Monitoring was ongoing during 2017. A field capping trial was commissioned in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
25	PAG material would only be used for fill material in areas where it can be maintained in a saturated state to exclude oxygen and inhibit sulphide oxidation. These uses may include underground backfill and construction of the upstream portion of the TMA dams.	All the PAG that has been encountered during 2017 has either been stockpiled in the East Mine Rock Stockpile, used in the pit (for road building and padding in the overburden) or stockpiled in the Tailings Management Area and used for dam wall construction.	
26	Progressive rehabilitation of mine rock and overburden stockpiles will be undertaken where practical once the maximum height of each stockpile has been reached and/or as each lift is completed.	During 2017, mine rock and overburden piles did not require rehabilitation. Some rehabilitation in the form of shaping and compaction occurred at the topsoil salvage piles in the Water Management Pond area and the Mine Rock Pond area. Moving further into operations, wherever reasonable, areas will continue to be rehabilitated, re-seeded and used for future reclamation.	
27	Encapsulation of the east mine rock stockpile under a multi-layered cover is proposed with a long term goal of controlling ARD.	In October 2017 New Gold submitted an amended Mine Closure Plan for the Rainy River Mine to the Ministry of Northern Development and Mines. The Encapsulation of the East Mine Rock Stockpile under a multi cover is detailed in section 6.2.5. The process is scheduled to begin once the first lift/level of the stockpile is in place.	

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28	As part of the geochemical characterization studies for the project, NG committed to an extended monitoring period of kinetic cells to both demonstrate and continue to evaluate the robustness of the geochemical results.	In 2017 Kinetic cell monitoring was ongoing as required to support the geochemical characterization studies. As of December 31, 2017 the following kinetic tests remained active: • 7 laboratory kinetic tests ongoing from previous years • 3 waste rock humidity cells • 2 tailings humidity cells • 2 tailings columns 17 laboratory tests were also commissioned in 2017 and involved; • 3 waste rock columns testing particle size sorting • 14 waste rock columns testing low sulphide waste rock	
29	The run-of-mine stockpile is the temporary, working stockpile for the processing plant; the low grade ore stockpile is proposed to be depleted during the latter part of operations. As a contingency only, it is proposed that should an ore stockpile remain at closure, it will be managed similar to PAG in the East Mine Rock Stockpile with a multi-layer cover and seeded. Runoff and seepage will be directed to the open pit as part of the passive water management system.	At closure, should the low grade ore stock remain, section 9.15 of the Rainy River Project Closure Plan (January 2015) stipulates that "it will be considered part of the East Mine Rock Stockpile and reclaimed in the same manner	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
30	Site runoff and seepage will be collected, managed and treated per the Provincial and MMER requirements.	Completed as required during 2017 in accordance with Provincial approvals (including ECA 5781-9VJQ2J and 5178-9TUPD9) and the MMER. Surface water was monitored on and off site as per the monitoring program. In 2017 the following exceedances occurred and were reported to the appropriate agencies and Aboriginal Communities; Three instances of elevated daily total suspended solids concentration including one instance of elevated monthly total suspended solids, and one instance of MMER acute toxicity of rainbow trout. Three occurrences of sediment releases at the following locations; Pinewood River (February 21), Mine Rock Pond Polishing Pond (July 5) and Remnant Clark Creek (October 2)	
31	The overall site footprint and watershed capture will be minimized to the extent practical, so as to minimize the quantity of runoff and seepage requiring treatment and management.	This commitment was incorporated into the design of the Rainy River Mine.	Completed during design

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
32	West Creek pond and West Creek diversion flows will be measured on a continuous basis using water level transducers, supported by monthly manual measurements during the winter period, when transducer results experience interference caused by ice pressure.	The West Creek Pond and Diversion were completed and commissioned in June 2017. Dry weather conditions through the summer and fall of 2017 did not allow for the installation of water level transduces in the absence of flow. Water level transducers will be installed in 2018.	
33	The West Creek pond will only contain natural, non-contact water. The West Creek diversion channel will be kept separate from the constructed wetland downstream of the TMA, so as not to mix the natural creek water with excess water discharged from the TMA.	The West Creek Pond and Diversion channel were commissioned in 2017 and were designed to meet the requirements of this condition. Construction of the constructed wetland did not commence in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
34	West Creek Diversion will be positioned far enough from the pit perimeter to ensure integrity and stability and is expected to provide like-for-like fish habitat replacement.	The West Creek Diversion was completed and commissioned during 2017. It was designed and constructed to meet the requirements of this commitment including the implementation of fish habitat features.	Complete 2017
35	The West Creek diversion will be permanent, and there is no further consideration being given to diverting any flows from this creek into the open pit to help accelerate pit flooding at or following closure.	To date the design of the project is consistent with the requirements of this commitment. Please refer to commitment number 16	
36	There will be secondary containment in place for tailings and contact water pipelines at the crossing of West Creek.	In 2016 double contained tailings pipelines were drilled underneath West Creek to handle the transportation of tailings and water.	Completed 2016

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37	A reliable water source for process plant operations and ancillary uses will be generated by maximizing the rate of water recycled to the process plant. Water demands are expected to be met by capturing and reusing the effluents and contact water within the site footprint.	The Process Plant became operational in Q4 2017. Due to construction delays with the Mine Rock Pond plant process water was taken from the open pit in 2017. Moving into 2018 the majority of water will be taken from the Mine Rock Pond and recycled in the WMP. The Operational Environmental Compliance Approval # 5178 9TUPD9 outlines the water recycled system for the project.	
38	Water will be taken from the Pinewood River for the purpose of developing an initial water inventory, only during the construction phase. NG does not intend to take water directly from the Pinewood River thereafter, except possibly for contingency purposes.	In 2017, water was taken from the Pinewood River to develop the initial water inventory in the Water Management Pond. The water taking commenced on April 26, 2017 and continued through to November 7, 2017, dependent on minimum threshold flows in the Pinewood River and other Permit to Take Water Conditions. A total of 921,339 m3 was taken from the Pinewood River during 2017 to develop the initial water inventory. As 2017 was a dry year, it may be necessary to take water from the Pinewood River during the 2018 Spring Freshet as the initial water inventory volume was not met in 2017. After the initial water inventory volume is met, water taking from the Pinewood River would be on a contingency basis.	
39	Water recycle will be maximized, using approximately 100% water recycle for the processing plant water supply.	The Process Plant became operational in Q4 of 2017. Due to construction and permitting delays the use of the Mine Rock Pond as the water supply source for the plant wasn't available so water for processing was taken from the open pit and was recycled during processing. Moving into 2018 the Mine Rock Pond will become a source for process water and water recycle will occur between the plant and the Water Management Pond.	

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40	Local area lakes will not be used for process water supply for the RRM.	The Rainy River Mine was designed to not require the need for process water supply to be taken from area lakes. This commitment was in compliance during 2017.	
41	All process reagents and materials, and wastes, will be handled and stored responsibly, according to supplier and safety guidance, regulatory requirements and industry best practices.	During 2017 process reagents, materials and wastes were handled in the following manner; Construction Contractors; Had designated storage areas and appropriate containment for used oil and other hazardous materials associated with mechanical repairs and maintenance to heavy equipment. Construction contractors were registered with the governments Hazardous Waste Information Network (HWIN) and were responsible for the transportation of hazardous waste off site using qualified hauling companies. New Gold Staff would occasionally inspect these storage areas to ensure appropriate storage methods where being implemented. Mill Operations; All reagents used in ore processing are stored in dry storage facilities either within the mill or adjacent buildings. All reagents shipped to site are conducted by licenced transportation companies. When products arrive on site they are offloaded by New Gold operators who have obtained Transportation of Dangerous Goods Training. Site Wide In 2016 New Gold implemented a process where all new materials being purchased by the company undergo a review of the Material Safety Data Sheets by the New Gold Environmental Department prior to being brought to site. The	

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		intent of this review is to ensure appropriate product use as well as appropriate handling and containment practices are in place.	
42	Any chemical spills within the process plant / chemical storage areas will be controlled through provision of secondary containment as appropriate, and will not enter the environment. Spills of potentially hazardous materials during transport, or from on-site material storage and handling facilities will be managed. Measures will be taken to prevent and clean up any hydrocarbon spills (and other spills) at source to ensure such materials do not enter surrounding waters as practical. Spills will be reported to the MOECC and other appropriate agencies per the requirements of the Ontario Environmental Protection Act.	Chemicals to be used in the process plant are stored indoors to protect against spills to the environment. In 2017, 13 spills (project wide) were reported to the MOECC as per requirements of the Ontario Environmental Protection Act. All reports submitted contain clean up details and mitigation measures to ensure the spill does not reoccur. Internally New Gold uses a computer program called InControl to capture spill information, clean up tasks, responsible individuals and reporting information. This system insures that the spill is cleaned up appropriately in a timely manner. Information related to the spills reported to MOECC can be found in the Supporting Documentation for Appendix C.	
43	The TMA dams will meet strict regulatory requirements including the requirements of the Provincial Lakes and Rivers Improvement Act and will be constructed to withstand the probable maximum flood and	Section 5.6.1 of the Rainy River Mine Comprehensive Closure Plan Amendment (October 2017) outlines the Geotechnical Design Criteria for the TMA dams and Water Management Pond dams (WMP). It indicates that; - the dams have been designed to meet the most severe flood and earthquake criteria being the probable maximum flood and maximum	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	maximum credible earthquake. A remedial action plan would be developed in consultation with appropriate government agencies in the event of dam breach.	credible earthquake in accordance with the Ontario Lakes and Rivers Improvement Act requirements. - The designs were supported by geotechnical investigations of subsurface conditions conducted by Klohn Crippen Berger (2010) and AMEC (2011, 2012, 2013) - Emergency spillways will be provided for each stage of the TMA dams and WMP to safely pass the probable max flood - Adequate freeboard will be maintained in the TMA and WMP to contain he environmental design flood corresponding to a 100-year 24 hour storm event - all spillways will be rock armoured to withstand erosion from the flow rate - New Gold has successfully obtained appropriate LRIA permit approvals for the construction of all onsite dams. - An Operational Maintenance and Surveillance (OMS) manual was submitted to the MNRF as per conditions of the LRIA and accepted in August 2017. A copy of the OMS can be found in the Supporting Documentation for Appendix C.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
44	Runoff and seepage from the TMA and stockpiles will be captured, monitored, and either released to the environment if applicable criteria are met and/or re-used in the process plant during operations. Cyanide and metal concentrations in the TMA seepage and all treated effluent discharges to the environment will be controlled through the use of in-plant cyanide destruction and heavy metal precipitation, augmented by extended effluent aging in the TMA ponds.	Detailed design during 2017 was consistent with this commitment. Permanent seepage collection ditches and sumps were completed around the Water Management Pond and all of the completed Tailings Management Area with systems in place to pump the runoff and seepage back into either the Water Management Pond or the Tailings Management Area to allow for extended effluent aging.	
45	All active pipelines will be inspected twice per 12 hour shift and informally at other times. Should flow unexpectedly lessen or stop in a pipeline, an inspection will be immediately conducted.	The surveillance and inspections of active pipelines is outlined in Section 7.1 of the Rainy River Mine Operation Maintenance and Surveillance (OMS) for Manual Water Management Structures (WMS) dated August 2017. The OMS was reviewed by the Ministry of Natural Resources and Forestry as part of the Lakes and Rivers Improvement Act Approval Process for the construction of the dams. Should flow unexpectedly lessen or stop in a pipeline, a special inspection will be carried out immediately as outlined in Section 7.2 of the OMS Manual for WMS. A copy of the OMS can be found in the Supporting Documentation at the end of Appendix C.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
46	The exposed tailings beach will be covered at closure with a layer of overburden, with flooding of the remaining tailings with a layer of water to prevent the tailings from oxidizing over the longer term. This will ensure that the tailings pond water remains of high quality, such that it will not pose a threat to wildlife.	The original mine closure plan filed in 2015 and the draft amendment submitted in October 2017 outline that at the end of the operations phase a low permeability overburden cover will be placed on the upstream side of the dam around approximately two thirds of the perimeter. The remaining one third of the length being reclaimed at closure. The cover will be seeded and armoured with nonacid generating rock. The remaining exposed tailings will have a permanent water cover of approximately 2m.	
47	NG commits to maintaining the deposited tailings during the post closure period in a saturated condition in perpetuity to prevent the generation of ARD. NG also commits to developing and completing a monitoring plan which evaluates the integrity of the cover system (e.g. low permeability overburden zone) and the continuous saturation of the tailings.	The original mine closure plan filed in 2015 and the draft amendment submitted in October 2017 outline that at the end of the operations phase a low permeability overburden cover will be placed on the upstream side of the dam around approximately two thirds of the perimeter. The remaining one third of the length being reclaimed at closure. The cover will be seeded and armoured with nonacid generating rock. The remaining exposed tailings will have a permanent water cover of approximately 2m. Once this work is completed New Gold can focus on meeting the monitoring requirements of this commitment.	
48	The thickness and maintenance of water cover over the TMA will be clarified in the Closure Plan.	The original mine closure plan filed in 2015 and the draft amendment submitted in October 2017 discuss a 2m water cover over the tailings at closure.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
49	A detailed monitoring plan will be developed as part of the Provincial closure planning process to ensure that the deposited tailings solids remain permanently saturated in the post-closure condition. This plan will include consideration of the low permeability overburden perimeter cover bordering the tailings dams to ensure that the deposited tailings beneath the perimeter overburden cover remain saturated, or alternatively that the overburden zone cover itself remains sufficiently saturated so as to prevent oxidation of the underlying tailings. The monitoring program will consist of the following principal elements: • Establishment of a field trial to simulate the performance of the low permeability cover, with initiation during the development phase and monitoring during operations to support the closure design to ensure saturation levels in the cover and underlying tailings to confirm, or modify, design criteria;	The first Closure Plan for the Rainy River Project was filed in 2015. A Closure Plan Amendment (draft) was filed with the Ministry of Northern Development and Mines in October 2017as the project transitioned from its construction phase into operations. It is important to note that the depositing of tailings in the TMA is in its early stages starting in September 2017. Section 6.2.4 of the Closure Plan discusses the progressive reclamation strategy for the TMA that will occur much later in the mine life, as it will be actively used for tailings deposition throughout operations and allowed to flood upon closure. At the end of mine operations the plan is to allow a low permeability overburden cover approx. 150m in width to be placed on the upstream side of the dam around two thirds of the ultimate perimeter allowing the remaining one third to be reclaimed at closure. The purpose of the cover is to prevent the water cover from coming in contact with the dams and it will also limit oxygen diffusion into the uppermost portion of the tailings underneath. The overburden layer will be seeded with native seed mix and armoured with Non Acid Generating (NAG) rock. The remaining tailings will have a permanent water cover of approximately 2m. As the project advances through its operational phase more research and planning will be conducted on the management of tailings at closure. Additional planning will be outlined in future closure plan amendments.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	• Survey of the final tailings surface prior to flooding for closure, with results of the survey tied to TMA dam crest elevations and the spillway invert elevation; • Establishment of a water level monitoring station within the tailings pond, near to the spillway, with measurements to be taken at regular intervals;		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
49 Continued	A detailed monitoring plan will be developed as part of the Provincial closure planning process to ensure that the deposited tailings solids remain permanently saturated in the post-closure condition. This plan will include consideration of the low permeability overburden perimeter cover bordering the tailings dams to ensure that the deposited tailings beneath the perimeter overburden cover remain saturated, or alternatively that the overburden zone cover itself remains sufficiently saturated so as to prevent oxidation of the underlying tailings. The monitoring program will consist of the following principal elements: • Establishment of a series of piezometers positioned around the TMA overburden zone perimeter that would measure water levels within both the overburden and the underlying deposited tailings, with such piezometers to be fitted with data loggers that would take continuous water level measurements	New Gold is aware of this commitment and will implement in future Closure Plan Amendment when the mine begins to transition from the operational stage to closure.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	at approximately daily intervals; • Updating the hydrological data for analyses of the TMA basin at a point approximately two years prior to implementing final closure of the TMA to confirm, or modify, applicable water balance parameters; • Undertaking an updated review of climate change scenarios at a point approximately two years prior to implementing final closure of the TMA to confirm, or modify, anticipated future hydrological conditions related to climate change scenarios; and • Annual reviews of water cover performance.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
50	In the event that observed water levels within the TMA pond were to decline to a level where there was a risk of the deposited tailings solids becoming partially unsaturated for extended periods, the available contingencies to mitigate that condition would be the following: • Periodically pump water from the Pinewood River during spring freshet, or during other high water periods, to maintain the TMA post closure water cover within an optimal zone (alternatively water could be periodically pumped to the TMA from the upper water column of the flooded open pit – pending suitable water quality); • Raise the spillway invert to further increase the depth of the TMA water cover (this action would require a widening of the spillway to continue to allow for passage of the probable maximum flood); or • Raising the dam crest, as well as the	In the fall of 2017 the Rainy River Project transitioned from a construction to operational state. Currently this condition doesn't apply as the mine and Tailings Management Area (TMA) are not in a closure state. However, New Gold intends to have a 2m water cover over the tailings as discussed in the Mine Closure Plan. A cross section of the tailing closure configuration and schematic taken from the 2017 Draft Closure Plan Amendment can be found in the supporting documentation for Appendix C.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	spillway invert to further increase the depth of the TMA water cover. In development of the above contingencies, trigger levels would be developed for implementation of the contingencies.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
51	Mitigation measures that will be used to reduce potential adverse effects to the Pinewood River aquatic system will include the following: • Extensive contact water recycling for process plant needs to reduce overall water demands and to minimize final effluent discharge volumes to the Pinewood River; • Use of SO2/Air treatment for cyanide destruction and heavy metal precipitation in the process plant followed by extended effluent aging in the TMA pond and in the water management pond to achieve the highest quality effluent reasonably achievable; • Use of a constructed wetland system for final effluent polishing of a major portion of the discharge; • Management of the site for ARD control during operations and following closure to prevent adverse water quality impacts to the Pinewood	Mitigation measures that will be used to reduce potential adverse effects to the Pinewood River aquatic system will include the following: With the commissioning of the Water Management Pond (WMP) on April 25, 2017, the building of the initial water inventory for the project began. Contact water from the open pit, overburden and mine rock stockpiles, and process plant site was pumped to the Mill to assist with the processing of ore, or to the WMP. There were zero discharges from the WMP to the Pinewood River in 2017. Authorization to deposit tailings in the Tailings Management Area (TMA) Starter Cell was received September 28, 2017. Prior to deposit in the TMA, process plant effluent passes through an in-plant tailings slurry cyanide destruction (S02/Air) treatment facility. Effluent is aged in the TMA and Water Management Pond (WMP) for an extended period prior to supplemental treatment from the WMP effluent treatment plant and Constructed Wetlands. The WMP effluent treatment plant and Constructed Wetlands are currently in design phase, with a pilot test scheduled for spring 2018 and construction to commence in fall 2018. There were zero discharges to the environment from the WMP and TMA in 2017. The Constructed Wetlands are currently in design phase, with a pilot test scheduled for spring 2018 and construction to commence in fall 2018. Management of the site for ARD control during operations and following closure to prevent adverse water quality impacts to the Pinewood River;	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	River; • The DFO (DFO) Freshwater Intake End-of-Pipe Guidelines will be followed as mitigation for potential fisheries effects associated with water intakes; • Construction of the Pinewood River Highway 600 re-alignment crossing (bridge or culverts) in a manner that does not restrict fish passage; • Maintaining current fish habitat productivity; and • Implementation of an extensive monitoring plan for water quality and flow discharges, and receiving water aquatic life and habitat.	Commissioning of the Mine Rock Pond in December 2017. The DFO (DFO) Freshwater Intake End-of-Pipe Guidelines were implemented in 2016 during the construction of the Pinewood River Pumphouse. Fish screens were also installed on construction dewatering pumps during the construction of the diversion structures and culvert installations. The construction of the Pinewood River Hwy 600 crossing was completed in 2016 and consisted of the installation of a clear span bridge with no in water work that would restrict fish passage. On-going monitoring under the Pinewood Biological Monitoring Plan for direct effects to fish (implemented in 2015). Monitoring of Pinewood River water quality is conducted monthly as part of the Surface Water monitoring program. The Pinewood Hydrometric Monitoring program outlines monitoring for flow changes. Receiving water aquatic life and habitat monitored under the Pinewood Biological Monitoring Plan for direct effects to fish.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
52	All final discharge points will have a point of control to immediately cease discharge. A control structure will be constructed at the discharge point of the treatment wetland to be in compliance with MMER. All discharge locations will be regularly sampled in accordance with environmental approval requirements and will provide insight as to ongoing treatment system performance.	The operational detailed design for the RRM is consistent with this commitment. There are currently nine temporary discharge points for surface water effluent that report to the Pinewood River, including one that was not constructed and one that is not in use in 2017. The discharges from these temporary discharge points are batch, not constant discharges, and are measured with flow meters. Water quality is sampled during every discharge and assessed against provincial and federal water quality requirements. Construction of the Constructed Wetlands is scheduled for the fall of 2018.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
53	NG acknowledges the need to meet effluent criteria for any discharge to the environment. Excess water discharged to the environment will meet applicable Federal and Provincial guidelines for the protection of aquatic life, or other scientifically defensible alternatives, in the receiver, as well as any site-specific approval requirements.	There were 58 Project construction related effluent discharges in 2017. Effluent was treated with filter media, flocculent and dry ice to reduce total suspended solids and un-ionized ammonia. All effluent met the environmental approval requirements with the exception of: • Three daily total suspended solids discharge limit exceedances, including one monthly total suspended solids exceedance • One instance of MMER acute toxicity to rainbow trout from mine water from the Open Pit	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
54	Minimize the number of final effluent compliance points as reasonable.	Through 2017, there were nine approved effluent compliance points. Of the nine, one was not constructed, one was not utilized and another 3 were utilized infrequently. None of the discharge points represent a constant discharge. During the transition from construction to operations, it may be necessary for some of the final effluent compliance points to remain active to facilitate discharge of effluent as a contingency plan, as required and as it meets discharge criteria. During the Operational Phase, the current design requires four final effluent discharge points; Sediment Pond 1 Discharge, Sediment Pond 2 Discharge, Water Management Pond Pipeline Discharge and the Constructed Wetland Final Discharge points. In 2017 none of these structures had been constructed.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
55	NG agrees to work with the MOE to develop a mutually acceptable minimum flow threshold, below which water from the Pinewood River would not be taken to build up the initial water inventory to support processing plant start up operations. Subject to approval(s), NG is proposing spring and open water flow thresholds of 10,000 m3/d and 5,000 m3/d, respectively, below which direct water taking from the Pinewood River downstream of McCallum Creek, would temporarily cease until river flows recover. The application of such flow restrictions would be based on day to day prorated flow data obtained from Water Survey of Canada (WSC) Station 05PC023.	Thresholds have been agreed to through the Provincial environmental approvals process, including Permit to Take Water (PTTW) 8776-9W2QN3.	Complete

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
56	The appropriateness of the use of the WSC station will be assessed as part of the operations planning, and if this station appears unsuitable, a separate dedicated flow monitoring station will be set up, either independently, or in association with the WSC.	A dedicated station was established on the Pinewood River on October 9, 2015 in consultation with the MOECC.	Completed October 9, 2015.
57	Optimize the timing and positioning of final effluent discharges to the Pinewood River so as to limit the potential for adverse flow effects to the river.	In 2017, there were nine final effluent discharge locations obtained through the Environmental Canada Metal Mining Effluent notification process. These discharges are included under the Permits to Take Water from the MOECC to regulate the volume of water. Water quality is measured at the discharge for both Federal and Provincial regulation limits.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
58	Subject to approval(s), NG is proposing to operate the final effluent discharge from both the Constructed Wetland and the pipeline discharge from the Water Management Pond, such that a minimum 1:1 receiver to final effluent mixing ratio would be maintained in the Pinewood River, with the understanding that receiver to final effluent mixing ratios of greater than 1:1 would be the norm.	The Provincial ECA 5178-9TUPD9 received from the MOECC is consistent with this commitment. The constructed wetland is scheduled for construction in fall 2018. In 2017 there were no discharges from the Water Management Pond.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
61	NG commits to the discharge of effluents to the Pinewood River in a manner that will achieve rapid mixing within the river. If future operational monitoring shows that effective receiver mixing is not attained, NG commits to implement additional measures to enhance mixing to a level which is mutually acceptable to the MOE and NG. Such additional measures could include the use of rock groynes placed on either side of the channel to force mid-channel mixing, and use of boulder clusters to increase flow turbulence within the mixing zone.	Discharging effluent to the Pinewood River via the pumphouse was not required in 2017. A rock groyne has been discussed with the MNRF and New Gold will be required to obtain appropriate permit approvals (LRIA) prior to installation.	
60	Scheduling of RRM development activities will consider environmental aspects, such as fish spawning.	During the development stage of the Rainy River Project the following activities and mitigation measures were implemented to consider environmental aspects such as fish spawning; - Appropriate permits and approvals were obtained from the government to ensure timelines and conditions were in place - Culverts were installed outside of fish spawning windows as identified by the MNRF through the LRIA permit process	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
		- Air quality monitoring stations were installed and operational during the construction phase of the project to ensure there was no impact to air quality. - Water and dust suppressants as approved by the MOECC were used to control dust on roads, excavating in the open pit and aggregate extraction to minimize impacts to air quality. - New Gold hired an onsite Sediment Erosion Control expert (2015 to current) to implement erosion control mitigation measures to reduce the impact of sediment from entering water courses within the project boundary - Vegetation buffers were left around creeks and water courses to prevent sediment runoff from construction activities from impacting aquatic life - where possible construction activities were scheduled in the winter to lesson impacts on the environment and undergrowth vegetation (ie; the clearing and construction of the transmission corridor, excavation of the Clark Creek Channel)	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
61	A No Net Loss Plan and compensation strategy will be developed and implemented by NG to create new like for like habitats as project compensation and/or enhance existing restoration programs, to offset the RRM habitat losses.	To offset habitat loss New Gold has currently completed the following; - Ownership and maintenance of over 1800 ha of overall benefit land to compensate for the loss of boblink and whip-poor-will habitat during construction; - Completion of the water diversion structures and ponds to offset for the loss of fish habitat in the former West Creek, Clark Creek and Teeple Drain systems. Monitoring of the Clark and Teeple systems commenced in 2017 and proved to support fish passage. Stockpile and West Creek ponds with associated diversions should allow for suitable fish passage by fall 2018; - Reclamation of Tait Quarry will be complete in summer 2018.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
62	Except where aquatic habitat will be overprinted (and compensated for as part of DFO authorizations) for project development, a 120 m buffer zone will be maintained adjacent to rivers and creeks to the extent practical, to protect watercourses and their associated vegetated margins.	Buffer zones are maintained by reducing tree clearing, grubbing and equipment access. New Gold regulates this by; providing construction contractors with maps of buffer zones, using flagging tape to flag off 'no entry' areas, limiting the use of equipment around water courses, conducting field inspections of work areas.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
63	Fish flesh and fish organ tissue samples from the Pinewood River have been analyzed for metals for walleye and northern pike in the baseline condition. A commitment has been made to continue to monitoring metals in these two fish species after mine start-up. Should there be future evidence to show that fish are being taken from the Pinewood River on a more regular basis and prepared as a food source, NG would be pleased to work with these fishermen to collect and analyze a reasonable sampling to reflect any applied methods of food preparation.	In 2017, the RRM Fish Tissue Monitoring Program was conducted between September 11 and 19th in the Pinewood River. All data collected was compared to previous data collected in 2016, 2015 and 2012 (baseline). Samples of the fish muscle tissue, liver and ovaries (when applicable) are removed and sent to a certified laboratory to be analyzed for metal accumulation. Fish were collected using fill nets and hoop nets. It is important to note that the accumulation of mercury in larger predatory fish tissue is common in northwestern Ontario and baselines for human consumption have been set out by the government. The 2017 results indicated limited to no change from previous year's data. The samples reveled two large northern pike and three walleye that had elevated levels of mercury concentrations in fish tissue, however overall results indicated that the metal concentrations were below the human consumption benchmarks for metals. A copy of the 2017 Fish Quality Monitoring Report can be found in Appendix A.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
64	Fish tissue (dorsal muscle tissue and livers) sampling will include both northern pike and walleye. If contaminant concentrations increase over time, potential consumers and the applicable Provincial departments (MOE and MNR; MNR) would be informed and information related to increased health risks (if any) would be provided, as suggested.	To date fish tissue sampling of northern pike and walleye in the Pinewood River has been conducted in the fall of 2012 (baseline), 2015, 2016 and 2017. Sample results have shown that there has been no increase in metal concentrations in fish tissue, liver and ovary samples. The study will continue to be conducted on an annual bases and information shared with appropriate government authorities. Additional information regarding the sample results can be found in commitment number 63. It is important to note that in 2017 the constructed wetlands were not in place as they were not required at this stage of the project. Therefore there has been no effluent discharge from the tailings management area to the Pinewood River.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
65	Specific erosion and sediment control measures and their locations will be provided in the permit application documents once detailed design is completed to avoid direct impacts to fish during the mine construction phase.	Erosion and sediment control measures and their locations have been and continue to be provided in the permit applications for all major infrastructure works that may impact a fish bearing waterbody or channel during mine construction phase. The permit applications, filed under the Lakes and Rivers Improvement Act (LRIA) and Environmental Protection Act, contain a sediment and erosion plan for each works which is incorporated as a condition of the work permit approval under the section entitled "Further Submittals and Approval Conditions".	Complete, ongoing
66	Pond dams will be inspected at a regular interval by site employees for any visible signs of concern and particularly during and after major storm events. They will also be inspected periodically by a qualified geotechnical engineer at an interval that meets regulatory requirements at a minimum.	The mill was commissioned on September 14, 2017. Initial deposition of tailings was to the TMA sub-cell referred to a Cell 1 and the as North and South dams were not complete. Deposition continued through December 31, 2017. Inspection frequencies and standardized inspection record sheets for the water management systems at the Rainy River Mine are outlined in the Operation, Maintenance and Surveillance Manual Version 8 (OMS Manual) which is attached in the Supporting Documentation for Appendix C.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
67	Surface water: to be monitored during construction, operations and active closure phases, with post active closure monitoring expected to continue for a decade (or more) at reduced frequencies pending ongoing analysis of data	Environmental monitoring was ongoing during 2017, consistent with all environmental approvals, environmental commitments and site management practices. Monthly surface water quality summaries are submitted to MOECC as per ECA requirements.	
68	Proposed (subject to modification to ensure participation and data sharing is adequate to meet the expectations of Aboriginal groups) surface water sampling program would include a First Nation training component followed by a rotating schedule whereby a First Nation representative would accompany NG staff on the monthly surface water sampling program. Laboratory results will be received by NG, reviewed and submitted to the identified individuals of each participating First Nation along with a summary explanation.	When the project was operated by Rainy River Resources, there once was a formal water sampling program with all the communities, where staff demonstrated how to take water samples and explained what the sample results meant. In 2017 the Environmental Manager met with the Rainy River Stewardship committee a few times to discuss potential programs, but the Stewardship Committee didn't pursue the option. Since 2015 New Gold has employed an Environmental Monitor from Big Grassy First Nation. This role include environmental site monitoring including water sampling and access to training, mentorship and all data and results. The monitor is responsible to communicate with their community on a regular bases. In the event of a water quality exceedance that doesn't meet the requirements of the Metal Mining Effluent Regulation or the Provincial Water Quality Objectives New Gold does inform Aboriginal Communities via email and through communication at the Environmental Monitoring Board Meetings.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
69	Sampling of sediments will take place to evaluate soil quality parameters prior to undertaking any further closure activities for any contact water ponds and drainage works (including stockpile sediment ponds) where breaching is proposed.	In 2016 a topsoil sampling program was completed which included a chemical analysis of soil to be used for closure and reclamation activities. The report identified best case topsoil harvesting locations and provided information on topsoil in Overall Benefit Lands. In 2017 sediment sampling for reclamation was not completed. As the mine progresses through its operations stage New Gold intends to implement further sampling programs.	
70	NG staff is willing to describe the ongoing water quality program and provide freshet data on request. The water management plan for the RRM provides for the management of all site contact waters in accordance with accepted industry standards including periods of high runoff, and sequences of high precipitation years.	No requests were made in 2017. A summary of water sampling data from monthly surface water sampling and water discharges are provided to the Kenora Ministry of Environment and Climate Change office each month.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
71	There will be no sediment ponds associated with the aggregate pit(s).	There were no sediment ponds associated with the Roen Road Pit or Outcrop 3 during 2017. There is one sediment pond located adjacent to Outcrop 3 that is used to capture runoff from the equipment laydown. During the detailed design stage it was determined that a settling pond may be required to ensure high quality effluent from the Tait Quarry (to allow for ammonia degradation in situ and settling of suspended solids) and Provincial environmental approvals were obtained for this structure. During the operation of the quarry (2015 to 2017) groundwater was not generated and the settling pond was not required. Tait Quarry is now undergoing reclamation with a project completion date of summer 2018.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
72	Related to the transmission line: • Tree stumps, root mats and ground vegetation cover will be left intact to reduce the potential for surface erosion and to help maintain groundcover for plant and wildlife habitat; • Vegetation (shrub) screens will be left to the extent practical along the single creek crossing that exists between Beadle and Preachers Lake, near the east end of the alignment, for erosion protection, while ensuring clearance requirements for conductors; • No in-water work will be conducted and all poles will be placed above the high water mark; • Industry standard sediment interception and erosion control practices will be applied wherever appropriate / needed; • Should any erosion of the ground be	Clearing of the transmission line right of was initiated during November 2015 with construction completed in April 2016. To ensure that all of the commitments are understood and followed, New Gold RRM conducted routine inspections and attended weekly construction meetings with the contractor. Transmission Line Clearing Completed April 2016	Completed November 2015 to April 2016.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	identified at the end of the construction period (or during any intervening inspections), the exposed area would be re-seeded or otherwise stabilized to control erosion until native vegetation takes hold. If the erosion is more severe, other methods such as placement of straw matting or equivalent will be used; • Where required in larger quantities, construction materials will be stored a minimum distance of 200 m from any open (non-frozen) surface water, and from major access points; and • Fuelling and maintenance of vehicles will not occur within 50 m of surface waterbodies.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
73	.As a result of the independent First Nation review of the Final Environmental Assessment report, NG committed to a joint water quality monitoring and reporting program with the area First Nations (including Big Grassy River First Nation; BGRFN) as part of the existing monthly water quality monitoring program which is currently carried out by NG. The program will be funded by NG and form an integral part of the overall environmental management program as it relates to First Nations traditional knowledge and assurances of maintaining water quality and by extension, aquatic biota protection. The program will be developed jointly with the First Nations in lead-up to the initiation of mine construction. (Letter to Chiefs from Kyle Stanfield, October 2013).	When the project was operated by Rainy River Resources, there once was a formal water sampling program with all the communities, where staff demonstrated how to take water samples and explained what the sample results meant. In 2017 the Environmental Manager met with the Rainy River Stewardship committee a few times to discuss potential programs, but the Stewardship Committee didn't pursue the option. Since 2015 New Gold has employed an Environmental Monitor from Big Grassy First Nation. The role of the environmental site monitoring includs water sampling and access to training, mentorship and all data and results. The monitor is responsible to communicate with their community on a regular basis. In the event of a water quality exceedance that doesn't meet the requirements of the Metal Mining Effluent Regulation or the Provincial Water Quality Objectives New Gold does inform Aboriginal Communities via email and through communication at the Environmental Monitoring Board Meetings.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
74	NG has committed to provide a program of close coordination with Rainy River First Nations in support of the pre-existing First Nation Watershed Program and water quality protection. Company funding will be provided as part of the fisheries compensation program to further water quality enhancement programs for the Pinewood and similar agriculturally impacted waterways.	When the project was operated by Rainy River Resources, there once was a formal water sampling program with all the communities, where staff demonstrated how to take water samples and explained what the sample results meant. In 2017 the Environmental Manager met with the Rainy River Stewardship committee a few times to discuss potential programs, but the Stewardship Committee didn't pursue the option. Since 2015 New Gold has employed an Environmental Monitor from Big Grassy First Nation. This role include environmental site monitoring including water sampling and access to training, mentorship and all data and results. The monitor is responsible to communicate with their community on a regular bases. In the event of a water quality exceedance that doesn't meet the requirements of the Metal Mining Effluent Regulation or the Provincial Water Quality Objectives New Gold does inform Aboriginal Communities via email and through communication at the Environmental Monitoring Board Meetings. Starting in 2015 each fall New Gold hires an independent consultant who is responsible for conducting a fish tissue sampling program in the Pinewood River downstream of the site. The purpose of the study is to assess metal accumulation in walleye and northern pike tissue which are sport fish traditional consumed by First Nation people in the Rainy River District. New Gold has allowed opportunity for First Nation Community Members to participate in the study as well as the onsite Environmental Monitor from Big Grassy First Nation. Results from this study are communicated through the Environmental Monitoring Board. To date there has been no programs brought forward to New Gold for fisheries compensation in the Pinewood or other impacted	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
		waterways. A copy of the 2017 Fish Tissue Quality Monitoring Report can be found in the Supporting Documentation for Appendix A.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
75	To help limit the exposure of potentially acid generating materials to this base drainage through the former Clark Creek channel zone, a layer of non-potentially acid generating rock will be placed in the former creek channel bed area.	During 2017 all potentially acid generating run-off from active areas of East Mine Rock stockpile and ore stockpiles was collected in seepage collection system before discharge to the environment. Clark Creek continued to channel non-contact water into Pinewood River via remnant Clark Creek channel ditch. Commissioning of the Mine Rock Pond dam was not completed until late December of 2017. Closure of Clark Creek channel is scheduled for early Q1 of 2018 when non-potentially acid generating rock will be used to line the former creek channel bed.	
76	Groundwater: to be monitored during construction, operations and active closure phases, with post active closure monitoring expected to continue for a decade (or more) at reduced frequencies pending ongoing analysis of data.	Groundwater wells were monitored throughout 2017, four times each, if not frozen or dry.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
77	A groundwater level (flow) and quality monitoring program of regular sampling and dipping of dedicated monitoring wells will be implemented to confirm that no area wells are affected by the mine. Furthermore, local well owners will be asked to participate in a well water quality program to monitor water quality in their wells.	Site Groundwater wells were monitored for levels and water quality four times each, when not frozen, in 2017. Data from 2017 was reviewed for trends to quantify effects of dewatering and other RRM activities. The Offsite Groundwater Well Monitoring Program was initiated in 2017. Neighboring property owners were contacted and asked to participate in the voluntary monitoring program. The initial background data was collected for ten local wells.	
80	If water quality or availability in local wells is compromised (by the RRM), NG is obligated to replace the system or offer water treatment systems to rectify issues related to water quality or availability shown to be caused by the mine.	An Off-Site Groundwater Monitoring Plan has been drafted and the gathering of initial background information for the neighboring wells was gathered in 2017. Ten neighboring property owners determined to be in the Zone of Influence (see map in plan) agreed to participate. The Off-site Groundwater Monitoring Plan will continue for the life of mine. New Gold is committed to rectifying issues related to water quality or availability shown to be caused to the mine, and the Off-Site Groundwater Monitoring Plan assists with determining the cause of issues related to water quality or availability in local wells.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
79	If local artesian wells stop flowing (related to the RRM), NG will need to provide and install a pump to replace the artesian flow used by the homeowner.	There were no reported effects on local wells related to the RRM in 2017.	
80	A number of groundwater monitoring wells will be placed around the TMA and east mine rock stockpile and pond areas, as shown in Figure 13-3 of the Final EA Report. This groundwater monitoring network may be amended or expanded through the MOE approvals process. Water levels in these monitoring wells will be measured continuously with data downloaded semi-annually. Groundwater samples will be collected quarterly, as described in Section 13.6 of the Final EA Report.	Installation of additional groundwater monitoring wells (post baseline studies) started in 2015 and completed in 2016 in accordance with Provincial Approval requirements. In 2017, three replacement groundwater monitoring wells were installed adjacent to existing wells that could no longer be sampled. In addition, one new groundwater monitoring well was installed in accordance to Provincial approval requirements. The groundwater monitoring wells were sampled four times in 2017, if not frozen.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
81	Mitigation measures that will be used to reduce potential effects on groundwater include the following: • Returning captured groundwater indirectly to the Pinewood River (after treatment and testing if necessary) during the period of mine operations to minimize potential flow effects to the river, especially during naturally occurring, low flow conditions; • Using in-plant SO2/Air treatment for cyanide destruction and heavy metal precipitation to optimize the quality of groundwater seepage associated with the TMA during operations and following mine closure; • Managing the site for ARD control, both during operations and following closure to prevent adverse water quality impacts to the Pinewood River, including that associated with any groundwater seepage; • Accelerating open pit inflow following mine closure, to the extent	The continued operation and construction of the RRM specific to the water management is consistent with this commitment: · Water from dewatering activities is treated, if required, to meet effluent quality regulations and released at licensed discharge locations. · The Mill is now in operation and the cyanide destruction unit is in use. ARD is being managed in the PAG dump as committed to. Runoff from the PAG dump during 2017 reported to the Temporary Mine Rock Polishing Ponds, was treated as required, tested to meet effluent regulations and discharged to the environment. Rainy River Mine is still therefore the requirements for optimizing pit inflow at mine closure are not applicable at this time. · Both Surface Water and Groundwater Monitoring Plans were implemented in 2015 and continued through 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	practicable, balancing the need for managing water quality and maintaining Pinewood River flows over the interim period until the pit can be completely flooded; and • Implementing a monitoring plan for water levels, water quality and flow discharges, and receiving water aquatic life and habitat maintenance.		
82	Monitoring of key terrestrial systems and Species at Risk (SAR) will occur during the construction and operations phase, with post closure habitat development and utilization by wildlife to continue at reduced frequencies consistent with SAR Permit requirements.	Monitoring of terrestrial systems and SAR during 2017 was compliant with environmental approvals and monitoring plan requirements. During 2015 New Gold RRM implemented a site wide wildlife monitoring program that allows employees and contractors to report any wildlife sightings on the project. Education regarding SAR is provided during site orientation. In the fall of 2016, a White Tailed Deer Tissue monitoring program was implemented to establish a baseline for potential metal and cyanide accumulation in deer tissue. Samples are collected from hunters in the area as well as deer killed in vehicle collisions. The study continued in 2017. A summary of the 2016 study results can be found under commitment number 168. A copy of the 2016 White Tailed Deer Tissue Sampling Report can be found in the Supporting Documentation for Appendix C.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
83	Puffballs: NG and AMEC would be happy to receive photos and/or samples of this species and have AMEC experts identify it. If AMEC experts are unable to identify the species they will consult with staff at the Royal Ontario Museum or the Canadian Museum of Nature.	Samples were submitted to the Royal Ontario Museum and confirmed as common species. This information was provided to the resident as of December 11, 2014. No further samples have been provided or discovered.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
84	Rare plant surveys are proposed to be carried out along portions of the preferred transmission line corridor in late Spring / early Summer, 2014. Prior to transmission line construction, additional data collection will be undertaken for that portion of the proposed transmission line routing (Alternative A) west of Highway 71, where there is a baseline data gap for rare plants surveys. This additional data collection will be undertaken to support transmission line permitting, and would consist of the following activities, spread across a 2 km corridor (1 km on either side the transmission line): transect surveys for vegetation communities including surveys targeting the presence of rare plant species. Results will be made available to MNR once the report is complete and the report will be referred to in the Errata.	Surveys were completed during 2014 and a report issued. The report was referred to in the issued Errata for the EIS / EA Report. September 19, 2014	Completed Summer 2014

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
85	The principal mitigation measures that are proposed to limit short and long term adverse effects to local vegetation communities include: • Minimizing dust production along primary mine rock and overburden transportation routes by implementing dust suppression methods and thereby minimizing the zone of influence. Primary dust suppression methods will include road watering. • Annual monitoring of dust deposition on vegetation adjacent to mine roads; and • Active revegetation and encouragement of natural revegetation / recolonization of disturbed areas as part of progressive reclamation during operation and active reclamation at mine closure.	Principal mitigation measures used to limit adverse effects to local vegetation communities included using water trucks equipped with spray bars to water along primary mine rock and overburden transportation routes and revegetation along disturbed areas as part of progressive reclamation in disturbed areas. A total of 119 hectares of disturbed area has been revegetated and recolonized in construction and operations areas.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
86	In regards to the transmission line: • Additional rare plant and breeding bird surveys to be undertaken in May and June, 2014 to identify any further potential environmental constraints that might require construction modification, such avoidance of disruption to rare plant sites (if present) through site specific habitat protection measures; • Undertaking transmission line construction in winter (normally December 1 to March 31) to better protect ground cover in sensitive areas where the protection of wetlands, rare plants and SAR is required, and completion of the remainder of transmission line construction in the late summer and fall, outside of the breeding bird season; • Vegetation removal will be reduced to the extent necessary to support construction activities and longer-term transmission line reliability (from	Studies were completed during 2014 and the detailed design and construction plans are consistent with this commitment. Clearing of the transmission line right of way occurred in late November 2015 and the transmission line clearing was completed in April 2016. Some existing access roads required upgrading by adding road bedding material but no new roads were constructed. No vegetation maintenance along the transmission line was required in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	interference with conductors and fall of adjacent hazard trees). Minimizing vegetation removal includes retaining existing low vegetation ground cover; • Access to the right of way (ROW) will be provided from existing infrastructure (some of which may need to be upgraded, as reasonable for personnel, material and equipment access), but no new permanent access roads are proposed. Generally, where access is poor, the ROW will be accessed along the ROW itself. Construction vehicles will not be allowed to travel through surface waters; and • Mechanical means will be used for periodic vegetation height maintenance along the transmission line, instead of herbicides.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
87	Scheduling of RRM development activities will consider environmental aspects. Clearing of forests having a density of at least 10 cavity trees per hectare with a diameter at breast height greater than 25 cm will be limited to outside of the bat roosting season (April 1 to November 15) unless cleared by a bat biologist that has surveyed the trees for bat activity. Timing of the transmission line construction will be planned to avoid the breeding bird and main tourist season, as possible.	During baseline monitoring it was determine by qualified professionals that the forest type to be cleared did not qualify as bat habitat. Each year there is no tree clearing from May 1 to August 15 (breeding bird window). Clearing of the transmission line right of way was initiated in late November 2015 and completed by April 2016.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
88	Wildlife awareness information will be included in regular safety and environmental inductions performed by the mine, along with SAR identification and sensitivities, permit conditions and cultural awareness. Wildlife sighting logs or information boards will be installed to notify workers of local bear, wolf or other large mammal or furbearer observations. Workers and contractors will be made aware of seasonal changes in local mammal behaviour or presence in proximity to the mine. Food wastes generated on site will be managed in a manner that limits the attraction of wildlife, such as Black Bear.	In 2015 New Gold RRM incorporated wildlife awareness, avoidance and SAR information to the site orientation that is still delivered to all employees and contractors. Also during 2015 a no tolerance policy was implemented related to feeding and harassing wildlife onsite. This policy remains in effect. Regular site wide radio announcements remind employees about the importance of following this policy as well as reporting wildlife sightings. During 2017 New Gold RRM continued to promote the onsite wildlife reporting procedure. Documented sightings are recorded in a GIS based mapping program. The program allows visual representation on a site map in real time where sightings have been reported. This information is helpful in answering a number of scientific questions related to wildlife adaptation.	
91	All staff and contractors will be provided with training in animal encounters as part of the site orientation process.	The site orientation program includes information regarding wildlife awareness and wildlife encounters. Wildlife awareness information is also provided on an ongoing basis during field-based inspections of construction areas, in toolbox morning meetings and during morning radio announcements.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
90	Road-killed animals or any other carcasses found onsite will be removed in a timely manner to limit the attraction of wildlife.	The limited number of road-killed animals / carcasses found within the RRM during 2017 were disposed of in an area of the project site with limited to no human interaction or buried. In some scenarios samples may be taken for scientific studies.	
91	A wildlife monitoring program will record the efficacy of these avoidance measures (will evaluate the effectiveness of the methods implemented) and annual reporting to EC and the MNR will provide the information requested by the reviewer. NG will provide opportunities to Aboriginal groups to receive the annual reports.	In May 2016 the Wildlife Monitoring Plan for the RRM was accepted by the MNRF. During 2017 aspects of the program that were be implemented include a white tailed deer tissue sampling program to establish a baseline of accumulated metals and cyanide in organ tissue. This is the second year this study was conducted. The 2016 report was submitted to the MNRF in June 2017. A copy of the report can be found in the Supporting Documentation for Appendix C. The Monitoring Plan has a specific timeline for the life of mine and mine closure.	Wildlife Monitoring Program submissions to MNRF; Version 1 Jan 22/15; Version 2 April 20/15; Version 3 July 9/15; Version 4 3/15 July 30/15; Version 5 Feb/16

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
92	A more detailed wildlife follow-up monitoring plan will be developed through consultation with the MNR and EC. As suggested by the reviewer, additional control sites around the periphery of the mine footprint can be developed and monitored following mine construction and periodically throughout mine operations. A draft plan will be issued to MNR and EC prior to commencement of construction. NG will provide opportunities to Aboriginal groups to participate in the development of the plan.	In February 2016 a final version of the Wildlife Monitoring Program for the project was submitted to MNRF. New Gold RRM started to implement the program during 2016. Wildlife Monitoring Program Submissions to MNRF are as follows; Version 1; January 22, 2015, Version 2; April 20, 2015; Version 3; July 9, 2015, Version 4; July 30, 2015, Version 5; February 3, 2016 (final). The plan was accepted in May 2016	
93	The use of exclusion fencing for reptiles and amphibians will be added as a mitigation measure during construction and operations. The placement of fencing will be decided upon through consultation with the MNR and EC.	In 2017 exclusion fencing was installed along the Tailings Management Area Cell 1 seepage collection ditch. New Gold RRM obtains a scientific research license from MNRF each year which allows for the live trapping and relocation of reptiles and amphibians that may be impacted by activities on site.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
94	In regards to the transmission line: • Construction crews will be advised not to interfere with or harass wildlife. No hunting or fishing by construction crews will be allowed. Disciplinary actions will be taken should either occur; • Contractors will be required to handle food and food wastes in a responsible manner, and to educate workers to ensure no feeding of wildlife; and • Should any nuisance wildlife be encountered which pose a risk to construction crews, the MNR will be contacted for direction.	Construction of the transmission line was initiated in late 2015 and completed in April 2016. All Environmental permits, approvals and commitments related to the transmission line contract were communicated to the contractor during an environmental kick off meeting in November 2015. During the construction of the transmission line New Gold's RRM Environmental department conducted regular inspections of the site to ensure these commitments were being followed. Construction Completed April 2016	Completed April 2016

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
95	The primary mitigation strategies for limiting adverse effects to wildlife will include: • Preventing hunting from occurring on all lands owned by NG (required for the safety of workers; this is currently ongoing during exploration as well); • Maintenance to the extent practical of a 120 m buffer zone adjacent to rivers and creeks to protect watercourses and their associated vegetated margins; • Restoration of disturbed habitats at closure, including the development of habitats capable of supporting a diversity of wildlife species, including ungulates, large predators, furbearers and bats; • Enforcement of speed limits along proposed mine access roads to reduce the potential for collisions with ungulates. Signs warning drivers of the possibility of wildlife encounters	The following mitigation strategies applied to during 2017; Hunting did not occur on site except for required trapping of nuisance beavers. Buffer zones were maintained around fish bearing waterways and where necessary temporary erosion control products were installed. New Gold RRM has installed speed limit signs on project roads have implemented a site wide no tolerance policy for speeding which is enforced by radar. Wildlife crossing signs have been installed at six locations on the project site in an attempt to reduce vehicle collisions with wildlife. These locations were chosen based on the volume of wildlife sightings reported in those areas. Regular bulletins regarding wildlife are emailed, posted and broadcast over the radio on site. Wildlife awareness training is provided to all contractors and employees during site orientation.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • Inclusion of wildlife awareness information into regular safety and environmental inductions performed by the mine. Workers and contractors will be made aware of seasonal changes in local deer or large mammal behaviour or presence in proximity to the mine. Workers and contractors will be made aware of seasonal changes in local mammal behaviour or presence in proximity to the mine;		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
95 Continued	The primary mitigation strategies for limiting adverse effects to wildlife will include: • Treatment of the tailings slurry to levels equal to or less than 1 mg/L weak acid dissociable cyanide before deposition in the TMA (which is well below the 50 mg/L weak acid dissociable cyanide threshold criteria outlined by the International Cyanide Management Code); • Fencing the TMA to prevent access; • Covering the exposed tailings beach at closure with a layer of overburden and flooding the remaining tailings with a layer of water to prevent the tailings from oxidizing over the longer term. This will ensure that the tailings pond waters remain of high quality, such that they will not pose a threat to wildlife. The margins of the tailings pond will develop as wetland habitat; • Minimizing dust production along primary haulage routes by implementing dust suppression methods and thereby minimizing the	Regular effluent sampling has shown WAD cyanide in tailings generally reaches the Tailings Management Area (TMA) at 1 mg/L or below. In the fall of 2017 tailings were deposited into Cell 1 (Starter Cell) of the TMA. Temporary fencing was installed around the perimeter of Cell 1. Permanent fencing of the TMA is scheduled for 2018. Tailings currently remain submerged as much as possible and will be submerged and covered with overburden at closure. The RRM follows a Best Management Plan for dust suppression that was developed an approved by the Ministry of Environment and Climate Change in 2016. Food waste is removed on a frequent schedule and stored only in waste bins with lids until removed.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	RRM zone of influence; and • Disposing of food wastes generated on site in a manner that limit the attraction of wildlife, such as Black Bear and wolves.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
96	Mitigation measures that will be used to reduce potential adverse effects to amphibians will include the following: • Development of a compact RRM site to reduce overall habitat loss and to limit potential adverse effects related to sound emissions to the extent practical; • Restricting the clearing of terrestrial amphibian breeding habitats to periods outside the amphibian breeding season as directed by the MNR; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Enforcement of speed limits along proposed mine access roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRM. Signs warning drivers of the possibility of wildlife encounters will be posted in	During the planning state of the project consideration into the size of the project site was taken into consideration and achieved as best possible. During the spring and summer clearing restrictions are in place to protect both amphibians and birds. Noise monitoring is conducted and large equipment in the open pit is maintained to reduce sound emissions. In 2015 New Gold RRM implemented and in 2017 continued site wide speed limits and a no tolerance to speeding policy which remains in effect. Wildlife crossing signs were also installed during 2016 on project roadways known for high concentrations of wildlife. Visual observations made along project roadways did not show and increase in frog mortality.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; • If frog mortality on roadways is found to be a problem along mine access roads or the re aligned Highway 600, silt fencing may be installed to prevent frogs from crossing the road and may direct them to the nearest culvert(s);		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
96 Continued	Mitigation measures that will be used to reduce potential adverse effects to amphibians will include the following: • Inclusion of wildlife awareness information into regular safety and environmental inductions performed by the mine. Workers and contractors should continually be made aware of seasonal changes in local wildlife behaviour or presence in proximity to the mine; • Treatment of tailings slurry containing cyanide and associated heavy metals from the ore leaching process in the process plant using the SO2/Air process before being discharged to the TMA; • Discharge of effluent that will result in protection of aquatic life standards in the Pinewood River so that no adverse water quality effects to amphibians are anticipated; • Maintenance of generally abiotic conditions within the TMA to discourage wildlife presence; and	Wildlife awareness training is provided to all contractors and employees during site orientation. Bulletins and radio announcements regarding wildlife awareness are made throughout the year. The SO2 system is online and operational to treat tailings before they leave the Mill During 2017 no effluent from the Mill process was discharged to the environment Generally abiotic conditions exist within the TMA Only one tailings beach was created in 2017 and remained active during that time, therefore it was not possible to cover or completely flood it.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	• Covering the exposed tailings beach at closure with a layer of overburden and flooding the remaining tailings with a layer of water to prevent the tailings from oxidizing over the longer term. This will ensure that the tailings pond waters remain of high quality such that they will not pose a threat to wildlife. Margins of the tailings pond will be developed into wetland habitat.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
97	Generally abiotic conditions will be created within the fenced TMA during operations to limit the interest of the pond to waterfowl.	During 2017 a Starter Cell (Cell 1) was created within the TMA and is designed to have capacity to store the first six months of tailings. This Starter Cell first received tailings on September 14th 2017. The area was clear of standing timber and was temporarily fenced. Daily monitoring for waterfowl was conducted in the fall of 2017 and if necessary bird deterrents in the form of loud bangers were deployed. The Environmental Department is currently reviewing bird deterrent strategies for the life of mine. Water quality is considered to be abiotic based on weekly testing results.	
98	Scheduling of RRM development activities will consider environmental aspects, such as fish spawning and bird nesting seasons. Tree and woodland clearing will be restricted to periods outside of the breeding bird season (May 1 to August 15). Clearing or modification of known Trumpeter Swan breeding habitat will be restricted to outside the breeding season (March 15 to August 15).	All scheduling of site activities during 2017 was in full consideration of environmental aspects and no known timing conflicts occurred.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
99	A monitoring plan will be developed for Common Nighthawk and Eastern Whip-poor-will, in partnership with the MNR, EC and interested First Nation Communities including the standardized information suggested well as a mortality trigger that will be decided upon during consultation with the MNR and EC, and in consideration of conditions under the Net Benefit Permit being developed by the MNR.	In accordance with ESA FF-C-001-14 a monitoring plan is under way for EWPW with the goal of implementing a management plan in 2020 with support from MNRF. EWPW and Common Nighthawk are like species and the management plan will benefit both species. First Nation communities are playing a role in the progressive reclamation that will be dictated by the management plan.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
100	Breeding bird surveys are proposed to be carried out along portions of the preferred transmission line corridor in late Spring / early Summer, 2014. Prior to transmission line construction, additional data collection will be undertaken for that portion of the proposed transmission line routing (Alternative A) west of Highway 71, where there is a baseline data gap for breeding bird surveys. This additional data collection will be undertaken to support transmission line permitting, and would consist of point count surveys for breeding birds between late May and early July, spread across a 2 km corridor (1 km on either side the transmission line). Results will be made available to MNR once the report is complete. NG will provide opportunities to Aboriginal groups to receive the survey results.	Completed. September 19, 2014	Completed September 19/14

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
101	The primary mitigation strategies for limiting adverse effects to birds and habitat: • Inclusion of wildlife awareness information into regular safety and environmental inductions performed by the mine. Wildlife sighting logs or information boards will be installed to notify workers of local observations. Workers will be made aware of seasonal changes in local animal behaviour or presence in proximity to the mine; • Minimizing the level of potentially disturbing activities near any known or subsequently discovered active raptor and raven nest sites until the nest is vacated; • Annual monitoring of the Bald Eagle nest in Woodland 122 to determine seasonal eagle activity at the nest site which will guide RRM activities occurring in proximity to the nest. Should eagles continue to use the nest site and raise offspring, work will	The following mitigation strategies for limiting adverse effects on birds and habitat were implemented during 2017; Inclusion of wildlife awareness information in site wide health and safety bulletins and employee orientation has been implemented since 2015. Wildlife logs have been placed in lunch rooms and a site wide protocol is in place to report wildlife sightings to the security department via radio communication or online with the GIS wildlife viewer. Bear awareness training was also provided to interested staff in 2017. In 2016 an eagle's nest was discovered in the north west portion of the property in an area of overall benefit land (no construction). This is the second nest that has been documented on site. Both of these nests are also in areas that will not be subject to tree clearing. Annual monitoring of these nest found them both to have been active and at least one juvenile is known to have been produced in association with the nest in the south	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	be adjusted appropriately to reduce adverse effects to the breeding success of the local pair; • Maintenance of a safe distance between RRM activities and the nest as well as maintenance of landscape buffer areas (preferably forested or natural) between the activity and nest trees. To avoid disturbing nesting Bald Eagles, no buffer is necessary around nest sites outside of the breeding season once the juvenile eagles are known to have vacated the defined significant wildlife habitat; • Limiting less typical activities in proximity to the nest site during the nest building and breeding season. The local eagle pair appears tolerant of agricultural activities and road grading;		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
101 continued	A The primary mitigation strategies for limiting adverse effects to birds and habitat: • Environmental induction programs and ongoing environmental updates provided to workers will make them aware of Bald Eagle nesting activities prior to the commencement of new or irregular activities in proximity to an active eagle nest (within 500 m), and having them observe proper protocol in order to avoid disturbance during these activities; • Restriction of tree and woodland clearing to periods outside of the breeding bird season which extends between May 1 and August 15; • Protection of suitable breeding habitat as a result of the provision of compensatory habitat for species protected under the Endangered Species Act; • Restoration of disturbed habitats at closure to habitats capable of supporting a diversity of wildlife	Since the start of construction in 2015 New Gold has been implementing a no tree cutting policy during the breeding bird window. The project has also installed speed limit signs on project roads and has implemented a radar system for speeding. In the summer of 2016 wildlife crossing signs were installed at six locations on the project site to help reduce the potential for vehicle collisions with wildlife. Monitoring logs of reported wildlife collisions have been kept although there is room to improve on the reporting strategy as not all small animals (ie; skunks) are reported. By the end of 2017 there were two reported Bald Eagle's nests within the project boundary but not within the infrastructure footprint. By the end of 2017 major earthworks were completed for the rehabilitation for Tait Quarry and updated acoustic modeling has been done in an effort to see what sound abatement could be necessary. The rehabilitation plan for Tait Quarry involves creating suitable whip-poor-will habitat. The site will be fully rehabilitated by Summer 2018.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	species; • Implementation of sound abatement strategies; • Enforcement of speed limits along proposed mine access roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRM. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary;		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
101 Continued	The primary mitigation strategies for limiting adverse effects to birds and habitat: • Restrictions to clearing or modification of known Trumpeter Swan breeding habitat to outside the breeding season (March 15 to August 15) to prevent the disturbance of nesting swans or impact the likelihood of cygnet survival; • Disposing of food wastes generated on site in an appropriate manner that limits the attraction of wildlife, including Common Ravens, Turkey Vultures and Bald Eagles; • Timely removal of carcasses of road-killed animals or any other carcasses found onsite to limit the attraction of wildlife, such as Common Ravens and Turkey Vultures; and • Treatment of tailings slurry containing cyanide and associated heavy metals from the ore leaching process in the process plant using the	During the baseline studies for the Rainy River Mine no known Trumpeter Swan breeding habitat was identified in areas where clearing was necessary. To date no new breeding habitat has been identified. A site wide policy has been implemented that no tree clearing occurs during the breeding bird window (April to August). In 2015 New Gold ramped up there waste management program by obtaining bins with lids and in some cases locking mechanisms. A Waste Management employee was also hired on a contract bases to oversee the management of waste onsite. Lids on garbage disposal bins have been effective in deterring birds however there have been some bear encounters. The Environmental Department has been actively working with the MNRF Bear Technician in Fort Frances to find effective methods to reduce black bear encounters. In 2017 some New Gold staff were trained by the MNRF on how to live trap and relocate black bears. Carcasses from wildlife killed on roads is removed and disposed of in approved locations within the project boundary where people do not frequent, or the carcasses are buried.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	SO2/Air process before being discharged to the TMA; and • Creation of generally abiotic conditions within the fenced TMA during operations to limit the interest of the pond to waterfowl.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
102	In regards to the transmission line: • Additional rare plant and breeding bird surveys to be undertaken in May and June, 2014 to identify any further potential environmental constraints that might require construction modification, such avoidance of disruption to rare plant sites (if present) through site specific habitat protection measures; • Tree clearing to take place outside of the breeding bird nesting season, defined as the period from May 1 to July 31; • Undertaking transmission line construction in winter (normally December 1 to March 31) to better protect ground cover in sensitive areas where the protection of wetlands, rare plants and SAR is required, and completion of the remainder of transmission line construction in the late summer and fall, outside of the breeding bird season;	Construction of the transmission line was initiated in late 2015 and completed in April 2016 to ensure no impact to birds and limited impact to understory vegetation. Prior to and during the construction period no sticks nests were identified. A vegetation and breeding bird survey was conducted by qualified biologists during 2014 and no rare plants were identified in the construction area. The separation of conductor wires was reviewed during the design of the hydro line to ensure spacing distance was adequate. - Completed April 2016	Completed April 2016.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	• Direct impacts to raptor nesting areas will be avoided. There are currently no stick nests on or near the proposed ROW. Should any stick nests be identified during construction, the area will be avoided until a qualified avian biologist can be contacted for direction; • Conductor wire separation distances will be sufficiently far apart to preclude larger avian species, particularly raptors which frequently use hydro pole for perching or nesting, from electrocution by contacting two conductor wires simultaneously;		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
102 Continued	In regards to the transmission line: • Construction crews will be advised not to interfere with or harass wildlife. No hunting or fishing by construction crews will be allowed. Disciplinary actions will be taken should either occur; and • Contractors will be required to handle food and food wastes in a responsible manner, and to educate workers to ensure no feeding of wildlife.	During the 2016 construction phase of the transmission line regular meetings were held with the contractor as well as regular site inspections to ensure that all commitments were being met. There were no cases of hunting, fishing or feeding wildlife observed. The survey team that was working on the project did frequently report wildlife sightings of timber wolves to New Gold RRM. - Completed April 2016	Completed April 2016
103	The site will be rendered suitable for other compatible land uses and functions after the mine has closed and the land has been reclaimed. NG will encourage and, as practical, actively restore the RRM site to productive, naturalized vegetation communities on cessation of mining capable of supporting a diversity of wildlife species. RRM revegetation efforts at closure will include providing suitable habitat for SAR species, most notably whip-poor-will, and other species of interest, if practical.	During 2017 the mine site was under construction and entered its first year of production. At this time this condition does not apply. The Tait Quarry which operated between 2015 and 2017 is currently being reclaimed with a project completion date of Summer 2018. The rehabilitation plan has been designed to create suitable whip-poor-will habitat. This plan was developed in conjunction with discussions with the local MNRF office.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
104	The RRM footprint has been altered through consultation with the MNR in order to further avoid known whip-poor-will territories where feasible, including maintenance of forest buffers between RRM components and whip-poor-will nesting and foraging habitat where practical. Provide compensatory whip-poor-will habitat that protects known territories and other identified suitable habitat. Where feasible, manage site lighting fixtures to reduce excess light production near whip-poor-will foraging areas, so as to minimize disturbing these nocturnal birds (with all appropriate health and safety issues considered).	The RRM owns and monitors over 1800 ha of overall benefit land in accordance with the Provincial ESA permit ESA FF-C-001-14 since the start of construction. Site environmental inspections address location and use of light plants as possible while maintaining site safety aspects.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
105	NG will implement a monitoring plan for Eastern Whip-poor-will populations and nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas. Continue funding external research programs in collaboration with the MNR in order to further our understanding of this poorly studied species, as part of a larger overall benefits compensation package required by the Endangered Species Act permit.	A monitoring plan was developed in 2015 and implemented as required during 2017 in accordance with ESA FF-C-001-14. New Gold retains trained biologists to conduct annual monitoring. New Gold RRM intends to fund a study to investigate EWPW forage species in hopes of using that information to inform future management strategies during 2018.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
106	NG will implement a monitoring plan for Bobolink populations and nesting in proximity to the proposed mine site within compensatory habitat areas, and in appropriate control areas - developed through consultation with the MNR. Acquire and protect compensatory open country breeding bird habitat suitable for Bobolink breeding at a ratio of 1:1 for open-country habitat removed for RRM development.	Over all benefit land has been provided in accordance with the Provincial ESA permit ESA FF-C-001-14 and the monitoring plan therein has followed since 2015. New Gold retains trained biologists to conduct the monitoring on an annual bases.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
107	NG will identify Barn Swallow nesting colonies prior to mine construction. Establish zones where Barn Swallow colonization is desired, tolerated or not wanted. Create artificial nesting structures to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed. Implement a monitoring plan for Barn Swallow populations in proximity to the proposed mine and transmission line sites and in appropriate control areas.	Four artificial nesting structures were put in place in April 2015, prior to the 2015 breeding season. During 2017, the artificial structures were monitored however there were no nesting attempts. In 2016, two nesting attempts were made in one structure, but no eggs were ever laid. There were some cases of barn swallows and nests being identified within the mine site. These cases were treated by isolating work areas and stopping work until the eggs had hatched and the birds had abandoned the nest.	
108	Where feasible, RRM lighting fixtures will be directed in such a fashion as to reduce excess production of light to the surrounding environment (for Common Nighthawk and Short-eared Owl).	Site environmental inspections on areas utilizing light plants are performed when light plants are in use. Issues, such as lighting fixtures oriented at improper angles, are documented in InControl, a computer tracking program used to record environmental and safety concerns. Specific actions are assigned to area owners with re-inspection deadlines. Light plant Issues not addressed in a timely manner are shut down and removed from site at the area owner’s expense.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
109	Monitoring of key terrestrial systems and SAR: during the construction and operations phase, with post closure habitat development and utilization by wildlife to continue at reduced frequencies consistent with SAR Permit requirements	The SAR permit No. FF-C-001-14 for the project was issued in November 2014 and the following spring SAR monitoring commenced in accordance with the permit. SAR monitoring has occurred annually since 2015 and the MNRF have received three annual monitoring reports. As the project advances opportunities for habitat development post closure will be examined.	2017 Annual SAR Monitoring Report submitted to MNRF January 15, 2018

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
110	Mitigation measures that will be used to reduce potential adverse effects to Eastern Whip-poor-will will include the following: • Provision of compensatory whip-poor-will habitat that protects known territories and other identified suitable habitat; • Restricting the clearing of habitats to periods outside the breeding bird season which occurs from May 1 to August 15; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Where feasible, management of site lighting fixtures to reduce excess light production near whip-poor-will foraging areas so as to minimize disturbing these nocturnal birds (with all appropriate health and safety issues considered);	These measures have been implemented since 2015 and continued to date.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	• Maintenance of forest buffers between RRM components and whip-poor-will nesting and foraging habitat where practical; • Management of dust through dust suppression activities (best management practices); • Enforcement of speed limits along mine-controlled roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRM. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary;		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
110 continued	Mitigation measures that will be used to reduce potential adverse effects to Eastern Whip-poor-will will include the following: • Environmental induction of RRM personnel, including SAR identification and sensitivities, and knowledge of Endangered Species Act permit conditions; • Implementation of a monitoring plan for Eastern Whip-poor-will populations and nesting in proximity to the proposed mine and transmission line sites, within compensatory habitat areas and in appropriate control areas; and • Continue funding external research programs in collaboration with the MNR in order to further our understanding of this poorly studied species, as part of a larger overall benefits compensation package required by the Endangered Species Act permit.	These measures were implemented during 2017 New Gold RRM will fund a separate / independent research program as a requirement and in accordance with the ESA permit	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
111	The primary mitigation strategies for limiting adverse effects to Bobolink will include: • Restricting the development of open country habitats to periods outside the breeding bird season which occurs from May 1 to July 31; • Acquiring and protecting compensatory open country breeding bird habitat suitable for Bobolink breeding at a ratio of 1:1 for open-country habitat removed for RRM development; • Enforcement of speed limits along mine controlled roads to reduce the potential adverse effects of increased vehicular traffic associated with the RRM. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary;	Since the start of construction (2015) New Gold RRM has implemented the mitigation strategies listed in this commitment on site.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	• Environmental induction of RRM personnel, including SAR identification and sensitivities and knowledge of Endangered Species Act permit conditions; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Restoration of disturbed habitats at mine closure or encouraging development of habitats capable of supporting Bobolink and other open country species; and • Implementation of a monitoring plan for Bobolink populations and nesting in proximity to the proposed mine site within compensatory habitat areas, and in appropriate control areas.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
112	Mitigation measures that will be used to reduce potential adverse effects to Barn Swallows will include the following: • Identification of Barn Swallow nesting colonies prior to mine construction; • Restricting habitat displacement for mine infrastructure to periods outside the breeding bird season which occurs from May 1 to August 15; • Creation of artificial nesting structures to encourage recolonization or new colonization by Barn Swallows in areas where farm structures are removed; • Restoration of disturbed habitats at closure or encouraging development of habitats capable of providing suitable Barn Swallow foraging habitat; • Sound abatement strategies will be implemented to dampen sound	The RRM began to monitoring barn swallows within the project prior to the construction phase (pre 2015) and implemented four artificial nesting structures in 2015 prior to the breeding season to offset the removal of existing farm structures. Monitoring of the success of the nesting structures has been completed over the past three years. 2016 was the first year that nesting attempts occurred in any of the structures. Structures such as the Mill and conveyors had bird deterrents placed on them in 2017, however Barn swallows did get within the Mill as construction was not finished and one juvenile Barn swallow was found dead. This was reported to MNRF and EC. By the end of 2017 the Mill was sealed from birds as much as possible. Best management practices are used to keep birds from nesting in all undesired areas and when a nest is discovered the area receives an appropriate buffer zone until it is found to be abandoned.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	infiltrating habitats surrounding high traffic areas of the mine; • Establishment of zones where Barn Swallow colonization is desired, tolerated or not wanted. These measures may be necessary to prevent colonization in areas of high human or vehicular activity that would put swallows and swallow breeding success at risk or where order and cleanliness are desired. In this case, discouraging tactics may be implemented to discourage colonization. Conversely, protection may be provided to swallows nesting in other locations where their presence is encouraged and does not cause problems to mine operations;		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
112 Continued	Mitigation measures that will be used to reduce potential adverse effects to Barn Swallows will include the following: • Enforcement of speed limits along mine controlled roads to reduce potential adverse effects of increased vehicular traffic associated with the RRM. Signs warning drivers of the possibility of wildlife encounters will be posted in areas of high wildlife activity. A log of collisions will be kept to monitor the effectiveness of the proposed mitigation and additional mitigation measures will be implemented if necessary; and • Implementation of a monitoring plan for Barn Swallow populations in proximity to the proposed mine and transmission line sites and in appropriate control areas.	The RRM began to monitoring barn swallows within the project prior to the construction phase (pre 2015) and implemented four artificial nesting structures in 2015 prior to the breeding season to offset the removal of existing farm structures. Monitoring of the success of the nesting structures has been completed over the past three years. 2016 was the first year that nesting attempts were made in any of the structures. In 2017 there were no nesting attempts. As the project advances toward operations the need to establish zones where barn swallow colonization is desired, tolerated or not wanted will be taken into consideration as well as the need to provide additional nesting structures. - Ongoing	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
113	Mitigation measures that will be used to reduce potential adverse effects to all species of Special Concern and Provincially rare species will include the following: • Restriction of principal habitat displacement for mine infrastructure to periods outside the breeding bird season which MNR has indicated occurs from May 1 to August 15; • Implementation of sound abatement strategies to dampen sound infiltrating habitats surrounding high traffic areas of the mine; • Where feasible, RRM lighting fixtures will be directed in such a fashion as to reduce excess production of light to the surrounding environment. • Establishment of zones where Black-billed Magpie colonization is desired, tolerated, or not wanted. These measures may be necessary to prevent colonization in areas of	Since the start of construction New Gold RRM has been implementing a no tree clearing policy during the breeding bird season. The project has also implemented sound abatement strategies through planning tree clearing to consist only in areas of mine infrastructure, purchasing new equipment constructed with muffler systems and implementing preventative maintenance programs to ensure all equipment is operating adequately. In 2015 speed limit signs were posted on project roads and security was equipped with radar detection equipment. During the summer of 2016 wildlife crossing signs were installed at six locations to warn drivers of the possibility of wildlife encounters. Currently Black-billed Magpie are found throughout the project site with no colonization in high vehicular activity or areas of concern. Currently there are no mitigation measures necessary.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	high human vehicular activity that could put magpie and magpie breeding success at risk. Discouraging tactics may be implemented to discourage colonization. Conversely, protection may be provided to magpies nesting in other locations where their presence is encouraged and does not cause problems to mine operations. • Enforcement of speed limits along mine controlled roads to reduce the potential for adverse effects of increased vehicular traffic associated with the RRM. Signs warning drivers of the possibility of wildlife		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
113 Continued	Mitigation measures that will be used to reduce potential adverse effects to all species of Special Concern and Provincially rare species will include the following: • Inclusion of wildlife awareness information into regular safety inductions performed by the mine. Workers will be made aware of seasonal changes in wildlife behaviour or presence in proximity to the mine; • Treatment of tailings slurry containing cyanide and associated heavy metals in the process plant using the SO2/Air process before being discharged to the TMA; and • Restoration of disturbed habitats at closure including the development of habitats capable of supporting a diversity of wildlife species, including Species of Special Concern and rare species.	These measures have been implemented since 2015 as part of general orientation. Seasonal changes in wildlife behavior are communicated via bulletins, morning radio transmissions and tool box talks. Tailings have been treated as required since 2017-09-14. Progressive reclamation working towards closure is on-going, at the end of 2017 an approximate 140 ha of mine site is considered reclaimed.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
114	Timing of the transmission line construction will be planned to avoid the breeding bird and main tourist season, as possible.	Clearing and construction of the transmission line right of way was initiated between November 2015 and April 2016 to avoid the breeding bird season and main tourist season.	Completed November 2015 to April 2016.
115	Traditional Knowledge/Traditional Land Use (TK/TLU) data has been widely collected for the RRM, including from the closest communities of BGRFN, Rainy River First Nations and Naicatchewenin First Nation. All TK/TLU sessions were community driven, meaning that the method of data collection was community specific. The majority of the data has been broad and overreaching, which NG will continue to respect as it serves as the basis for Aboriginal Persons unique relationship to the land. TK/TLU collection will continue; information collected will be appropriately considered for construction, operation and closure phases. For example, NG will further investigate the historical travel corridor and incorporate appropriately any new information that may become available. (Letter to	No additional Traditional Knowledge or Traditional Land Use information was provided in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	Chiefs from Kyle Stanfield, October 2013).		
116	NG will share results of the TK/TLU data sessions in a non-public First Nations forum(s). (Letter to Chiefs from Kyle Stanfield, October 2013).	TK/TLU data is owned by individuals and communities. NG has shared available data as requested within specific communities.	Completed Prior to January 15, 2015 as part of Environmental Assessment Consultation

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
117	NG has an open invitation for First Nations, the MNO and regional stakeholders to participate in all baseline and environmental monitoring programs, including Whip-poor-will, where appropriate and to share monitoring results. NG will continue to advise of the opportunity at public forums in order to encourage anyone who's interested to participate. (Letter to Chiefs from Kyle Stanfield, October 2013).	During the completion of baseline studies as part of the Environmental Assessment Permitting Process, New Gold retained the assistance of volunteers from a number of communities to participate in data collection. In 2015 and 2016 community members from Big Grassy participated in fisheries research projects. Since the second year of construction New Gold has also employed a community member from Big Grassy as an Environmental Monitor (full-time) within the Environmental Department. Job duties of this position include; air quality, water quality and wildlife sampling and monitoring, participating in on site reclamation projects and reporting on site findings to their community. In addition New Gold has developed Environmental Monitoring Boards as a method of communicating on site environmental activities and research studies to the public.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
118	Additional information related to Lake Sturgeon and the Rainy River First Nations management program as requested, was added to the Final EA Report. NG has committed to a program of close coordination with Rainy River First Nations in support of the pre-existing First Nation Watershed Program and water quality protection. Company funding will be provided as part of the fisheries compensation program to further water quality enhancement programs for the Pinewood and similar agriculturally-impacted waterways.	In 2017 the RRM Environmental Manager met with the Rainy River Stewardship Committee on a few occasions to discuss potential programs, however the Committee didn't pursue the option. New Gold also requested First Nation participation in the annual Fish Tissue Sampling Program in the Pinewood River (Fall 2017) however aside from the onsite First Nation Environmental Monitor there was no additional participation.	
119	NG will reach out to the Seven Generations Education Institute and/or the MNR to obtain any additional information on baseline health of animals and fish. (Letter to Chiefs from Kyle Stanfield, October 2013).	Completed as of March 3, 2014.	March 3, 2014.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
120	Aboriginal People will play an active role in the development of the mine Closure Plan, including development of the monitoring and mitigation programs. While the Closure Plan will be completed prior to construction, NG will consult on significant revisions periodically during operations to ensure incorporation of TK and best management practices. (Letter to Chiefs from Kyle Stanfield, October 2013).	The Aboriginal Communities participated in a joint technical review of the Closure Plan and have planned participated in the 2017 Closure Plan Amendment.	Completed August 2014.
121	Monitoring programs targeted at ungulates (moose, deer) will be coordinated with local Aboriginal people. (Letter to Chiefs from Kyle Stanfield, October 2013).	The Deer Tissue Monitoring Program was initiated in the Fall of 2016 and continued during 2017. The intent of the project is to collect tissue samples to monitor for metal and cyanide accumulation. In 2016 Aboriginal Communities were consulted with regarding the program. Additional information related to monitoring programs and results are shared with Aboriginal Communities through Environmental Monitoring Boards. The Monitoring Boards are regular meetings organized by New Gold as an opportunity to provide project updates and environmental monitoring and sampling information. The implementation of the Monitoring Boards commenced in 2016 and became more regularly attended in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
122	NG would be pleased to assemble a map showing the locations of the closest First Nation community water supply intakes on receipt of the locations/coordinates. (Letter to Chiefs from Kyle Stanfield, October 2013).	Water supply intake locations known were included on map provided by New Gold Rainy River Project (October 1, 2014).	Completed October 1, 2014.
123	While the Draft EA has shown no impacts to Aboriginal or non-Aboriginal people's health, any new information that has a potential to impact health will be provided to Aboriginal people. (Letter to Chiefs from Kyle Stanfield, October 2013). Further, NG has committed to analyse ungulate organ meats voluntarily submitted to them by local hunters, with the results of any such analysis made available to local residents and Aboriginal communities.	No new information was obtained or new impacts predicted during 2017 related to the RRM that could affect the health of Aboriginal people. Results from the 2017 Fish Tissue Monitoring Program indicated that there has been no accumulation of metals in the tissue and organs of northern pike and walleye in the Pinewood River as a result of the project. A copy of the 2017 Fish Tissue Quality Monitoring Report can be found in the Supporting Documentation for Appendix A.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
124	NG will work with Aboriginal groups to ensure employee overall well-being. Programs to highlight the dangers of drug use combined with drug testing will be implemented. (Letter to Chiefs from Kyle Stanfield, October 2013).	A First Nations Aboriginal liaison is onsite and available to meet with employees. New Gold provides employee benefits and employee assistance programs to all staff and their families. RRM also has seasonal public ceremonies, established tobacco offering stations and provides an employee assistance program as part of the benefits provided to all employees.	
125	As a best practice and acting as a responsible neighbour, NG will notify local stakeholders of project activities as appropriate.	New Gold strives to provide site tours for neighbours as well as public newsletters distributed district wide.	Neighbours Tour; Sept 28/17 Public Tour; Aug 31 & Sept 14, 2017 Private Neighbour Tours; July 11, Aug 3, Aug 11, Aug 21/17 Newletters; Apr 3 & Dec 21/17

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
126	NG has and will continue to actively engage the MNR and local outfitters including those that hold the Bear Management Areas that will be affected by the RRM.	During 2017 two members of the New Gold Environmental Department completed the Problem Black Bear Management Course provided by MNRF. New Gold then obtained an Authorization to Trap and Relocate Black Bears. Regular discussions occur with the individual who holds the Bear Management Area in which the mine resides.	
127	NG will calculate the area of forest land that will be removed from the total forest land within BGRFN territory, utilizing public sources and provide this information to the First Nation on delineation of the traditional territory by the BGRFN.	New Gold had extensive discussions with Big Grassy River First Nation (BGRFN) regarding traditional territory. A Participation Agreement was signed in January 2015. New Gold also provided the clearing plan to BGRFN on February 13, 2015.	Completed January 2015

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
128	NG is consulting with First Nations and the Métis Nation of Ontario (MNO) on the Draft Closure Plan provided on March 19, 2014. NG has provided resources to these communities to undertake independent review the Draft document. Results of the independent review process will be used to help the Company develop any further commitments and/or mitigations to reduce potential impacts to Aboriginal and treaty rights. This process is expected to be completed concurrent with the conclusion of the EA process.	Nine First Nations and the MNO confirmed participation in the Draft Closure Plan technical review. The results of these independent technical reviews were submitted to New Gold in September 2014, with detailed responses provided and revisions made to the Closure Plan submitted in 2015 as appropriate based on the comments received. The Closure Plan was accepted as filed by the Ministry of Northern Development and Mines on February 23, 2015, shortly after positive decisions on both the Federal and Provincial EAs.	Completed September 2014. Closure Plan filed February 23, 2015.
129	NG is open to discussing closure objectives in relation to the results of the Traditional Knowledge / Traditional Land Use (TK / TLU) study.	No specific comments received in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
130	NG is supportive of the further development of mitigation measures in relation to traditional hunting (and plant gathering), which could potentially involve: • Continuing to involve BGRFN members in the development of adaptive management techniques related to closure planning, including the rehabilitation of habitat for wildlife; and • Restoring access to RRM lands following mine closure to the extent that such access is safe / possible.	New Gold has a Participation Agreement with BGRFN that takes this commitment into consideration.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
131	NG has committed to provide members of the BGRFN, Big Island First Nation, Ojibways of Onigaming First Nation, Naotkamegwanning First Nation, Rainy River First Nations, Naicatchewenin First Nation and Métis represented by the MNO Region 1 Consultation Committee, the ability to access certain lands that NG is able to make available for gathering of wild medicines, berries or other vegetation. Access will be coordinated with the Aboriginal communities.	NG remains committed to providing access to all areas of the site that are safe to do so. During construction, access is more limited as there is heavy equipment and construction activities in numerous areas. In 2017, Aboriginal communities accessed a designated ceremonial area on Gallinger Road; access to other areas was allowed when it was safe to do so and with site personnel present.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
132	NG has committed to ensure that Aboriginal communities (including BGRFN, Big Island First Nation, Ojibways of Onigaming First Nation, Naotkamegwanning First Nation, Rainy River First Nations, Naicatchewenin First Nation and Métis represented by the MNO Region 1 Consultation Committee) have the ability to access the site for cultural and ceremonial purposes so that local Aboriginal people can undertake ceremonies at different times of the year to show respect for the land and its spiritual aspects. This will ensure that young people can participate in ceremonies and learn from elders and ceremonialists. Teaching through the generations will therefore be maintained.	New Gold remains committed to the opportunity for ceremony. New Gold hosts two ceremonies each year, one in Spring and one in Fall.	Spring Ceremony - May 9/2017 Fall Ceremony - Oct 3/2017

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
133	A detailed Fire Response Plan will be developed (Final EA Report, Section 8.2). This document will be made available for MNR review prior to construction initiation.	A detailed Fire Response Plan was developed in 2015. In 2016 the plan was reviewed. New Gold employees under the direction of the Health and Safety Department have established an Emergency First Response Team. Members of the team have been trained to use the onsite fire truck and fire suppression equipment.	Completed April 2016

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
145	134. NG will engage with local stakeholders as appropriate to provide notification of project activities and to mitigate potential impacts as practical.	New Gold sent out two newsletters in 2017, hosted public tours, participated in local events and provided presentations. Newslettters - Apr 3/2017 and Dec 21/2017; Public Tours - Aug 31/2017 and Sept 14/2017; Fort Frances High School Heavy Equipment Class Tour - Apr 25/2017; Local community Economic Development Officer Tour - May 17/2017; Beaver Brae High School Tour - May 18/2017; Mine Centre School Tour - June 1/2017; Retired teachers tour - July 13/2017; Big Island student tour - July 21/2017; MNO AGA Tour - Aug 17/2017; Presentations/Participation: Ontario Works - July 11/2017; Mining Form - Wabigoon Lake - Oct 17/2017;	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
		Career Fair - Onigaming - Dec 1/2017; Rainy River District Municipal Association (RRDMA) Annual General Meeting - Jan 28/2017; Industry Advisory Group Meeting - Feb 1/2017; Men's Breakfast Club - Aug 22/2017; Science Technology Engineering Arts & Mathematics (STEAM) night at Sturgeon Creek School - Mar 30/2017	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
135	Related to the transmission line: • Compensation will be provided for merchantable timber value where applicable; • Maintain transmission line set back distances of not less than 100 m from area lakes to provide effective visual screening from open waters; • Landscape screening to minimize the contrast in landscape character; for example by leaving shrub cover vegetation that will not affect the conductors (i.e., the wire) in the ROW at creek crossings; and • Minimizing land use conflicts and concerns by consulting with other users and stakeholders (i.e., Aboriginal peoples, hunters, trappers, outdoor recreationalists) to identify and implement other means of conflict resolution.	NG proactively placed newspaper advertisements to advise recreational users of construction activities along the transmission line during the hunting season in 2015, as well as engaged with the Clearwater Association.	Commitment completed 2015

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
136	NG will implement a hiring policy that encourages employment of local workers, including members of human environment regional study area First Nations and Métis communities. Where feasible, goods and services will be procured from local and regional suppliers as well as suppliers that can further demonstrate Aboriginal employee content. Provide on the job Common Core training to assist local workers to develop mining-specific skills, and implement career training and development opportunities for employees once hired. NG will provide continuous, on the job safety training.	In 2015, NG implemented a Human Resource Strategy that focused on local employment which continued through 2017. As of December 31, 2017, 72% of New Gold employees were from the human environment regional study area. Local and Indigenous content is a consideration in all RFP's issued. Training and development is provided to all operations employees to ensure legislated requirements are met. Since 2015, New Gold RRM maintains the position of a business development officer who is available on staff to support local businesses in providing goods and services to the project.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
137	NG will continue to engage with potentially affected stakeholders as the project develops, including those local and regional businesses which may provide accommodation facilities for the RRM workforce.	NG continues to send out newsletters and engage with local stakeholders including Chambers of Commerce. Using external facilities (such as a local contractor's construction on the accommodation facility), NG and its' contractors continue to engage with local businesses for accommodation as construction activities continue. Newsletters - distributed on Apr 3/2017 and Dec 21/2017 Local community Economic Development Officer Tour - May 17/2017; Rainy River District Municipal Association (RRDMA) Annual General Meeting - Jan 28/2017; Industry Advisory Group Meeting - Feb 1/2017; Men's Breakfast Club - Aug 22/2017	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
138	Fish habitat compensation will be provided onsite related to the Federal Fisheries Act. A portion of this compensation habitat, notably the Clark Creek, Clark Creek pond and Teeple pond, could potentially be provided to licensed bait fishermen	Clark Creek, Clark Creek Pond and Teeple Pond were commissioned in 2016. Monitoring on the success of fish habitat and fish re-introduction in the system was ongoing in 2017. In 2016 New Gold presented an access agreement to two local baitfish harvesters for their consideration. Discussions have been ongoing.	
139	NG respects BGRFN's Aboriginal and Treaty Rights, and is working with the community to develop a collective agreement that will include mutually acceptable means for mitigation of accepted impacts.	NG and BGRFN signed a participation agreement on January 9, 2015.	Commitment completed January 9, 2015.
140	Where NG has control, commercially reasonable efforts will be made to work with Resolute, MNR and local loggers to facilitate the use of merchantable timber by local mills, in recognition of the importance of mills to the local economy.	Since 2015 the project footprint has been cleared under permits and authorizations granted from the MNRF. In 2017 a local logging company was hired to remove merchantable timber to support project development.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
141	NG will make reasonable efforts to accommodate Resolute in providing access through NG lands to Crown lands over which Resolute has an interest provided that the access does not interfere with mine construction or operation; that the access does not put the safety and security of NG or Resolute personnel or property at risk; and subject to the prior execution of any land access agreement(s) which NG deems appropriate.	There were no requests for access during 2017.	
142	As the mine approaches the end of mine life, NG will implement strategies to transition the workforce to buffer the effects of job losses, as well as an Adjustment Committee.	Not applicable during 2017 (Construction Phase and start of Operations Phase).	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
143	The health and safety of workers will be ensured by meeting applicable occupational health and safety legislation standards, as well as utilizing other best management practices for industrial hygiene hazard control as appropriate.	New Gold RRM strives to meet or exceed the health and safety regulatory requirements. New Gold RRM provides and ensures that all workers have the necessary personal protection equipment (PPE) to protect against industrial hygiene exposures. The safety department also ensures that workers receive appropriate training in regards to PPE.	
144	While the Draft EA has shown no impacts to Aboriginal or non-Aboriginal people's health, any new information that has a potential to impact health will be provided to Aboriginal groups. (Letter to Chiefs from Kyle Stanfield, October 2013). NG has committed to analyse ungulate organ meats voluntarily submitted to them by local hunters, with the results of any such analysis made available to local residents and Aboriginal communities.	No new information was obtained or new impacts predicted during 2017 related to the RRM, that could affect the health of Aboriginal or non-Aboriginal people.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
145	NG will work with Aboriginal groups to ensure employee overall well-being. Programs to highlight the dangers of drug use combined with drug testing will be implemented. (Letter to Chiefs from Kyle Stanfield, October 2013).	NG has an employee assistance program available to all employees. RRM employees and contractors are required to commit to be fit for duty (physical, mental and emotional state suitable to work safely). NG continues to commit to work with Aboriginal individuals to ensure there are appropriate cultural considerations, including an Aboriginal liaison on site and locations to conduct ceremonies.	
146	A blasting plan will be developed describing all proposed blasting operations at the RRM site. All personnel who handle explosives will have appropriate training; all other individuals will be restricted from access.	New Gold Rainy River developed blasting plans in 2017 that followed this commitment. All personnel who handle explosives have the appropriate training. A locked fence with signage restricts access to the explosives mixing and storage areas.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
147	Recognizing that safety of workers is paramount, NG will attempt to reduce light pollution as possible.	New Gold ensure night shift inspections are conducted and include laydowns and work areas. Light plants and general lighting is evaluated to ensure worker safety and to minimize associated pollution and impact on wildlife.	
148	The RRM has been designed to meet all applicable fire protection system requirements and codes. Regular fire drills will occur to ensure that all workers are familiar with fire response procedures, as dictated within the environmental management system. All workers and visitors on site will receive an orientation which includes fire reporting and response procedures.	All personnel on site receive a site orientation. The site has acquired a fire truck and an ambulance. An Emergency Response Team has been created and employee members have received training on how to respond to fires and other potential onsite emergencies. In order to prepare for major events were two fire drills and one major spill table top exercise were held in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
149	Should it be determined in the future that additional fire break is required, appropriate approvals will be obtained from the MNR.	The need for an additional fire break was not identified in 2017.	
150	NG will ensure that safe access to properties is maintained during the construction and operation phases of the project. Once detailed plans are progressed, NG would welcome the opportunity to discuss further.	During the construction phase of the project (2015-2017) New Gold used signage, gates and on site security as a means of ensuring staff, contractors, visitors and public land owners were navigating the mine site and construction work zones appropriately and safely. Additional conversations with adjacent public land owners have remain ongoing when necessary to ensure safety. To date public access has been maintained on the Marr Road via Korpi Road and signs have been installed to direct traffic accordingly. During Q4 of 2017 the Rainy River Project transitioned into an operational state. At that time a gate house was installed at the main entrance to the site and security personal stop all vehicles to ensure the driver and passengers have appropriate identification to be on site. Additional security staff are responsible for patrolling the site.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
151	Any infrastructure, such as hydro services, that require relocation will be completed as expediently as possible, to minimize disruption to local users. It is currently envisioned that the disruption will only occur during the switchover from the existing to the (at that time) newly built line.	During the construction of the mine the two key projects that directly impacted the public were the installation of the hydro line and the realignment/construction of Highway 600. Both of these projects were completed in 2016. New Gold has always been committed to informing the public of the projects potential impacts by providing project updates through public open houses, meetings, advertisements and news letters.	
152	The re-aligned Highway 600 will be constructed by NG to MTO standards so that NG can pursue transfer of the road to the Province after construction.	This approach was taken during 2016. Construction of re-aligned Highway 600 was completed in 2016 and officially turned over to the MTO in 2017	Completed 2017
153	NG has had extensive consultations with the MTO in Thunder Bay related to the RRM highway planning and will continue to discuss issues related to the Highway 600 re-alignment, and associated maintenance and safety issues with MTO, the Township of Chapple, Stratton, the Rainy River Valley Safety Coalition, school bus operators, utility companies and emergency response groups.	In 2016, NG had extensive discussions with the MTO, Township of Morley, Township of Chapple and Hydro One regarding Highway 600. The re-aligned Highway 600 was opened to the public on December 23, 2015. An agreement was signed with the Township of Chapple on March 24, 2016. An agreement was signed with the Township of Morley on Feb 17, 2016. Ownership of the new portion of Highway 600 was turned over to MTO in 2017.	Completed 2017

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
154	A new East Access Road will connect Highway 71 with Roen Road by means of Korpi Road, to provide access for the general public, including to properties on Marr Road and for users of Crown land north of the site.	Construction of the East Access Road (Korpi Road) was completed and opened to the general public in 2016.	Completed 2016
155	NG will schedule the delivery of major equipment at off peak times where practical and ensuring that heavy loads are sized appropriately and transported only on highways that have sufficient load capacities while observing half-load seasonal restrictions.	The majority of large scale equipment for the open pit and mechanical components for the mine were shipped to the site in 2016 and all load transport requirements and restrictions were met. As the mine continues to operate New Gold will continue to hire experienced transportation hauling companies to deliver equipment and products to the site.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
156	Only licensed suppliers and carriers will be selected for the supply and transport of hazardous materials to the RRM site. When suppliers are selected, Rainy River will share supplier handling and transport information with the MNO.	Only licensed suppliers and carriers were selected for the supply and transport of hazardous materials to the RRM. Information was shared with the MNR by the RRM in compliance with this condition during 2016. In 2017 an audit was conducted by MTO with regard to transport of Dangerous and Hazardous Materials. Outcome from the audit included adjustment of travel routes to minimize travel on public roads to site. For external transport, this included direct delivery to site via Korpi Rd instead of reporting to the Warehouse first, thereby removing travel and turn around on Teeple Rd. This also reduced response time for site emergency services if an event was to occur.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
157	Drivers will be required to meet all applicable regulatory training requirements, be trained in spill response procedures for the materials they transport, and carry the appropriate Material Safety Data Sheets.	Drivers of licensed suppliers are required to be trained and carry the licenses, permits, documentation and signage as required. In 2017 an audit was conducted by MTO with regard to transport of Dangerous and Hazardous Materials and additional controls were put in place for Warehouse and Logistics staff which included regulatory training and adjustment of travel routes to minimize travel on public roads between Barron Warehouse and site.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
158	Vehicles transporting materials to site will be required to maintain a supply of basic emergency response equipment, including communication equipment, first aid materials and a fire extinguisher, where appropriate.	All vehicles travelling onsite are required to have a spill kit, first aid kit, fire extinguisher and radio. New Gold has also provided an onsite emergency response trailer containing equipment and supplies for handling hazardous spills to the environment. In 2015 an Emergency Response Team comprised of New Gold employees was established. Since 2015 the Team has obtained training on operating fire suppression, driving the fire truck and using emergency spill containment equipment. In 2017 an audit was conducted by MTO with regard to transport of Dangerous and Hazardous Materials and additional controls were put in place which included adjustment of travel routes to minimize travel on public roads to site. For external transport, this included direct delivery to site via Korpi Rd instead of reporting to the Warehouse first, thereby removing travel and turn around on Teeple Rd. This also reduced response time for site emergency services if an event was to occur.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
159	Notification and/or reporting of any vehicular accidents and spills will follow Provincial (Ministry of the Environment) and other applicable requirements.	During 2017, there were no incidents of vehicular accidents causing spills. Each incident where a vehicle left the road was monitored during the vehicle removal for any spills. During 2017 to prepare for an onsite emergency spill the Safety Department has conducted a table top exercise on a potential spill by a delivery semi-trailer.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
160	With regards to controlling adverse traffic effects during transmission line construction: • Ensuring that NG employees and contractors / subcontractors adhere to posted speed limits and practical speed limits along the ROW; • Contractors and their subcontractors will be required to have properly and seasonally maintained equipment; and • Maintain regular communications with the Township of Chapple, the MTO and Ontario Provincial Police representatives, to monitor and mitigate traffic effects.	Construction of the transmission line was completed between November 2015 and April 2016. There were no traffic impacts or accidents during completion.	Completed April 2016.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
161	NG will monitor regional housing supply, particularly in the Chapple, Emo, and Fort Frances markets during the planning and construction phase of the RRM and in advance of each wave of new operations employment. Engage in regular discussions with Municipal planning officials in these communities to understand the anticipated evolution of their resale and new-home markets, and the extent to which each community desires growth or does not. NG will continue to work with hoteliers and town officials, to help avoid possible construction employment demands that would negatively affect accommodation capacity needed to support the tourist season.	To alleviate pressures on regional housing supply and hoteliers, during 2017 NG has: 1) contracted a local Aboriginal business to provide a 500+ person accommodation facility for construction workers who are contracted by New Gold. The accommodation facility is located on Atkinson Road in Chapple Township. Atkinson Road is located 1.5km south of the junction of Barwick Road and Highway 600 (or approximately 5 km south of the open pit). The accommodation facility was built by Onikaajigan Construction, a partnership between Rainy River First Nation, Naicatchewenin First Nation and Saulteaux Consulting and Engineering. It is owned and operated by Onikaajigan Construction. New Gold exclusively leases the camp facility for the purpose of housing out of town construction workers. 2) committed to local employment 3) developed an employee incentive program to support new housing development 4) working with local developers to construct new accommodation in the region, including an apartment facility in the Township of Emo 5) with the completion of a number of contracts relating to construction, a number of private rental facilities became available to the general market towards the end of 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
162	Develop suitable policies and initiatives to encourage carpooling amongst employees, with the aim of reducing commuter-related traffic and reducing the individual burden of commuting. NG may explore alternate accommodation strategies to support its employees.	Completed on April 14, 2015. A number of former local residents have come forward to request copies of the reports which NG provided.	Completed April 14, 2015.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
163	NG will continue to discuss the RRM and potential additional demands that could be placed on the services of regional Municipalities. NG will continue to support government-led initiatives that support social sustainability during all project phases. NG with work with local service agencies to gather information about social issues or service capacity issues so that they may be addressed in a collaborative manner. NG will maintain communications with local and regional service providers to monitor and work collaboratively to address any Project-related changes that may be experienced.	In 2017, New Gold contributed financially to the Rainy River District Social Services Administration Board, the Fort Frances Physician Requirement Committee. To reduce strain on the local medical system New Gold has employed a Nurse Practitioner on site. This service is available to all employees. New Gold has provided a letter of support for the establishment of a licensed daycare in Emo.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
164	Potential health risks associated with the consumption of ungulate organ meats will be mitigated through the voluntary submission of organ meats by local hunters for analysis. Results of any such analysis would be made available to local residents and Aboriginal communities.	In 2016, RRM requested voluntary submission of organ and tissue by local hunters as part of the Deer Tissue Monitoring program. In 2016 New Gold implemented a deer tissue monitoring program to establish baseline data of metal and cyanide accumulation in deer tissue for species found within the project boundary and the Rainy River District. Requests for participation in the study were mailed out to Aboriginal Communities as well as posted in public spaces throughout the District. In 2016 37 tissue and organ samples were obtained from area hunters as well as deer carcasses from motor vehicle accidents. The samples were sent to a certified lab to be analyzed for metal and cyanide accumulation. It is important to note that all of the contaminants which were tested for can be produced by mining operations, but can also occur naturally I the environment and can be introduced by other human activities. Many of the contaminants were considered to be at negligible or low levels within most of the 37 samples tested, although a few had quite high variances with concentrations elevated over the majority of the values. These samples were not taken within the boundary of the RRM. The study continued in 2017 and is planned to run in 2018, 2021, 2024, 2027, 2030, 2033 and 2036 or as requested/needed. A copy of the 2016 White Tailed Deer Tissue Sampling Report can be found in the Supporting Documentation for Appendix C. The 2017 report will be available in the spring of 2018.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
165	NG has committed to undertaking a mitigation program related to cultural heritage landscapes and built heritage resources consisting of an illustrated history of the study area.	An illustrated settlement history of the study area was completed by Dan Morisseau in 2015. The completion date was October 23, 2015.	Completed October 2015.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
166	Emergency response procedures will be established as part of the environmental management system. After any incident, a review will be conducted to ensure that the required design changes and procedures and appropriate monitoring measures are in place to ensure that incident will not be repeated.	Ongoing training occurred during 2017 for the Emergency Response Team. One field emergency response drill was conducted as a review of the emergency response procedures in 2017. The field drill included a review and follow-up actions as part of the conclusion to ensure better preparedness. Two small fires occurred in 2017 however it was immediately contained and resulted in no emergency action and reported appropriately. One fire occurred at the local dump where our ER Team helped local fire fighters to put out the fire. This was a great learning experience for our team to work with local firefighters.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
167	NG has committed to ensure that First Nations (including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, and Ojibways of Onigaming First Nation) and Métis community members have the: • Ability to access the site for cultural and ceremonial purposes, so that local Aboriginal people can undertake ceremonies at different times of the year to show respect for the land and its spiritual aspects.	New Gold RRM is committed to providing access to the site for cultural and ceremony purposes.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
167	All NG staff will undergo cultural awareness training. Temporary contractors will undergo an awareness program as part of the regular induction program when working at the mine (Letter to Chiefs from Kyle Stanfield, October 2013). This will ensure that people that work at the site are aware of indigenous culture and values, and are respectful of the principles and values of the Ojibwe people. This mitigation has been identified as a result of the Draft EA independent First Nation review and agreed to by NG. NG will follow up directly with the BGRFN regarding any additional mitigation and accommodation measures.	All New Gold RRM staff and contractors undergo Cultural Awareness training as part of the site induction. Additionally, New Gold has a Participation Agreement with BGRFN which addresses additional mitigation and accommodation measures.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
168	NG is fully agreeable to work with local Aboriginal peoples on an ongoing basis to monitor metal concentrations in country foods (notably fish muscle and liver tissues, and White-tailed Deer liver tissue; and other wildlife tissues as appropriate. A commitment to work with local Aboriginal groups to sample White-tail Deer liver tissues [and other wildlife tissues as committed to herein] for metals analysis has been made. This analysis could be expanded to include testing for additional metals. NG will work with local Aboriginal hunters to determine the most effective path forward on this topic.	In 2016 New Gold implemented a deer tissue monitoring program to establish baseline data of metal and cyanide accumulation in deer tissue for species found within the project boundary and the Rainy River District. Requests for participation in the study were mailed out to Aboriginal Communities as well as posted in public spaces throughout the District. In 2016 37 tissue and organ samples were obtained from area hunters as well as deer carcasses from motor vehicle accidents. The samples were sent to a certified lab to be analyzed for metal and cyanide accumulation. It is important to note that all of the contaminants which were tested for can be produced by mining operations, but can also occur naturally I the environment and can be introduced by other human activities. Many of the contaminants were considered to be at negligible or low levels within most of the 37 samples tested, although a few had quite high variances with concentrations elevated over the majority of the values. These samples were not taken within the boundary of the RRM. The study continued in 2017 and is planned to run in 2018, 2021, 2024, 2027, 2030, 2033 and 2036 or as requested/needed. A copy of the 2016 White Tailed Deer Tissue Sampling Report can be found in the Supporting Documentation for Appendix C. The 2017 report will be available in the spring of 2018. Results from the 2017 Fish Tissue Monitoring Program indicated that there has been no accumulation of metals in the tissue and organs of northern pike and walleye in the Pinewood River as a result of the project. A copy of the 2017 Fish Tissue Quality Monitoring Report can be found in the Supporting Documentation for Appendix A.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
169	NG will conduct a risk assessment of the potential long-term exposure of fish and wildlife to accumulated metals within the constructed wetland. Such a study will be carried out within one to two years prior to mine closure (or earlier during the project operations phase), and if a meaningful risk is determined to exist the risk will be mitigated as part of overall mine closure by removing and disposing the contaminated sediments to the bottom of the pit lake. This could readily be accomplished by a small dredging operation.	This commitment is currently not applicable to the current stage of the project. The constructed wetland will be built in late 2018.	
170	Unterman McPhail will prepare a complete description of the evaluation process for resources identified of cultural heritage value or interest in a memo format.	The memo was completed September 11, 2013.	Commitment completed September 11, 2013.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
171	At closure, NG will undertake an evaluation of any remaining cultural heritage resources / structures located on NG property in consultation with a qualified professional, and also incorporating any liability/public safety concerns.	Not applicable to 2017.	
172	A range of conservation approaches will be considered in the recommended Cultural Heritage Assessment Report / Cultural Heritage Documentation Reports for Sites #11 and #13 as suggested by MTCS.	Site #11 was demolished in 2015 as it was deemed to be hazardous as it was not structurally fit. Unique features, such has blacksmith hardware were removed and are currently in storage. As part of the development of the Richardson Trail, NG intends to highlight the settlement history through artifacts such as the hardware. Prior to the demolition, NG had contacted a representative of the Chapple Heritage Committee to ensure there were no other considerations. Site #13 remains in situ. A descendent of the builder has expressed an interest in relocating the structure; NG is open to considering the move of the structure.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
173	NG will provide follow-up documentation related to Cultural Heritage Assessment Report / Cultural Heritage Documentation Reports to the following local museums and archives: • Chapple Museum; • Kay-Nah-Chi-Wah-Nung Historical Centre (Manitou Mounds); • Rainy River District Women's Institute Museum; and • Fort Frances Museum and Cultural Centre.	Completed on April 14, 2015. A number of former local residents have come forward to request copies of the reports which New Gold RRM provided.	Commitment completed April 14, 2015.
174	Monitoring would occur for the following durations: • Archaeology: construction phase • Built heritage: construction phase	New Gold had an onsite Archaeologist throughout the construction phase. No additional Archaeological or built heritage resources were identified in 2017.	Completed 2015 to 2017

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
187	With regards to protection of cultural heritage values during transmission line construction: • Should human remains be identified during construction, all work in the vicinity of the discovery will be suspended immediately, and notification will be made to the Ontario Provincial Police, or local police, who will conduct a site investigation and contact the district coroner. Notification must also be made to the Ministry of Tourism, Culture and Sport, and the Registrar of Cemeteries, Ministry of Government Services. • Should cultural heritage resources (archaeological or historical materials or features) be identified during construction or operations, all activity in the vicinity of the find will be suspended and the Ministry of Tourism, Culture and Sport archaeologist be contacted. This condition provides for the potential for deeply buried sites not typically	No human remains or cultural resources were identified during transmission line clearing in 2015 to 2016; the Transmission Line construction was completed April 2016.	Completed April 2016.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	identified; and • In addition, NG will continue to engage Aboriginal people (including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, Ojibways of Onigaming First Nation and Métis community members) about the transmission line construction and will respond should additional culturally significant areas be identified that could be impacted by the construction.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
188	Related to transmission line, construction will be supervised by a qualified archaeologist at identified areas of high archaeological potential. Regular, ongoing discussions with stakeholders, Aboriginal people and local communities will help to monitor any effects to the socio-cultural environment and identify mutually satisfactory ways to mitigate negative or enhance positive effects. A formal complaints procedure will be established to provide stakeholders and Aboriginal peoples a voice during the construction, operation and decommissioning phase of the transmission line project. A response protocol will also be established to ensure that follow up occurs.	Prior to construction activities, NG conducted the required assessments on the transmission and line, which included the field assessment of high potential areas as per the 2011 Standards and Guidelines for consultant archaeologists. NG also employs a qualified archaeologist and in 2015 had consultant archaeologist on site. No cultural resources were identified during construction. Archaeology clearance letter was received on the transmission line on Dec 29, 2014.	Completed December 29, 2014.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
177	A targeted site investigation will be conducted at the end of mine life to identify soils that may have been affected by hydrocarbons or chemicals in specific areas (e.g. truck refuelling area). Soil materials found to exceed the appropriate clean up criteria for hydrocarbons will be remediated according to government requirements. If there is reason to suspect an area of soil has been affected by chemicals other than hydrocarbons, soil samples will be collected and tested. If the applicable regulatory requirements are exceeded, an appropriate method of disposal will be sought in consultation with the relevant authorities.	This condition will be applied at the time of mine closure and reclamation.	
178	Document and respond to comments, issues or concerns.	An External Feedback and Complaint Protocol was issued in follow up to the Provincial EA approval with a completion date of February 2, 2015, and continues to be implemented in 2017.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
179	NG made 13 significant commitments (Tables 3-4 and 14-2) arising from the independent technical review of the Draft EA Report (Version 1) on behalf of Aboriginal groups which will be fulfilled.	These commitments were all met as described in this registry, or through negotiated agreements (non-public).	
180	BGRFN undertook a second independent review of the Draft EA Report provided to the NG on October 18, 2013. The review concluded that additional work with the community was required and NG has committed to continuing the close engagement with the community in support of the RRM development.	BGFN and NG signed a Participation Agreement on January 9, 2015. In the agreement there is a defined protocol for communication and engagement.	Commitment completed January 9, 2015.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
181	Environmental monitoring will be conducted in accordance with standard practice and regulatory requirements, including any site-specific environmental approvals.	Since the start of construction New Gold has had environmental personal assigned to environmental monitoring to satisfy regulatory requirements and permit approvals. During 2016 and 2017 several of these monitoring protocols where written into Operational Policies for the Environmental Department. New Gold's Environmental Department also launched a site wide computer program (Intelex) in 2017 which houses all of the permit conditions and compliance conditions for the Rainy River Mine. Employees are assigned to these tasks and are required to enter appropriate data, reports and outcomes to ensure compliance with site-specific conditions and approvals.	
182	Operational procedures to minimize the potential of accidents or malfunctions will be incorporated into the environmental management system. Penalties will be imposed for operational violations.	During 2017, the EMS continued to be developed and ongoing. The EMS system continues to be developed using the ISO 14001 Standards and will include operational procedures with penalties for nonconformance.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
183	Procedures will be regularly reviewed as part of the environmental management system.	The EMS was not fully in place and development was still on going in 2017. As such no monitoring of the EMS was completed in 2017. Both New Gold Corporate and the RRM have some policies and procedures in place and in draft form. Reviews of the implemented New Gold RRM EMS, procedures and policies will be completed once the EMS is finalized.	
184	The emergency response plan included in the environmental management system will address the primary hazardous materials on site including procedures for spill response on the trucking route to the RRM site.	During 2017, the EMS continued to be developed and ongoing to adapt to the new products and risks being added in the operation. The emergency response plan included in the RRM EMS addresses the primary hazardous materials onsite and spill response.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
185	All chemicals used at the site will have a Material Safety Data Sheet, in order to comply with the best practices in the industry for health and safety, and to provide relevant regulatory standards for the safe use of these materials.	The Material Safety Data Sheets are provided to New Gold RRM users and are accessible from the online site wide MSDS registry. Within this system, regular review and updates to the MSDS are a required by the department which each chemical. This aspect is included as part of the RRM Health and Safety WHMIS Program.	
186	Monitoring details will be developed through ongoing stakeholder consultation during the EA process, and through conditions placed on regulatory instruments such as permits, authorizations and approvals, issued by the Federal and Provincial regulatory agencies.	Since the start of construction in 2015 New Gold has been developing environmental monitoring programs to reflect the requirements and conditions set out in project permits and approvals as well as concerns brought forward by the public. Modifications to design and construction delays associated with permits and weather have required that monitoring programs are reviewed annually to ensure they are meeting required specifications. Due to the large volume of conditions and monitoring details New Gold seeks qualified and experienced consultants to handle monitoring requirements when necessary.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
187	A Follow up Monitoring Program (FMP) is provided in Section 13 of the Final EA Report, which subject to modification through the EA review process, will be implemented by NG in the manner and schedule identified, to: • Verify the accuracy of the environmental assessment of a designated project; and • Determine the effectiveness of any mitigation measures.	The Follow Up Monitoring Plan (FMP) for the Rainy River Project/Mine is designed around three central principles of environmental protection; Do no harm culture, respect for Aboriginal culture and values; continuous improvement and compliance with all environmental approvals and authorizations. The FMP applies to all stages of the project and the principles of the plan have been incorporated into the regular routine of how New Gold conducts business. Key components of the FMP have been incorporated into the Environmental Monitoring System (EMS) that New Gold is currently developing. The monitoring components are also tracked through our regulatory requirements and commitments for the project. New Gold tracks compliance with these conditions using a computer program called Intelex, where assigned employees are responsible for tracking performance against these commitments and conditions. The FMP and conformance for 2017 can be found in Appendix D of this report.	
188	Subject to acceptance in writing of the FMP by the Federal and Provincial governments, monitoring results will be provided to the parties involved in the FMP annually during the construction and operation phases of the RRM.	To date New Gold has provided all required monitoring information to appropriate government agencies as required or as requested.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
189	A list of FMP commitments made during the EA process will be maintained by NG, indicating where appropriate: • The nature of the commitment; • To whom, or to what group or agency the commitment was made, if specific; • Whether the commitment is related to the EA process alone; • Whether the commitment is addressed or linked to a regulatory instrument, such as a regulation or environmental approval; • Any applicable timeline if any; • The status of the commitment; and • Additional actions required to fulfil the commitment	This registry addresses these conditions.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
190	Environmental aspects and potential impacts of the project will be managed within an environmental management system which integrates environmental performance with overall project management.	The EMS is in development and ongoing. New Gold Corporate and the RRM have some environmental policies and procedures in place. A component of the EMS will manage and track the environmental aspects and impacts. Reviews of the implemented New Gold RRM EMS, procedures and policies will be completed once the EMS is finalized.	
191	Implementation and maintenance of the environmental management system will be driven by the NG commitment to ongoing compliance with the environmental requirements. Worker awareness of this commitment and requirements related to their work will be communicated through formal programs such as project orientation, job training or contractor packages.	During 2017, the EMS continued to be developed and ongoing. The EMS system continues to be developed using the ISO 14001 Standards and will include formal training programs and a focus on ongoing environmental compliance.	
192	Periodic management reviews will completed to consider changing circumstances which could affect the continued suitability and adequacy of the monitoring plans, and to support continual improvement in overall effectiveness.	During 2017, the EMS continued to be developed and ongoing. The EMS system continues to be developed using the ISO 14001 Standards and will include periodic management reviews of the RRM operation and continual improvement.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
193	NG proposes to amend the Closure Plan periodically as more information becomes available and as required by the Ontario Mining Act.	Comprehensive Closure Plan Amendment was submitted to MNDM on 26 Oct 2017. This amendment was necessary as the mine transitioned from construction to operations.	
194	NG is proposing to work with Aboriginal groups including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, Ojibways of Onigaming First Nation and Métis community members to provide access to alternative private lands for the purposes of supporting TLU on such lands; and potentially providing compensation or incentives through collaborative agreements between the Aboriginal groups and NG. Access will be coordinated with the Aboriginal groups.	NG has negotiated agreements with Rainy River First Nations (October 10, 2014), Naicatchewenin First Nation (October 10, 2014), Big Grassy First Nation (January 9, 2015) the Metis Nation of Ontario (November 25, 2014), Big Island First Nation (October 31, 2016), Ojibways of Onigaming (May 24, 2017) and Naotkamegwanning First Nation (April 19, 2017).	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
195	NG will communicate with Aboriginal groups including Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Big Island First Nation, Naotkamegwanning First Nation, Ojibways of Onigaming First Nation and Métis community members on traditional teachings and ceremony.	NG hosts two annual ceremonies at site; additionally Aboriginal liaison personnel meet with community members to discuss the project, activities, ceremony, etc. All NG employees undertake a 4 hour Indigenous engagement session as part of onboarding.	Fall Ceremony - October 3, 2017 Spring Ceremony - May 9, 2017
196	NG will review the Big Grassy River First Nation Traditional Knowledge / Traditional Land Use study and discuss accommodations of the cultural heritage sites identified.	This was addressed during Participation Agreement discussions. A Participation Agreement was signed with BGFN on January 9, 2015.	Commitment completed January 9, 2015.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
197	Related to transmission line construction, environmental monitoring will include (but will not be limited to) inspection of: • ROW to ensure excessive vegetation clearing is not conducted; • Appropriateness of equipment choice and maintenance of equipment to minimize environmental impacts; • Effectiveness of erosion control measures where applicable; • Construction activities and equipment operation, including refueling exercises; • Waste management, including wood waste from clearing and domestic wastes; • Monitoring of remedial actions associated with malfunctions and accidents (if any); and • Any requirements contained in	Work on the transmission line was completed in April 2016. The conditions outlined in this commitment were achieved.	Completed April 2016.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	environmental approvals and permits required to construct the transmission line. At a minimum, weekly inspections by a qualified person will occur of worksites and related areas, during clearing of the ROW and construction of the transmission line. Contractors will be required to have properly trained personnel to provide guidance to construction teams in the absence of the qualified environmental persons. The results of the inspections will be documented and follow-up actions, if any, delineated. Completion of follow-up actions will be confirmed during subsequent inspections. Inspection frequency will be increased should the need be identified. The duration of post-construction inspections, will depend on the results of the construction inspection. At a minimum, periodic aerial inspection will occur for environmental aspects during		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
	operation, coincident with other aerial surveys.		

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
198	NG will continue to communicate closely with First Nations and the MNO regarding the Project. (Letter to Chiefs from Kyle Stanfield, October 2013).	NG has several Participation Agreements / Impact Benefit Agreements in place which identify ongoing communication protocols: Rainy River First Nations/Naicatchewenin First Nation - Oct 10, 2014 Big Grassy River First Nation - Jan 9, 2015 Metis Nation of Ontario - Nov 25, 2014 Anishinaabeg of Naongashiing (Big Island) First Nation - October 31, 2017 Ojibways of Ongigaming First Nation - May 24, 2017 Naotkamegwanning First Nation - April 19, 2017 In addition, NG provides regular updates through newsletters, public presentations and individual meetings and emails with community representatives.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
199	NG is committed to working closely with the MNO. NG has provided resources to the MNO to undertake traditional studies as well as technical reviews of both the Draft EA as well as the Draft Closure Plan. NG will continue to support the MNO as part of the EA process and as mine operations begin.	NG has a Participation Agreement with the MNO (November 25, 2014) and continues with regular engagement on the RRM.	
200	NG is committed to working closely with the area First Nations and the MNO. NG has provided resources to Aboriginal Groups to undertake traditional studies as well as technical reviews of both the Draft EA as well as the Draft Closure Plan. NG will continue to support First Nations as part of the EA process and as mine operations begin.	NG actively engages all Indigenous groups about the Rainy River project, through newsletters, face to face meetings, site tours, business opportunities and job postings. Condition 9 of the EA approval is being fulfilled, although the level of engagement is directed by the communities.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
201	NG will commit to clearing of flammable debris within a minimum 30 m buffer area.	In 2016 the MNRF expressed concerns regarding the proximity of slash piles to standing timber as well as the size of piles. New Gold worked with the Ministry to ensure that piles were relocated and either chipped or burnt in a controlled manner. New Gold feels that they have received appropriate guidance from the Ministry to confirm that they are meeting the conditions of this commitment.	
202	NG is committed to continuing to engage potentially affected stakeholders as development and operation of the RRM progresses. Local municipalities will be engaged specifically in regards to contingency and emergency response procedures, prior to construction start. MNR coordination will be undertaken as appropriate.	New Gold has agreements with the Township of Chapple and the Township of Morley. The New Gold Health and Safety team has regular communication with Chapple Emergency Response.	

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
203	NG is committed to further discussions with potentially affected Aboriginal groups with respect to development of a protocol for the preservation of artifacts. Where practical and reasonable, artifacts that require removal will be transferred to a public institution selected through consultation with local First Nations and Métis represented by the MNO Region 1 Consultation Committee, in consultation with the MTCS. A MTCS collection transfer form will be completed by the surrendering licensee and the institution accepting the materials. Collection shall be curated to current standards.	NG will work with local Aboriginal groups on the transfer of artifacts. No artifacts were transferred from the archaeologist during 2017.	
204	NG will develop an accommodation with local trapline holders that meets the needs of both the proponent and the trappers.	New Gold worked with a bait harvester in 2017 to develop an access agreement. This was completed Aug 11, 2017. No other agreements are anticipated.	Completed August 11, 2017.

Condition/ Tracking #	Description	Status 2017	Date Completed (where applicable) 2017
205	NG will enhance components of the Richardson Trail and mitigate the impacts in collaboration with local landowners.	NG will initiate this commitment during the operations phase of the development, as it will be much safer to access particular areas at that time.	

Supporting Documentation

- Commitment Number 8 – 2017 Q1 through Q4 Air Quality Monitoring Reports
- Commitment Number 10 – Updated Acoustic Assessment Report for Early Operations (January 2018)
- Commitment Number 42 - 2017 Spill Reports Submitted to MOECC
- Commitment Number 43 & 45 – Operation Maintenance and Surveillance Manual for Water Management Structures (August 2017 V8)
- Commitment Number 50 – Tailings Management Area Closure Configuration Schematic (October 2017)
- Commitment Number 168 – White Tailed Deer 2016 Tissue Sampling Report Version 2 (May 2017)

NEW GOLD INC.
RAINY RIVER PROJECT

AIR QUALITY MONITORING PROGRAM
FIRST QUARTER 2017 REPORT

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

May 2017
TC111504

newgold Rainy River Project

May 12, 2017
TC111504

Mr. Darrell Martindale
New Gold Inc.
Rainy River Project
5967 Hwy 11 / 71, P.O. Box 5
Emo, Ontario
P0W 1E0

Dear Mr. Martindale:

Re: New Gold Rainy River Project
Air Monitoring Report, First Quarter 2017 Report

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to submit to New Gold Inc. (New Gold) the attached summary report of the First Quarter 2017 results for the ambient air quality monitoring program at the Rainy River Project.

The monitoring program consists of two air quality sampling stations that were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. The sampling stations are operated and maintained by New Gold staff.

The key findings of the Q1 2017 monitoring are as follow:

- There were no exceedances of the $PM_{2.5}$, TSP, or Metals' AAQC measured in Q1 2017.

The measured TSP and $PM_{2.5}$ concentrations for the First Quarter 2017 are depicted in Figures CL-1 and CL-2.

Amec Foster Wheeler Environment & Infrastructure
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amec foster wheeler

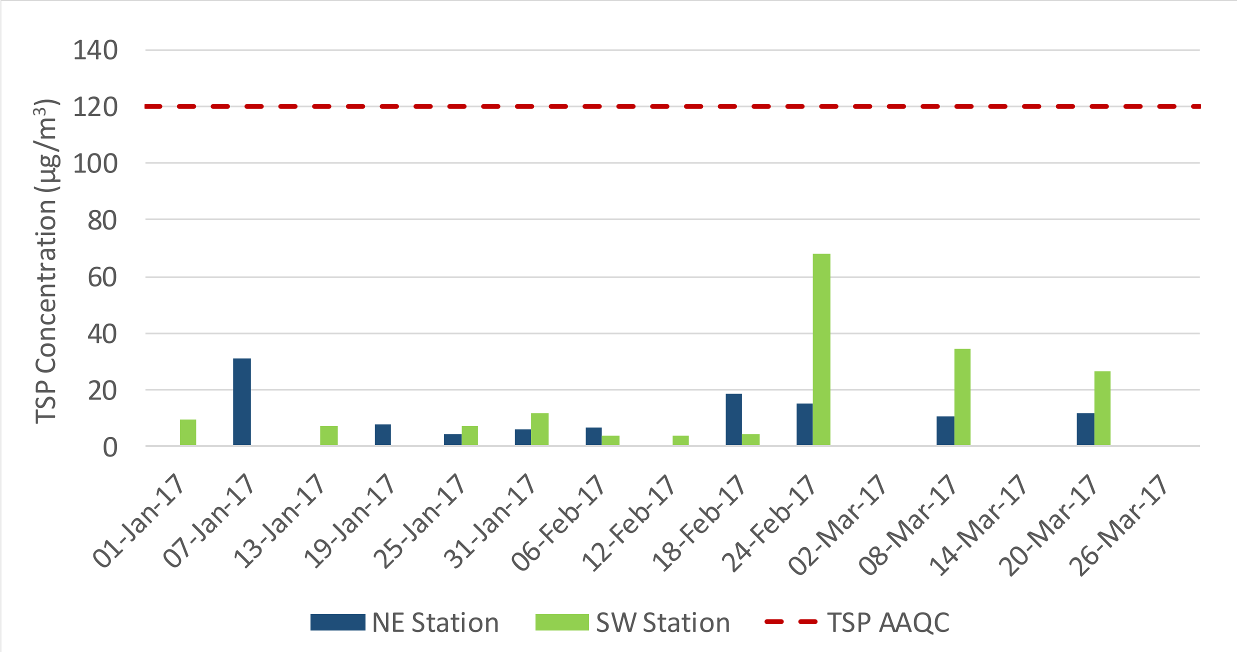

Figure CL-1: TSP Concentrations (Q1 2017)

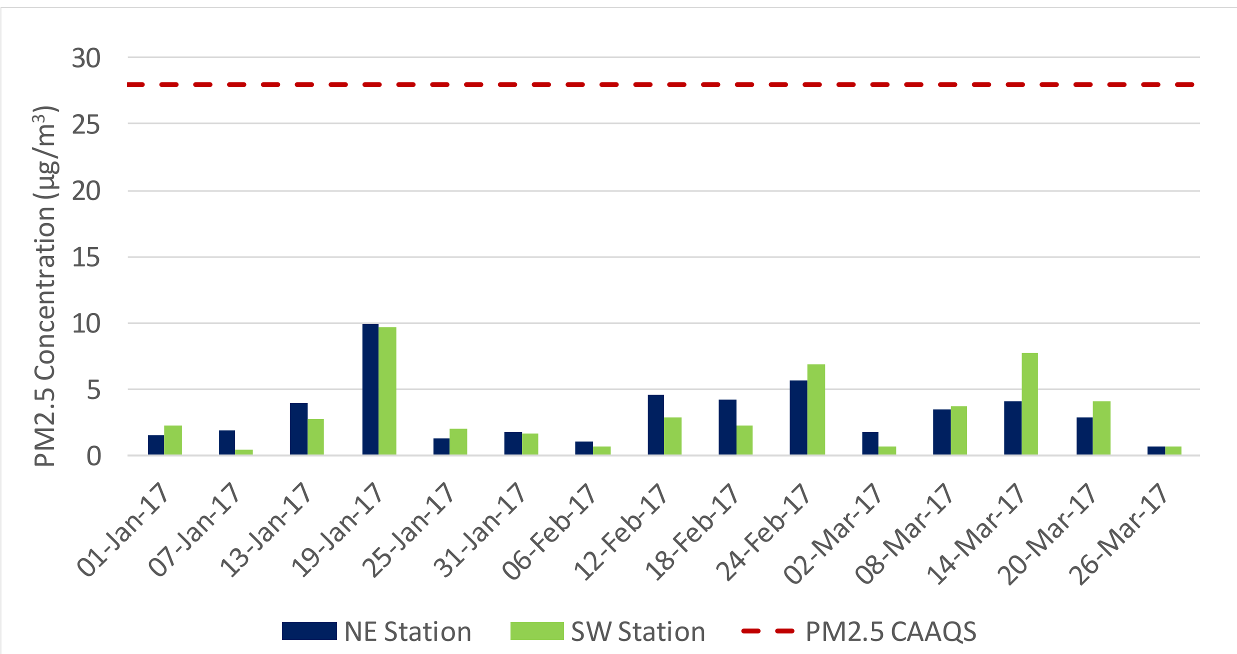

Figure CL-2: $PM_{2.5}$ Concentrations (Q1 2017)

Should you have any questions or wish to discuss the air monitoring program, please do not hesitate to contact the undersigned.

Caleb Vandenberg, P.Eng.
Air Quality Engineer

Sheila Daniel, M.Sc., P.Geo.
Principal Mining Environmental

Revision	Date	Revised By	Description
1	May 12, 2017	Caleb Vandenberg	Final Report

ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
AAQO	Alberta Ambient Air Quality Objectives
ACFM	Cubic Feet Per Minute at Actual Conditions
AEP	Alberta Environment and Parks
ASTM	American Society for Testing and Materials
BCMOE	British Columbia Ministry of the Environment
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
LPM	Litres Per Minute
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
PM_{10}	Particulate Matter less than 10 microns in diameter
USEPA	United States Environmental Protection Agency
$\mu g/m^3$	Microgram per Cubic Metre

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the First Quarter (Q1) 2017 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road (Figures 1-1, 1-2 and 1-3).

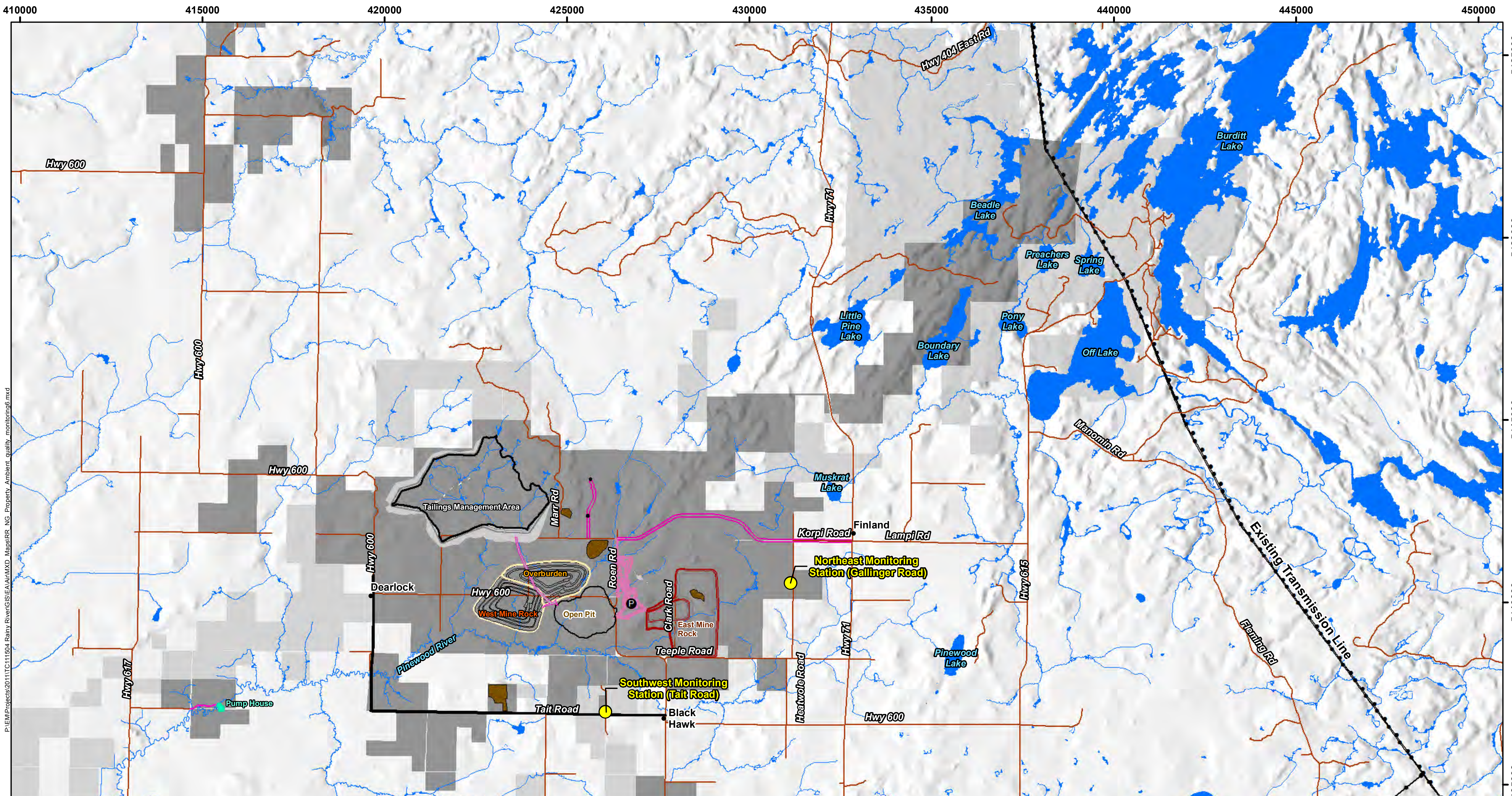
New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler staff performed quarterly calibrations, provided technical guidance to New Gold field staff, communicated with the laboratory staff as required, and prepared the data summary report.

This Quarterly Air Quality Report addresses the required elements of a Quarterly Report defined in the Operations Manual for Air Quality Monitoring in Ontario (MOECC, 2016), hereafter referred to as the 'Operations Manual'. Specifically, the following information is provided:

- Summary statistics;
- Sampling dates (start and end where applicable); and
- A summary of exceedances of an AAQC.

The purpose of the air monitoring program is to quantify any potential air quality effects associated with activities related to the Project. The monitoring program consists of:

- Two High Volume (hi-vol) samplers for discrete sampling of Total Suspended Particulate (TSP) and metals;
- Two PQ200 samplers for discrete sampling of respirable particulate matter ($PM_{2.5}$);
- Two standard dustfall collection units sampling over a 30-day period;
- Two passive sampling enclosures each measuring NO_2 and SO_2; and
- One meteorological station to obtain real-time site wind speed, wind direction, temperature, relative humidity, and precipitation.



LEGEND

- Ambient Air Quality Monitoring Stations
- New Gold - Rainy River Property Boundary
- New Gold Lands with No Current Access Control

Proposed Site Features

- Underground Portal
- Open Pit
- Plant Site / Ancillary Facilities
- Explosives Facilities
- Overburden / West Mine Rock Stockpile
- Ore / East Mine Rock Stockpile
- Proposed Pump House
- Tailings Management Area
- Aggregate Pit / Quarry
- Site Roads
- Roads
- Existing Transmission Line
- First Nation Land

NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, December 16, 2016

Datum: NAD83
Projection: UTM Zone 15N

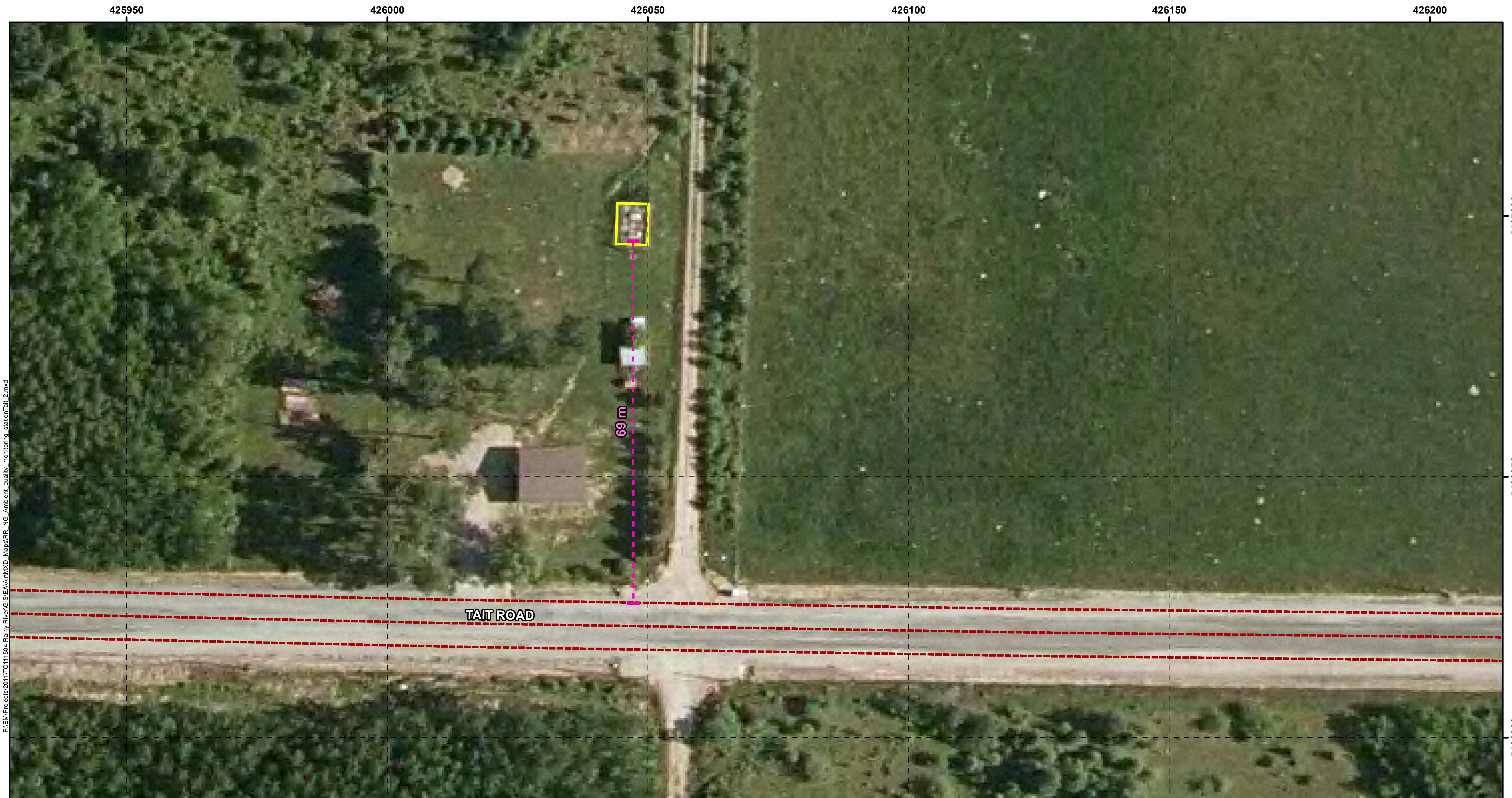
0 2 4 8 12 16 20
Kilometres

newgold Rainy River Project — amec foster wheeler

RAINY RIVER PROJECT

Ambient Air Monitoring Stations

PROJECT N°: TC111504	FIGURE: 1-1
SCALE: 1:100,000	DATE: May 2017



LEGEND

Southwest Monitoring Station (Tait Road)

Highway Re-alignment

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Pleiades imagery (June 2016).

Datum & Projection:
NAD 1983 UTM Zone 15N

newgold Rainy River Project

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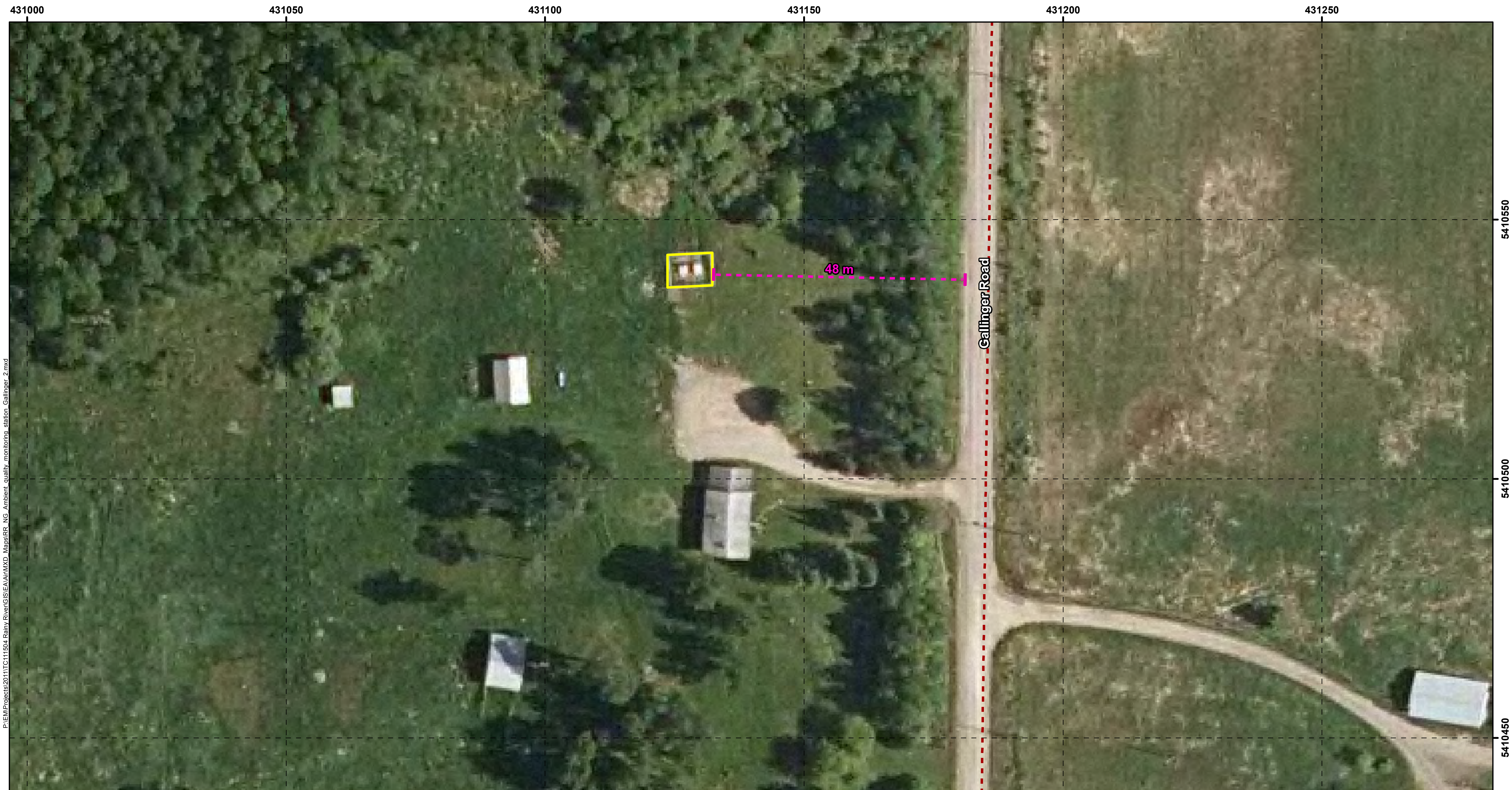
RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

PROJECT N°: TC111504	**FIGURE: 1-2**
SCALE: 1:700	DATE: May 2017



P:\EM\Projects\2011\TC111504 Rainy River\GIS\EA\Air\MXD_Maps\RR_NG_Ambient_quality_monitoring_station_Gallinger_2.mxd

LEGEND

Northeast Monitoring Station (Gallinger Road)

Gallinger Road

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Pleiades imagery (June 2016).

Datum & Projection:
NAD 1983 UTM Zone 15N

newgold Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 1-3**
SCALE: 1:700	DATE: May 2017

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The total suspended particulate (TSP) concentrations were determined using the standard gravimetric method following the reference methods approved by the United States Environmental Protection Agency (US EPA) and the Ontario Ministry of the Environment and Climate Change (MOECC) as described in the Operations Manual (MOECC, 2016). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time of the relevant Ontario Ambient Air Quality Criteria (AAQC; MOECC, 2012); particulate samples are collected every sixth day on the North American schedule (USEPA, 2017). Sampling was performed with hi-vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn). A metalloid is an element such as arsenic that has both metallic and non-metallic properties.

The lowest detectable limit is 2.3 milligrams (mg) of total particulate on the filter, resulting in a method detection limit of 1.4 micrograms per cubic metre (μg/m^3) based on a typical 24-hour sample volume of 1,630 m^3.

The metal concentrations were determined with the standard Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP/AES) method. The method detection limits are as shown in the data sheets in Appendix A-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the US EPA and the MOECC as described in the Operations Manual (MOECC, 2016). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS); particulate samples are collected every sixth day on the North American schedule (USEPA, 2017). Sampling was performed with PQ200 samplers.

The lowest detectable limit on the Teflon filters is 1 μg of $PM_{2.5}$, resulting in a method detection limit of 0.04 μg/m^3 (based on a typical 24-hour sample volume of 24 m^3).

2.2.1 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and the BCMOE method outlined in Section G of Air Constituents – Inorganic. Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m^2/30 days. Bird deterrents will be added in the spring of 2017 with the goal of reducing contamination.

2.3 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

Since the sample uptake is dependent on temperature, relative humidity and wind speed, the analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data are taken from the Environment Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data is only used for screening purposes. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC, 2009). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objective of 30 µg/m^3 (AEP, 2016).

2.4 Field Operations

2.4.1 Hi-Vol Samplers

The two stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed calibrations on the hi-vol samplers using a BGI direct reading hi-vol electronic flow calibrator. The flows were calibrated to 40 actual cubic feet per minute (ACFM) for each station using mass flow controllers. Calibrations used in the quarter were performed on:

- December 20, 2016 – All hi-vols calibrated.

There were no MOECC audits during this quarter.

2.4.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed flow, temperature, and barometric pressure calibrations using an electronic BGI flow calibrator. The flows were calibrated to 16.7 litres per minute (LPM) for each station. Calibrations used in Q1 2017 were performed on:

- December 20, 2016 – All PQ200s calibrated.

There were no MOECC audits during this quarter.

2.4.3 Dustfall Samplers

The dustfall samplers containing algaecide were changed every month, as required. Dustfall jars were provided by the laboratory with screw-on lids to prevent sample loss during transport.

2.4.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required. Permeation filters were kept in filter cassettes inside a Ziploc bags until deployed to prevent premature exposure. After the sample is collected, the filter is placed back in its cassette and into a Ziploc bag for shipment to the lab.

3.0 RESULTS

The results for the Q1 2017 sampling program are presented in Appendix A-1 for the particulate and metals data, Appendix A-2 for the dustfall data and Appendix A-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses and in keeping with MOECC protocol, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparative purposes, the MOECC AAQC and CAAQS values are presented, where available.

Summaries of the statistical analyses for Q1 2017 for the TSP, metals, and $PM_{2.5}$ concentrations are presented in Tables 3-1, 3-2, and 3-3 respectively. During the quarter, the 1 in 6 day sampling schedule results in a possible 15 sampling days between January 1 and March 31, 2017.

A summary of the statistical analyses for Q1 2017 for the total dustfall data is presented below in Table 3-4.

A summary of the statistical analysis for the Q1 2017 passive SO_2 and NO_2 results is presented in Table 3-5.

3.1 TSP and Metals

The Tait Road station collected 11 valid samples and the Gallinger Road station collected 10 valid samples in Q1 2017, resulting in 73% and 67% valid data, respectively. The January 13 sample at the Gallinger Road station and the January 19 sample at the Tait Road station were invalid due to too much sample volume being collected. The February 12 sample at the Gallinger Road station was invalid due to insufficient sampler volume. The March 2, March 14, March 20, and March 26 samples at both stations were invalid due to inadequate sample duration; the timer set points were not fully secured and shifted during these samples. Strategies for mitigating future sample loss were communicated via email and phone conversation.

For the quarter, the geometric mean TSP concentrations were 8.75 μg/m^3 for the Tait Road station and 8.15 μg/m^3 for the Gallinger Road station. Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for TSP was 67.9 μg/m^3 at the Tait Road station (February 24, 2017), and 31.2 μg/m^3 at the Gallinger Road station (January 7, 2017).

In the quarter, the 24-hour metal concentrations were all below the AAQCs. The rolling 30-day average lead concentrations at both stations were less than 1% of the 30-day lead AAQC (0.2 μg/m^3) in Q1 2017.

There were no exceedances of the MOECC AAQC measured for any of TSP metals, or metalloids in Q1 2017.

Appendix A-1 and Figure 3-1 present individual sample data. The Q1 2017 TSP and metals summary statistics are summarized in Tables 3-1 and 3-2 respectively.

3.2 $PM_{2.5}$

Both stations collected 15 valid samples in Q1 2017, resulting in 100% valid data.

Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 9.74 µg/m^3 at the Tait Road station (January 19, 2017), and 9.95 µg/m^3 at the Gallinger Road station (January 19, 2017). There were no $PM_{2.5}$ exceedances of the AAQC of 30 µg/m^3 or CAAQS (ECCC, 2013) of 28 µg/m^3 measured in Q1 2017. Appendix A-1 and Figure 3-2 present individual sample data.

The Q1 2017 $PM_{2.5}$ summary statistics are summarized in Table 3-3.

3.3 Total Dustfall

In Q1 2017, three valid samples were collected at each station. Each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter.

A summary of the results are presented in Table 3-4 and the monthly results are presented in Appendix A-2.

There were no exceedances of the dustfall MOECC AAQC measured in Q1 2017.

3.4 Passive SO_2 and NO_2

In Q1 2017, three valid samples were collected at each station for each of SO_2 and NO_2.

There are no MOECC standards, guidelines or AAQCs for SO_2 or NO_2 for a 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for potential comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC, 2009). For SO_2, the results were compared against the Alberta Ambient Air Quality Objective of 30 µg/m^3 (AEP, 2016).

A summary of the passive results are presented in Table 3-5 and the monthly results are presented in Appendix A-3.

Table 3-1: Summary Statistics for Q1 2017 for TSP Data

Statistic	Q1	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m^3)	8.75	8.15
Arithmetic mean (µg/m^3)	16.3	11.4
January Maximum (µg/m^3)	11.9	31.2
February Maximum (µg/m^3)	67.9	18.7
March Maximum (µg/m^3)	34.5	11.6
Maximum 24 hour (µg/m^3)	67.9 (Feb.24)	31.2 (Jan.7)
90th percentile	34.5	20.0
95th percentile	51.2	25.6
24-hour AAQC	120	120
No. of valid samples	11	10
% valid data	73	67
No. samples > AAQC (particulate)	0	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (metalloids)	0	0

Table 3-2: Summary Statistics for Q1 2017 Metals Data

Metal	24-hr AAQC (µg/m^3)	Tait Road Q1 2017 Maximum 24-hour Concentration (µg/m^3)	% 24-hr AAQC	Gallinger Road Q1 2017 Maximum 24-hr Concentration (µg/m^3)	% 24-hr AAQC
As	0.3	1.02E-03	0.34%	9.86E-04	0.33%
Cd	0.025	2.01E-04	0.80%	1.47E-04	0.59%
Cr	0.5	7.29E-03	1.46%	6.32E-03	1.26%
Co	0.1	8.80E-04	0.88%	3.26E-04	0.33%
Cu	50	5.52E-02	0.11%	2.76E-01	0.55%
Fe	4	1.68E+00	42.11%	4.02E-01	10.05%
Pb	0.5	1.10E-03	0.22%	1.17E-03	0.23%
Mn	0.4	4.02E-02	10.04%	1.25E-02	3.12%
Ni	0.2	2.42E-03	1.21%	2.01E-03	1.01%
Se	10	4.42E-04	0.00%	4.27E-04	0.00%
V	2	8.11E-03	0.41%	5.02E-03	0.25%
Zn	120	2.21E-02	0.02%	1.96E-02	0.02%

Table 3-3: Summary Statistics for Q1 2017 for $PM_{2.5}$ Data

Statistic	Q1	
	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (µg/m^3)	3.2	3.3
January Maximum (µg/m^3)	9.7	9.9
February Maximum (µg/m^3)	6.9	5.7
March Maximum (µg/m^3)	7.7	4.1
Maximum 24 hour (µg/m^3)	9.7 (Jan.19)	9.9 (Jan.19)
90th percentile	7.4	5.2
95th percentile	8.3	6.9
24-hour CAAQS	28	28
No. of valid samples	15	15
% valid data	100	100
No. samples > CAAQS	0	0

Table 3-4: Summary Statistics for Q1 2017 Total Dustfall Data

Statistic	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (g/m^2/30d)	0.71	1.1
Maximum (g/m^2/30d)	1.1	1.6
30-day AAQC	7	7
No. > AAQC	0	0
No. valid samples*	3	3
% Valid data	100	100

Notes:
N/A: No applicable criteria
N/R: Not Reportable

Table 3-5: Summary Statistics for Q1 2017 for Passive SO_2 and NO_2 Data

Statistic	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean (µg/m^3)	0.6	1.8	0.6	1.5
Maximum (µg/m^3)	1.1	2.7	0.8	3.0
AAQC 24-hr converted to 30-day (µg/m^3)	N/A	78	N/A	78
Alberta AAQO (µg/m^3)	30	N/A	30	N/A
No. valid samples	3	3	3	3
% Valid data	100	100	100	100

Note:
N/A: No applicable criterion

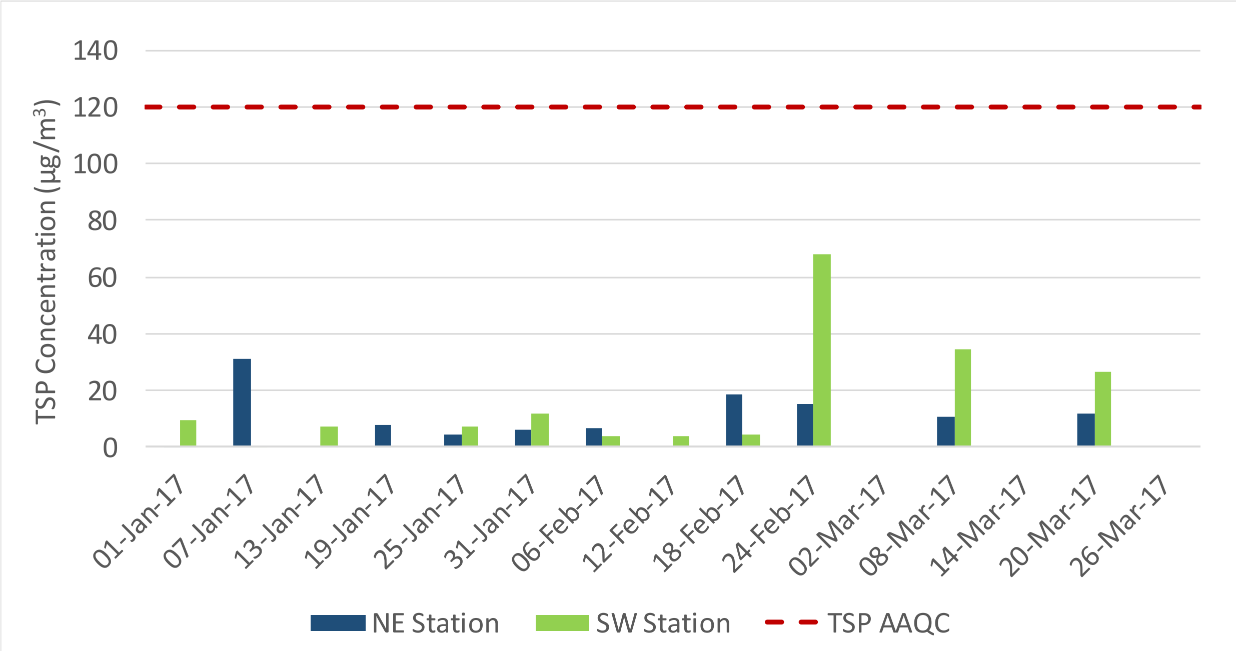


Figure 3-1: TSP Concentrations (Q1 2017)

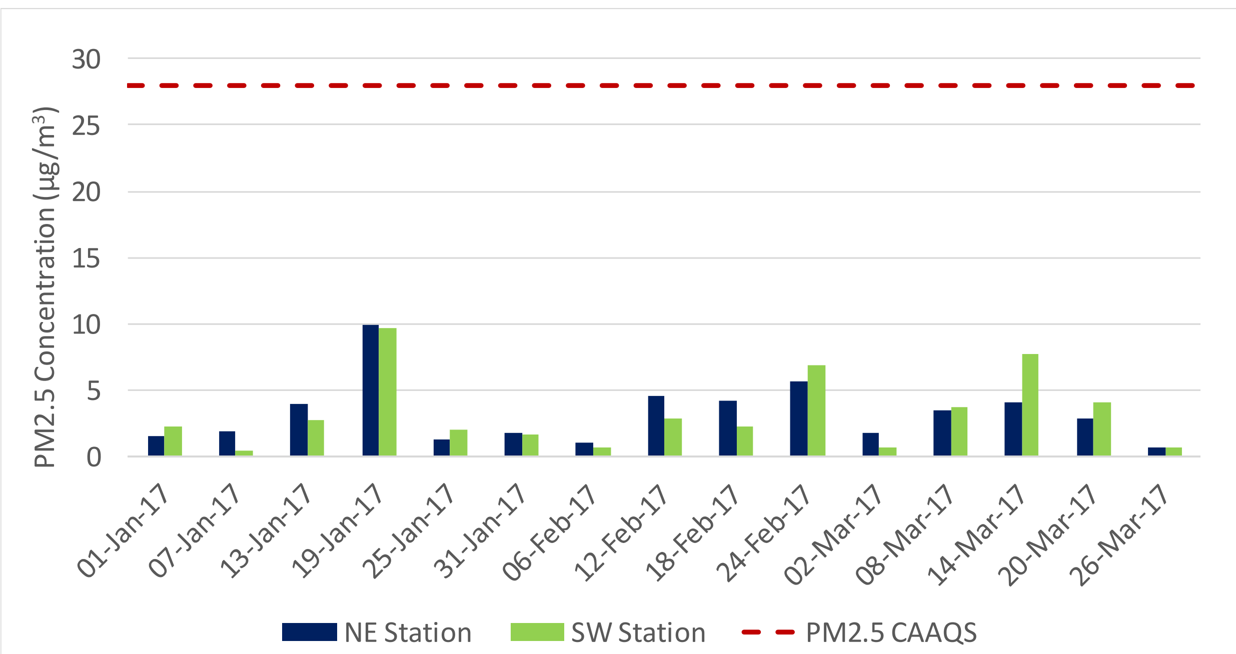


Figure 3-2: PM2.5 Concentrations (Q1 2017)

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

A summary of the Q1 2017 air quality sampling program is provided below:

- The Tait Road station collected 11 valid samples and the Gallinger Road station collected 10 valid samples in Q1 2017, resulting in 73% and 67% valid data, respectively. No exceedances of the AAQC were measured for TSP, or for any of the metals and metalloids.

- There were 15 valid $PM_{2.5}$ samples collected at both stations (100% sample validity), and no exceedances of the CAAQS were measured.

- Six dustfall samples were collected (100% sample validity), and no exceedances of the AAQC were measured.

- Six valid passive samples for each of SO_2 and NO_2 were collected (100% sample validity). There were no exceedances of AEP Criterion for SO_2 or of the 30-day equivalent AAQC for NO_2.

5.0 REFERENCES

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United States Environmental Protection Agency (USEPA). 2017. Sampling Schedule Calendar, https://www3.epa.gov/ttnamti1/calendar.html (Accessed February 10, 2017).

6.0 CLOSING

This air quality monitoring program, first quarter 2017 report was prepared by Amec Foster Wheeler for the sole benefit of New Gold Inc. for specific application to the Rainy River Project. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Amec Foster Wheeler's services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this document.

This report is intended to be used by New Gold only, and its nominated representatives, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard. No other warranty, expressed or implied, is made.

If you require further information regarding the above or the project in general, please contact the undersigned at (905) 568-2929. Thank you for the opportunity to be of service to New Gold Inc.

Yours truly,
Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

Prepared by:	Reviewed by:
Caleb Vandenberg, P.Eng.	Sheila Daniel, M.Sc., P.Geo.
Air Quality Engineer	Principal Mining Environmental

newgold Rainy River Project

APPENDIX A

SAMPLING RESULTS

Appendix A-1	**TSP, Metals and PM2.5 Sampling Results**
Appendix A-2	**Total Dustfall Sampling Results**
Appendix A-3	**SO_2 and NO_2 Passive Sampling Results**

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APPENDIX A-1

TSP, METALS AND PM2.5 SAMPLING RESULTS

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NORTHEAST (GALLINGER ROAD) PARTICULATE/METALS CONCENTRATIONS														
Date	**PM2.5**	**TSP**	**Arsenic (As)**	**Cadmium (Cd)**	**Chromium (Cr)**	**Cobalt (Co)**	**Copper (Cu)**	**Iron (Fe)**	**Lead (Pb)**	**Manganes e (Mn)**	**Nickel (Ni)**	**Selenium (Se)**	**Vanadium (V)**	**Zinc (Zn)**
1-Jan-17	1.5	*0.71*	*9.21E-04*	6.51E-05	6.32E-03	8.53E-05	2.31E-01	3.87E-02	3.62E-04	1.63E-03	4.42E-04	*3.99E-04*	*1.53E-03*	6.51E-03
7-Jan-17	1.9	31.2	*9.86E-04*	3.94E-05	5.06E-03	2.35E-04	1.04E-01	4.02E-01	6.50E-04	1.25E-02	8.41E-04	*4.27E-04*	*1.64E-03*	1.12E-02
13-Jan-17	4.0	—	—	—	—	—	—	—	—	—	—	—	—	—
19-Jan-17	9.9	7.89	*8.83E-04*	7.65E-05	2.53E-03	2.59E-05	9.71E-02	2.88E-02	1.17E-03	1.11E-03	3.35E-04	*3.83E-04*	*1.47E-03*	1.96E-02
25-Jan-17	1.3	4.74	*8.90E-04*	2.73E-05	2.67E-03	2.97E-05	1.03E-01	4.03E-02	1.90E-04	1.78E-03	2.61E-04	*3.85E-04*	*1.48E-03*	3.85E-03
31-Jan-17	1.8	6.24	*9.27E-04*	3.52E-05	2.97E-03	3.96E-05	8.78E-02	5.01E-02	3.15E-04	1.38E-03	2.72E-04	*4.02E-04*	*1.55E-03*	3.96E-03
6-Feb-17	1.0	7.00	*8.75E-04*	4.96E-05	3.56E-03	3.26E-04	1.41E-01	2.01E-01	3.73E-04	4.39E-03	7.82E-04	*3.79E-04*	*1.46E-03*	4.84E-03
12-Feb-17	4.6	—	—	—	—	—	—	—	—	—	—	—	—	—
18-Feb-17	4.2	18.7	*8.55E-04*	5.87E-05	4.51E-03	1.69E-04	6.67E-02	2.55E-01	4.22E-04	6.56E-03	7.41E-04	*3.71E-04*	5.02E-03	8.27E-03
24-Feb-17	5.7	15.2	*9.31E-04*	6.33E-05	5.71E-03	2.28E-04	1.78E-01	2.58E-01	4.66E-04	4.97E-03	2.01E-03	*4.03E-04*	*1.55E-03*	5.15E-03
2-Mar-17	1.7	—	—	—	—	—	—	—	—	—	—	—	—	—
8-Mar-17	3.5	10.9	*9.33E-04*	1.47E-04	4.85E-03	2.66E-04	1.47E-01	3.36E-01	1.06E-03	6.65E-03	8.95E-04	*4.04E-04*	*1.55E-03*	6.53E-03
14-Mar-17	4.1	—	—	—	—	—	—	—	—	—	—	—	—	—
20-Mar-17	2.9	11.6	*8.38E-04*	7.54E-05	4.08E-03	1.51E-04	2.76E-01	2.14E-01	7.60E-04	5.05E-03	7.15E-04	*3.63E-04*	*1.40E-03*	5.59E-03
26-Mar-17	*0.31*	—	—	—	—	—	—	—	—	—	—	—	—	—
Geometric mean	N/A	8.15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	3.2	11.4	9.04E-04	6.38E-05	4.23E-03	1.56E-04	1.43E-01	1.82E-01	5.77E-04	4.60E-03	7.30E-04	3.92E-04	1.87E-03	7.55E-03
Max. concentration	9.9	31.2	9.86E-04	1.47E-04	6.32E-03	3.26E-04	2.76E-01	4.02E-01	1.17E-03	1.25E-02	2.01E-03	4.27E-04	5.02E-03	1.96E-02
Min. concentration	0.31	0.71	8.38E-04	2.73E-05	2.53E-03	2.59E-05	6.67E-02	2.88E-02	1.90E-04	1.11E-03	2.61E-04	3.63E-04	1.40E-03	3.85E-03
90th percentile	5.2	20.0	9.38E-04	8.36E-05	5.77E-03	2.72E-04	2.36E-01	3.42E-01	1.07E-03	7.24E-03	1.01E-03	4.06E-04	1.98E-03	1.20E-02
95th percentile	6.9	25.6	9.62E-04	1.15E-04	6.05E-03	2.99E-04	2.56E-01	3.72E-01	1.12E-03	9.86E-03	1.51E-03	4.17E-04	3.50E-03	1.58E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	15	10	10	10	10	10	10	10	10	10	10	10	10	10
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	100	67	67	67	67	67	67	67	67	67	67	67	67	67

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

SOUTHWEST (TAIT ROAD) PARTICULATE/METALS CONCENTRATIONS														
Date	PM2.5	TSP	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Nickel (Ni)	Selenium (Se)	Vanadium (V)	Zinc (Zn)
1-Jan-17	2.2	9.71	*1.00E-03*	6.96E-05	4.89E-03	1.73E-04	5.52E-02	1.85E-01	6.63E-04	5.70E-03	6.23E-04	*4.35E-04*	*1.67E-03*	2.21E-02
7-Jan-17	0.42	*0.78*	*1.02E-03*	4.42E-05	4.15E-03	5.65E-05	5.51E-02	2.79E-02	4.22E-04	9.25E-04	2.79E-04	*4.42E-04*	*1.70E-03*	7.96E-03
13-Jan-17	2.7	7.14	*8.92E-04*	1.10E-04	2.62E-03	5.77E-05	4.60E-02	4.04E-02	6.42E-04	2.68E-03	2.74E-04	*3.87E-04*	*1.49E-03*	9.10E-03
19-Jan-17	9.7	—	—	—	—	—	—	—	—	—	—	—	—	—
25-Jan-17	2.0	7.49	*9.37E-04*	*8.43E-06*	2.62E-03	7.12E-05	2.98E-02	1.19E-01	2.44E-04	4.08E-03	3.25E-04	*4.06E-04*	*1.56E-03*	3.87E-03
31-Jan-17	1.7	11.9	*9.51E-04*	1.17E-04	3.23E-03	1.27E-04	3.68E-02	2.31E-01	4.57E-04	7.67E-03	4.76E-04	*4.12E-04*	*1.59E-03*	7.23E-03
6-Feb-17	*0.31*	4.06	*9.23E-04*	2.01E-04	4.25E-03	1.02E-04	2.97E-02	1.14E-01	4.92E-04	2.45E-03	5.91E-04	*4.00E-04*	*1.54E-03*	7.75E-03
12-Feb-17	2.9	3.95	*1.02E-03*	6.81E-05	4.83E-03	5.72E-05	1.81E-02	5.51E-02	5.44E-04	1.62E-03	4.83E-04	*4.42E-04*	5.51E-03	6.47E-03
18-Feb-17	2.2	4.74	*9.23E-04*	3.14E-05	3.57E-03	8.31E-05	3.05E-02	8.43E-02	2.65E-04	2.30E-03	4.06E-04	*4.00E-04*	*1.54E-03*	4.43E-03
24-Feb-17	6.9	67.9	*9.43E-04*	5.09E-05	7.29E-03	8.80E-04	4.47E-02	1.68E+00	7.79E-04	4.02E-02	2.42E-03	*4.09E-04*	8.11E-03	1.53E-02
2-Mar-17	*0.31*	—	—	—	—	—	—	—	—	—	—	—	—	—
8-Mar-17	3.7	34.5	*9.76E-04*	1.48E-04	5.73E-03	6.77E-04	3.45E-02	1.11E+00	1.10E-03	2.43E-02	1.84E-03	*4.23E-04*	*1.63E-03*	1.03E-02
14-Mar-17	7.7	—	—	—	—	—	—	—	—	—	—	—	—	—
20-Mar-17	4.1	26.8	*9.06E-04*	4.77E-05	5.01E-03	3.35E-04	4.60E-02	6.64E-01	1.08E-03	1.62E-02	1.22E-03	*3.93E-04*	*1.51E-03*	1.17E-02
26-Mar-17	*0.31*	—	—	—	—	—	—	—	—	—	—	—	—	—
Geometric mean	N/A	8.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	3.2	16.3	9.54E-04	8.15E-05	4.38E-03	2.38E-04	3.88E-02	3.92E-01	6.08E-04	9.83E-03	8.12E-04	4.13E-04	2.53E-03	9.65E-03
Max. concentration	9.7	67.9	1.02E-03	2.01E-04	7.29E-03	8.80E-04	5.52E-02	1.68E+00	1.10E-03	4.02E-02	2.42E-03	4.42E-04	8.11E-03	2.21E-02
Min. concentration	0.31	0.78	8.92E-04	8.43E-06	2.62E-03	5.65E-05	1.81E-02	2.79E-02	2.44E-04	9.25E-04	2.74E-04	3.87E-04	1.49E-03	3.87E-03
90th percentile	7.4	34.5	1.02E-03	1.48E-04	5.73E-03	6.77E-04	5.51E-02	1.11E+00	1.08E-03	2.43E-02	1.84E-03	4.42E-04	5.51E-03	1.53E-02
95th percentile	8.3	51.2	1.02E-03	1.74E-04	6.51E-03	7.78E-04	5.51E-02	1.40E+00	1.09E-03	3.22E-02	2.13E-03	4.42E-04	6.81E-03	1.87E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	15	11	11	11	11	11	11	11	11	11	11	11	11	11
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	100	73	73	73	73	73	73	73	73	73	73	73	73	73

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

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APPENDIX A-2

TOTAL DUSTFALL SAMPLING RESULTS

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NE (Gallinger Road) Monitoring Results for Dustfall (Q1 2017)
(results expresed in $g/m^2/30days$)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
Janaury	31	0.57	0.15	0.69
February	31	0.75	0.39	1.1
March	32	1.17	0.39	1.6

Arithmetic mean	1.1
Max. concentration	1.6
Min. concentration	0.69
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.30
Half detection limit	0.15

SW (Tait Road) Monitoring Results for Dustfall (Q1 2017)
(results expresed in $g/m^2/30days$)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
Janaury	31	0.15	0.45	0.54
February	31	0.15	0.81	1.1
March	32	0.15	0.15	0.48

Arithmetic mean	0.71
Max. concentration	1.1
Min. concentration	0.48
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit	0.30
Half detection limit	0.15

Notes:
N/A: Not applicable
INV: Invalid Sample
All non detectable results w ere reported as 1/2 detection limit and are denoted by italics and underlining
**Ontario Ambient Air Quality Criteria, 30-day standard

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APPENDIX A-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

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Monitoring Results for Passive SO_2 and NO_2 (Q1 2017)

(results expresed in $\mu g/m^3$)

	SW (Tait Road)		Onsite (Gallinger Road)	
Month	SO_2	NO_2	SO_2	NO_2
January	1.1	1.5	0.8	3.0
February	0.5	1.1	0.8	1.1
March	0.1	2.7	0.1	0.4

Arithmetic mean	0.6	1.8	0.6	1.5
Max. concentration	1.1	2.7	0.8	3.0
Min. concentration	0.1	1.1	0.1	0.4
AAQC* 24-hr converted to 30-day	N/A	78 $\mu g/m^3$	N/A	78 $\mu g/m^3$
Alberta Ambient Air Quality Objectives 2013	30 $\mu g/m^3$	N/A	30 $\mu g/m^3$	N/A
No. of valid samples	3	3	3	3
No. samples < mdl	1	0	1	0
Detection limit	0.3	0.2	0.3	0.2
Half detection limit	0.15	0.1	0.15	0.1

Notes:

All statistics were calculated using 1/2DL for values reported as <DL

All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C

N/A: Not applicable

INV: Invalid Sample

All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining

*Ontario Ambient Air Quality Criteria

NEW GOLD INC.
RAINY RIVER PROJECT

AIR QUALITY MONITORING PROGRAM
SECOND QUARTER 2017 REPORT

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

August 2017
TC111504

newgold Rainy River Project

August 14, 2017
TC111504

Mr. Darrell Martindale
New Gold Inc.
Rainy River Project
5967 Hwy 11 / 71, P.O. Box 5
Emo, Ontario
P0W 1E0

Dear Mr. Martindale:

Re: New Gold Rainy River Project
Air Monitoring Report, Second Quarter 2017 Report

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to submit to New Gold Inc. (New Gold) the attached summary report of the Second Quarter (Q2) 2017 results for the ambient air quality monitoring program at the Rainy River Project.

The monitoring program consists of two air quality sampling stations that were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. The sampling stations are operated and maintained by New Gold staff.

The key findings of the Q2 2017 monitoring are as follow:

- There were no exceedances of the $PM_{2.5}$, TSP, or Metals AAQC measured in Q2 2017; and
- There was one (1) exceedance of the dustfall AAQC in Q2 2017.

The measured TSP and $PM_{2.5}$ concentrations for the Q2 2017 are depicted in Figures CL-1 and CL-2.

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amec foster wheeler

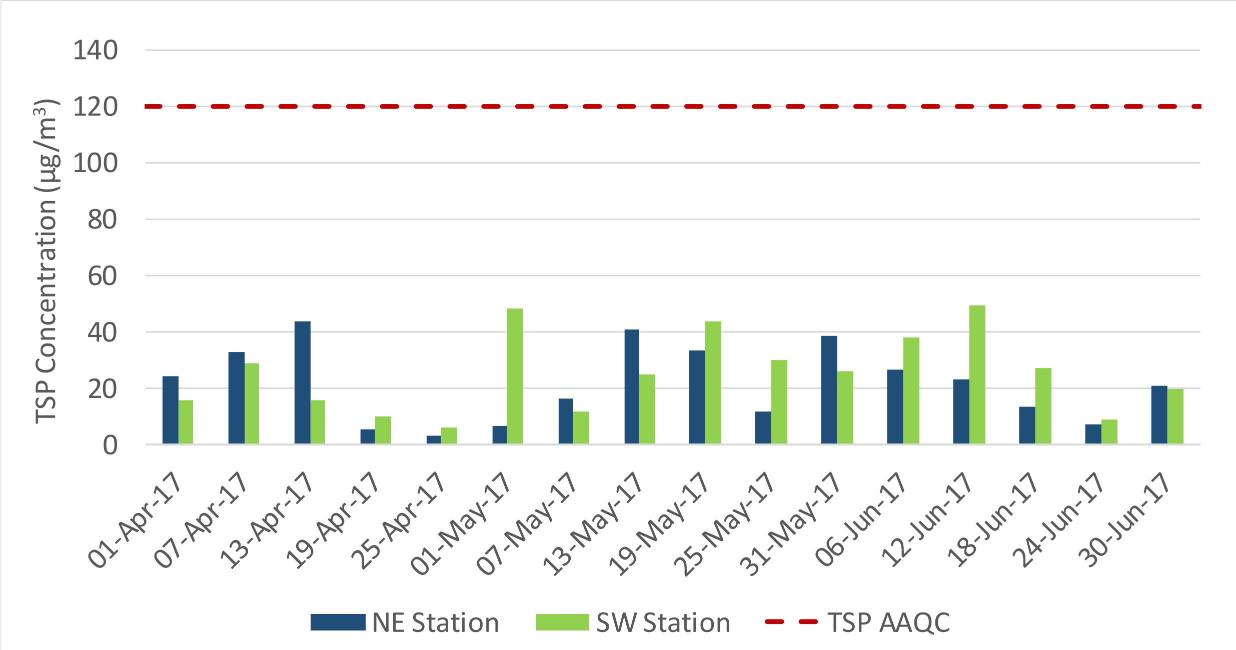

Figure CL-1: TSP Concentrations (Q2 2017)

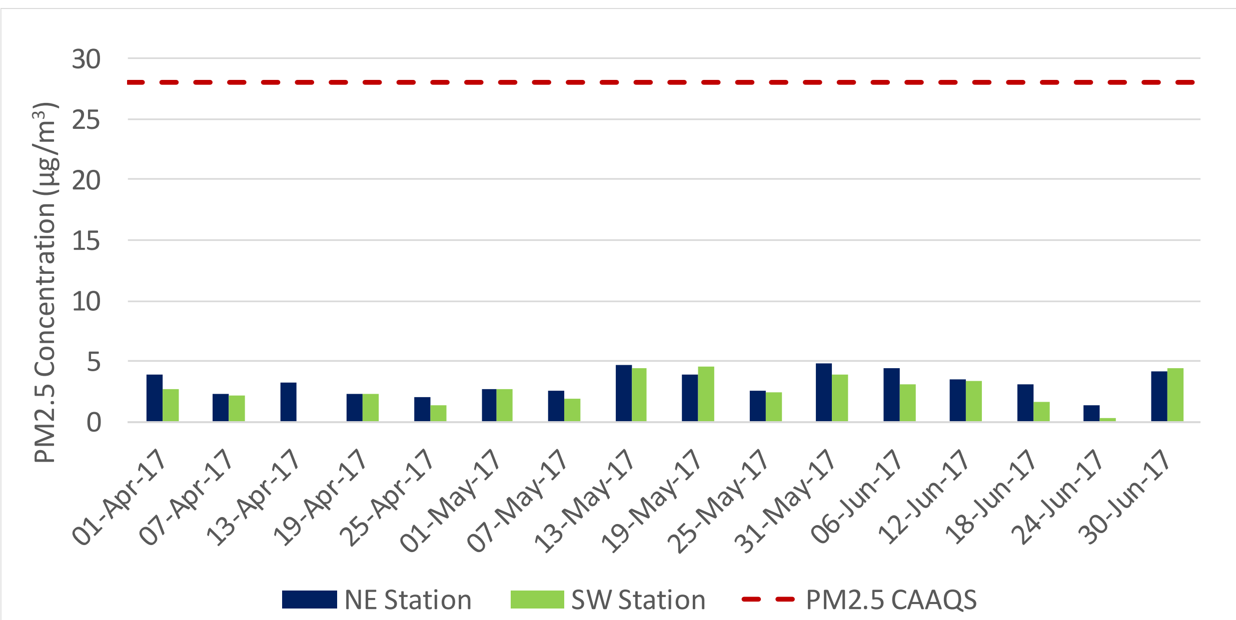

Figure CL-2: $PM_{2.5}$ Concentrations (Q2 2017)

Should you have any questions or wish to discuss the air monitoring program, please do not hesitate to contact the undersigned.

Caleb Vandenberg, P.Eng.
Air Quality Engineer

Sheila Daniel, M.Sc., P.Geo.
Principal Mining Environmental

ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
AAQO	Alberta Ambient Air Quality Objectives
ACFM	Cubic Feet Per Minute at Actual Conditions
AEP	Alberta Environment and Parks
ASTM	American Society for Testing and Materials
BCMOE	British Columbia Ministry of the Environment
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
LPM	Litres Per Minute
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
PM_{10}	Particulate Matter less than 10 microns in diameter
USEPA	United States Environmental Protection Agency
$\mu g/m^3$	Microgram per Cubic Metre

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the Second Quarter (Q2) 2017 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road (Figures 1-1, 1-2 and 1-3).

New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler staff performed quarterly calibrations, provided technical guidance to New Gold field staff, communicated with the laboratory staff as required, and prepared the data summary report.

This Quarterly Air Quality Report addresses the required elements of a Quarterly Report defined in the Operations Manual for Air Quality Monitoring in Ontario (MOECC 2016), hereafter referred to as the Operations Manual. Specifically, the following information is provided:

- Summary statistics;
- Sampling dates (start and end where applicable); and
- A summary of exceedances of an Ontario Ambient Air Quality Criteria (AAQC).

The purpose of the air monitoring program is to quantify any potential air quality effects associated with activities related to the Project. The monitoring program consists of:

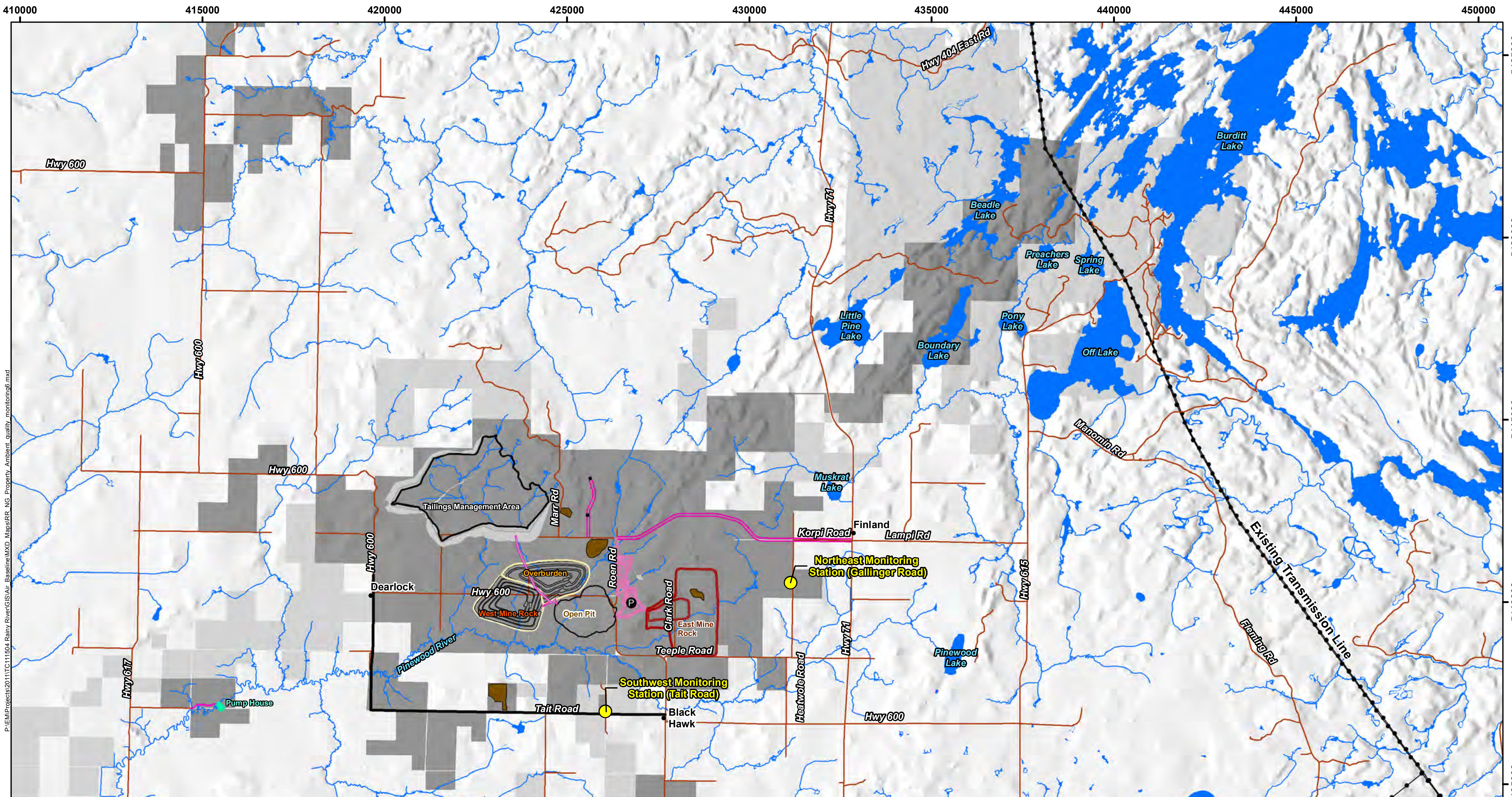
- Two High Volume (hi-vol) samplers for discrete sampling of Total Suspended Particulate (TSP) and metals;

- Two PQ200 samplers for discrete sampling of respirable particulate matter ($PM_{2.5}$);

- Two standard dustfall collection units sampling over a 30-day period;

- Two passive sampling enclosures each measuring NO_2 and SO_2; and

- One meteorological station to obtain real-time site wind speed, wind direction, temperature, relative humidity, and precipitation.



LEGEND

- Ambient Air Quality Monitoring Stations
- New Gold - Rainy River Property Boundary
- New Gold Lands with No Current Access Control

Proposed Site Features

- Underground Portal
- Open Pit
- Plant Site / Ancillary Facilities
- Explosives Facilities
- Overburden / West Mine Rock Stockpile
- Ore / East Mine Rock Stockpile
- Proposed Pump House
- Tailings Management Area
- Aggregate Pit / Quarry
- Site Roads
- Roads
- Existing Transmission Line
- First Nation Land

NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, December 16, 2016

Datum: NAD83
Projection: UTM Zone 15N

0 2 4 8 12 16 20 Kilometres

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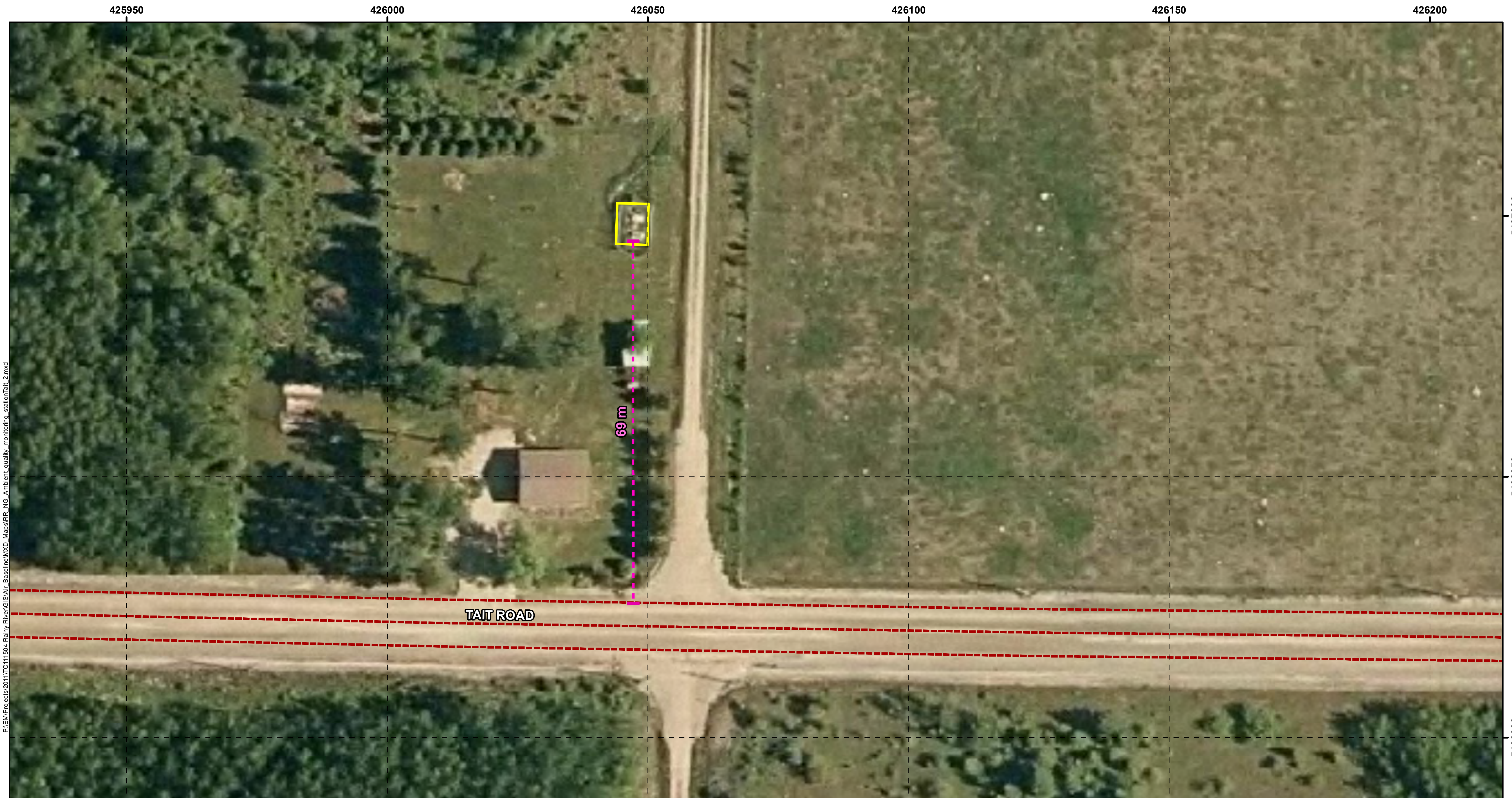
RAINY RIVER PROJECT

Ambient Air Monitoring Stations

PROJECT N°: TC111504	FIGURE: 1-1
SCALE: 1:100,000	DATE: August 2017



LEGEND

Southwest Monitoring Station (Tait Road)

Highway Re-alignment

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Pleiades imagery (June 2017).

Datum & Projection:
NAD 1983 UTM Zone 15N

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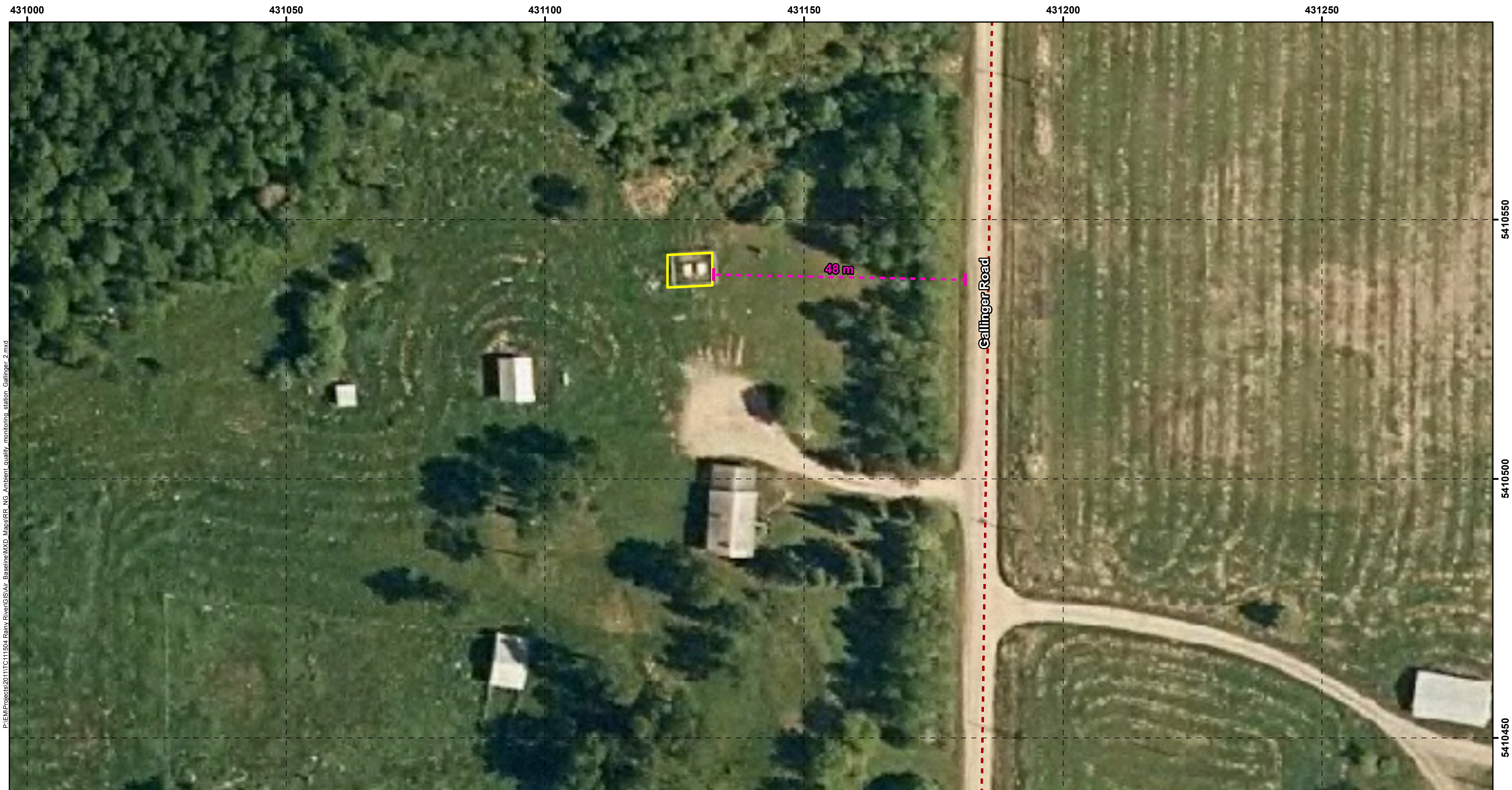
RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

PROJECT N^{o}: TC111504	**FIGURE: 1-2**
SCALE: 1:700	DATE: August 2017



P:\EM\Projects\2011\TC111504 Rainy River\GIS\Air_Baseline\MXD_Maps\RR_NG_Ambient_quality_monitoring_station_Gallinger_2.mxd

LEGEND

Northeast Monitoring Station (Gallinger Road)

Gallinger Road

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Plieades imagery (June 2017).

Datum & Projection:
NAD 1983 UTM Zone 15N

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RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 1-3**
SCALE: 1:700	DATE: August 2017

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The total suspended particulate (TSP) concentrations were determined using the standard gravimetric method following the reference methods approved by the United States Environmental Protection Agency (US EPA) and the Ontario Ministry of the Environment and Climate Change (MOECC) as described in the Operations Manual (MOECC 2016). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time of the relevant AAQC (MOECC 2012); particulate samples are collected every sixth day on the North American schedule (US EPA, 2017). Sampling was performed with hi-vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn). A metalloid is an element such as arsenic that has both metallic and non-metallic properties.

The lowest detectable limit is 2.3 milligrams (mg) of total particulate on the filter, resulting in a method detection limit of 1.4 micrograms per cubic metre (µg/m^3) based on a typical 24-hour sample volume of 1,630 m^3.

The metal concentrations were determined with the standard Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP/AES) method. The method detection limits are as shown in the data sheets in Appendix A-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the US EPA and the MOECC as described in the Operations Manual (MOECC 2016). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS); particulate samples are collected every sixth day on the North American schedule (US EPA 2017). Sampling was performed with PQ200 samplers.

The lowest detectable limit on the Teflon filters is 1 µg of $PM_{2.5}$, resulting in a method detection limit of 0.04 µg/m^3 (based on a typical 24-hour sample volume of 24 m^3).

2.2.1 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and the BCMOE method outlined in Section G of Air Constituents – Inorganic. Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m^2/30 days. Bird deterrents were added in Q2 2017 with the goal of reducing contamination.

2.3 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

Since the sample uptake is dependent on temperature, relative humidity and wind speed, the analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data are taken from the Environment Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data is only used for screening purposes. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 $\mu g/m^3$) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objective of 30 $\mu g/m^3$ (AEP 2016).

2.4 Field Operations

2.4.1 Hi-Vol Samplers

The two stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed calibrations on the hi-vol samplers using a BGI direct reading hi-vol electronic flow calibrator. The flows were calibrated to 40 actual cubic feet per minute (ACFM) for each station using mass flow controllers. Calibrations used in the quarter were performed on:

- April 4, 2017: All hi-vols calibrated.

There were no MOECC audits during this quarter.

2.4.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed flow, temperature, and barometric pressure calibrations using an electronic BGI flow calibrator. The flows were calibrated to 16.7 litres per minute (LPM) for each station. Calibrations used in Q2 2017 were performed on:

- April 4, 2017: All PQ200s calibrated.

There were no MOECC audits during this quarter.

2.4.3 Dustfall Samplers

The dustfall samplers containing algaecide were changed every month, as required. Dustfall jars were provided by the laboratory with screw-on lids to prevent sample loss during transport.

2.4.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required. Permeation filters were kept in filter cassettes inside Ziploc bags until deployed to prevent premature exposure. After the sample is collected, the filter is placed back in its cassette and into a Ziploc bag for shipment to the lab.

3.0 RESULTS

The results for the Q2 2017 sampling program are presented in Appendix A-1 for the particulate and metals data, Appendix A-2 for the dustfall data and Appendix A-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses and in keeping with MOECC protocol, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparative purposes, the MOECC AAQC and CAAQS values are presented, where available.

Summaries of the statistical analyses for Q2 2017 for the TSP, metals, and $PM_{2.5}$ concentrations are presented in Tables 3-1, 3-2, and 3-3 respectively. During the quarter, the 1 in 6 day sampling schedule results in a possible 16 sampling days between April 1 and June 30, 2017.

A summary of the statistical analyses for Q2 2017 for the total dustfall data is presented below in Table 3-4.

A summary of the statistical analysis for the Q2 2017 passive SO_2 and NO_2 results is presented in Table 3-5.

3.1 TSP and Metals

Both stations collected 16 valid samples in Q2 2017, resulting in 100% valid data.

For the quarter, the geometric mean TSP concentrations were 21.3 µg/m^3 for the Tait Road station and 17.1 µg/m^3 for the Gallinger Road station. Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for TSP was 49.2 µg/m^3 at the Tait Road station (June 12, 2017), and 43.8 µg/m^3 at the Gallinger Road station (April 13, 2017).

In the quarter, the 24-hour metal concentrations were all below the AAQCs. The rolling 30-day average lead concentrations at both stations were less than 1% of the 30-day lead AAQC (0.2 µg/m^3) in Q2 2017.

There were no exceedances of the MOECC AAQC measured for any of TSP metals, or metalloids in Q2 2017.

Appendix A-1 and Figure 3-1 present individual sample data. The Q2 2017 TSP and metals summary statistics are summarized in Tables 3-1 and 3-2 respectively.

3.2 $PM_{2.5}$

Both stations collected 16 valid samples in Q2 2017, resulting in 100% valid data.

Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 4.54 µg/m^3 at the Tait Road station (May 19, 2017), and 4.83 µg/m^3 at the Gallinger Road station (May 31, 2017). There were no $PM_{2.5}$ exceedances of the AAQC of 30 µg/m^3 or CAAQS (ECCC, 2013) of 28 µg/m^3 measured in Q2 2017. Appendix A-1 and Figure 3-2 present individual sample data.

The Q2 2017 $PM_{2.5}$ summary statistics are summarized in Table 3-3.

3.3 Total Dustfall

In Q2 2017, two valid samples were collected at each station. Each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter. A shipment of replacement dustfall jars from the lab was lost in transit resulting in the June samples being exposed for 38 days, not satisfying the exposure guideline, and being invalidated.

A summary of the results are presented in Table 3-4 and the monthly results are presented in Appendix A-2.

There was one exceedance of the dustfall MOECC AAQC (7 g/m^2/30 days) measured in Q2 2017 in April at the Gallinger station; the laboratory noted some particulate, flies and black particles in the jar upon reception.

3.4 Passive SO_2 and NO_2

In Q2 2017, three valid samples were collected at each station for each of SO_2 and NO_2.

There are no MOECC standards, guidelines or AAQCs for SO_2 or NO_2 for a 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for potential comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the Alberta Ambient Air Quality Objective of 30 µg/m^3 (AEP 2016).

A summary of the passive results are presented in Table 3-5 and the monthly results are presented in Appendix A-3.

Table 3-1: Summary Statistics for Q2 2017 for TSP Data

Statistic	Q2	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m³)	21.3	17.1
Arithmetic mean (µg/m³)	25.2	21.8
April Maximum (µg/m³)	29.1	43.8
May Maximum (µg/m³)	47.9	40.6
June Maximum (µg/m³)	49.2	26.4
Maximum 24 hour (µg/m³)	49.2 (Jun.12)	43.8 (Apr.13)
90th percentile	45.9	39.6
95th percentile	48.2	41.4
24-hour AAQC	120	120
No. of valid samples	16	16
% valid data	100	100
No. samples > AAQC (particulate)	0	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (metalloids)	0	0

Table 3-2: Summary Statistics for Q2 2017 for Metals Data

Metal	24-hr AAQC (µg/m³)	Tait Road Q2 2017 Maximum 24-hour Concentration (µg/m³)	% 24-hr AAQC	Gallinger Road Q2 2017 Maximum 24-hr Concentration (µg/m³)	% 24-hr AAQC
As	0.3	9.94E-04	0.33%	9.69E-04	0.32%
Cd	0.025	2.11E-04	0.85%	1.48E-04	0.59%
Cr	0.5	8.68E-03	1.74%	8.97E-03	1.79%
Co	0.1	7.29E-04	0.73%	6.01E-04	0.60%
Cu	50	7.82E-02	0.16%	4.47E-01	0.89%
Fe	4	1.31E+00	32.86%	9.13E-01	22.81%
Pb	0.5	1.56E-03	0.31%	1.52E-03	0.30%
Mn	0.4	3.21E-02	8.03%	2.94E-02	7.34%
Ni	0.2	2.18E-03	1.09%	2.00E-03	1.00%
Se	10	4.31E-04	0.00%	4.20E-04	0.00%
V	2	1.66E-03	0.08%	1.61E-03	0.08%
Zn	120	2.80E-02	0.02%	3.35E-02	0.03%

Table 3-3: Summary Statistics for Q2 2017 for $PM_{2.5}$ Data

Statistic	Q2	
	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (µg/m³)	2.6	3.2
April Maximum (µg/m³)	2.7	3.8
May Maximum (µg/m³)	4.5	4.8
June Maximum (µg/m³)	4.5	4.4
Maximum 24 hour (µg/m³)	4.5 (May.19)	4.8 (May.31)
90th percentile	4.4	4.5
95th percentile	4.5	4.7
24-hour CAAQS	28	28
No. of valid samples	16	16
% valid data	100	100
No. samples > CAAQS	0	0

Table 3-4: Summary Statistics for Q2 2017 for Total Dustfall Data

Statistic	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (g/m²/30d)	3.0	4.1
Maximum (g/m²/30d)	5.6	7.7
30-day AAQC	7	7
No. > AAQC	0	1
No. valid samples*	2	2
% Valid data	66	66

Notes:

N/A: No applicable criteria
N/R: Not Reportable
*samples invalidated due to incorrect exposure period

Table 3-5: Summary Statistics for Q2 2017 for Passive SO_2 and NO_2 Data

Statistic	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean (µg/m³)	0.4	1.6	0.3	0.7
Maximum (µg/m³)	0.6	2.2	0.5	0.8
AAQC 24-hr converted to 30-day (µg/m³)	N/A	78	N/A	78
Alberta AAQO (µg/m³)	30	N/A	30	N/A
No. valid samples	3	3	3	3
% Valid data	100	100	100	100

Note:

N/A: No applicable criterion

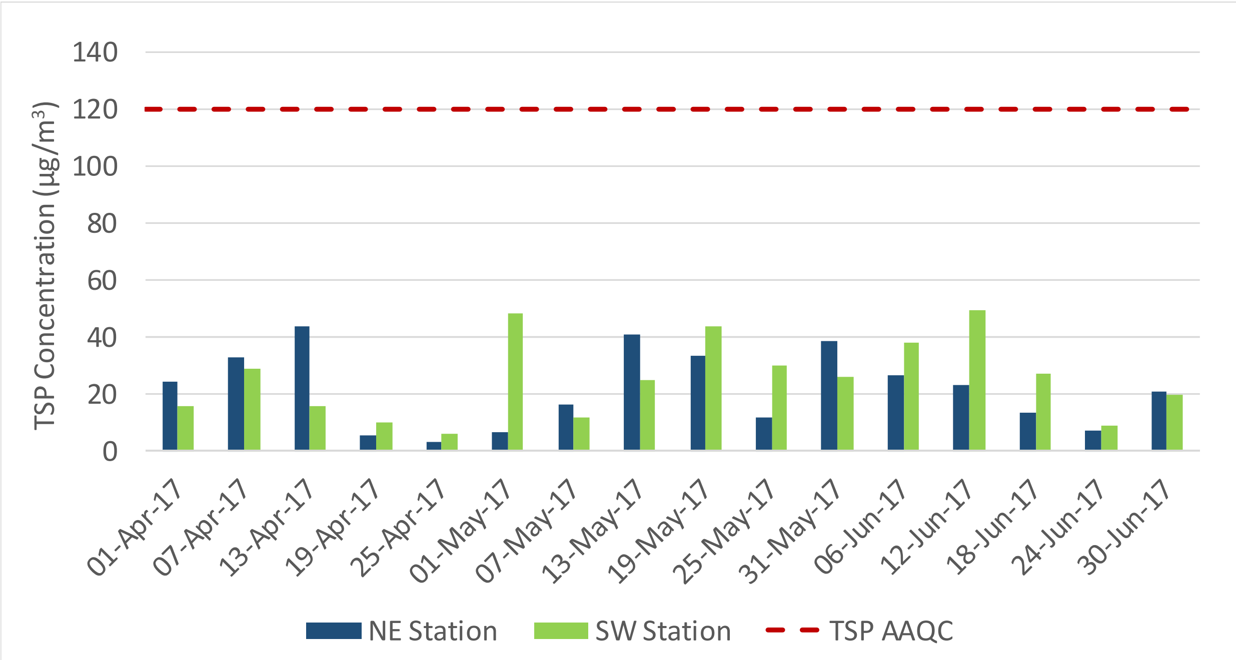

Figure 3-1: TSP Concentrations (Q2 2017)

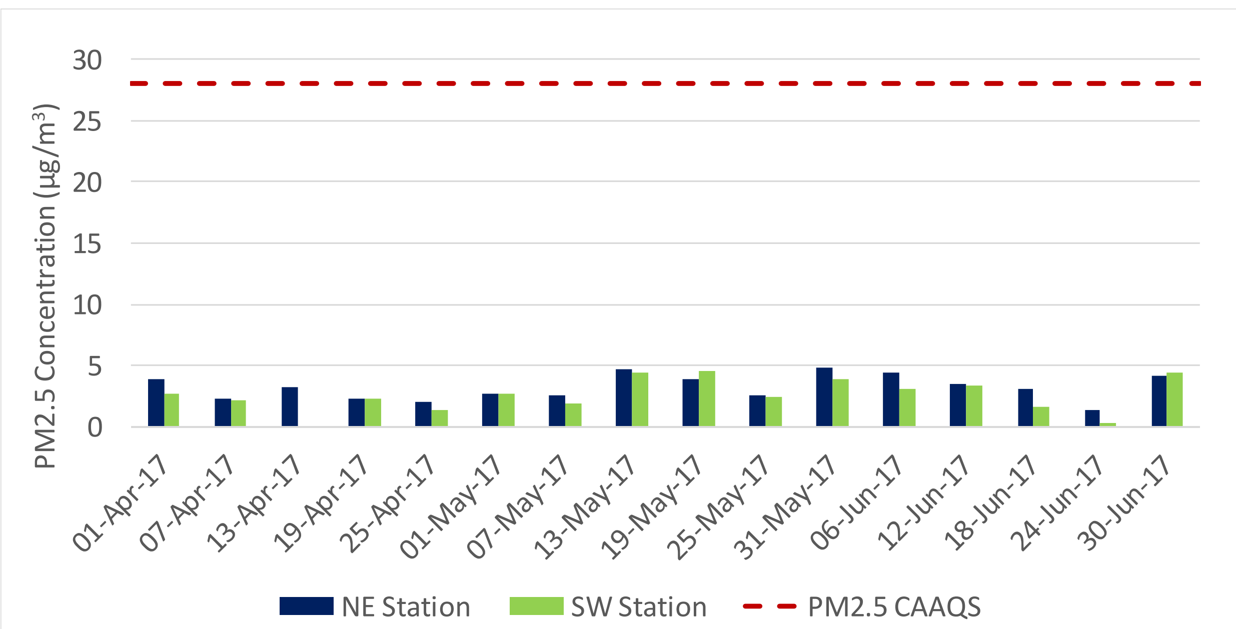

Figure 3-2: PM2.5 Concentrations (Q2 2017)

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

A summary of the Q2 2017 air quality sampling program is provided below:

- There were 16 valid TSP samples collected at both stations (100% sample validity), and no exceedances of the AAQC were measured for TSP, or for any of the metals and metalloids.
- There were 16 valid $PM_{2.5}$ samples collected at both stations (100% sample validity), and no exceedances of the CAAQS were measured.
- Four valid dustfall samples were collected (66% sample validity). One exceedance of the AAQC was measured in April at the Gallinger Station.
- Six valid passive samples for each of SO_2 and NO_2 were collected (100% sample validity). There were no exceedances of AEP Criterion for SO_2 or of the 30-day equivalent AAQC for NO_2.

5.0 REFERENCES

Alberta Environment and Parks (AEP). 2016. Alberta Ambient Air Quality Objectives and Guidelines Summary.

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Ministry of the Environment and Climate Change (MOECC). 2009. Procedure for Preparing and Emission Summary and Dispersion Modelling Report.

Ministry of the Environment and Climate Change (MOECC). 2012. Ontario's Ambient Air Quality Criteria, PIBS # 6570e01.

Ministry of the Environment and Climate Change (MOECC). 2016. Determination of Total Dustfall in Air Particulate Matter by Gravimetry, E3043.

United States Environmental Protection Agency (USEPA). 2017. Sampling Schedule Calendar, https://www3.epa.gov/ttnamti1/calendar.html (Accessed February 10, 2017).

6.0 CLOSING

This air quality monitoring program, Second Quarter 2017 report was prepared by Amec Foster Wheeler for the sole benefit of New Gold Inc. for specific application to the Rainy River Project. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Amec Foster Wheeler's services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this document.

This report is intended to be used by New Gold only, and its nominated representatives, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard. No other warranty, expressed or implied, is made.

If you require further information regarding the above or the project in general, please contact the undersigned at (905) 568-2929. Thank you for the opportunity to be of service to New Gold Inc.

Yours truly,
Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

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APPENDIX A

SAMPLING RESULTS

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APPENDIX A-1

TSP, METALS AND PM2.5 SAMPLING RESULTS

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NORTHEAST (GALLINGER ROAD) PARTICULATE/METALS CONCENTRATIONS														
Date	**PM2.5**	**TSP**	**Arsenic (As)**	**Cadmium (Cd)**	**Chromium (Cr)**	**Cobalt (Co)**	**Copper (Cu)**	**Iron (Fe)**	**Lead (Pb)**	**Manganese (Mn)**	**Nickel (Ni)**	**Selenium (Se)**	**Vanadium (V)**	**Zinc (Zn)**
1-Apr-17	3.83	24.4	*9.02E-04*	8.53E-05	3.85E-03	3.17E-04	4.47E-01	6.13E-01	8.90E-04	1.56E-02	1.26E-03	*3.91E-04*	*1.50E-03*	1.19E-02
7-Apr-17	2.29	32.7	*9.37E-04*	7.37E-05	5.19E-03	4.67E-04	3.52E-01	6.69E-01	1.07E-03	1.61E-02	1.67E-03	*4.06E-04*	*1.56E-03*	2.19E-02
13-Apr-17	3.29	43.8	*9.64E-04*	6.81E-05	7.26E-03	6.01E-04	2.58E-01	9.13E-01	1.52E-03	2.78E-02	2.00E-03	*4.18E-04*	*1.61E-03*	1.06E-02
19-Apr-17	2.33	5.4	*9.58E-04*	4.92E-05	4.02E-03	7.85E-05	3.05E-01	8.43E-02	4.02E-04	2.67E-03	6.38E-04	*4.15E-04*	*1.60E-03*	8.75E-03
25-Apr-17	2.08	3.4	*9.69E-04*	6.98E-05	4.59E-03	1.05E-04	1.14E-01	6.46E-02	1.05E-03	3.11E-03	1.39E-03	*4.20E-04*	*1.61E-03*	3.35E-02
1-May-17	2.75	6.7	*9.54E-04*	1.48E-04	5.15E-03	1.25E-04	2.63E-01	1.32E-01	6.87E-04	4.67E-03	6.87E-04	*4.13E-04*	*1.59E-03*	7.12E-03
7-May-17	2.50	16.3	*9.57E-04*	4.53E-05	7.21E-03	1.72E-04	1.20E-01	2.60E-01	6.70E-04	6.51E-03	8.49E-04	*4.15E-04*	*1.60E-03*	3.70E-03
13-May-17	4.70	40.6	*9.41E-04*	5.96E-05	8.97E-03	4.69E-04	1.64E-01	7.53E-01	9.91E-04	1.90E-02	1.88E-03	*4.08E-04*	*1.57E-03*	6.71E-03
19-May-17	3.83	33.6	*9.46E-04*	5.68E-05	7.95E-03	3.80E-04	1.99E-01	6.25E-01	9.53E-04	1.54E-02	1.30E-03	*4.10E-04*	*1.58E-03*	6.18E-03
25-May-17	2.62	11.7	*9.29E-04*	5.88E-05	7.62E-03	1.67E-04	1.67E-01	3.82E-01	8.24E-04	9.54E-03	7.62E-04	*4.03E-04*	*1.55E-03*	6.07E-03
31-May-17	4.83	38.7	*9.31E-04*	7.45E-05	8.32E-03	4.58E-04	1.90E-01	7.70E-01	9.25E-04	2.94E-02	1.49E-03	*4.04E-04*	*1.55E-03*	1.01E-02
6-Jun-17	4.37	26.4	*9.03E-04*	5.60E-05	5.66E-03	2.68E-04	2.65E-01	4.01E-01	7.16E-04	1.07E-02	1.28E-03	*3.91E-04*	*1.50E-03*	1.10E-02
12-Jun-17	3.54	23.1	*9.59E-04*	7.29E-05	6.52E-03	2.65E-04	3.43E-01	4.00E-01	6.71E-04	1.23E-02	1.13E-03	*4.16E-04*	*1.60E-03*	8.95E-03
18-Jun-17	3.12	13.6	*9.43E-04*	3.02E-05	5.47E-03	9.87E-05	2.46E-01	1.23E-01	4.21E-04	5.09E-03	5.66E-04	*4.09E-04*	*1.57E-03*	5.66E-03
24-Jun-17	1.37	7.0	*9.50E-04*	3.55E-05	5.20E-03	7.10E-05	1.55E-01	6.21E-02	6.02E-04	2.10E-03	6.02E-04	*4.12E-04*	*1.58E-03*	8.74E-03
30-Jun-17	4.12	20.9	*9.32E-04*	5.34E-05	4.78E-03	1.50E-04	3.63E-01	2.10E-01	6.27E-04	5.93E-03	7.39E-04	*4.04E-04*	*1.55E-03*	6.46E-03
Geometric mean	N/A	17.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	3.22	21.8	9.42E-04	6.48E-05	6.11E-03	2.62E-04	2.47E-01	4.04E-01	8.14E-04	1.16E-02	1.14E-03	4.08E-04	1.57E-03	1.05E-02
Max. concentration	4.83	43.8	9.69E-04	1.48E-04	8.97E-03	6.01E-04	4.47E-01	9.13E-01	1.52E-03	2.94E-02	2.00E-03	4.20E-04	1.61E-03	3.35E-02
Min. concentration	1.37	3.42	9.02E-04	3.02E-05	3.85E-03	7.10E-05	1.14E-01	6.21E-02	4.02E-04	2.10E-03	5.66E-04	3.91E-04	1.50E-03	3.70E-03
90th percentile	4.54	39.6	9.62E-04	7.99E-05	8.13E-03	4.68E-04	3.58E-01	7.61E-01	1.06E-03	2.34E-02	1.78E-03	4.17E-04	1.60E-03	1.69E-02
95th percentile	4.73	41.4	9.65E-04	1.01E-04	8.48E-03	5.02E-04	3.84E-01	8.06E-01	1.18E-03	2.82E-02	1.91E-03	4.18E-04	1.61E-03	2.48E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	16	16	16	16	16	16	16	16	16	16	16	16	16	16
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes:

All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining

N/A: Not applicable

—: Invalid Sample

*Canadian Ambient Air Quality Standard, 24-hour standard

SOUTHWEST (TAIT ROAD) PARTICULATE/METALS CONCENTRATIONS

Date	PM2.5	TSP	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Nickel (Ni)	Selenium (Se)	Vanadium (V)	Zinc (Zn)
1-Apr-17	2.70	15.9	*9.87E-04*	4.47E-05	3.22E-03	2.84E-04	6.19E-02	3.61E-01	6.65E-04	9.21E-03	8.88E-04	*4.28E-04*	*1.65E-03*	9.21E-03
7-Apr-17	2.12	29.1	*9.94E-04*	2.11E-04	8.68E-03	5.07E-04	4.21E-02	8.08E-01	1.12E-03	1.90E-02	1.86E-03	*4.31E-04*	*1.66E-03*	2.80E-02
13-Apr-17	0.00	15.5	*9.76E-04*	5.01E-05	5.34E-03	2.60E-04	4.69E-02	4.25E-01	1.39E-03	1.58E-02	9.50E-04	*4.23E-04*	*1.63E-03*	1.09E-02
19-Apr-17	2.29	10.3	*9.87E-04*	1.05E-04	5.07E-03	1.61E-04	5.57E-02	2.57E-01	9.01E-04	6.25E-03	8.62E-04	*4.28E-04*	*1.64E-03*	1.19E-02
25-Apr-17	1.33	6.23	*9.73E-04*	1.02E-04	5.58E-03	1.32E-04	1.64E-02	1.69E-01	1.56E-03	4.18E-03	1.08E-03	*4.22E-04*	*1.62E-03*	2.23E-02
1-May-17	2.66	47.9	*9.81E-04*	8.50E-05	7.65E-03	6.33E-04	4.62E-02	1.31E+00	1.10E-03	3.21E-02	2.18E-03	*4.25E-04*	*1.63E-03*	1.39E-02
7-May-17	1.83	12.0	*9.57E-04*	2.81E-05	5.80E-03	1.77E-04	2.84E-02	2.62E-01	5.10E-04	5.63E-03	7.65E-04	*4.15E-04*	*1.59E-03*	3.44E-03
13-May-17	4.37	24.6	*9.55E-04*	2.99E-05	7.26E-03	2.70E-04	3.95E-02	4.41E-01	9.17E-04	1.01E-02	1.09E-03	*4.14E-04*	*1.59E-03*	8.53E-03
19-May-17	4.54	43.9	*9.62E-04*	5.96E-05	8.66E-03	6.73E-04	4.59E-02	1.17E+00	1.37E-03	2.58E-02	1.99E-03	*4.17E-04*	*1.60E-03*	1.53E-02
25-May-17	2.46	29.9	*9.29E-04*	4.34E-05	7.81E-03	4.60E-04	2.48E-02	7.81E-01	7.25E-04	1.60E-02	1.27E-03	*4.03E-04*	*1.55E-03*	7.25E-03
31-May-17	3.95	25.9	*9.56E-04*	5.80E-05	8.29E-03	2.55E-04	4.30E-02	3.84E-01	7.27E-04	1.56E-02	9.62E-04	*4.14E-04*	*1.59E-03*	5.80E-03
6-Jun-17	3.12	37.7	*9.13E-04*	4.14E-05	5.23E-03	5.07E-04	4.60E-02	7.37E-01	5.78E-04	1.59E-02	1.47E-03	*3.96E-04*	*1.52E-03*	8.28E-03
12-Jun-17	3.33	49.2	*9.43E-04*	4.27E-05	7.35E-03	7.29E-04	5.88E-02	1.15E+00	7.54E-04	2.56E-02	2.12E-03	*4.09E-04*	*1.57E-03*	9.62E-03
18-Jun-17	1.66	27.0	*9.43E-04*	3.58E-05	4.90E-03	2.72E-04	5.07E-02	4.13E-01	4.40E-04	1.11E-02	9.05E-04	*4.09E-04*	*1.57E-03*	6.22E-03
24-Jun-17	*0.31*	8.63	*9.52E-04*	1.97E-05	4.57E-03	1.06E-04	5.40E-02	1.31E-01	5.01E-04	3.26E-03	5.46E-04	*4.13E-04*	*1.59E-03*	6.92E-03
30-Jun-17	4.45	19.5	*9.30E-04*	4.40E-05	5.15E-03	1.95E-04	7.82E-02	2.82E-01	9.24E-04	6.89E-03	7.57E-04	*4.03E-04*	*1.55E-03*	1.18E-02
Geometric mean	N/A	21.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	2.57	25.2	9.59E-04	6.26E-05	6.28E-03	3.51E-04	4.62E-02	5.68E-01	8.86E-04	1.39E-02	1.23E-03	4.15E-04	1.60E-03	1.12E-02
Max. concentration	4.54	49.2	9.94E-04	2.11E-04	8.68E-03	7.29E-04	7.82E-02	1.31E+00	1.56E-03	3.21E-02	2.18E-03	4.31E-04	1.66E-03	2.80E-02
Min. concentration	0.00	6.23	9.13E-04	1.97E-05	3.22E-03	1.06E-04	1.64E-02	1.31E-01	4.40E-04	3.26E-03	5.46E-04	3.96E-04	1.52E-03	3.44E-03
90th percentile	4.41	45.9	9.87E-04	1.04E-04	8.47E-03	6.53E-04	6.04E-02	1.16E+00	1.38E-03	2.57E-02	2.06E-03	4.28E-04	1.64E-03	1.88E-02
95th percentile	4.47	48.2	9.89E-04	1.32E-04	8.66E-03	6.87E-04	6.60E-02	1.21E+00	1.43E-03	2.74E-02	2.13E-03	4.28E-04	1.65E-03	2.37E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	16	16	16	16	16	16	16	16	16	16	16	16	16	16
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

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APPENDIX A-2

TOTAL DUSTFALL SAMPLING RESULTS

NE (Gallinger Road) Monitoring Results for Dustfall (Q2 2017)
(results expresed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
April	28	3.0	4.7	7.7
May	32	0.15	0.45	0.51
June	38	INV	INV	INV

Arithmetic mean	4.1
Max. concentration	7.7
Min. concentration	0.51
AAQC	7
No. > AAQC value**	0
No. of valid samples	2
% Valid data	100
No. samples < mdl	0
Detection limit	0.30
Half detection limit	0.15

SW (Tait Road) Monitoring Results for Dustfall (Q2 2017)
(results expresed in g/m^2/30days)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
April	28	0.15	0.39	0.39
May	32	0.15	5.3	5.6
June	38	INV	INV	INV

Arithmetic mean	3.0
Max. concentration	5.6
Min. concentration	0.39
AAQC	7
No. > AAQC value**	0
No. of valid samples	2
% Valid data	100
No. samples < mdl	0
Detection limit	0.30
Half detection limit	0.15

Notes:
N/A: Not applicable
INV: Invalid Sample
All non detectable results w ere reported as 1/2 detection limit and are denoted by italics and underlining
**Ontario Ambient Air Quality Criteria, 30-day standard

Rainy River Project

APPENDIX A-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

Monitoring Results for Passive SO_2 and NO_2 (Q2 2017)
(results expresed in µg/m^3)

	SW (Tait Road)		NE (Gallinger Road)	
Month	**SO_2**	**NO_2**	**SO_2**	**NO_2**
April	0.5	2.2	0.5	0.7
May	0.1	1.5	0.1	0.6
June	0.6	1.0	0.1	0.8

Arithmetic mean	0.4	1.6	0.3	0.7
Max. concentration	0.6	2.2	0.5	0.8
Min. concentration	0.1	1.0	0.1	0.6
AAQC* 24-hr converted to 30-day	N/A	78 µg/m^3	N/A	78 µg/m^3
Alberta Ambient Air Quality Objectives 2013	30 µg/m^3	N/A	30 µg/m^3	N/A
No. of valid samples	3	3	3	3
No. samples < mdl	1	0	2	0
Detection limit	0.3	0.2	0.3	0.2
Half detection limit	0.15	0.1	0.15	0.1

Notes:
All statistics were calculated using 1/2DL for values reported as <DL
All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C
N/A: Not applicable
INV: Invalid Sample
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
*Ontario Ambient Air Quality Criteria

newgold Rainy River Project

NEW GOLD INC.
RAINY RIVER PROJECT

AIR QUALITY MONITORING PROGRAM
THIRD QUARTER 2017 REPORT

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

November 2017
TC111504

amec foster wheeler

November 14, 2017
TC111504

Mr. Darrell Martindale
New Gold Inc.
Rainy River Project
5967 Hwy 11 / 71, P.O. Box 5
Emo, Ontario
P0W 1E0

Dear Mr. Martindale:

Re: Rainy River Project, Air Quality Monitoring Program, Third Quarter 2017 Report

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to submit to New Gold Inc. (New Gold) the attached summary report of the third quarter (Q3) 2017 results for the ambient air quality monitoring program at the Rainy River Project.

The monitoring program consists of two air quality sampling stations that were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. The sampling stations are operated and maintained by New Gold staff.

The key finding(s) of the Q3 2017 monitoring are as follow:

- There were no exceedances of the total suspended particulate (TSP), metals, or dustfall Ambient Air Quality Criteria; or the $PM_{2.5}$ Canadian Ambient Air Quality Standards measured in Q3 2017.

The measured TSP and $PM_{2.5}$ concentrations for the Q3 2017 are depicted in Figures CL-1 and CL-2.

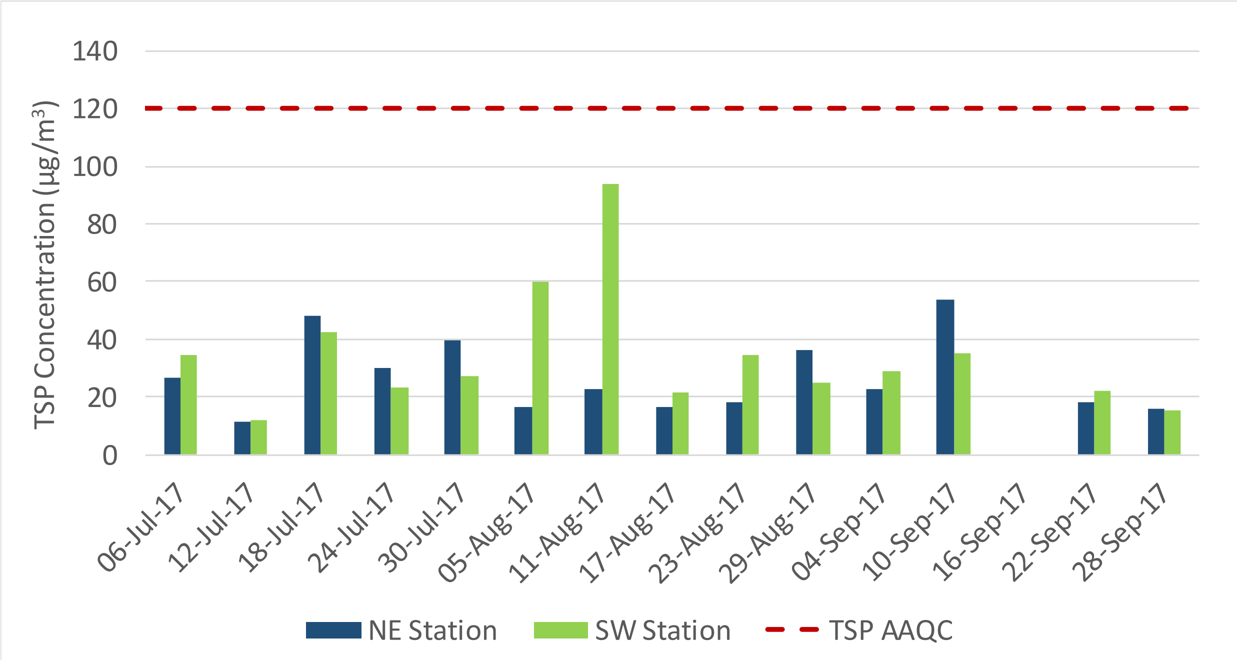

Figure CL-1: TSP Concentrations (Q3 2017)

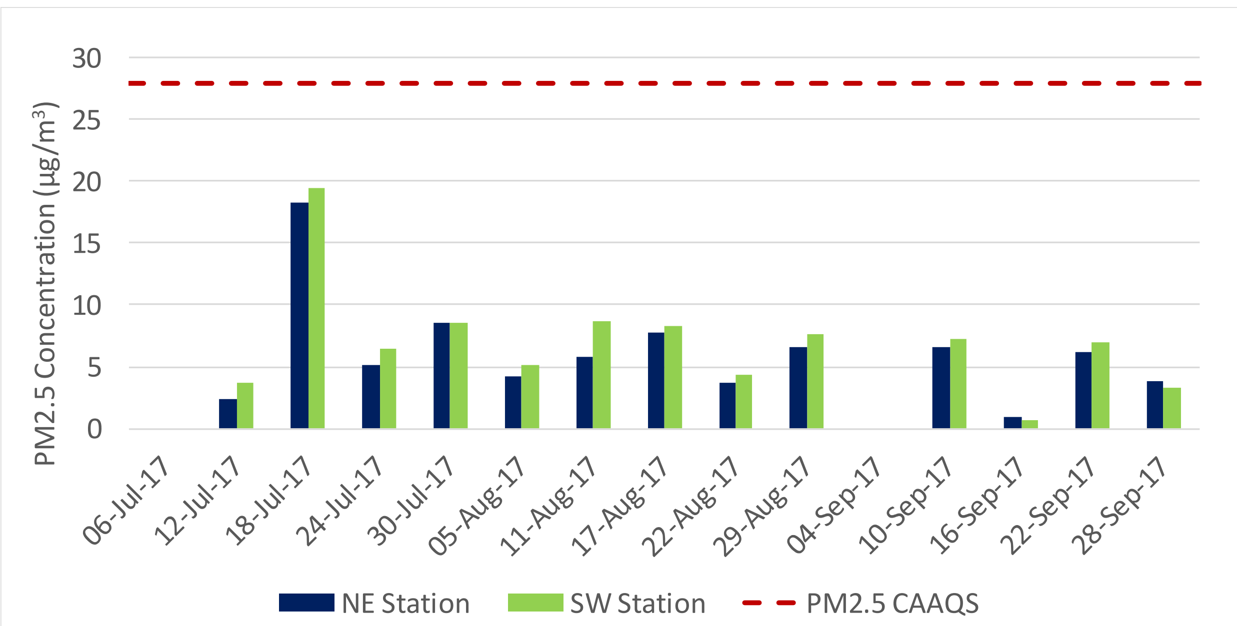

Figure CL-2: $PM_{2.5}$ Concentrations (Q3 2017)

Should you have any questions or wish to discuss the air monitoring program, please do not hesitate to contact the undersigned.

Caleb Vandenberg, P.Eng.
Air Quality Engineer

Sheila Daniel, M.Sc., P.Geo.
Principal Mining Environmental

ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
AAQO	Alberta Ambient Air Quality Objectives
ACFM	Cubic Feet Per Minute at Actual Conditions
AEP	Alberta Environment and Parks
ASTM	American Society for Testing and Materials
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
LPM	Litres Per Minute
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
PM_{10}	Particulate Matter less than 10 microns in diameter
USEPA	United States Environmental Protection Agency
$\mu g/m^3$	Microgram per Cubic Metre

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the Third Quarter (Q3) 2017 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road (Figures 1-1, 1-2 and 1-3).

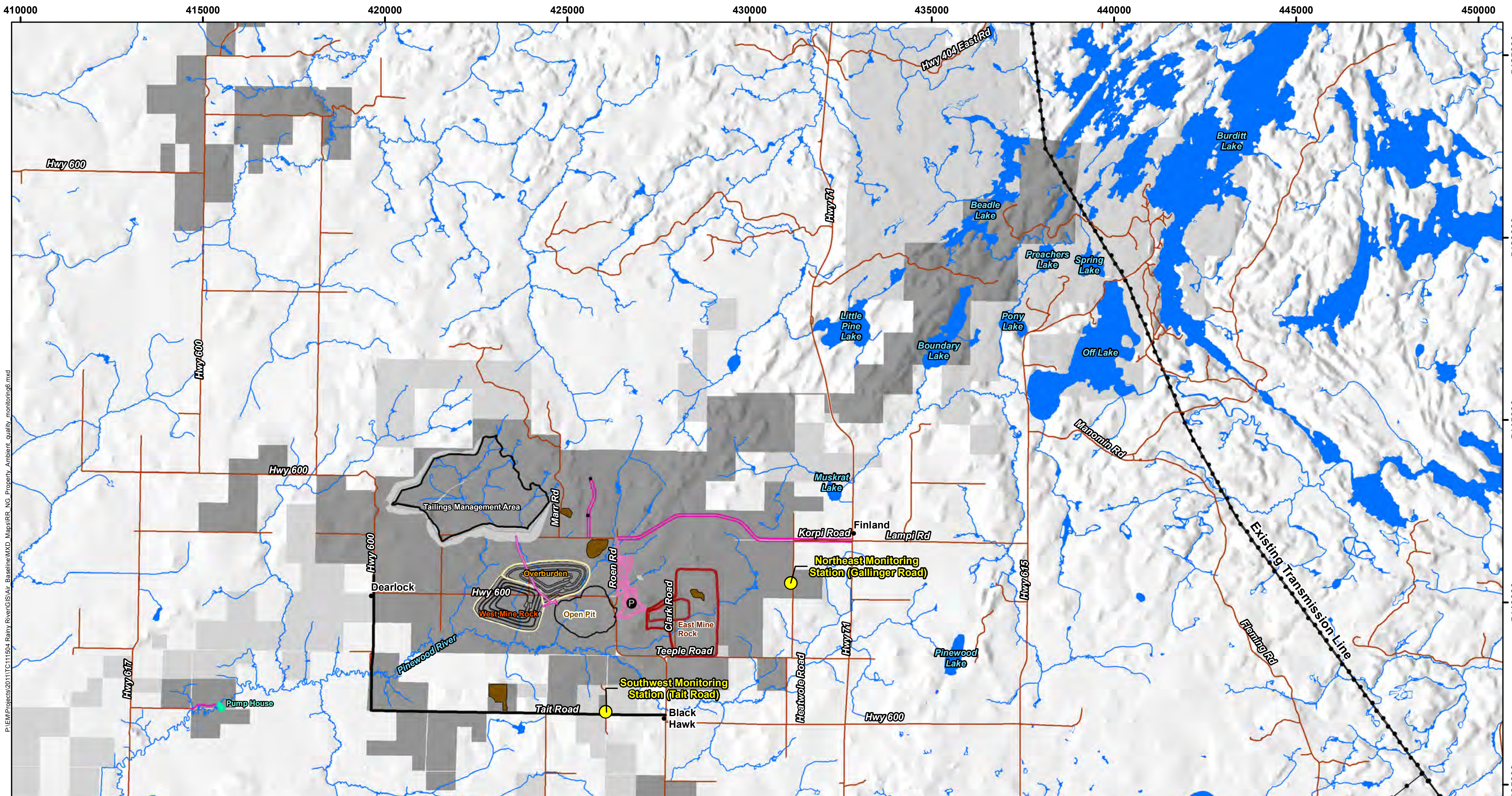
New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler staff performed quarterly calibrations, provided technical guidance to New Gold field staff, communicated with the laboratory staff as required, and prepared the data summary report.

This Quarterly Air Quality Report addresses the required elements of a Quarterly Report defined in the Operations Manual for Air Quality Monitoring in Ontario (MOECC 2016), hereafter referred to as the Operations Manual. Specifically, the following information is provided:

- Summary statistics;
- Sampling dates (start and end where applicable); and
- A summary of exceedances of an Ontario Ambient Air Quality Criteria (AAQC).

The purpose of the air monitoring program is to quantify any potential air quality effects associated with activities related to the Project. The monitoring program consists of:

- Two High Volume (hi-vol) samplers for discrete sampling of Total Suspended Particulate (TSP) and metals;
- Two PQ200 samplers for discrete sampling of respirable particulate matter ($PM_{2.5}$);
- Two standard passive dustfall collection units;
- Two passive sampling enclosures each measuring NO_2 and SO_2; and
- One meteorological station to obtain real-time site wind speed, wind direction, temperature, relative humidity, and precipitation.



LEGEND

- Ambient Air Quality Monitoring Stations
- New Gold - Rainy River Property Boundary
- New Gold Lands with No Current Access Control

Proposed Site Features

- Underground Portal
- Open Pit
- Plant Site / Ancillary Facilities
- Explosives Facilities
- Overburden / West Mine Rock Stockpile
- Ore / East Mine Rock Stockpile
- Proposed Pump House
- Tailings Management Area
- Aggregate Pit / Quarry
- Site Roads
- Roads
- Existing Transmission Line
- First Nation Land

0 2 4 8 12 16 20 Kilometres

NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, December 16, 2016

Datum: NAD83
Projection: UTM Zone 15N

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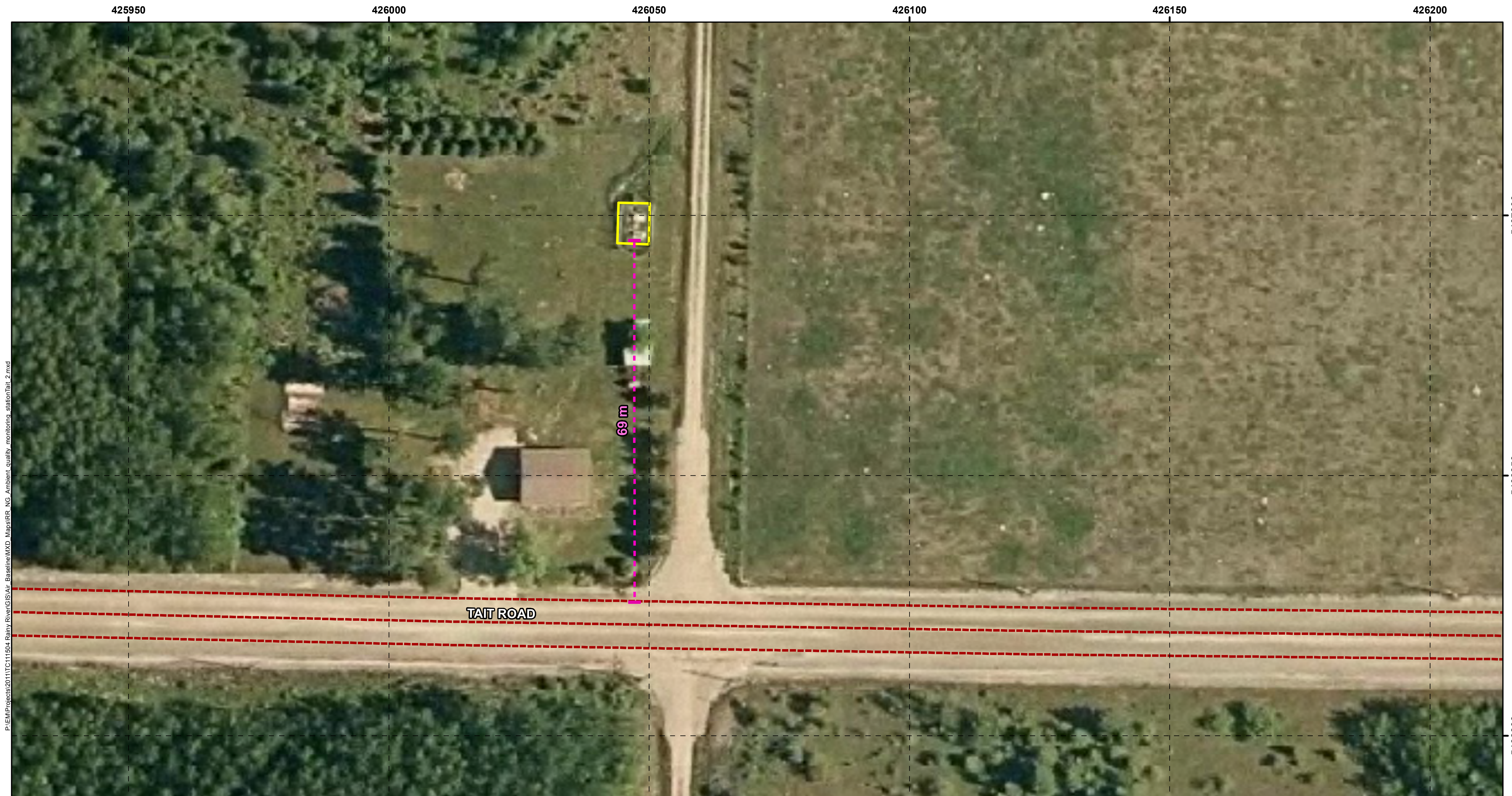
RAINY RIVER PROJECT

Ambient Air Monitoring Stations

PROJECT N°: TC111504	FIGURE: 1-1
SCALE: 1:100,000	DATE: August 2017



LEGEND

Southwest Monitoring Station (Tait Road)

Highway Re-alignment

Notes:
- Aerial imagery provided by RRR Pleiades imagery (June 2017).

Datum & Projection:
NAD 1983 UTM Zone 15N

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RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

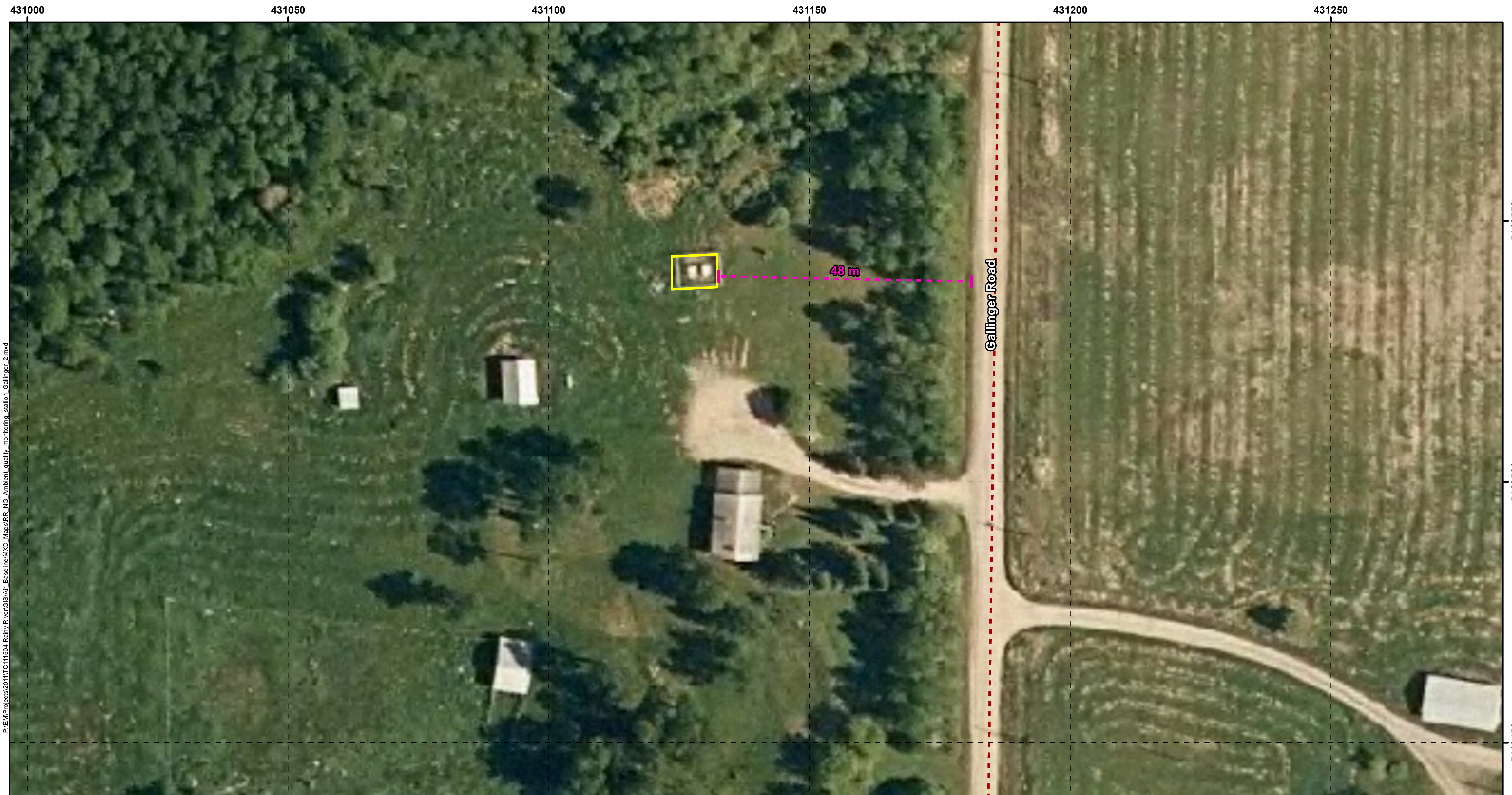
PROJECT N°: TC111504

FIGURE: 1-2

SCALE: 1:700

DATE: August 2017

0 10 20 40 60 80 100 Meters



LEGEND

Northeast Monitoring Station (Gallinger Road)

Gallinger Road

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Pleiades imagery (June 2017).

Datum & Projection: NAD 1983 UTM Zone 15N

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RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 1-3**
SCALE: 1:700	DATE: August 2017

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The TSP concentrations were determined using the standard gravimetric method following the reference methods approved by the United States Environmental Protection Agency (US EPA) and the Ontario Ministry of the Environment and Climate Change (MOECC) as described in the Operations Manual (MOECC 2016). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time of the relevant AAQC (MOECC 2012); particulate samples are collected every sixth day on the North American schedule (US EPA 2017). Sampling was performed with hi-vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn). A metalloid is an element such as As that has both metallic and non-metallic properties.

The lowest detectable limit is 2.3 milligrams (mg) of total particulate on the filter, resulting in a method detection limit of 1.4 micrograms per cubic metre (µg/m^3) based on a typical 24-hour sample volume of 1,630 m^3.

The metal concentrations were determined with the standard Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP/AES) method. The method detection limits are as shown in the data sheets in Appendix A-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the US EPA and the MOECC as described in the Operations Manual (MOECC 2016). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS); particulate samples are collected every sixth day on the North American schedule (US EPA 2017). Sampling was performed with PQ200 samplers.

The lowest detectable limit on the Teflon filters is 1 µg of $PM_{2.5}$, resulting in a method detection limit of 0.04 µg/m^3 (based on a typical 24-hour sample volume of 24 m^3).

2.2.1 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and the British Columbia Ministry of Environment method outlined in Section G of Air Constituents – Inorganic. Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m^2/30 days. Bird deterrents were added in Q3 2017 with the goal of reducing contamination.

2.3 Passive Sampling for SO_2 and NO_2

SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

The sample uptake is dependent on temperature, relative humidity and wind speed, the analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data are taken from the Environment and Climate Change Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data is only used for screening purposes. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 $\mu g/m^3$) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOE 2009). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objective of 30 $\mu g/m^3$ (AEP 2016).

2.4 Field Operations

2.4.1 Hi-Vol Samplers

The two stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed calibrations on the hi-vol samplers using a BGI direct reading hi-vol electronic flow calibrator. The flows were calibrated to 40 actual cubic feet per minute (ACFM) for each station using mass flow controllers. Calibrations used in the quarter were performed on:

- April 4, 2017: All hi-vols calibrated; and
- July 25, 2017; All hi-vols calibrated.

There were no MOECC audits during this quarter.

2.4.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample in order to meet the requirements of the 1 in 6 day sampling schedule with one exception: the August 23, 2017 $PM_{2.5}$ samples were accidentally collected a day early (on August 22, 2017). Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed flow, temperature, and barometric pressure calibrations using an electronic BGI flow calibrator. The flows were calibrated to 16.7 litres per minute (LPM) for each station. Calibrations used in Q3 2017 were performed on:

- April 4, 2017: all PQ200s calibrated; and
- July 25, 2017; all PQ200s calibrated.

There were no MOECC audits during this quarter.

2.4.3 Dustfall Samplers

The dustfall samplers containing algaecide were changed every month, as required. Dustfall jars were provided by the laboratory with screw-on lids to prevent sample loss during transport.

2.4.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required. Permeation filters were kept in filter cassettes inside Ziploc bags until deployed to prevent premature exposure. After the sample is collected, the filter is placed back in its cassette and into a Ziploc bag for shipment to the lab.

3.0 RESULTS

The results for the Q3 2017 sampling program are presented in Appendix A-1 for the particulate and metals data, Appendix A-2 for the dustfall data and Appendix A-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses, and in keeping with MOECC protocol, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparative purposes, the MOECC AAQC and CAAQS values are presented, where available, noting that the AAQCs are numerically equivalent to the 419 standards.

Summaries of the statistical analyses for Q3 2017 for the TSP, metals, and $PM_{2.5}$ concentrations are presented in Tables 3-1, 3-2, and 3-3 respectively. During the quarter, the 1 in 6 day sampling schedule results in a possible 15 sampling days between July 1 and September 30, 2017.

A summary of the statistical analyses for Q3 2017 for the total dustfall data is presented below in Table 3-4.

A summary of the statistical analysis for the Q3 2017 passive SO_2 and NO_2 results is presented in Table 3-5.

3.1 TSP and Metals

Both stations collected 14 valid samples in Q3 2017, resulting in 93% valid data. The samples to be collected at both stations on September 16, 2017 were lost due to an operator error.

For the quarter, the geometric mean TSP concentrations were 29.7 µg/m^3 for the Tait Road station and 24.3 µg/m^3 for the Gallinger Road station. Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for TSP was 93.6 µg/m^3 at the Tait Road station (August 11, 2017), and 53.8 µg/m^3 at the Gallinger Road station (September 10, 2017).

In the quarter, the 24-hour metal concentrations were all below the AAQCs. The rolling 30-day average lead concentrations at both stations were less than 1% of the 30-day lead AAQC (0.2 µg/m^3) in Q3 2017.

There were no exceedances of the MOECC AAQC measured for any of TSP metals, or metalloids in Q3 2017.

Appendix A-1 and Figure 3-1 present individual sample data. The Q3 2017 TSP and metals summary statistics are summarized in Tables 3-1 and 3-2 respectively.

3.2 $PM_{2.5}$

Both stations collected 13 valid samples in Q3 2017, resulting in 87% valid data. The July 6, 2017 and September 4, 2017 samples that were to be collected at both stations were lost due to an operator error.

Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 19.4 µg/m^3 at the Tait Road station (July 18, 2017), and 18.2 µg/m^3 at the Gallinger Road station (July 18, 2017). There were no $PM_{2.5}$ exceedances of the AAQC of 30 µg/m^3 or CAAQS (ECCC 2013) of 28 µg/m^3 measured in Q3 2017. Appendix A-1 and Figure 3-2 present individual sample data.

The Q3 2017 $PM_{2.5}$ summary statistics are summarized in Table 3-3.

3.3 Total Dustfall

In Q3 2017, three valid samples were collected at each station. Each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter.

A summary of the results are presented in Table 3-4 and the monthly results are presented in Appendix A-2.

3.4 Passive SO_2 and NO_2

In Q3 2017, two valid samples were collected at each station for each of SO_2 and NO_2; the August samples were lost during shipment to the laboratory

There are no MOECC standards, guidelines or AAQCs for SO_2 or NO_2 for a 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for potential comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2009). For SO_2, the results were compared against the Alberta Ambient Air Quality Objective of 30 µg/m^3 (AEP 2016).

A summary of the passive results are presented in Table 3-5 and the monthly results are presented in Appendix A-3.

Table 3-1: Summary Statistics for Q3 2017 TSP Concentration Data

Statistic	Q3	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m³)	29.7	24.3
Arithmetic mean (µg/m³)	34.0	26.9
July Maximum (µg/m³)	42.4	47.9
August Maximum (µg/m³)	93.6	36.3
September Maximum (µg/m³)	35.2	53.8
Maximum 24 hour (µg/m³)	93.6 (Aug.11)	53.8 (Sept.10)
90th percentile	54.7	45.4
95th percentile	71.7	49.9
24-hour AAQC	120	120
No. of valid samples	14	14
% valid data	93	93
No. samples > AAQC (particulate)	0	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (metalloids)	0	0

Table 3-2: Summary Statistics for Q3 2017 Metals Concentration Data

Metal	24-hr AAQC (µg/m³)	Tait Road Q3 2017 Maximum 24-hour Concentration (µg/m³)	% 24-hr AAQC	Gallinger Road Q3 2017 Maximum 24-hr Concentration (µg/m³)	% 24-hr AAQC
As	0.3	9.70E-04	0.32%	9.65E-04	0.32%
Cd	0.025	4.98E-04	1.99%	1.34E-04	0.54%
Cr	0.5	1.06E-02	2.12%	6.19E-03	1.24%
Co	0.1	1.32E-03	1.32%	3.72E-04	0.37%
Cu	50	1.05E-01	0.21%	5.94E-01	1.19%
Fe	4	2.76E+00	69.08%	7.17E-01	17.91%
Pb	0.5	2.17E-03	0.43%	1.72E-03	0.34%
Mn	0.4	5.91E-02	14.78%	1.92E-02	4.80%
Ni	0.2	3.85E-03	1.92%	1.51E-03	0.75%
Se	10	1.49E-03	0.01%	1.81E-03	0.02%
V	2	7.87E-03	0.39%	1.61E-03	0.08%
Zn	120	2.76E-02	0.02%	1.54E-02	0.01%

Table 3-3: Summary Statistics for Q3 2017 $PM_{2.5}$ Concentration Data

Statistic	Q3	
	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (µg/m³)	6.93	6.16
July Maximum (µg/m³)	19.4	18.2
August Maximum (µg/m³)	8.66	7.70
September Maximum (µg/m³)	7.20	6.62
Maximum 24 hour (µg/m³)	19.4 (Jul.18)	18.2 (Jul.18)
90th percentile	8.63	8.40
95th percentile	13.0	12.4
24-hour CAAQS	28	28
No. of valid samples	13	13
% valid data	87	87
No. samples > CAAQS	0	0

Table 3-4: Summary Statistics for Q3 2017 Total Dustfall Data

Statistic	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (g/m²/30d)	1.7	1.2
Maximum (g/m²/30d)	2.6	2.4
30-day AAQC	7	7
No. > AAQC	0	0
No. valid samples*	3	3
% Valid data	100	100

Table 3-5: Summary Statistics for Q3 2017 Passive SO_2 and NO_2 Concentration Data

Statistic	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean (µg/m³)	0.1	1.7	0.3	0.6
Maximum (µg/m³)	0.1	2.4	0.3	0.7
AAQC 24-hr converted to 30-day (µg/m³)	N/A	78	N/A	78
Alberta AAQO (µg/m³)	30	N/A	30	N/A
No. valid samples	2	2	2	2
% Valid data	67	67	67	67

Note:

N/A: No applicable criterion

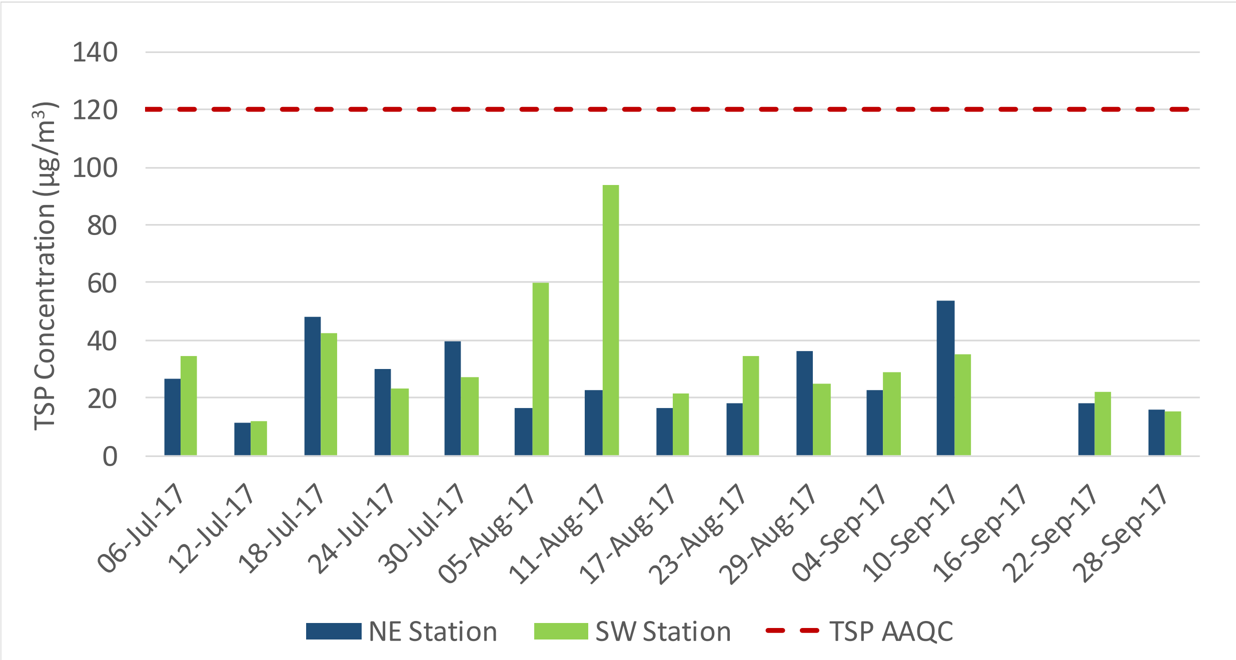

Figure 3-1: TSP Concentrations (Q3 2017)

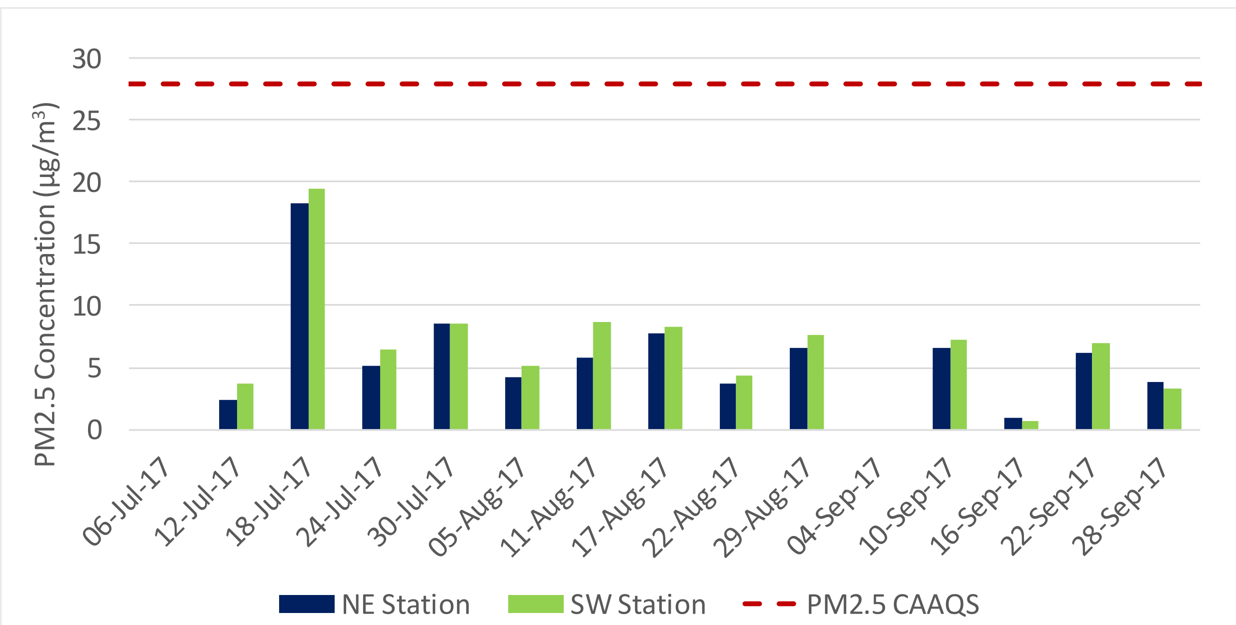

Figure 3-2: $PM_{2.5}$ Concentrations (Q3 2017)

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

A summary of the Q3 2017 air quality sampling program is provided below:

- There were 14 valid TSP samples collected at both stations (93% sample validity), and no exceedances of the AAQC were measured for TSP, or for any of the metals and metalloids.

- There were 13 valid $PM_{2.5}$ samples collected at both stations (87% sample validity), and no exceedances of the CAAQS were measured.

- There were 3 valid dustfall samples collected at both stations (100% sample validity), and no exceedances of the AAQC were measured.

- There were 2 valid passive samples for each of SO_2 and NO_2 at both stations collected (67% sample validity). There were no exceedances of AEP Criterion for SO_2 of the 30-day equivalent AAQC for NO_2.

5.0 REFERENCES

Alberta Environment and Parks (AEP). 2016. Alberta Ambient Air Quality Objectives and Guidelines Summary.

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Ministry of the Environment and Climate Change (MOECC). 2016. Operations Manual for Air Quality Monitoring in Ontario.

Ministry of the Environment and Climate Change (MOECC). 2016. Determination of Total Dustfall in Air Particulate Matter by Gravimetry, E3043.

United States Environmental Protection Agency (USEPA). 2017. Sampling Schedule Calendar, https://www3.epa.gov/ttnamti1/calendar.html (Accessed February 10, 2017).

6.0 CLOSING

This air quality monitoring program, Third Quarter 2017 report was prepared by Amec Foster Wheeler for the sole benefit of New Gold Inc. for specific application to the Rainy River Project. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Amec Foster Wheeler's services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this document.

This report is intended to be used by New Gold only, and its nominated representatives, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard practices. No other warranty, expressed or implied, is made.

If you require further information regarding the above or the project in general, please contact the undersigned at (905) 568-2929. Thank you for the opportunity to be of service to New Gold Inc.

Yours truly,
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APPENDIX A

SAMPLING RESULTS

Appendix A-1	**TSP, Metals and $PM_{2.5}$ Sampling Results**
Appendix A-2	**Total Dustfall Sampling Results**
Appendix A-3	**SO_2 and NO_2 Passive Sampling Results**

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APPENDIX A-1

TSP, METALS AND $PM_{2.5}$ SAMPLING RESULTS

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NORTHEAST (GALLINGER ROAD) PARTICULATE/METALS CONCENTRATIONS														
Date	**PM2.5**	**TSP**	**Arsenic (As)**	**Cadmium (Cd)**	**Chromium (Cr)**	**Cobalt (Co)**	**Copper (Cu)**	**Iron (Fe)**	**Lead (Pb)**	**Manganese (Mn)**	**Nickel (Ni)**	**Selenium (Se)**	**Vanadium (V)**	**Zinc (Zn)**
6-Jul-17	—	26.8	*9.63E-04*	4.62E-05	3.40E-03	1.07E-04	2.09E-01	2.48E-01	3.85E-04	8.67E-03	5.78E-04	1.35E-03	*1.60E-03*	9.63E-03
12-Jul-17	2.41	11.3	*9.35E-04*	*8.41E-06*	2.93E-03	*9.35E-06*	8.60E-02	2.24E-02	1.18E-04	1.10E-03	1.93E-04	1.12E-03	*1.56E-03*	3.12E-03
18-Jul-17	18.2	47.9	*9.30E-04*	7.38E-05	3.60E-03	2.08E-04	1.51E-01	4.63E-01	5.64E-04	1.52E-02	7.69E-04	1.36E-03	*1.55E-03*	9.36E-03
24-Jul-17	5.12	29.8	*9.19E-04*	8.02E-05	5.27E-03	3.72E-04	1.88E-01	7.17E-01	6.06E-04	1.54E-02	1.51E-03	1.10E-03	*1.53E-03*	8.94E-03
30-Jul-17	8.57	39.8	*9.23E-04*	8.86E-05	4.18E-03	2.73E-04	2.91E-01	6.34E-01	7.94E-04	1.92E-02	9.72E-04	1.48E-03	*1.54E-03*	8.43E-03
5-Aug-17	4.25	16.3	*9.37E-04*	9.56E-05	5.12E-03	1.05E-04	5.04E-01	1.20E-01	4.31E-04	6.75E-03	7.06E-04	1.81E-03	*1.56E-03*	8.12E-03
11-Aug-17	5.78	22.6	*9.48E-04*	9.73E-05	6.07E-03	2.41E-04	4.52E-01	4.24E-01	6.32E-04	9.98E-03	1.12E-03	*4.11E-04*	*1.58E-03*	8.72E-03
17-Aug-17	7.70	16.5	*9.55E-04*	8.73E-05	6.12E-03	6.94E-05	3.78E-01	1.00E-01	7.45E-04	3.13E-03	7.96E-04	*4.14E-04*	*1.59E-03*	8.85E-03
23-Aug-17	3.70	18.3	*9.49E-04*	7.53E-05	5.69E-03	1.11E-04	3.47E-01	1.85E-01	1.67E-03	5.61E-03	6.33E-04	*4.11E-04*	*1.58E-03*	1.54E-02
29-Aug-17	6.62	36.3	*9.39E-04*	1.34E-04	6.19E-03	3.02E-04	5.94E-01	5.49E-01	1.58E-03	1.55E-02	1.23E-03	*4.07E-04*	*1.56E-03*	1.30E-02
4-Sep-17	—	22.7	*9.11E-04*	6.14E-05	3.95E-03	5.77E-05	1.71E-01	6.02E-02	3.65E-04	4.79E-03	5.77E-04	*3.95E-04*	*1.52E-03*	7.11E-03
10-Sep-17	6.62	53.8	*8.99E-04*	9.17E-05	4.85E-03	3.10E-04	1.23E-01	4.24E-01	1.72E-03	1.82E-02	9.47E-04	*3.90E-04*	*1.50E-03*	1.19E-02
16-Sep-17	0.96	—	—	—	—	—	—	—	—	—	—	—	—	—
22-Sep-17	6.24	18.5	*9.07E-04*	7.14E-05	4.36E-03	5.81E-05	2.67E-01	8.47E-02	8.29E-04	5.61E-03	4.54E-04	*3.93E-04*	*1.51E-03*	8.05E-03
28-Sep-17	3.83	16.2	*9.65E-04*	7.08E-05	4.96E-03	8.62E-05	3.07E-01	1.44E-01	7.34E-04	5.97E-03	4.96E-04	*4.18E-04*	*1.61E-03*	1.36E-02

Geometric mean	N/A	24.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	6.16	26.9	9.34E-04	7.73E-05	4.76E-03	1.65E-04	2.91E-01	2.98E-01	7.98E-04	9.65E-03	7.85E-04	8.19E-04	1.56E-03	9.58E-03
Max. concentration	18.2	53.8	9.65E-04	1.34E-04	6.19E-03	3.72E-04	5.94E-01	7.17E-01	1.72E-03	1.92E-02	1.51E-03	1.81E-03	1.61E-03	1.54E-02
Min. concentration	0.96	11.3	8.99E-04	8.41E-06	2.93E-03	9.35E-06	8.60E-02	2.24E-02	1.18E-04	1.10E-03	1.93E-04	3.90E-04	1.50E-03	3.12E-03
90th percentile	8.40	45.4	9.61E-04	9.68E-05	6.10E-03	3.08E-04	4.88E-01	6.08E-01	1.64E-03	1.74E-02	1.20E-03	1.44E-03	1.60E-03	1.34E-02
95th percentile	12.4	49.9	9.64E-04	1.10E-04	6.14E-03	3.32E-04	5.35E-01	6.63E-01	1.69E-03	1.86E-02	1.33E-03	1.59E-03	1.61E-03	1.42E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	13	14	14	14	14	14	14	14	14	14	14	14	14	14
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	87	93	93	93	93	93	93	93	93	93	93	93	93	93

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

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SOUTHWEST (TAIT ROAD) PARTICULATE/METALS CONCENTRATIONS														
Date	**PM2.5**	**TSP**	**Arsenic (As)**	**Cadmium (Cd)**	**Chromium (Cr)**	**Cobalt (Co)**	**Copper (Cu)**	**Iron (Fe)**	**Lead (Pb)**	**Manganese (Mn)**	**Nickel (Ni)**	**Selenium (Se)**	**Vanadium (V)**	**Zinc (Zn)**
6-Jul-17	—	34.7	*9.70E-04*	3.49E-05	4.01E-03	2.88E-04	6.08E-02	5.64E-01	4.98E-04	1.51E-02	9.83E-04	1.49E-03	*1.62E-03*	8.34E-03
12-Jul-17	3.66	12.2	*9.61E-04*	*8.65E-06*	3.33E-03	3.27E-05	2.02E-02	7.88E-02	2.24E-04	2.15E-03	3.27E-04	1.15E-03	*1.60E-03*	4.81E-03
18-Jul-17	19.4	42.4	*9.26E-04*	1.11E-04	3.64E-03	1.40E-04	8.71E-02	3.70E-01	7.72E-04	1.51E-02	5.80E-04	1.42E-03	*1.54E-03*	1.33E-02
24-Jul-17	6.41	23.1	*9.17E-04*	4.98E-04	3.79E-03	1.51E-04	1.05E-01	2.89E-01	6.54E-04	6.48E-03	7.28E-04	1.16E-03	*1.53E-03*	1.27E-02
30-Jul-17	8.49	27.1	*9.25E-04*	4.75E-05	3.02E-03	1.26E-04	6.54E-02	2.89E-01	6.54E-04	1.25E-02	5.00E-04	1.48E-03	*1.54E-03*	5.67E-03
5-Aug-17	5.12	59.9	*9.30E-04*	4.65E-05	7.68E-03	1.02E-03	1.03E-01	1.48E+00	8.12E-04	2.99E-02	2.42E-03	*4.03E-04*	*1.55E-03*	1.30E-02
11-Aug-17	8.66	93.6	*9.29E-04*	1.26E-04	1.06E-02	1.32E-03	8.92E-02	2.76E+00	1.73E-03	5.91E-02	3.85E-03	*4.03E-04*	7.87E-03	2.76E-02
17-Aug-17	8.24	21.5	*9.25E-04*	3.21E-05	4.87E-03	8.08E-05	5.33E-02	1.39E-01	4.87E-04	3.50E-03	4.69E-04	*4.01E-04*	*1.54E-03*	6.41E-03
23-Aug-17	4.37	34.6	*9.32E-04*	5.28E-05	5.91E-03	3.80E-04	5.54E-02	7.40E-01	1.14E-03	1.74E-02	1.58E-03	*4.04E-04*	*1.55E-03*	1.14E-02
29-Aug-17	7.62	25.3	*9.20E-04*	6.50E-05	5.27E-03	2.32E-04	7.24E-02	3.92E-01	1.54E-03	1.18E-02	9.63E-04	*3.99E-04*	*1.53E-03*	1.47E-02
4-Sep-17	—	29.1	*9.24E-04*	7.27E-05	3.88E-03	1.07E-04	5.49E-02	1.50E-01	4.31E-04	7.76E-03	4.19E-04	*4.01E-04*	*1.54E-03*	8.20E-03
10-Sep-17	7.20	35.2	*9.38E-04*	1.66E-04	4.63E-03	1.81E-04	4.17E-02	2.68E-01	2.17E-03	1.54E-02	7.32E-04	*4.07E-04*	*1.56E-03*	1.84E-02
16-Sep-17	0.71	—	—	—	—	—	—	—	—	—	—	—	—	—
22-Sep-17	6.91	21.9	*9.37E-04*	6.12E-05	5.06E-03	1.01E-04	6.04E-02	1.49E-01	1.12E-03	8.24E-03	6.06E-04	*4.06E-04*	*1.56E-03*	9.74E-03
28-Sep-17	3.29	15.7	*9.52E-04*	5.01E-05	5.01E-03	7.04E-05	8.89E-02	1.14E-01	1.11E-03	8.57E-03	4.76E-04	*4.13E-04*	*1.59E-03*	9.14E-03

Geometric mean	N/A	29.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	6.93	34.0	9.35E-04	9.80E-05	5.05E-03	3.02E-04	6.84E-02	5.56E-01	9.53E-04	1.52E-02	1.04E-03	7.38E-04	2.01E-03	1.17E-02
Max. concentration	19.4	93.6	9.70E-04	4.98E-04	1.06E-02	1.32E-03	1.05E-01	2.76E+00	2.17E-03	5.91E-02	3.85E-03	1.49E-03	7.87E-03	2.76E-02
Min. concentration	0.71	12.2	9.17E-04	8.65E-06	3.02E-03	3.27E-05	2.02E-02	7.88E-02	2.24E-04	2.15E-03	3.27E-04	3.99E-04	1.53E-03	4.81E-03
90th percentile	8.63	54.7	9.58E-04	1.54E-04	7.15E-03	8.26E-04	9.92E-02	1.26E+00	1.67E-03	2.61E-02	2.17E-03	1.46E-03	1.61E-03	1.73E-02
95th percentile	13.0	71.7	9.64E-04	2.83E-04	8.70E-03	1.12E-03	1.04E-01	1.93E+00	1.88E-03	4.01E-02	2.92E-03	1.48E-03	3.80E-03	2.16E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	13	14	14	14	14	14	14	14	14	14	14	14	14	14
No. samples < mdl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% valid data	87	93	93	93	93	93	93	93	93	93	93	93	93	93

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

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APPENDIX A-2

TOTAL DUSTFALL SAMPLING RESULTS

SW (Tait Road) Monitoring Results for Dustfall (Q3 2017)
(results expresed in $g/m^2/30days$)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
July	28	0.17	2.3	2.6
August	29	0.15	1.4	1.4
September	28	0.36	0.84	1.2

Arithmetic mean	1.7
Max. concentration	2.6
Min. concentration	1.2
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit*	0.33
Half detection limit	0.165

NE (Gallinger Road) Monitoring Results for Dustfall (Q3 2017)
(results expresed in $g/m^2/30days$)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
July	28	0.17	2.1	2.4
August	29	0.15	0.57	0.57
September	28	0.17	0.75	0.78

Arithmetic mean	1.2
Max. concentration	2.4
Min. concentration	0.57
AAQC	7
No. > AAQC value**	0
No. of valid samples	3
% Valid data	100
No. samples < mdl	0
Detection limit*	0.33
Half detection limit	0.165

Notes:
All statistics w ere calculated using 1/2DL for values reported as <DL
All non detectable results w ere reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
N/R: No Results Available
—: Invalid Sample
*If samples had differing detection limits, the highest is displayed here
**Ontario Ambient Air Quality Criteria, 30-day standard

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APPENDIX A-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

Monitoring Results for Passive SO_2 and NO_2 (Q3 2017)
(results expresed in $\mu g/m^3$)

	SW (Tait Road)		NE (Gallinger Road)	
Month	**SO_2**	**NO_2**	**SO_2**	**NO_2**
July	*0.1*	0.9	0.3	0.6
August	N/R	N/R	N/R	N/R
September	*0.1*	2.4	0.3	0.7

Arithmetic mean	0.1	1.7	0.3	0.6
Max. concentration	0.1	2.4	0.3	0.7
Min. concentration	0.1	0.9	0.3	0.6
AAQC* 24-hr converted to 30-day	N/A	78 µg/m^3	N/A	78 µg/m^3
Alberta Ambient Air Quality Objectives 2013	30 µg/m^3	N/A	30 µg/m^3	N/A
No. of valid samples	2	2	2	2
% Valid Data	67%	67%	67%	67%
No. samples < mdl	2	0	0	0
Detection limit	0.3	0.2	0.3	0.2
Half detection limit	0.15	0.1	0.15	0.1

Notes:
All statistics were calculated using 1/2DL for values reported as <DL
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C
N/A: Not applicable
N/R: No Results Available
—: Invalid Sample
*Ontario Ambient Air Quality Criteria

NEW GOLD INC.
RAINY RIVER PROJECT

AIR QUALITY MONITORING PROGRAM
FOURTH QUARTER 2017 REPORT

Submitted by:

Amec Foster Wheeler Environment & Infrastructure
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

February 2018
TC111504

February 15, 2018
TC111504

Mr. Nigel Fisher
Ms. Twila Griffith
New Gold Inc.
Rainy River Project
5967 Hwy 11 / 71, P.O. Box 5
Emo, Ontario
P0W 1E0

Dear Mr. Fisher, Ms. Griffith:

Re: Rainy River Project Air Quality Monitoring Program
Fourth Quarter 2017 Report

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to submit to New Gold Inc. (New Gold) the attached summary report of the fourth quarter (Q4) 2017 results for the ambient air quality monitoring program at the Rainy River Project.

The monitoring program consists of two air quality sampling stations that were established in May 2015: one to the south of the Site near the beginning of the Highway 600 reroute on Tait Road, and one to the east of the Site on Gallinger Road. The sampling stations are operated and maintained by New Gold staff; Amec Foster Wheeler staff performed quarterly calibrations, provided technical guidance to New Gold field staff, communicated with the laboratory staff as required, and prepared the data summary report.

Amec Foster Wheeler will supply the MOECC with raw and edited data per the Operations Manual for Air Quality Monitoring in Ontario (MOECC 2016b).

The key finding(s) of the Q4 2017 monitoring are as follow:

- There were no exceedances of the total suspended particulate (TSP), metals, or dustfall Ambient Air Quality Criteria, or the $PM_{2.5}$ Canadian Ambient Air Quality Standard measured in Q4 2017.

The measured TSP and $PM_{2.5}$ concentrations for the Q4 2017 are depicted in Figures CL-1 and CL-2.

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Should you have any questions or wish to discuss the air monitoring program, please do not hesitate to contact the undersigned.

Caleb Vandenberg, P.Eng.
Air Quality Engineer

Dan Russell, P.Geo.
Senior Environmental Geoscientist

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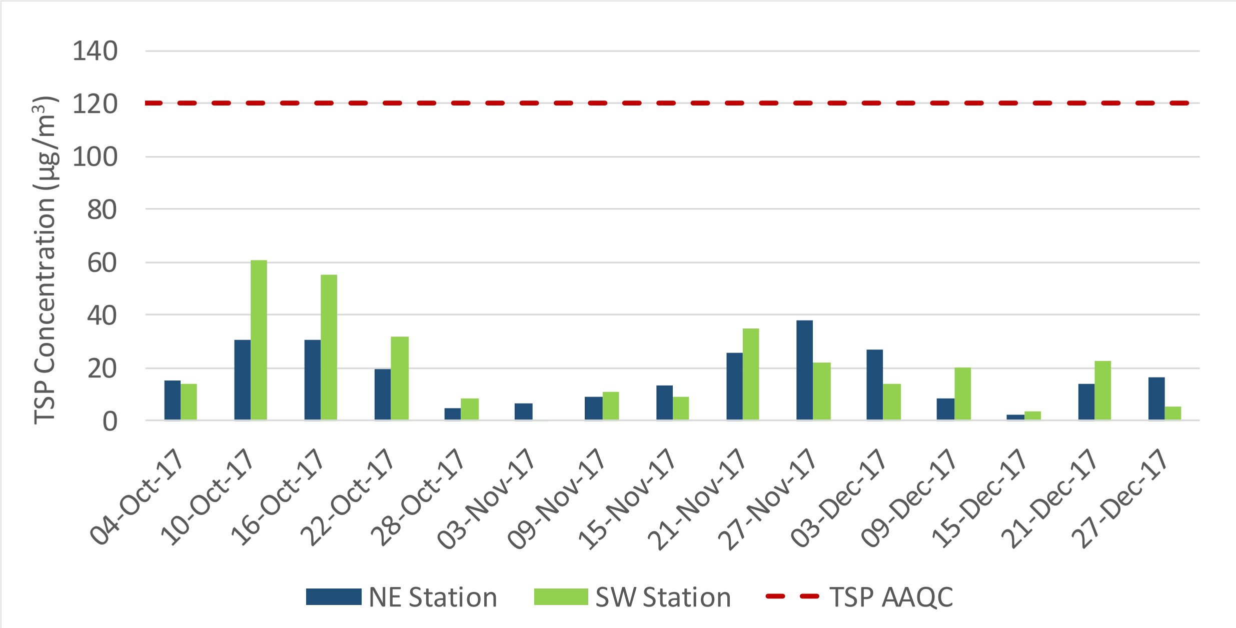

Figure CL-1: TSP Concentrations (Q4 2017)

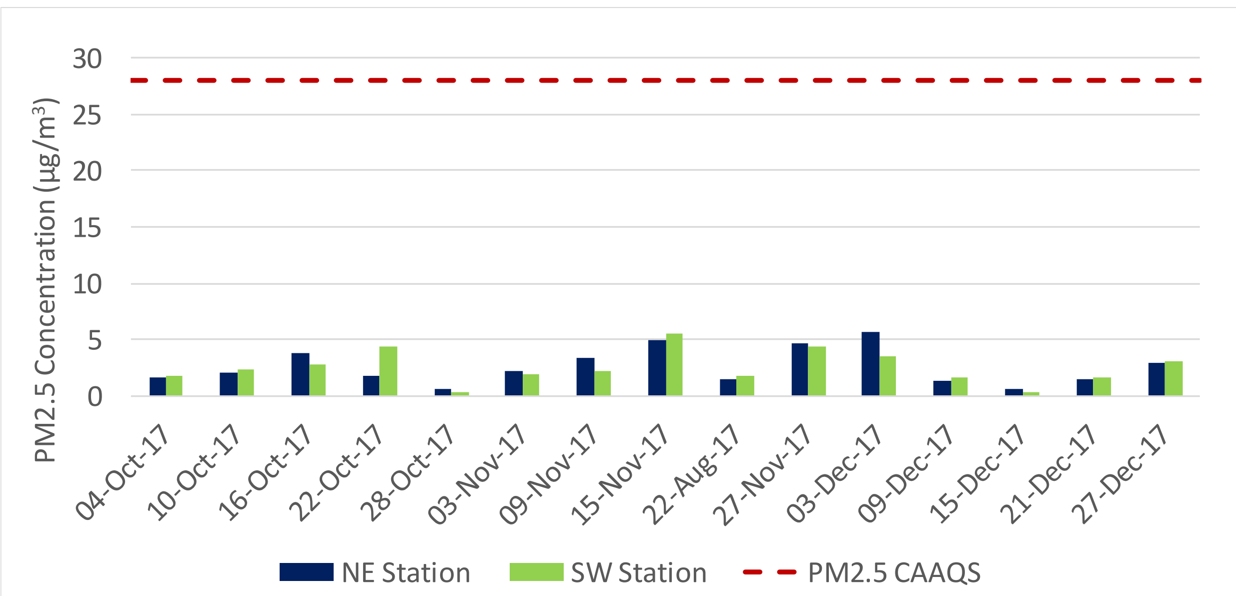

Figure CL-2: $PM_{2.5}$ Concentrations (Q4 2017)

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ACRONYMS AND ABBREVIATIONS

AAQC	Ambient Air Quality Criteria
AAQO	Alberta Ambient Air Quality Objectives
ACFM	Cubic Feet Per Minute at Actual Conditions
AEP	Alberta Environment and Parks
ASTM	American Society for Testing and Materials
CAAQS	Canadian Ambient Air Quality Standards
Hi-Vol	High Volume Sampler
ICP/AES	Inductively Coupled Plasma Atomic Emission Spectroscopy
LPM	Litres Per Minute
MOECC	Ministry of the Environment and Climate Change
NIST	National Institute of Standards and Technology
TSP	Total Suspended Particulate
PM_{10}	Particulate Matter less than 10 microns in diameter
US EPA	United States Environmental Protection Agency
$\mu g/m^3$	Microgram per Cubic Metre

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler), is pleased to provide a summary of the Fourth Quarter (Q4) 2017 results for the air quality monitoring program undertaken at the Rainy River Project located in northwestern Ontario. Two sampling stations were established in May 2015: one to the south of the Site near the beginning of the Highway 600 realignment at Tait Road, and one to the east of the Site on Gallinger Road (Figures 1-1, 1-2 and 1-3).

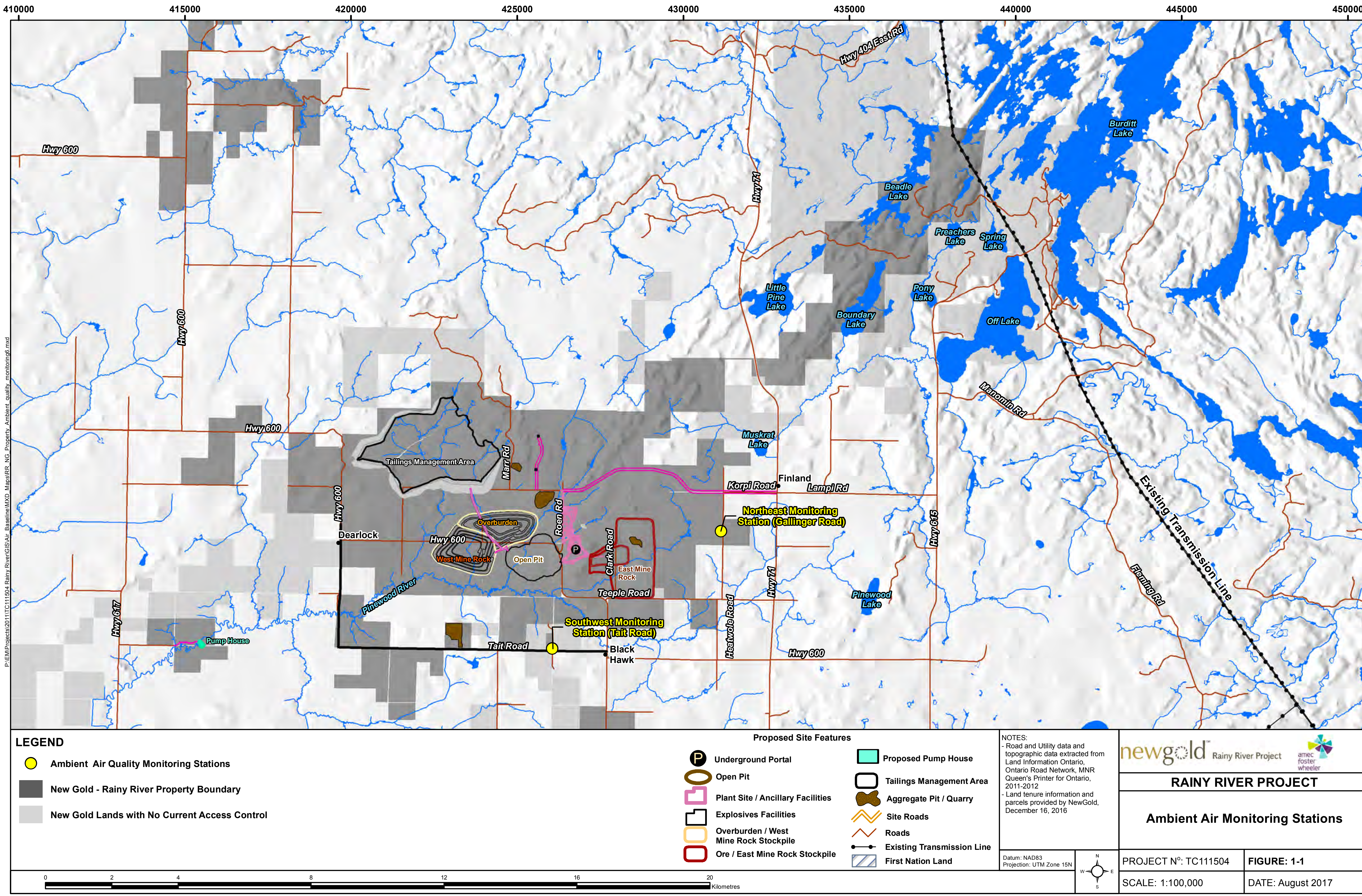
New Gold Inc. (New Gold) staff operate and maintain the sampling stations. Amec Foster Wheeler staff performed quarterly calibrations, provided technical guidance to New Gold field staff, communicated with the laboratory staff as required, and prepared the data summary report.

This Quarterly Air Quality Report addresses the required elements of a Quarterly Report defined in the Operations Manual for Air Quality Monitoring in Ontario (MOECC 2016b), hereafter referred to as the Operations Manual. Specifically, the following information is provided:

- Summary statistics;
- Sampling dates (start and end where applicable); and
- A summary of exceedances of an Ontario Standard, Ambient Air Quality Criterion (AAQC), or Canadian Ambient Air Quality Standard (CAAQS).

The purpose of the air monitoring program is to quantify potential air quality effects associated with activities related to the Project. The monitoring program consists of:

- Two High Volume (Hi-Vol) samplers for discrete sampling of Total Suspended Particulate (TSP) and metals;
- Two PQ200 samplers for discrete sampling of respirable particulate matter ($PM_{2.5}$);
- Two standard passive dustfall collection units;
- Two passive sampling enclosures each measuring NO_2 and SO_2; and
- One meteorological station to obtain real-time site wind speed, wind direction, temperature, relative humidity, and precipitation.



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Hwy 600
Hwy 71
Burditt Lake
Beadle Lake
Preachers Lake
Spring Lake
Little Pine Lake
Boundary Lake
Pony Lake
Off Lake
Manomin Rd
Muskrat Lake
Tailings Management Area
Marr Rd
Finland
Korpi Road
Lampi Rd
Northeast Monitoring Station (Gallinger Road)
Hwy 615
Existing Transmission Line
Overburden
Roen Rd
Dearlock
West Mine Rock
Open Pit
Clark Road
East Mine Rock
Teeple Road
Pinewood River
Pinewood Lake
Fleming Rd
Hwy 617
Pump House
Southwest Monitoring Station (Tait Road)
Tait Road
Black Hawk
Heatwole Road
P:\EM\Projects\2011\TC111504 Rainy River\GIS\Air_Baseline\MXD_Maps\RR_NG_Property_Ambient_quality_monitoring6.mxd
LEGEND
Ambient Air Quality Monitoring Stations
New Gold - Rainy River Property Boundary
New Gold Lands with No Current Access Control
Proposed Site Features
Underground Portal
Open Pit
Plant Site / Ancillary Facilities
Explosives Facilities
Overburden / West Mine Rock Stockpile
Ore / East Mine Rock Stockpile
Proposed Pump House
Tailings Management Area
Aggregate Pit / Quarry
Site Roads
Roads
Existing Transmission Line
First Nation Land
NOTES:
- Road and Utility data and topographic data extracted from Land Information Ontario, Ontario Road Network, MNR Queen's Printer for Ontario, 2011-2012
- Land tenure information and parcels provided by NewGold, December 16, 2016
Datum: NAD83
Projection: UTM Zone 15N
0
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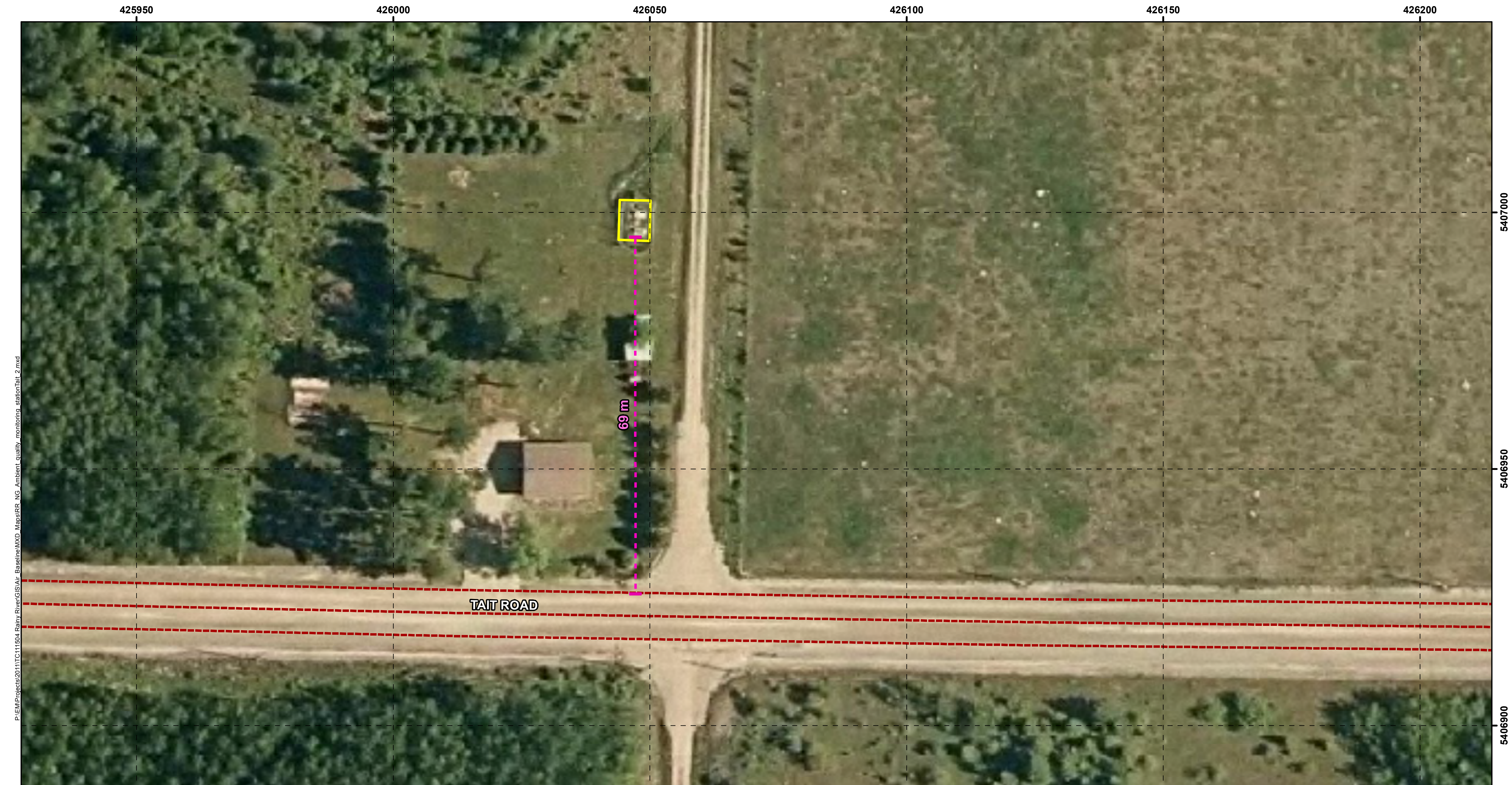
4
8
12
16
20
Kilometres
newgold Rainy River Project
amec foster wheeler
RAINY RIVER PROJECT
Ambient Air Monitoring Stations
PROJECT No: TC111504
FIGURE: 1-1
SCALE: 1:100,000
DATE: August 2017



LEGEND

Southwest Monitoring Station (Tait Road)

Highway Re-alignment

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Pleiades imagery (June 2017).

Datum & Projection:
NAD 1983 UTM Zone 15N

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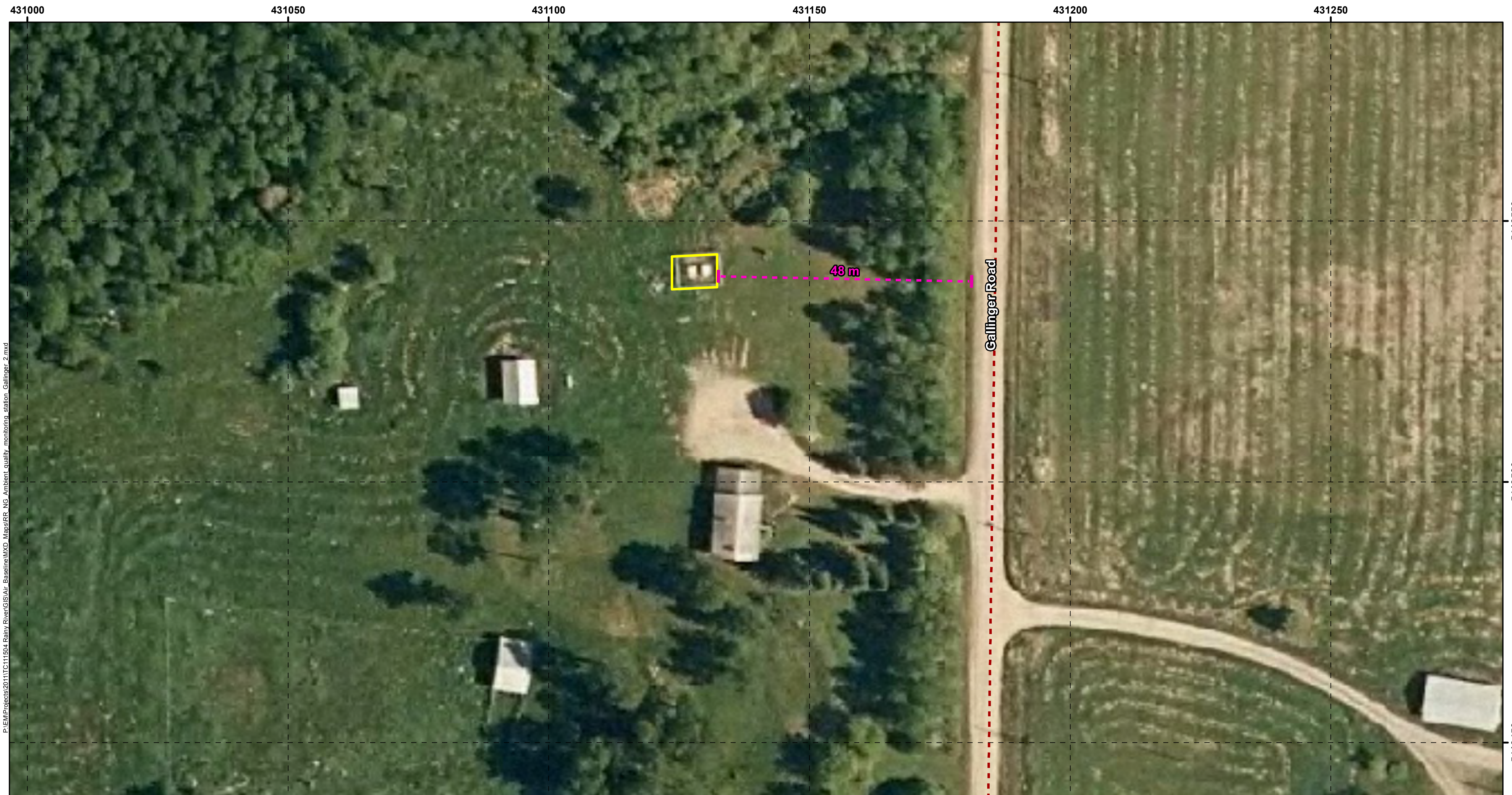
RAINY RIVER PROJECT

Ambient Air Monitoring
Southwest Monitoring Station

PROJECT N°: TC111504 | **FIGURE: 1-2**

SCALE: 1:700 | DATE: August 2017



LEGEND

Northeast Monitoring Station (Gallinger Road)

Gallinger Road

0 10 20 40 60 80 100 Meters

Notes:
- Aerial imagery provided by RRR Pleiades imagery (June 2017).

Datum & Projection:
NAD 1983 UTM Zone 15N

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RAINY RIVER PROJECT

Ambient Air Monitoring
Northeast Monitoring Station

PROJECT N°: TC111504	**FIGURE: 1-3**
SCALE: 1:700	DATE: August 2017

2.0 ANALYTICAL AND MONITORING METHODS

2.1 TSP and Metals

The TSP concentrations were determined using the standard gravimetric method following the reference methods approved by the Ontario Ministry of the Environment and Climate Change (MOECC) as described in the Operations Manual (MOECC 2016b). Measurements of 24-hour average TSP and metal concentrations were undertaken as this is the averaging time of the relevant AAQC (MOECC 2016a); particulate samples are collected every sixth day on the North American schedule (US EPA 2017). Sampling was performed with Hi-Vol samplers (brush motor and mass flow controlled). The metals and metalloids analyzed included the following: arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), manganese (Mn), nickel (Ni), selenium (Se), vanadium (V) and zinc (Zn). A metalloid is an element such as As that has both metallic and non-metallic properties.

The lowest detectable limit is 2.3 milligrams (mg) of total particulate on the filter, resulting in a method detection limit of 1.4 micrograms per cubic metre (µg/m^3) based on the target 24-hour sample volume of 1,630 m^3.

The metal concentrations were determined with the standard Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP/AES) method. The method detection limits are as shown in the data sheets in Appendix A-1.

2.2 $PM_{2.5}$

The $PM_{2.5}$ concentrations were determined using the standard gravimetric method following the reference methods approved by the US EPA and the MOECC as described in the Operations Manual (MOECC 2016b). Measurement of 24-hour average $PM_{2.5}$ was undertaken to match the averaging time for the Canadian Ambient Air Quality Standard (CAAQS); particulate samples are collected every sixth day on the North American schedule (US EPA 2017). Sampling was performed with PQ200 samplers.

The lowest detectable limit on the Teflon filters is 1 µg of $PM_{2.5}$, resulting in a method detection limit of 0.04 µg/m^3 (based on the target 24-hour sample volume of 24 m^3).

2.2.1 Total Dustfall

The water soluble and insoluble portions of dustfall were determined using ASTM method D-1739-98 and the British Columbia Ministry of Environment method outlined in Section G of Air Constituents – Inorganic (MOECC 2016c). Standard dustfall samplers were used to measure total dustfall deposition. The method detection limit for total dustfall is 0.3 g/m^2/30 days. Bird deterrents were added in Q3 2017 with the goal of reducing contamination.

2.3 Passive Sampling for SO_2 and NO_2

The SO_2 and NO_2 concentrations were monitored with passive sampling devices. The exposed permeation filters were analyzed using the methodology employed by the Maxxam Analytics Inc. laboratory located in Edmonton, Alberta. The methodology was developed, approved and validated by Alberta Environment with the support of the Alberta Research Council, the Clean Air Strategic Alliance of Alberta, and the National Research Council of Canada.

The sample uptake is dependent on temperature, relative humidity and wind speed. The analytical results are adjusted for these meteorological parameters measured during the exposure period (monthly averages). The required meteorological data were obtained from the Environment and Climate Change Canada Fort Frances meteorological station (Climate ID 6022474) by Maxxam Analytics to use with each sample submission. The method detection limit is in the order of 0.1 parts per billion (ppb) for both SO_2 and NO_2. Validation tests conducted in Alberta show that results from passive sampling are typically within 10% of those obtained from sampling with continuous analyzers for 30-day exposure periods.

Since there are no MOECC guidelines for monthly concentrations of SO_2 and NO_2 obtained from passive sampling, the data is only used for screening purposes. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 $\mu g/m^3$) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2017). For SO_2, the results were compared against the 30-day Alberta Ambient Air Quality Objective of 30 $\mu g/m^3$ (AEP 2016).

2.4 Field Operations

2.4.1 Hi-Vol Samplers

The two stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample to meet the requirements of the 1 in 6-day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed calibrations on the Hi-Vol samplers using a BGI direct reading Hi-Vol electronic flow calibrator. The flows were calibrated to 40 actual cubic feet per minute (ACFM) for each station using mass flow controllers. The two calibrations used to calculate sample volumes in Q4 were performed on July 25, 2017 and November 2, 2017.

There were no MOECC audits during this quarter.

2.4.2 PQ200 Samplers

The stations were visited once every six days to recover the exposed filter and install a pre-weighed filter for the subsequent sample to meet the requirements of the 1 in 6-day sampling schedule. Additional visits were made to resolve instrumentation issues and perform flow calibration checks and preventative maintenance.

Amec Foster Wheeler staff performed flow, temperature, and barometric pressure calibrations using an electronic BGI flow calibrator. The flows were calibrated to 16.7 litres per minute (LPM) for each station. The two calibrations used to calculate sample volumes in Q4 were performed on July 25, 2017 and November 2, 2017.

There were no MOECC audits during this quarter.

2.4.3 Dustfall Samplers

The dustfall samplers containing algaecide were changed every month, as required. Dustfall jars were provided by the laboratory with screw-on lids to prevent sample loss during transport.

2.4.4 Passive Samplers

The permeation filters in the passive samplers were changed every month, as required. Permeation filters were kept in filter cassettes inside Ziploc bags until deployed to prevent premature exposure. After the sample is collected, the filter is placed back in its cassette and into a Ziploc bag for shipment to the lab.

3.0 RESULTS

The results for the Q4 2017 sampling program are presented in Appendix A-1 for the particulate and metals data, Appendix A-2 for the dustfall data and Appendix A-3 for the passive SO_2 and NO_2 data. For the purpose of performing statistical analyses, and in keeping with MOECC protocol, a value of half the detection limit was substituted for concentrations less than the detection limit.

For comparative purposes, the MOECC AAQC and CAAQS values are presented, where available, noting that the AAQCs are numerically equivalent to the 419 standards.

Summaries of the statistical analyses for Q4 2017 for the TSP, metals, and $PM_{2.5}$ concentrations are presented in Tables 3-1, 3-2, and 3-3 respectively. During the quarter, the 1 in 6-day sampling schedule results in a possible 15 sampling days between October 1 and December 31, 2017.

A summary of the statistical analyses for Q4 2017 for the total dustfall data is presented below in Table 3-4.

A summary of the statistical analysis for the Q4 2017 passive SO_2 and NO_2 results is presented in Table 3-5.

3.1 TSP and Metals

The Gallinger Road and Tait Road stations collected 14 and 15 valid samples respectively, resulting in 93% and 100% valid data respectively for Q4 2017. The December 27, 2017 sample at the Gallinger Road station was invalidated due to extreme cold conditions resulting in a total volume collected that was more than 10% below the target collection volume.

For the quarter, the geometric mean TSP concentrations were 13.3 µg/m^3 for the Tait Road station and 13.6 µg/m^3 for the Gallinger Road station. Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for TSP was 60.5 µg/m^3 at the Tait Road station (October 10, 2017), and 38.0 µg/m^3 at the Gallinger Road station (November 27, 2017).

In the quarter, the 24-hour metal concentrations were all below the AAQCs. The rolling 30-day average lead concentrations at both stations were at maximum 1% of the 30-day lead AAQC (0.2 µg/m^3) in Q4 2017.

There were no exceedances of the MOECC AAQC measured for any of TSP metals, or metalloids in Q4 2017.

Appendix A-1 and Figure 3-1 present individual sample data. The Q4 2017 TSP and metals summary statistics are summarized in Tables 3-1 and 3-2 respectively.

3.2 $PM_{2.5}$

Both stations collected 15 valid samples in Q4 2017, resulting in 100% valid data.

Values reported by the laboratory as below the detection limit were, by convention, substituted with one-half of the detection limit. The maximum 24-hour concentration for $PM_{2.5}$ was 5.53 $\mu g/m^3$ at the Tait Road station (November 15, 2017), and 5.75 $\mu g/m^3$ at the Gallinger Road station (December 3, 2017). There were no $PM_{2.5}$ exceedances of the AAQC of 30 $\mu g/m^3$ or CAAQS (ECCC 2013) of 28 $\mu g/m^3$ measured in Q4 2017. Appendix A-1 and Figure 3-2 present individual sample data.

The Q4 2017 $PM_{2.5}$ summary statistics are summarized in Table 3-3.

3.3 Total Dustfall

In Q4 2017, two valid samples were collected at each station. Each dustfall jar was exposed for approximately 30-days to coincide with each calendar month in the quarter.

The October 2017 samples that were to be collected at both stations were lost due to contamination. The lab performed an ash analysis on the insoluble dustfall fraction only, as the soluble fraction of the sample was destroyed during the gravimetric analysis. Based on the results it appears that the majority of the insoluble dustfall fraction (96%-98%) is organic material and therefore not likely related to site activities. Organic materials can include materials such as bird dropping, insects, pollen etc.

There were no dustfall exceedances of the AAQC of 7 g/m^2 measured in Q4 2017

A summary of the results is presented in Table 3-4 and the monthly results are presented in Appendix A-2.

3.4 Passive SO_2 and NO_2

In Q4 2017, three valid samples were collected at each station for each of SO_2 and NO_2.

There are no MOECC standards, guidelines or AAQCs for SO_2 or NO_2 for a 30-day averaging period.

The 30-day average SO_2 and NO_2 concentrations measured allow for future analysis of trends in the ambient concentrations, to identify any notable increases, and for potential comparison with dispersion modelling results. For NO_2, the monthly results were compared to the MOECC 24-hour AAQC converted to an equivalent 30-day average (78 µg/m^3) using the methodology outlined in the *Procedure for Preparing an Emission Summary and Dispersion Modelling Report* (MOECC 2017). For SO_2, the results were compared against the Alberta Ambient Air Quality Objective of 30 µg/m^3 (AEP 2016).

A summary of the passive results is presented in Table 3-5 and the monthly results are presented in Appendix A-3.

Table 3-1: Summary Statistics for Q4 2017 TSP Concentration Data

Statistic	Q4	
	Tait Road (SW)	Gallinger Road (NE)
Geometric mean (µg/m³)	13.3	13.6
Arithmetic mean (µg/m³)	20.8	17.5
October Maximum (µg/m³)	60.5	30.7
November Maximum (µg/m³)	34.7	38.0
December Maximum (µg/m³)	22.7	26.6
Maximum 24 hour (µg/m³)	60.5 (Oct.10)	38.0 (Nov.27)
90th percentile	47.0	30.5
95th percentile	56.7	33.2
24-hour AAQC	120	120
No. of valid samples	15	14
% valid data	100	93
No. samples > AAQC (particulate)	0	0
No. samples > AAQC (metals)	0	0
No. samples > AAQC (metalloids)	0	0

Table 3-2: Summary Statistics for Q4 2017 Metals Concentration Data

Metal	24-hr AAQC (µg/m³)	Tait Road Q4 2017		Gallinger Road Q4 2017	
		Maximum 24-hour Concentration (µg/m³)	% 24-hr AAQC	Maximum 24-hr Concentration (µg/m³)	% 24-hr AAQC
As	0.3	9.83E-04	0.33%	1.02E-03	0.34%
Cd	0.025	5.73E-04	2.29%	2.05E-04	0.82%
Cr	0.5	5.73E-03	1.15%	5.57E-03	1.11%
Co	0.1	7.94E-04	0.79%	3.54E-04	0.35%
Cu	50	1.13E-01	0.23%	8.16E-01	1.63%
Fe	4	1.33E+00	33.30%	7.29E-01	18.23%
Pb	0.5	4.35E-03	0.87%	3.55E-03	0.71%
Mn	0.4	3.78E-02	9.45%	2.77E-02	6.94%
Ni	0.2	1.99E-03	1.00%	1.18E-03	0.59%
Se	10	4.26E-04	0.00%	4.42E-04	0.00%
V	2	1.64E-03	0.08%	1.70E-03	0.09%
Zn	120	2.47E-02	0.02%	3.10E-02	0.03%

Table 3-3: Summary Statistics for Q4 2017 $PM_{2.5}$ Concentration Data

Statistic	Q4	
	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (µg/m³)	2.53	2.58
October Maximum (µg/m³)	4.45	3.87
November Maximum (µg/m³)	5.53	4.95
December Maximum (µg/m³)	3.54	5.75
Maximum 24 hour (µg/m³)	5.53 (Nov.15)	5.75 (Dec.3)
90th percentile	4.42	4.86
95th percentile	4.78	5.19
24-hour CAAQS	28	28
No. of valid samples	15	15
% valid data	100	100
No. samples > CAAQS	0	0

Table 3-4: Summary Statistics for Q4 2017 Total Dustfall Data

Statistic	Tait Road (SW)	Gallinger Road (NE)
Arithmetic mean (g/m²/30d)	1.4	2.2
Maximum (g/m²/30d)	1.8	2.6
30-day AAQC	7	7
No. > AAQC	0	0
No. valid samples*	2	2
% Valid data	67	67

Table 3-5: Summary Statistics for Q4 2017 Passive SO_2 and NO_2 Concentration Data

Statistic	Tait Road (SW)		Gallinger Road (NE)	
	SO_2	NO_2	SO_2	NO_2
Mean (µg/m³)	0.4	2.8	0.6	3.0
Maximum (µg/m³)	0.5	3.6	1.0	4.0
AAQC 24-hr converted to 30-day (µg/m³)	N/A	78	N/A	78
Alberta AAQO (µg/m³)	30	N/A	30	N/A
No. valid samples	3	3	3	3
% Valid data	100	100	100	100

Note: N/A: No applicable criterion

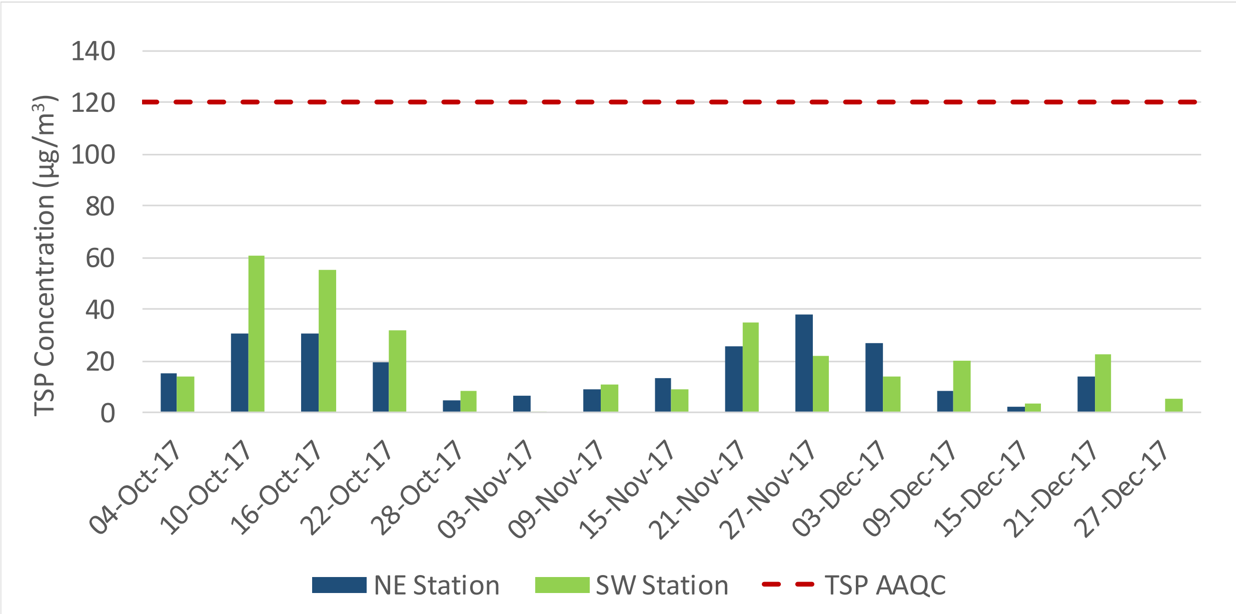

Figure 3-1: TSP Concentrations (Q4 2017)

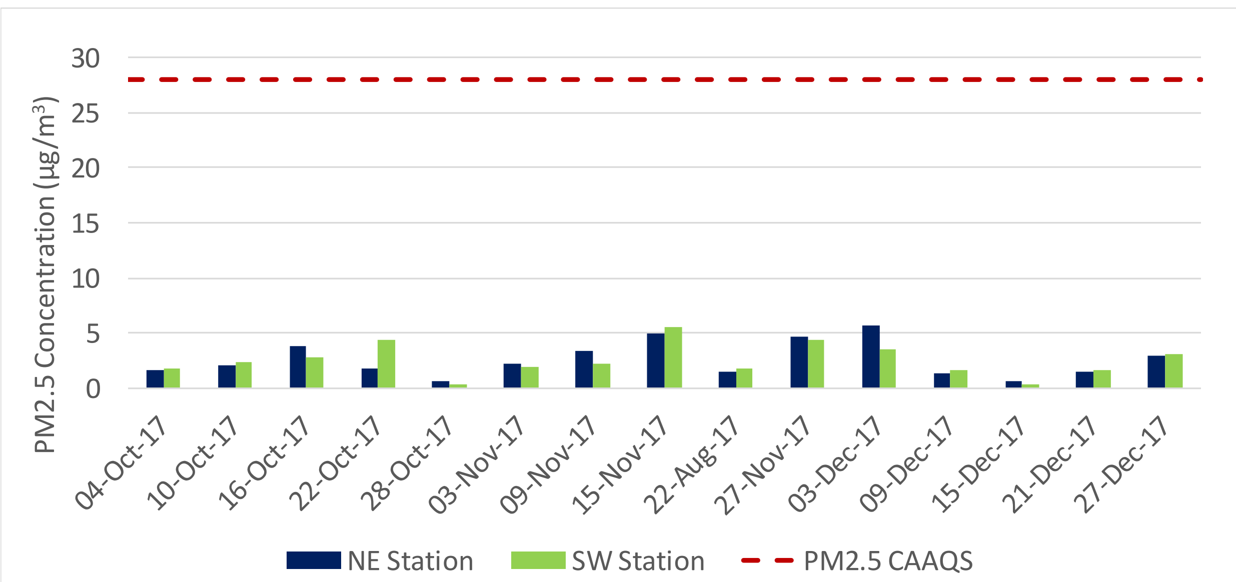

Figure 3-2: $PM_{2.5}$ Concentrations (Q4 2017)

4.0 CONCLUSIONS

Two ambient air quality monitoring stations were installed and commissioned in May 2015 at the Rainy River Project.

A summary of the Q4 2017 air quality sampling program is provided below:

- There were 14 and 15 valid TSP samples were collected resulting in 93% and 100% sample validity at the Gallinger Road and Tait Road station respectively. No exceedances of the AAQC were measured for TSP, or for any of the metals and metalloids.

- There were 15 valid $PM_{2.5}$ samples collected at each station (100% sample validity), and no exceedances of the CAAQS were measured.

- There were 2 valid dustfall samples collected at each station (67% sample validity), and no exceedances of the AAQC were measured.

- There were 3 valid passive samples for each of SO_2 and NO_2, at each of the two stations, collected (100% sample validity). There were no exceedances of AEP Criterion for SO_2 or the 30-day equivalent AAQC for NO_2.

5.0 REFERENCES

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6.0 CLOSING

This *Rainy River Project Air Quality Monitoring Program Fourth Quarter 2017 Report* was prepared by Amec Foster Wheeler for the sole benefit of New Gold Inc. for specific application to the Rainy River Project. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Amec Foster Wheeler's services and based on:

i) information available at the time of preparation;
ii) data supplied by outside sources; and
iii) the assumptions, conditions and qualifications set forth in this document.

This report is intended to be used by New Gold only, and its nominated representatives, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard practices. No other warranty, expressed or implied, is made.

If you require further information regarding the above or the project in general, please contact the undersigned at (905) 568-2929. Thank you for the opportunity to be of service to New Gold Inc.

Yours truly,
Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

Prepared by:	Reviewed by:
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Air Quality Engineer	Senior Air Quality Engineer

APPENDIX A

SAMPLING RESULTS

Appendix A-1	**TSP, Metals and $PM_{2.5}$ Sampling Results**
Appendix A-2	**Total Dustfall Sampling Results**
Appendix A-3	**SO_2 and NO_2 Passive Sampling Results**

APPENDIX A-1

TSP, METALS AND $PM_{2.5}$ SAMPLING RESULTS

NORTHEAST (GALLINGER ROAD) PARTICULATE/METALS CONCENTRATIONS														
Date	**PM2.5**	**TSP**	**Arsenic (As)**	**Cadmium (Cd)**	**Chromium (Cr)**	**Cobalt (Co)**	**Copper (Cu)**	**Iron (Fe)**	**Lead (Pb)**	**Manganese (Mn)**	**Nickel (Ni)**	**Selenium (Se)**	**Vanadium (V)**	**Zinc (Zn)**
4-Oct-17	1.62	15.4	*9.55E-04*	4.58E-05	3.06E-03	9.68E-05	9.17E-02	1.64E-01	5.73E-04	9.74E-03	5.67E-04	*4.14E-04*	*1.59E-03*	6.18E-03
10-Oct-17	2.08	30.7	*9.40E-04*	5.58E-05	3.70E-03	2.14E-04	2.09E-01	4.57E-01	7.52E-04	1.73E-02	8.46E-04	*4.07E-04*	*1.57E-03*	5.96E-03
16-Oct-17	3.87	30.3	*9.49E-04*	6.96E-05	3.92E-03	1.93E-04	1.39E-01	4.33E-01	1.11E-03	2.01E-02	7.72E-04	*4.11E-04*	*1.58E-03*	9.30E-03
22-Oct-17	1.75	19.6	*9.22E-04*	4.12E-05	3.38E-03	1.30E-04	8.36E-02	2.67E-01	5.72E-04	1.18E-02	6.09E-04	*4.00E-04*	*1.54E-03*	5.96E-03
28-Oct-17	0.62	4.45	*9.53E-04*	5.15E-05	3.43E-03	4.51E-05	2.80E-01	3.69E-02	4.38E-04	1.22E-03	4.77E-04	*4.13E-04*	*1.59E-03*	5.59E-03
3-Nov-17	2.16	6.56	*9.65E-04*	9.07E-05	3.47E-03	6.95E-05	5.19E-01	5.08E-02	6.30E-04	2.23E-03	1.18E-03	*4.18E-04*	*1.61E-03*	3.10E-02
9-Nov-17	3.41	8.96	*9.95E-04*	1.60E-04	3.91E-03	6.04E-05	3.31E-01	9.36E-02	1.02E-03	4.18E-03	6.17E-04	*4.31E-04*	*1.66E-03*	1.21E-02
15-Nov-17	4.95	13.6	*9.82E-04*	1.47E-04	4.13E-03	1.15E-04	2.24E-01	1.74E-01	1.11E-03	4.92E-03	6.22E-04	*4.26E-04*	*1.64E-03*	8.45E-03
21-Nov-17	1.50	25.5	*9.97E-04*	2.05E-04	4.32E-03	2.27E-04	2.23E-01	4.16E-01	2.03E-03	1.04E-02	1.10E-03	*4.32E-04*	*1.66E-03*	1.10E-02
27-Nov-17	4.7	38.0	*9.43E-04*	1.11E-04	5.53E-03	3.54E-04	2.12E-01	7.29E-01	2.88E-03	2.15E-02	1.18E-03	*4.09E-04*	*1.57E-03*	1.33E-02
3-Dec-17	5.75	26.6	*9.52E-04*	1.96E-04	5.14E-03	2.80E-04	6.33E-01	5.26E-01	2.67E-03	2.77E-02	9.84E-04	*4.13E-04*	*1.59E-03*	1.36E-02
9-Dec-17	1.33	8.1	*9.82E-04*	1.63E-04	5.57E-03	1.66E-04	5.27E-01	1.36E-01	1.99E-03	5.93E-03	7.53E-04	*4.26E-04*	*1.64E-03*	2.36E-02
15-Dec-17	0.62	2.5	*9.80E-04*	6.47E-05	3.85E-03	6.60E-05	4.45E-01	4.96E-02	9.47E-04	1.40E-03	3.33E-04	*4.25E-04*	*1.63E-03*	1.88E-02
21-Dec-17	1.46	14.1	*1.02E-03*	1.24E-04	4.49E-03	8.71E-05	8.16E-01	1.52E-01	3.55E-03	1.18E-02	5.85E-04	*4.42E-04*	*1.70E-03*	1.72E-02
27-Dec-17	2.91	—	—	—	—	—	—	—	—	—	—	—	—	—

Geometric mean	N/A	13.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	2.58	17.5	9.67E-04	1.09E-04	4.14E-03	1.50E-04	3.38E-01	2.63E-01	1.45E-03	1.07E-02	7.58E-04	4.19E-04	1.61E-03	1.30E-02
Max. concentration	5.75	38.0	1.02E-03	2.05E-04	5.57E-03	3.54E-04	8.16E-01	7.29E-01	3.55E-03	2.77E-02	1.18E-03	4.42E-04	1.70E-03	3.10E-02
Min. concentration	0.62	2.5	9.22E-04	4.12E-05	3.06E-03	4.51E-05	8.36E-02	3.69E-02	4.38E-04	1.22E-03	3.33E-04	4.00E-04	1.54E-03	5.59E-03
90th percentile	4.86	30.5	9.97E-04	1.86E-04	5.41E-03	2.64E-04	6.01E-01	5.05E-01	2.82E-03	2.11E-02	1.15E-03	4.32E-04	1.66E-03	2.22E-02
95th percentile	5.19	33.2	1.01E-03	1.99E-04	5.54E-03	3.06E-04	6.97E-01	5.97E-01	3.12E-03	2.37E-02	1.18E-03	4.36E-04	1.68E-03	2.62E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	15	14	14	14	14	14	14	14	14	14	14	14	14	14
No. samples < mdl	0	0	14	0	0	0	0	0	0	0	0	14	14	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	0	0	100	0	0	0	0	0	0	0	0	100	100	0
% valid data	100	93	93	93	93	93	93	93	93	93	93	93	93	93

Notes:
All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
—: Invalid Sample
*Canadian Ambient Air Quality Standard, 24-hour standard

SOUTHWEST (TAIT ROAD) PARTICULATE/METALS CONCENTRATIONS														
Date	PM2.5	TSP	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Nickel (Ni)	Selenium (Se)	Vanadium (V)	Zinc (Zn)
4-Oct-17	1.75	13.9	*9.20E-04*	2.70E-05	3.50E-03	1.01E-04	4.03E-02	2.13E-01	7.12E-04	1.41E-02	5.64E-04	*3.99E-04*	*1.53E-03*	7.06E-03
10-Oct-17	2.41	60.5	*9.61E-04*	3.27E-05	5.70E-03	7.94E-04	6.79E-02	1.33E+00	7.04E-04	3.78E-02	1.99E-03	*4.16E-04*	*1.60E-03*	8.65E-03
16-Oct-17	2.83	55.1	*9.43E-04*	7.67E-05	5.15E-03	5.74E-04	4.41E-02	1.05E+00	9.30E-04	3.45E-02	1.56E-03	*4.09E-04*	*1.57E-03*	1.19E-02
22-Oct-17	4.45	31.5	*9.33E-04*	4.48E-05	3.73E-03	2.62E-04	3.69E-02	4.62E-01	7.65E-04	1.51E-02	8.33E-04	*4.04E-04*	*1.55E-03*	1.39E-02
28-Oct-17	*0.31*	8.6	*9.82E-04*	9.75E-05	3.66E-03	6.22E-05	7.72E-02	1.03E-01	8.70E-04	2.98E-03	6.68E-04	*4.25E-04*	*1.64E-03*	1.59E-02
3-Nov-17	2.00	*0.7*	*9.04E-04*	1.25E-04	3.50E-03	8.92E-05	8.92E-02	1.36E-01	6.81E-04	4.86E-03	7.60E-04	*3.92E-04*	*1.51E-03*	2.47E-02
9-Nov-17	2.25	10.8	*9.14E-04*	1.72E-04	3.23E-03	6.89E-05	1.13E-01	1.04E-01	5.36E-04	3.45E-03	4.87E-04	*3.96E-04*	*1.52E-03*	8.84E-03
15-Nov-17	5.53	9.0	*9.13E-04*	1.81E-04	3.59E-03	5.66E-05	3.53E-02	1.05E-01	9.61E-04	3.39E-03	4.68E-04	*3.95E-04*	*1.52E-03*	7.73E-03
21-Nov-17	1.83	34.7	*9.18E-04*	5.73E-04	4.28E-03	3.11E-04	6.43E-02	5.54E-01	2.23E-03	1.44E-02	1.15E-03	*3.98E-04*	*1.53E-03*	2.00E-02
27-Nov-17	4.37	21.9	*9.11E-04*	1.12E-04	4.62E-03	2.95E-04	2.64E-02	5.82E-01	1.52E-03	1.38E-02	8.75E-04	*3.95E-04*	*1.52E-03*	1.20E-02
3-Dec-17	3.54	14.1	*9.09E-04*	1.01E-04	3.82E-03	1.15E-04	3.60E-02	2.40E-01	1.79E-03	1.99E-02	5.57E-04	*3.94E-04*	*1.51E-03*	9.94E-03
9-Dec-17	1.62	19.8	*9.63E-04*	1.42E-04	3.47E-03	1.84E-04	6.16E-02	2.58E-01	3.01E-03	1.16E-02	6.49E-04	*4.17E-04*	*1.61E-03*	2.12E-02
15-Dec-17	*0.31*	3.57	*9.39E-04*	6.26E-05	3.38E-03	6.45E-05	5.58E-02	6.45E-02	8.01E-04	2.19E-03	4.82E-04	*4.07E-04*	*1.56E-03*	1.28E-02
21-Dec-17	1.71	22.7	*9.66E-04*	7.28E-05	5.73E-03	2.06E-04	4.00E-02	4.09E-01	4.35E-03	2.31E-02	8.76E-04	*4.19E-04*	*1.61E-03*	1.77E-02
27-Dec-17	3.04	5.1	*9.83E-04*	7.40E-05	4.13E-03	4.39E-05	2.95E-02	4.91E-02	9.50E-04	1.59E-03	3.73E-04	*4.26E-04*	*1.64E-03*	1.18E-02

Geometric mean	N/A	13.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arithmetic mean	2.53	20.8	9.37E-04	1.26E-04	4.10E-03	2.15E-04	5.45E-02	3.77E-01	1.39E-03	1.35E-02	8.20E-04	4.06E-04	1.56E-03	1.36E-02
Max. concentration	5.53	60.5	9.83E-04	5.73E-04	5.73E-03	7.94E-04	1.13E-01	1.33E+00	4.35E-03	3.78E-02	1.99E-03	4.26E-04	1.64E-03	2.47E-02
Min. concentration	0.31	0.7	9.04E-04	2.70E-05	3.23E-03	4.39E-05	2.64E-02	4.91E-02	5.36E-04	1.59E-03	3.73E-04	3.92E-04	1.51E-03	7.06E-03
90th percentile	4.42	47.0	9.76E-04	1.78E-04	5.48E-03	4.69E-04	8.44E-02	8.63E-01	2.70E-03	3.00E-02	1.40E-03	4.23E-04	1.63E-03	2.07E-02
95th percentile	4.78	56.7	9.82E-04	2.99E-04	5.71E-03	6.40E-04	9.63E-02	1.13E+00	3.41E-03	3.55E-02	1.69E-03	4.26E-04	1.64E-03	2.22E-02
CAAQS	28.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. > CAAQS value*	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AAQC	N/A	120	0.3	0.025	0.5	0.1	50	4	0.5	0.4	0.2	10	2	120
No. > AAQC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No. of valid samples	15	15	15	15	15	15	15	15	15	15	15	15	15	15
No. samples < mdl	2	1	15	0	0	0	0	0	0	0	0	15	15	0
Detection limit (µg)	6	5	6	2	5	2	5	50	3	50	3	10	5	5
Half detection limit (µg)	3	2.5	3	1	2.5	1	2.5	25	1.5	25	1.5	5	2.5	2.5
% < detection limit	13	7	100	0	0	0	0	0	0	0	0	100	100	0
% valid data	100	100	100	100	100	100	100	100	100	100	100	100	100	100

newgold Rainy River Project

APPENDIX A-2

TOTAL DUSTFALL SAMPLING RESULTS

SW (Tait Road) Monitoring Results for Dustfall (Q4 2017)
(results expresed in $g/m^2/30days$)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
October	29	—	—	—
November	31	0.60	1.2	1.8
December	31	0.66	0.33	1.0

Arithmetic mean	1.4
Max. concentration	1.8
Min. concentration	1.0
AAQC	7
No. > AAQC value**	0
No. of valid samples	2
% Valid data	67
No. samples < mdl	0
Detection limit*	0.30
Half detection limit	0.15

NE (Gallinger Road) Monitoring Results for Dustfall (Q4 2017)
(results expresed in $g/m^2/30days$)

Month	No. Exposure Days	Dustfall (insoluble)	Dustfall (soluble)	Dustfall (total)
October	29	—	—	—
November	31	0.69	1.1	1.7
December	31	2.0	0.63	2.6

Arithmetic mean	2.2
Max. concentration	2.6
Min. concentration	1.7
AAQC	7
No. > AAQC value**	0
No. of valid samples	2
% Valid data	67
No. samples < mdl	0
Detection limit*	0.30
Half detection limit	0.15

Notes:
All statistics w ere calculated using 1/2DL for values reported as <DL
All non detectable results w ere reported as 1/2 detection limit and are denoted by italics and underlining
N/A: Not applicable
N/R: No Results Available
—: Invalid Sample
*If samples had differing detection limits, the highest is displayed here
**Ontario Ambient Air Quality Criteria, 30-day standard

Rainy River Project

APPENDIX A-3

SO_2 AND NO_2 PASSIVE SAMPLING RESULTS

newgold Rainy River Project

Monitoring Results for Passive SO_2 and NO_2 (Q4 2017)

(results expresed in $\mu g/m^3$)

	SW (Tait Road)		NE (Gallinger Road)	
Month	**SO_2**	**NO_2**	**SO_2**	**NO_2**
October	0.5	2.2	1.0	2.1
November	0.3	3.6	0.3	4.0
December	0.5	2.5	0.5	2.8

Arithmetic mean	0.4	2.8	0.6	3.0
Max. concentration	0.5	3.6	1.0	4.0
Min. concentration	0.3	2.2	0.3	2.1
AAQC* 24-hr converted to 30-day	N/A	78 $\mu g/m^3$	N/A	78 $\mu g/m^3$
Alberta Ambient Air Quality Objectives 2013	30 $\mu g/m^3$	N/A	30 $\mu g/m^3$	N/A
No. of valid samples	3	3	3	3
% Valid Data	100%	100%	100%	100%
No. samples < mdl	2	0	0	0
Detection limit	0.3	0.2	0.3	0.2
Half detection limit	0.15	0.1	0.15	0.1

Notes:

All statistics were calculated using 1/2DL for values reported as <DL

All non detectable results were reported as 1/2 detection limit and are denoted by italics and underlining

All results reported by the lab in parts per billion (ppb) and are converted to µg/m3 assuming 101.23kPA and 25C

N/A: Not applicable

N/R: No Results Available

—: Invalid Sample

*Ontario Ambient Air Quality Criteria

RAINY RIVER PROJECT

UPDATED ACOUSTIC ASSESSMENT REPORT FOR EARLY OPERATIONS

Prepared for:
New Gold Inc.

Prepared by:
Amec Foster Wheeler
160 Traders Blvd., Suite 110
Mississauga, Ontario
L4Z 3K7

January 2018
TC111504

January 17, 2018

TC111504

Mr. Nigel Fisher, Environmental Superintendent
New Gold Inc.
Rainy River Project
317 Heatwole Road
Barwick, Ontario, Canada, P0W 1E0

Dear Mr. Fisher:

Re: Rainy River Project, Updated Acoustic Assessment Report for Early Operations

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited, is pleased to provide the attached Updated Acoustic Assessment Report (AAR) for the Rainy River Project (RRP).

The original AAR was prepared in support of the Environmental Compliance Approval – Air and Noise and it addressed sound impacts from the development and operational phases. The current update addresses the RRP early operation phase which is a transitional phase from the development phase into operation. The current update also incorporates source sound data collected during our recent field measurements.

We greatly appreciate the opportunity to provide support for the Rainy River Project. Should you have any questions regarding the study, please do not hesitate to contact us.

Yours sincerely,
Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

Dan Russell, P.Geo.
Senior Environmental Geoscientist

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EXECUTIVE SUMMARY

The Rainy River Project (RPP) site is within the Township of Chapple, approximately 65 kilometres (km), by road, northwest of Fort Frances within northwestern Ontario. Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) was retained by New Gold Inc. (New Gold) to update the Acoustic Assessment Report (AAR) to satisfy the conditions in the Environmental Compliance Approval (ECA) for the RRP site. The RRP currently operates under ECA No. 0412-A2LR4V, issued on September 24, 2015.

The original AAR [1] was prepared in support of the ECA application and it addressed sound impacts from the development and operational phases. The RRP is currently in transition from the development phase to the operational phase. During this transitional phase some of the development phase activities will overlap with operation phase activities. The current update only addresses sound impacts from the RRP transition phase (early operations) as this aspect was not assessed in the original AAR. This report provides a complete AAR for the early operation phase. The life of mine operations will be assessed separately prior to start of underground mining operations.

The current update excludes the receptors (Points of Reception 05, 13, 18 and 26) which have been acquired by New Gold since the original AAR was prepared. The current update also incorporates source sound data collected from the field measurements on September 2017.

The main activities associated with the early operation phase include aggregate extraction, material handling, vehicle movement, plant operations, crushing operations and other mining fleet operations. However, the underground portal has yet to be developed and underground mining is expected to start in 2019. Therefore, sound sources associated with the underground operations are excluded from the current assessment, they will only be included with the assessment for life of mine operations.

A blast impact assessment was previously completed for the site by Amec Foster Wheeler under a separate cover [2]. An update of the blast impact assessment is not required as there are no changes to the blast location or charge size.

The RRP site operates 24 hours per day, 7 days per week. Nineteen types of significant sound sources were identified at the RRP site and included in this assessment. The emergency generators (EG1 and EG2) and fire pumps are assessed separately as required by the guidelines for the testing purpose only.

Twenty-two representative Points of Reception were identified and considered for this assessment, including six accessible vacant lot receptors.

The applicable guideline for the RRP site is the Ministry of the Environment and Climate Change (MOECC) Environmental Noise Guideline NPC-300, ‘’Noise Assessment Criteria for Stationary Sources and for Land Use Planning.” The RRP site is located in a rural area which is best

described as a Class 3 area in accordance with the area classifications defined within Publication NPC-300.

Receptor sound impacts associated with the RRP early operations were assessed through predictive acoustic modelling. The MOECC exclusionary sound level limits were used for this assessment. Under the predictable worst-case sound emission scenario, the RRP site is predicted to operate in compliance with the applicable MOECC NPC-300 guideline for day-time, evening and night-time during early operation phase.

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) was retained by New Gold Inc. (New Gold) to update the Acoustic Assessment Report (AAR) to support the Environmental Compliance Approval (ECA) for the Rainy River Project (RRP). The RRP currently operates under ECA No. 0412-A2LR4V, issued on September 24, 2015.

An AAR [1] was prepared by Amec Foster Wheeler in September 2014 in support of the ECA (Air and Noise) application, and it addressed sound impacts from development and operational phases. The RRP is currently in transition from the development phase to the operational phase. During this transitional phase some of the development phase activities will overlap with operational phase activities. The underground mining operations have not yet commenced but are expected to start in 2019. The current update only addresses sound impacts from the RRP transitional phase (early operations) as this aspect was not assessed in the original AAR. The life of mine operations will be assessed separately prior to start of underground mining operations.

The RRP site does not have any large sources of vibration other than blasting activity at the site. As such, this assessment focuses only on potential steady sound impacts from the RRP site. A blast impact assessment was previously completed for the site by Amec Foster Wheeler under a separate cover [2]. An update of the blast impact assessment is not required as there are no changes to the blast location or charge size.

The current update excludes the Points of Reception (PORs) 05, 13, 18 and 26 which have been acquired by New Gold since the original AAR was prepared. The current update also incorporates source sound data collected from the field measurements on September 2017. This report provides a complete AAR for the early operation and is intended to meet the Ministry of the Environment and Climate Change (MOECC) requirements outlined in References [3] and [4].

A completed copy of the Acoustic Assessment Report Checklist, as required by Reference [3], has been included in Appendix A.

An Emissions Summary and Dispersion Modelling Report (ESDM report) for the site was completed by Amec Foster Wheeler in support of the ECA application. Where possible, we have used the same source names and identification numbers in this AAR as those used within the ESDM report.

2.0 PROJECT DESCRIPTION

The RRP site is within the Township of Chapple, approximately 65 kilometres (km), by road, northwest of Fort Frances within northwestern Ontario. The maximum expected ore production during the operation phase is approximately 7,200 kilotonnes (kt) per year of ore and that includes both open pit and underground mining operations. In order to achieve the annual production rate, daily ore production rates may vary but is not expected to exceed 32 kt per day. The North American Industry Classification System (NAICS) code for the RRP site is 212220 described as “Gold and Silver Ore Mining.”

The RRP includes an open pit, underground mine, processing plant, and related facilities and infrastructure. Overburden and mine rock removed from the open pit are stored in stockpiles nearby. Ore is processed at the onsite processing plant. The RRP is currently in transition from development phase to operation. The current activities at the site include aggregate extraction, material handling, vehicle movement, plant operations, crushing operations and other mining fleet operations.

The area surrounding the RRP site is a rural area with an acoustical environment dominated by natural sounds having little or no road traffic. However, the receptors along Highway 600 experience high background sound levels during daytime from Highway 600 traffic.

The following figure and appendices provide information about the RRP site and points of reception location and surrounding land uses:

- Figure 1: Site Aerial Map with Points of Reception Location;
- Appendix B: Land-use Zoning Map of the Site and Surrounding Area; and
- Appendix C: Site Layout.

The RRP site operates 24 hours per day and 7 days per week.

3.0 SOUND SOURCE SUMMARY

There are 19 types of sound sources identified as significant (i.e., as emitting sound at a level where their cumulative impacts could be of concern) at the RRP site for the early operational phase. Where possible, the same source names and identification numbers as provided within the ESDM report have been used.

The significant sound sources identified are summarized below:

- 4 blast hole drills (2 Sandvik DR461i and 2 Sandvik DP1500i);
- 2 reverse circulation drills (Sandvik DR580);
- 6 diesel powered excavators (1 Komatsu PC8000, 2 Komatsu PC5500, 1 Komatsu PC3000, 1 Komatsu PC800LC and 1 Komatsu PC360LC);
- 15 track dozers (Komatsu D375, Komatsu D475, CAT D8, CAT D9, CAT D10 and CAT D11);
- 2 wheel loaders (Komatsu WA1200 and WA900);
- 1 wheel dozer (Komatsu KM WD600);
- 2 water trucks per hour on any haul routes (Komatsu CR20000);

- 1 motor grader per hour on any haul routes (CAT16H, 16M and 24M);
- 4 truck routes (Pit-PAG with 17 truck round trips/hour, Pit-NPAG/OB with 27 truck round trips/hour and Pit-stockpile with 6 truck round trips/hour) with Komatsu 830E trucks;
- 4 aggregate pits (LD4, Roen, Outcrop 3 and East Outcrop) each with portable a crusher, screener, loader, excavator and a truck route;
- 1 primary crusher;
- 2 dust collectors (primary and reclaim dust collectors);
- 1 wet scrubber (pebble crusher scrubber);
- 4 air compressors at Water Management Pond;
- 20 water pumps for dewatering operations in the pit and other areas;
- 1 power generator (CAT 660 kilowatts; kW) at Pinewood River pumphouse;
- 2 emergency generators (CAT 2,500 kW each) at the process plant;
- 2 fire pumps at the process plant; and
- 2 substation transformers at the process plant.

Sound emissions for many of the sources associated with the RRP were measured in the field by Amec Foster Wheeler (see Appendix D for measurements details). Where sound measurements were available the sound power levels were calculated from the measured levels. Sound levels for the generators, fire pumps and screeners were taken from manufacturer's datasheets. Komatsu 830E trucks with and without load were measured for the haul routes since the empty trucks were much quieter than the fully loaded trucks. Empty trucks were found to emit sound levels of approximately 11 decibel (dB) lower when compared with fully loaded trucks.

A summary of the significant sound sources is provided in Table 1, including sound power levels, sound characteristics, and any sound control measures. The locations of the sound sources considered in the assessment are shown in Figure 2.

The MOECC NPC-104 guideline prescribes adjustments for sources with special qualities or characters of sound. These are punitive adjustments which apply to sound sources with subjectively annoying characteristics, including tonal sounds, quasi-impulsive sounds, and beating sounds (sounds with cyclically varying amplitudes). Therefore, a tonal penalty of 5 dB was applied to the substation transformers, Komatsu D475 track dozers and Komatsu PC3000 excavator, as they exhibit tonal characteristics based on the mathematical qualification which is outlined in Reference [5]. The measured equipment sound levels and sound calculations are provided in Appendix D.

All insignificant sound sources at the RRP site are listed in Appendix E.

Details of the RRP site sound sources are provided in the following table, figure and appendices:

- Table 1: Significant Sound Source Summary;
- Figure 2: Significant Sound Source Locations;
- Appendix D: Sound Measurement Details and Calculations; and
- Appendix E: List of Insignificant Sound Sources.

4.0 SOUND MITIGATION MEASURES SUMMARY

New Gold has taken a proactive approach to minimize sound impacts to neighbors and mitigation measures have been incorporated into the project from the onset of design. These measures are inherent to the current design of the RRP site and are reflected in the noise model predictions.

The sound pressure level of the emergency generators EG1 and EG2 is 80 A-weighted decibels (dBA) at 15 metres (m) and 74 dBA at 15 m for the power generator PG1 (660 kW).

As part of the sound mitigation, the following are considered for the RRP early operations:

- Aggregate pit operations are limited to daytime only (07:00 to 19:00), except for East Outcrop. Crushing operations at East Outcrop aggregate pit, and truck hauling/loading operations at all aggregate pits can be done 24 hours/day.

- The operation of the Komatsu D475 track dozers is limited to daytime only at the stockpiles (e.g., PAG, NPAG and ore stockpiles). Other track dozer models (e.g., Komatsu D375, CATD8, D9, or D10) can be used at those locations during evening and night-time periods (19:00 to 07:00).

- Emergency generators and fire pumps are expected to test during daytime only.

- Open pit bottom elevation is currently at 270 m which provides sufficient screening to the fleet equipment in the open pit.

The type of trucks used for the material handling and the number of round trips considered in the assessment are summarized in Appendix D.

5.0 POINT OF RECEPTION SUMMARY

Noise sensitive receptors of interest under NPC-300 guidelines include the following sound sensitive land uses:

- Permanent, seasonal, or rental residences;
- Hotels, motels and campgrounds;
- Schools, universities, libraries and daycare centres;
- Hospitals and clinics, nursing / retirement homes; and
- Churches and places of worship.

Three vacant lot receptors and one existing dwelling near Pinewood river (PORs 05, 13, 18 and 26) were acquired by New Gold since the original AAR was prepared. Therefore, these receptors have been removed from this assessment. A total of 22 representative (most-exposed) points of reception (PORs), including 6 accessible vacant lots, were identified and considered in this acoustic assessment. The existing dwellings identified in the area are two-storey houses.

The receptor location considered for the existing dwellings is given below:

- For the Plane of Window PORs, the receptor location is at 4.5 m above ground for a two-storey house (i.e., highest window level); and

- For the Outdoor PORs, the receptor location is at 1.5 m above ground within 30 m of a facade of a dwelling.

The receptor location for the vacant lots is chosen at 4.5 m height. The receptors presented for the existing dwellings in this report are the worst-impacted receptor location only. The PORs considered in the assessment are shown in Figure 1.

6.0 APPLICABLE SOUND GUIDELINES

The applicable guideline used for the RRP site is the MOECC Environmental Noise Guideline NPC-300, NPC-300 establishes four classes of acoustical environment to classify ambient background sound environment and establish class specific assessment sound level limits. The MOECC classifications, based on ambient background sound, are given below:

- Class 1 Area is used to describe an area with an acoustical environment typical of a major population centre, where the background sound level is dominated by the urban hum.

- Class 2 Area defines an area with an acoustical environment that has qualities representative of both Class 1 and Class 3 Areas. That means, absence of urban hum or a low ambient sound level is expected during early evening (i.e., between 19:00 and 23:00) than that in Class 1 Areas.

- Class 3 Area means a rural area with an acoustical environment dominated by natural sounds having little or no road traffic. Examples are small communities with populations of less than 1,000, agricultural areas, rural recreational areas, such as a cottage or a resort area, and wilderness areas.

- Class 4 Area is a newly classified area that would otherwise be defined as Class 1 (urban) or Class 2 (suburban). It has a relaxed criterion compared to any other Classes, is added for the new sound-sensitive developments in the industrial areas.

The area surrounding the RRP is best described as a Class 3 Area as per the guideline. NPC-300 states that non-impulsive (steady) one hour sound levels (L_{eq-1hr}) from stationary sound sources in Class 3 Areas shall not exceed that of the background, where the background (typically caused by natural sound sources) is considered to be:

- The higher of 45 dBA MOECC exclusionary sound level limit or background sound at both outdoor and plane of window receptor locations during day-time hours (07:00 to 19:00); and

- The higher of 40 dBA MOECC exclusionary sound level limit or background sound at both outdoor and plane of window receptor during the early evenings (19:00 to 23:00), and at the plane of window during night-time (23:00 to 07:00).

The guidelines also stipulate that the assessment consider the potential sound impact during a predictable worse case hour of operation, which is defined as a situation when the normally busy activity of the sources coincides with a low hourly background sound level. The MOECC's exclusionary sound limits were used for this assessment.

The non-emergency operation (i.e., testing and maintenance) of the emergency generators and fire pumps is assessed separately as required by the NPC-300 guidelines and a criterion of 50 dBA for Class 3 area is used for the assessment as they are tested during daytime hours only.

7.0 SOUND IMPACT ASSESSMENT

7.1 Methodology

The sound assessment for the RRP early operations was completed using a sound prediction software package (CadnaA), published by Datakustik GmbH and configured to implement the ISO 9613-2 environmental sound propagation algorithms. Off-site sound exposures due to the early operations were modelled. The CadnaA sound modelling software is widely accepted by the consulting industry and by the MOECC. All sound sources were assumed to operate simultaneously to model the predictable worst-case scenario.

In order to provide a better sound prediction at the receptor locations, due to sound emissions from a specific source(s), the modelling took into account the following factors:

- Source sound power level and directivity;
- Distance attenuation;
- Source-receptor geometry, including heights and elevations;
- Barrier effects of the building and surrounding topography;

- Ground and air (atmospheric) attenuation; and
- Foliage attenuation.

Komatsu 830E trucks with load and without are modelled separately for the haul routes since the sound levels measured for the empty trucks are about 11 dB lower than the fully loaded trucks. Water trucks and graders are modeled as line sources as they are moving along the haul routes within the site. For graders and track dozers, sound data for the loudest equipment model was used for this assessment to model the worst-case scenario without restricting operation of any of those equipment model to any particular area.

The predictable worst-case sound impact was modelled and assessed at the receptor locations. The RRP site operates 24 hours per day. However, the aggregate pits are expected to operate during daytime only, except loading and hauling. Therefore, the acoustic modelling has been completed for both daytime and night-time operations. The testing of emergency generators and fire pumps is assessed separately as required by the guidelines.

7.2 Modelling Results

The combined steady sound levels ($L_{eq\text{-}1hr}$) in dBA values for the predictable worst-case for the RRP early operations were calculated at the identified points of reception using sound emissions from the individual significant sources, as summarized in Table 1. The sound contours for the predictable worst-case operation are shown in Figures 3 through 5, and a point of reception impact summary is provided in Table 2 as required by the MOECC. The values provided in Table 2 represent individual contributions at the receptor locations from each of the sources identified in Table 1.

An acoustic assessment summary is provided in Table 3. Under the predicable worst-case sound emission scenario, the RRP early operations are predicted to be in compliance with the applicable MOECC NPC-300 guideline for day-time, evening and night-time operations. The sound levels at the receptors reported as part of this acoustic assessment represent the predictable worst-case operational impact. Key parameters included in the model and sample calculations are provided in Appendix F.

8.0 CONCLUSIONS

The AAR for the RRP early operations has been updated to address the changes during the RRP transition phase. Twenty-two PORs, including six accessible vacant lot receptors, are identified in the vicinity of the site and considered for this assessment. The existing PORs included in the assessment are 2-storey residential dwellings surrounding the site.

Receptor sound impact associated with the RRP early operations was assessed through predictive acoustic modelling. The MOECC exclusionary sound level limits were used as the criteria for the assessment. Under the predictable worst-case operational scenario, the RRP early operations sound levels at the receptor locations are expected to meet the applicable MOECC NPC-300 guideline limits for day-time, evening and night-time.

Therefore, the RRP early operations are expected to be in compliance with the applicable MOECC NPC-300 guideline sound level limits for day-time, evening and night-time.

9.0 REFERENCES

[1] AMEC Environment & Infrastructure. 2014. Acoustic Assessment Report for Rainy River Project. September 2014.

[2] AMEC Environment & Infrastructure. 2014. Blasting Vibration and Overpressure Sound Assessment Report for Rainy River Project. April 2013.

[3] Ontario Ministry of the Environment and Climate Change (MOECC), *Guide for Applying for Approval (Air & Noise) s.9 EPA*, February 2005.

[4] Ontario Ministry of the Environment and Climate Change (MOECC) Publication NPC-233, *Information to be Submitted for Approval of Stationary Sources of Sound*, October 1995.

[5] ISO 1996-2:2007(E). *Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels*.

[6] Ontario Ministry of the Environment and Climate Change (MOECC) Publication NPC-104, *Sound Level Adjustments*, published under the Model Municipal Noise Control Bylaw, 1977.

[7] ISO-9613-1. *Acoustics – Attenuation of Sound during propagation outdoors*. *Part 1 – Calculation of the absorption of sound by the atmosphere.*

[8] ISO-9613-2. *Acoustics – Attenuation of Sound during propagation outdoors*. *Part 2 – General method of calculation.*

[9] Ontario Ministry of the Environment and Climate Change (MOECC) Publication NPC-300, *Noise Assessment Criteria for Stationary Sources and for Land Use Planning*, August 2013.

10.0 CLOSING

This updated acoustic assessment report was prepared by Amec Foster Wheeler for the sole benefit of New Gold Inc. for specific application to the Rainy River Project. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Amec Foster Wheeler's services and based on: i) information available at the time of preparation, ii) data supplied by outside sources and iii) the assumptions, conditions and qualifications set forth in this document.

This report is intended to be used by New Gold only, and its nominated representatives, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard. No other warranty, expressed or implied, is made.

If you require further information regarding the above or the project in general, please contact the undersigned at (905) 568-2929. Thank you for the opportunity to be of service to New Gold Inc.

Yours truly,
Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

Prepared by:	Reviewed by:
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Senior Acoustic Engineer	Senior Acoustic Engineer / Group Lead

Table 1: Noise Source Summary

Project: RRP
Location: Township of Chapple ON

Source ID	Source Description	Sound Power Level (dBA/dBAI)	Source Location [1] (I or O)	Sound Characteristics [2] (S,Q,I,B,T,C)	Noise Control Measures [3] (S,A,B,L,E,O,U)
AC1	WMP Air Compressor 1	99	O	S	U
AC2	WMP Air Compressor 2	99	O	S	U
AC3	WMP Air Compressor 3	99	O	S	U
AC4	WMP Air Compressor 4	99	O	S	U
BD1	Blast Hole Drill 1- Sandvik DR461i	121	O	S	U
BD2	Blast Hole Drill 2- Sandvik DR461i	121	O	S	U
BD3	Blast Hole Drill 3 - Sandvik DP1500i	117	O	S	U
BD4	Blast Hole Drill 4 - Sandvik DP1500i	117	O	S	U
C	Crusher	111	O	S	U
DC1	Dust Collector 1	105	O	S	U
DC2	Dust Collector 2	105	O	S	U
E1	Komatsu Diesel Excavator PC5500	116	O	S	U
E2	Komatsu Diesel Excavator PC5500	116	O	S	U
E3	Komatsu Diesel Excavator PC8000	121	O	S	U
E4	Komatsu Diesel Excavator PC3000	125	O	S, T	U
E5	Komatsu Diesel Excavator PC800LC	113	O	S	U
E6	Komatsu Diesel Excavator PC360LC	116	O	S	U
EO_E	East Outcrop Aggregate Pit Excavator PC360LC	116	O	S	U
EO_FEL	East Outcrop Graval Pit Mobile Crushing Plant Loader (CAT 966H)	114	O	S	U
EO_PS	East Outcrop Graval Pit Mobile Primary Crusher (PowerScreen)	119	O	S	U
EO_SCNR	East Outcrop Graval Pit Mobile Screener (Atlas Copco HCS3715)	102	O	S	U
LD4_E	LD4 Aggregate Pit Excavator PC360LC	116	O	S	U
LD4_FEL	LD4 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	114	O	S	U
LD4_PS	LD4 Graval Pit Mobile Primary Crusher (PowerScreen)	119	O	S	U
LD4_SCNR	LD4 Graval Pit Mobile Screener (Atlas Copco HCS3715)	102	O	S	U
Outcrop3_E	Outcrop 3 Aggregate Pit Excavator PC360LC	116	O	S	U
Outcrop3_FEL	Outcrop 3 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	114	O	S	U
Outcrop3_PS	Outcrop 3 Graval Pit Mobile Primary Crusher (PowerScreen)	119	O	S	U
Outcrop3_SCNR	Outcrop3 Graval Pit Mobile Screener (Atlas Copco HCS3715)	102	O	S	U
PG1	Pinewood River Pumphouse Generator (CAT 660 kW)	105	O	S	E,S
RD1	RC Drill Sandvik DR580	119	O	S	U
RD2	RC Drill Sandvik DR580	119	O	S	U
Roen_E	Roen Aggregate Pit Excavator PC360LC	116	O	S	U
Roen_FEL	Roen Graval Pit Mobile Crushing Plant Loader (CAT 966H)	114	O	S	U
Roen_PS	Roen Graval Pit Mobile Primary Crusher (PowerScreen)	119	O	S	U
Roen_SCNR	Roen Graval Pit Mobile Screener (Atlas Copco HCS3715)	102	O	S	U
T1	Transformer 1	113	O	S, T	U
T2	Transformer 2	113	O	S, T	U
TD01	Track Dozer 01 (Pit - Komatsu D475)	121	O	S, T	U
TD02	Track Dozer 02 (Pit -CAT D10)	121	O	S, T	U
TD03	Track Dozer 03 (Pit -CAT D10)	121	O	S, T	U
TD04	Track Dozer 04 (Pit -CAT D10)	115	O	S	U
TD05	Track Dozer 05 (PAG - Komatsu D375)	115	O	S	U
TD06	Track Dozer 06 (PAG - Komatsu D375)	115	O	S	U
TD07	Track Dozer 07 (PAG - Komatsu D475)	121	O	S, T	U

Table 1: Noise Source Summary

Project: RRP
Location: Township of Chapple ON

Source ID	Source Description	Sound Power Level (dBA/dBAI)	Source Location [1] (I or O)	Sound Characteristics [2] (S,Q,I,B,T,C)	Noise Control Measures [3] (S,A,B,L,E,O,U)
TD08	Track Dozer 08 (PAG - Komatsu D375)	121	O	S, T	U
TD09	Track Dozer 09 (Ore -CAT D9)	115	O	S	U
TD10	Track Dozer 10 (Ore -CAT D8)	115	O	S	U
TD11	Track Dozer 11 (NPAG/OB - Komatsu D475)	121	O	S, T	U
TD12	Track Dozer 12 (NPAG/OB - Komatsu D375)	121	O	S, T	U
TD13	Track Dozer 13 (NPAG/OB -CAT D9)	115	O	S	U
TD14	Track Dozer 14 (NPAG/OB -CAT D9)	115	O	S	U
TD15	Track Dozer 15 (NPAG/OB -CAT D9)	115	O	S	U
TD16	Track Dozer 16 (NPAG/OB -CAT D9)	115	O	S	U
WD	Komatsu Wheel Dozer KM WD600	105	O	S	U
WL1	Komatsu Wheel Loader WA1200	117	O	S	U
WL2	Komatsu Wheel Loader WA900	117	O	S	U
WP01	Water Pump WP01	106	O	S	U
WP02	Water Pump WP02	106	O	S	U
WP03	Water Pump WP03	106	O	S	U
WP04	Water Pump WP04	106	O	S	U
WP05	Water Pump WP05	106	O	S	U
WP06	Water Pump WP06	106	O	S	U
WP07	Water Pump WP07	106	O	S	U
WP08	Water Pump WP08	106	O	S	U
WP09	Water Pump WP09	106	O	S	U
WP10	Water Pump WP10	106	O	S	U
WP11	Water Pump WP11	106	O	S	U
WP12	Water Pump WP12	106	O	S	U
WP13	Water Pump WP13	106	O	S	U
WP14	Water Pump WP14	106	O	S	U
WP15	Water Pump WP15	106	O	S	U
WP16	Water Pump WP16	106	O	S	U
WP17	Water Pump WP17	106	O	S	U
WP18	Water Pump WP18	106	O	S	U
WP19	Water Pump WP19	106	O	S	U
WP20	Pinewood River Water Pump	106	O	S	U
WS	Wet Scrubber	105	O	S	U
MGR_SP	Motor Grader Route Stockpile	111	O	S	U
MGR_NPAG	Motor Grader Route NPAG	111	O	S	U
MGR_OB	Motor Grader Route OB	111	O	S	U
MGR_OPMill	Motor Grader Route Open Pit to Mill	111	O	S	U
MGR_PAG	Motor Grader Route PAG	111	O	S	U
TRE_NPAG	Truck Route-NPAG (Empty Truck)	108	O	S	U
TRE_OB	Truck Route-Overburden (Empty Truck)	108	O	S	U
TRE_OPMill	Truck Route Open Pit to Mill (Empty Truck)	108	O	S	U
TRE_PAG	Truck Route PAG (Empty Truck)	108	O	S	U
TRE_SP	Truck Route Stockpile (Empty Truck)	108	O	S	U
TRL_NPAG	Truck Route-NPAG (Loaded Truck)	119	O	S	U
TRL_OB	Truck Route-Overburden (Loaded Truck)	119	O	S	U
TRL_OPMill	Truck Route Open Pit to Mill (Loaded Truck)	119	O	S	U

Table 1: Noise Source Summary

Project: RRP
Location: Township of Chapple ON

Source ID	Source Description	Sound Power Level (dBA/dBAI)	Source Location [1] (I or O)	Sound Characteristics [2] (S,Q,I,B,T,C)	Noise Control Measures [3] (S,A,B,L,E,O,U)
TRL_PAG	Truck Route PAG (Loaded Truck)	119	O	S	U
TRL_SP	Truck Route Stockpile (Loaded Truck)	119	O	S	U
WTR_NPAG	Water Truck Route NPAG	114	O	S	U
WTR_OB	Water Truck Route OB	114	O	S	U
WTR_OPMill	Water Truck Route Open Pit to Mill	114	O	S	U
WTR_PAG	Water Truck Route PAG	114	O	S	U
WTR_SP	Water Truck Route Stockpile	114	O	S	U
LD4_TR	LD4 Aggregate Pit Truck Route	107	O	S	U
OC3_TR	OC3 Aggregate Pit Truck Route	107	O	S	U
EO_TR	EO Aggregate Pit Truck Route	107	O	S	U
Roen_TR	Roen Aggregate Pit Truck Route	107	O	S	U
EG1	Emergency Generator 1 (CAT 2.5 MW)	129	O	S	U
EG2	Emergency Generator 2 (CAT 2.5 MW)	129	O	S	U
FP1	Fire Pump 1	137	O	S	U
FP2	Fire Pump 2	137	O	S	U

Notes: 1. Source Location: O = Outside of building, including the roof, I = Inside of building

2. Sound Characteristic, per NPC-104

S = Steady I = Impulsive T = Tonal

Q = Quasi-Steady Impulsive B = Buzzing C = Cyclic

3. Noise Control Measures To Be Included

S = Silencer/Muffler L = Lagging O = other

A = Acoustic lining, plenum E = acoustic enclosure U = uncontrolled

B = Barrier

4 Sound power levels include 5 dB tonal penality for the sources with tonal characteristics.

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

Point of Reception ID	POR01	POR02	POR03	POR04	POR06
Point of Reception Description	House 01 - North	House 02 - East	House 03 - East	House 04 - East	House 06 -Southeast
Point of reception coordinates X	424437	431274	431587	431496	431077
Point of reception coordinates Y	5415498	5412538	5411870	5411644	5408660
Point of reception coordinates Z	391.2	384.5	389.5	389.5	374.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4			Point of Reception 5		
		Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units
AC1	WMP Air Compressor 1	5191	-6	dBA	10121	-7	dBA	10382	-7	dBA	10284	-7	dBA	10245	-7	dBA
AC2	WMP Air Compressor 2	5607	-7	dBA	10858	-8	dBA	11130	-8	dBA	11035	-8	dBA	11000	-8	dBA
AC3	WMP Air Compressor 3	5323	-8	dBA	11091	-8	dBA	11409	-8	dBA	11329	-8	dBA	11482	-9	dBA
AC4	WMP Air Compressor 4	4668	-6	dBA	9945	-7	dBA	10244	-6	dBA	10159	-7	dBA	10291	-8	dBA
BD1	Blast Hole Drill 1- Sandvik DR461i	5979	13	dBA	6525	13	dBA	6546	13	dBA	6385	14	dBA	5710	14	dBA
BD2	Blast Hole Drill 2- Sandvik DR461i	5982	13	dBA	6510	13	dBA	6531	13	dBA	6370	14	dBA	5695	14	dBA
BD3	Blast Hole Drill 3 - Sandvik DP1500i	6046	6	dBA	6573	6	dBA	6587	7	dBA	6424	7	dBA	5717	7	dBA
BD4	Blast Hole Drill 4 - Sandvik DP1500i	6049	6	dBA	6560	6	dBA	6574	7	dBA	6411	7	dBA	5703	7	dBA
C	Crusher	5783	14	dBA	5066	14	dBA	5090	14	dBA	4934	11	dBA	4572	9	dBA
DC1	Dust Collector 1	5746	7	dBA	5042	9	dBA	5072	10	dBA	4917	7	dBA	4582	8	dBA
DC2	Dust Collector 2	5474	6	dBA	5098	5	dBA	5167	6	dBA	5022	6	dBA	4819	5	dBA
E1	Komatsu Diesel Excavator PC5500	5977	15	dBA	6556	15	dBA	6578	15	dBA	6417	16	dBA	5742	16	dBA
E2	Komatsu Diesel Excavator PC5500	6003	15	dBA	6438	15	dBA	6454	15	dBA	6291	16	dBA	5610	16	dBA
E3	Komatsu Diesel Excavator PC8000	6019	20	dBA	6487	20	dBA	6503	20	dBA	6340	20	dBA	5649	20	dBA
E4	Komatsu Diesel Excavator PC3000	6036	24	dBA	6524	24	dBA	6538	24	dBA	6375	24	dBA	5674	24	dBA
E5	Komatsu Diesel Excavator PC800LC	6056	10	dBA	6416	10	dBA	6425	10	dBA	6261	8	dBA	5556	11	dBA
E6	Komatsu Diesel Excavator PC360LC	6037	13	dBA	6483	13	dBA	6496	13	dBA	6334	13	dBA	5634	14	dBA
EO_E	East Outcrop Aggregate Pit Excavator PC360LC	6394	15	dBA	5302	15	dBA	5241	16	dBA	5063	16	dBA	4307	16	dBA
EO_FEL	East Outcrop Graval Pit Mobile Crushing Plant Loader (CAT 966H)	6413	19	dBA	5301	19	dBA	5237	19	dBA	5059	16	dBA	4292	19	dBA
EO_PS	East Outcrop Graval Pit Mobile Primary Crusher (PowerScreen)	6400	18	dBA	5311	18	dBA	5249	18	dBA	5071	18	dBA	4310	19	dBA
EO_SCNR	East Outcrop Graval Pit Mobile Screener (Atlas Copco HCS3715)	6392	6	dBA	5327	6	dBA	5266	7	dBA	5089	8	dBA	4329	7	dBA
LD4_E	LD4 Aggregate Pit Excavator PC360LC	5322	9	dBA	8533	8	dBA	8696	9	dBA	8570	9	dBA	8234	8	dBA
LD4_FEL	LD4 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	5283	14	dBA	8459	14	dBA	8622	14	dBA	8497	14	dBA	8170	14	dBA
LD4_PS	LD4 Graval Pit Mobile Primary Crusher (PowerScreen)	5313	11	dBA	8520	11	dBA	8683	11	dBA	8557	11	dBA	8224	10	dBA
LD4_SCNR	LD4 Graval Pit Mobile Screener (Atlas Copco HCS3715)	5305	1	dBA	8467	0	dBA	8629	1	dBA	8503	1	dBA	8168	0	dBA
Outcrop3_E	Outcrop 3 Aggregate Pit Excavator PC360LC	6737	17	dBA	3527	18	dBA	3398	19	dBA	3212	23	dBA	2909	19	dBA
Outcrop3_FEL	Outcrop 3 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	6711	21	dBA	3542	22	dBA	3418	22	dBA	3233	25	dBA	2939	22	dBA
Outcrop3_PS	Outcrop 3 Graval Pit Mobile Primary Crusher (PowerScreen)	6738	22	dBA	3536	23	dBA	3406	23	dBA	3220	26	dBA	2911	21	dBA
Outcrop3_SCI	Outcrop3 Graval Pit Mobile Screener (Atlas Copco HCS3715)	6735	11	dBA	3573	11	dBA	3443	12	dBA	3257	11	dBA	2927	9	dBA
PG1	Pinewood River Pumphouse Generator (CAT 660 kW)	12239	0	dBA	16620	0	dBA	16711	0	dBA	16560	0	dBA	15573	0	dBA
RD1	RC Drill Sandvik DR580	6094	15	dBA	6340	15	dBA	6342	16	dBA	6177	10	dBA	5458	14	dBA
RD2	RC Drill Sandvik DR580	6119	15	dBA	6363	15	dBA	6363	16	dBA	6197	8	dBA	5464	12	dBA
Roen_E	Roen Aggregate Pit Excavator PC360LC	4142	15	dBA	5610	15	dBA	5846	15	dBA	5748	14	dBA	6071	12	dBA
Roen_FEL	Roen Graval Pit Mobile Crushing Plant Loader (CAT 966H)	4215	19	dBA	5525	18	dBA	5754	18	dBA	5654	18	dBA	5967	16	dBA
Roen_PS	Roen Graval Pit Mobile Primary Crusher (PowerScreen)	4125	17	dBA	5638	17	dBA	5875	17	dBA	5778	16	dBA	6101	14	dBA
Roen_SCNR	Roen Graval Pit Mobile Screener (Atlas Copco HCS3715)	4168	6	dBA	5698	5	dBA	5929	5	dBA	5829	5	dBA	6116	3	dBA
T1	Transformer 1	4865	16	dBA	4743	15	dBA	4910	15	dBA	4794	15	dBA	5043	12	dBA
T2	Transformer 2	4876	16	dBA	4747	15	dBA	4911	15	dBA	4795	15	dBA	5037	13	dBA
TD01	Track Dozer 01 (Pit - Komatsu D475)	6042	17	dBA	6388	17	dBA	6398	17	dBA	6235	15	dBA	5538	17	dBA
TD02	Track Dozer 02 (Pit -CAT D10)	5991	16	dBA	6608	16	dBA	6630	16	dBA	6469	18	dBA	5786	17	dBA
TD03	Track Dozer 03 (Pit -CAT D10)	6026	16	dBA	6501	16	dBA	6515	17	dBA	6353	16	dBA	5657	17	dBA
TD04	Track Dozer 04 (Pit -CAT D10)	5976	11	dBA	6376	11	dBA	6393	11	dBA	6232	10	dBA	5567	12	dBA
TD05	Track Dozer 05 (PAG - Komatsu D375)	6698	17	dBA	4053	18	dBA	3930	19	dBA	3742	21	dBA	3177	17	dBA
TD06	Track Dozer 06 (PAG - Komatsu D375)	7037	16	dBA	4417	17	dBA	4239	18	dBA	4038	21	dBA	3102	18	dBA
TD07D	Track Dozer 07 (PAG - Komatsu D475)	6556	23	dBA	4238	23	dBA	4140	24	dBA	3958	26	dBA	3407	22	dBA
TD07N	Track Dozer 07 (PAG - Komatsu D475)	6556	0	dBA	4238	0	dBA	4140	0	dBA	3958	0	dBA	3407	0	dBA
TD08D	Track Dozer 08 (PAG - Komatsu D375)	6356	24	dBA	3916	24	dBA	3856	25	dBA	3684	26	dBA	3416	22	dBA
TD08N	Track Dozer 08 (PAG - Komatsu D375)	6356	0	dBA	3916	0	dBA	3856	0	dBA	3684	0	dBA	3416	0	dBA
TD09	Track Dozer 09 (Ore -CAT D9)	6849	15	dBA	4713	16	dBA	4572	16	dBA	4378	20	dBA	3479	17	dBA
TD10	Track Dozer 10 (Ore -CAT D8)	6710	14	dBA	5060	14	dBA	4948	15	dBA	4760	18	dBA	3867	19	dBA
TD11D	Track Dozer 11 (NPAG/OB - Komatsu D475)	5175	12	dBA	8194	12	dBA	8356	12	dBA	8231	13	dBA	7925	12	dBA
TD11N	Track Dozer 11 (NPAG/OB - Komatsu D475)	5175	0	dBA	8194	0	dBA	8356	0	dBA	8231	0	dBA	7925	0	dBA
TD12D	Track Dozer 12 (NPAG/OB - Komatsu D375)	4771	16	dBA	6476	16	dBA	6634	16	dBA	6511	17	dBA	6389	15	dBA
TD12N	Track Dozer 12 (NPAG/OB - Komatsu D375)	4771	0	dBA	6476	0	dBA	6634	0	dBA	6511	0	dBA	6389	0	dBA
TD13	Track Dozer 13 (NPAG/OB -CAT D9)	5798	7	dBA	7961	7	dBA	8052	7	dBA	7907	9	dBA	7332	8	dBA
TD14	Track Dozer 14 (NPAG/OB -CAT D9)	5905	8	dBA	7666	8	dBA	7734	8	dBA	7583	10	dBA	6946	9	dBA
TD15	Track Dozer 15 (NPAG/OB -CAT D9)	5043	10	dBA	6595	10	dBA	6725	10	dBA	6592	11	dBA	6340	9	dBA
TD16	Track Dozer 16 (NPAG/OB -CAT D9)	5145	8	dBA	7794	7	dBA	7944	8	dBA	7816	8	dBA	7499	7	dBA
WD	Komatsu Wheel Dozer KM WD600	6042	4	dBA	6444	4	dBA	6455	4	dBA	6292	4	dBA	5592	4	dBA
WL1	Komatsu Wheel Loader WA1200	6011	15	dBA	6606	15	dBA	6625	15	dBA	6464	17	dBA	5771	16	dBA
WL2	Komatsu Wheel Loader WA900	6014	15	dBA	6576	15	dBA	6594	15	dBA	6432	16	dBA	5740	16	dBA
WP01	Water Pump WP01	5932	1	dBA	6428	1	dBA	6452	1	dBA	6292	2	dBA	5645	1	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR01			POR02			POR03			POR04			POR06		
Point of Reception ID	POR01			POR02			POR03			POR04			POR06		
Point of Reception Description	House 01 - North			House 02 - East			House 03 - East			House 04 - East			House 06 -Southeast		
Point of reception coordinates	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
	424437	5415498	391.2	431274	5412538	384.5	431587	5411870	389.5	431496	5411644	389.5	431077	5408660	374.5

Source ID	Source Description	Point of Reception 1			Point of Reception 2			Point of Reception 3			Point of Reception 4			Point of Reception 5		
		Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units
WP02	Water Pump WP02	5980	1	dBA	6304	-1	dBA	6319	0	dBA	6157	-8	dBA	5494	-1	dBA
WP03	Water Pump WP03	6042	1	dBA	6290	1	dBA	6298	-1	dBA	6134	-4	dBA	5442	0	dBA
WP04	Water Pump WP04	6118	1	dBA	6323	-2	dBA	6322	-3	dBA	6156	-13	dBA	5426	-11	dBA
WP05	Water Pump WP05	6118	1	dBA	6433	1	dBA	6434	1	dBA	6269	-4	dBA	5533	-2	dBA
WP06	Water Pump WP06	6084	1	dBA	6534	1	dBA	6543	1	dBA	6379	1	dBA	5655	1	dBA
WP07	Water Pump WP07	6060	0	dBA	6641	0	dBA	6656	1	dBA	6494	2	dBA	5777	1	dBA
WP08	Water Pump WP08	5983	0	dBA	6650	0	dBA	6674	1	dBA	6514	2	dBA	5833	1	dBA
WP09	Water Pump WP09	6379	0	dBA	6734	0	dBA	6714	1	dBA	6543	3	dBA	5675	2	dBA
WP10	Water Pump WP10	6522	1	dBA	6369	1	dBA	6320	1	dBA	6142	3	dBA	5211	3	dBA
WP11	Water Pump WP11	6541	2	dBA	5958	2	dBA	5893	2	dBA	5713	4	dBA	4795	3	dBA
WP12	Water Pump WP12	6427	-2	dBA	7994	-2	dBA	8022	-2	dBA	7860	0	dBA	7024	-1	dBA
WP13	Water Pump WP13	6190	-1	dBA	7541	-1	dBA	7574	-1	dBA	7414	0	dBA	6649	0	dBA
WP14	Water Pump WP14	5365	-3	dBA	8505	-3	dBA	8662	-3	dBA	8535	-2	dBA	8179	-3	dBA
WP15	Water Pump WP15	5354	-3	dBA	8467	-3	dBA	8623	-3	dBA	8496	-2	dBA	8141	-3	dBA
WP16	Water Pump WP16	5385	1	dBA	6353	1	dBA	6439	1	dBA	6296	2	dBA	5910	1	dBA
WP17	Water Pump WP17	4530	-1	dBA	7336	-1	dBA	7534	-1	dBA	7421	-1	dBA	7348	-2	dBA
WP18	Water Pump WP18	6548	-5	dBA	9848	-5	dBA	9963	-5	dBA	9822	-4	dBA	9190	-4	dBA
WP19	Water Pump WP19	5462	2	dBA	5276	-15	dBA	5346	-16	dBA	5201	-16	dBA	4961	-18	dBA
WP20	Pinewood River Water Pump	12235	0	dBA	16615	0	dBA	16705	0	dBA	16554	0	dBA	15567	0	dBA
WS	Wet Scrubber	5023	-14	dBA	4948	-11	dBA	5084	-12	dBA	4959	-15	dBA	5046	-11	dBA
MGR_SP	Motor Grader Route Stockpile	N/A	4	dBA	N/A	4	dBA	N/A	5	dBA	N/A	4	dBA	N/A	3	dBA
MGR_NPAG	Motor Grader Route NPAG	N/A	2	dBA	N/A	2	dBA	N/A	2	dBA	N/A	3	dBA	N/A	2	dBA
MGR_OB	Motor Grader Route OB	N/A	-1	dBA	N/A	-2	dBA	N/A	-2	dBA	N/A	-1	dBA	N/A	-2	dBA
MGR_OPMill	Motor Grader Route Open Pit to Mill	N/A	3	dBA	N/A	3	dBA	N/A	3	dBA	N/A	4	dBA	N/A	3	dBA
MGR_PAG	Motor Grader Route PAG	N/A	2	dBA	N/A	3	dBA	N/A	4	dBA	N/A	5	dBA	N/A	2	dBA
TRE_NPAG	Truck Route-NPAG (Empty Truck)	N/A	7	dBA	N/A	7	dBA	N/A	7	dBA	N/A	8	dBA	N/A	7	dBA
TRE_OB	Truck Route-Overburden (Empty Truck)	N/A	7	dBA	N/A	7	dBA	N/A	7	dBA	N/A	8	dBA	N/A	7	dBA
TRE_OPMill	Truck Route Open Pit to Mill (Empty Truck)	N/A	3	dBA	N/A	3	dBA	N/A	4	dBA	N/A	4	dBA	N/A	3	dBA
TRE_PAG	Truck Route PAG (Empty Truck)	N/A	11	dBA	N/A	11	dBA	N/A	12	dBA	N/A	12	dBA	N/A	10	dBA
TRE_SP	Truck Route Stockpile (Empty Truck)	N/A	6	dBA	N/A	6	dBA	N/A	6	dBA	N/A	6	dBA	N/A	5	dBA
TRL_NPAG	Truck Route-NPAG (Loaded Truck)	N/A	22	dBA	N/A	22	dBA	N/A	22	dBA	N/A	23	dBA	N/A	22	dBA
TRL_OB	Truck Route-Overburden (Loaded Truck)	N/A	22	dBA	N/A	22	dBA	N/A	22	dBA	N/A	23	dBA	N/A	22	dBA
TRL_OPMill	Truck Route Open Pit to Mill (Loaded Truck)	N/A	18	dBA	N/A	18	dBA	N/A	18	dBA	N/A	19	dBA	N/A	18	dBA
TRL_PAG	Truck Route PAG (Loaded Truck)	N/A	25	dBA	N/A	25	dBA	N/A	25	dBA	N/A	26	dBA	N/A	25	dBA
TRL_SP	Truck Route Stockpile (Loaded Truck)	N/A	20	dBA	N/A	20	dBA	N/A	20	dBA	N/A	20	dBA	N/A	19	dBA
WTR_NPAG	Water Truck Route NPAG	N/A	-1	dBA	N/A	-1	dBA	N/A	-1	dBA	N/A	0	dBA	N/A	-1	dBA
WTR_OB	Water Truck Route OB	N/A	-4	dBA	N/A	-5	dBA	N/A	-4	dBA	N/A	-4	dBA	N/A	-5	dBA
WTR_OPMill	Water Truck Route Open Pit to Mill	N/A	0	dBA	N/A	0	dBA	N/A	0	dBA	N/A	1	dBA	N/A	0	dBA
WTR_PAG	Water Truck Route PAG	N/A	0	dBA	N/A	1	dBA	N/A	2	dBA	N/A	3	dBA	N/A	-1	dBA
WTR_SP	Water Truck Route Stockpile	N/A	2	dBA	N/A	2	dBA	N/A	2	dBA	N/A	2	dBA	N/A	0	dBA
LD4_TR	LD4 Aggregate Pit Truck Route	N/A	7	dBA	N/A	6	dBA	N/A	6	dBA	N/A	6	dBA	N/A	5	dBA
OC3_TR	OC3 Aggregate Pit Truck Route	N/A	2	dBA	N/A	3	dBA	N/A	3	dBA	N/A	4	dBA	N/A	0	dBA
EO_TR	EO Aggregate Pit Truck Route	N/A	9	dBA	N/A	9	dBA	N/A	10	dBA	N/A	11	dBA	N/A	10	dBA
Roen_TR	Roen Aggregate Pit Truck Route	N/A	7	dBA	N/A	7	dBA	N/A	7	dBA	N/A	7	dBA	N/A	6	dBA
EG1	Emergency Generator 1 (CAT 2.5 MW)	4845	35	dBA	4803	34	dBA	4971	34	dBA	4854	34	dBA	5090	32	dBA
EG2	Emergency Generator 2 (CAT 2.5 MW)	3322	33	dBA	5711	32	dBA	6042	32	dBA	5975	31	dBA	6645	29	dBA
FP1	Fire Pump 1	4871	42	dBA	4907	44	dBA	5066	44	dBA	4948	40	dBA	5130	37	dBA
FP2	Fire Pump 2	4903	31	dBA	4917	37	dBA	5072	37	dBA	4951	35	dBA	5113	35	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR07			POR08			POR09			POR10			POR11		
Point of Reception ID	POR07			POR08			POR09			POR10			POR11		
Point of Reception Description	House 07 - South			House 08 - South			House 9 - South			House 10 - South			House 11 - South		
Point of reception coordinates	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
	431034	5406873	378.5	430117	5406700	367.8	429796	5406515	367.9	429116	5406626	361.5	428590	5406620	369.5

Source ID	Source Description	Point of Reception 6			Point of Reception 7			Point of Reception 8			Point of Reception 9			Point of Reception 10		
		Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units
AC1	WMP Air Compressor 1	10826	-6	dBA	10082	-6	dBA	9890	-5	dBA	9248	-4	dBA	8805	-3	dBA
AC2	WMP Air Compressor 2	11559	-7	dBA	10803	-7	dBA	10604	-6	dBA	9955	-5	dBA	9504	-5	dBA
AC3	WMP Air Compressor 3	12128	-8	dBA	11399	-8	dBA	11215	-7	dBA	10578	-6	dBA	10141	-6	dBA
AC4	WMP Air Compressor 4	10964	-7	dBA	10251	-6	dBA	10078	-5	dBA	9451	-5	dBA	9026	-4	dBA
BD1	Blast Hole Drill 1- Sandvik DR461i	6221	15	dBA	5502	16	dBA	5338	17	dBA	4729	18	dBA	4337	16	dBA
BD2	Blast Hole Drill 2- Sandvik DR461i	6207	15	dBA	5488	16	dBA	5324	17	dBA	4716	18	dBA	4325	15	dBA
BD3	Blast Hole Drill 3 - Sandvik DP1500i	6206	9	dBA	5480	8	dBA	5311	8	dBA	4698	6	dBA	4301	3	dBA
BD4	Blast Hole Drill 4 - Sandvik DP1500i	6193	8	dBA	5468	8	dBA	5299	8	dBA	4687	6	dBA	4290	3	dBA
C	Crusher	5410	10	dBA	4846	10	dBA	4773	12	dBA	4280	13	dBA	4022	15	dBA
DC1	Dust Collector 1	5432	6	dBA	4873	6	dBA	4802	8	dBA	4313	9	dBA	4057	11	dBA
DC2	Dust Collector 2	5703	5	dBA	5151	6	dBA	5081	7	dBA	4591	8	dBA	4332	10	dBA
E1	Komatsu Diesel Excavator PC5500	6249	17	dBA	5528	17	dBA	5362	19	dBA	4752	18	dBA	4358	16	dBA
E2	Komatsu Diesel Excavator PC5500	6128	17	dBA	5413	17	dBA	5252	19	dBA	4646	18	dBA	4259	15	dBA
E3	Komatsu Diesel Excavator PC8000	6157	22	dBA	5437	22	dBA	5273	23	dBA	4665	21	dBA	4274	17	dBA
E4	Komatsu Diesel Excavator PC3000	6173	25	dBA	5450	26	dBA	5284	25	dBA	4673	25	dBA	4280	22	dBA
E5	Komatsu Diesel Excavator PC800LC	6065	12	dBA	5349	12	dBA	5187	11	dBA	4581	9	dBA	4194	7	dBA
E6	Komatsu Diesel Excavator PC360LC	6138	15	dBA	5418	15	dBA	5253	15	dBA	4644	12	dBA	4253	9	dBA
EO_E	East Outcrop Aggregate Pit Excavator PC360LC	4969	18	dBA	4343	18	dBA	4241	20	dBA	3714	22	dBA	3427	20	dBA
EO_FEL	East Outcrop Graval Pit Mobile Crushing Plant Loader (CAT 966H)	4950	19	dBA	4324	20	dBA	4221	20	dBA	3695	22	dBA	3407	20	dBA
EO_PS	East Outcrop Graval Pit Mobile Primary Crusher (PowerScreen)	4968	20	dBA	4341	21	dBA	4238	22	dBA	3711	24	dBA	3422	21	dBA
EO_SCNR	East Outcrop Graval Pit Mobile Screener (Atlas Copco HCS3715)	4986	8	dBA	4357	9	dBA	4253	10	dBA	3724	11	dBA	3433	10	dBA
LD4_E	LD4 Aggregate Pit Excavator PC360LC	8741	10	dBA	7987	10	dBA	7794	11	dBA	7151	12	dBA	6712	14	dBA
LD4_FEL	LD4 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	8685	15	dBA	7935	15	dBA	7743	16	dBA	7103	17	dBA	6665	17	dBA
LD4_PS	LD4 Graval Pit Mobile Primary Crusher (PowerScreen)	8733	12	dBA	7980	12	dBA	7786	14	dBA	7145	15	dBA	6705	16	dBA
LD4_SCNR	LD4 Graval Pit Mobile Screener (Atlas Copco HCS3715)	8679	1	dBA	7927	2	dBA	7734	3	dBA	7093	4	dBA	6655	5	dBA
Outcrop3_E	Outcrop 3 Aggregate Pit Excavator PC360LC	4124	20	dBA	3822	20	dBA	3884	21	dBA	3624	21	dBA	3596	22	dBA
Outcrop3_FEL	Outcrop 3 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	4149	22	dBA	3843	22	dBA	3903	23	dBA	3639	23	dBA	3606	24	dBA
Outcrop3_PS	Outcrop 3 Graval Pit Mobile Primary Crusher (PowerScreen)	4122	22	dBA	3818	22	dBA	3880	23	dBA	3618	23	dBA	3589	24	dBA
Outcrop3_SCI	Outcrop3 Graval Pit Mobile Screener (Atlas Copco HCS3715)	4124	10	dBA	3812	10	dBA	3870	11	dBA	3603	11	dBA	3569	11	dBA
PG1	Pinewood River Pumphouse Generator (CAT 660 kW)	15447	-5	dBA	14533	-5	dBA	14218	-4	dBA	13535	-4	dBA	13009	-3	dBA
RD1	RC Drill Sandvik DR580	5971	13	dBA	5257	13	dBA	5098	12	dBA	4495	10	dBA	4112	9	dBA
RD2	RC Drill Sandvik DR580	5968	11	dBA	5252	10	dBA	5091	9	dBA	4486	8	dBA	4101	7	dBA
Roen_E	Roen Aggregate Pit Excavator PC360LC	7071	13	dBA	6542	13	dBA	6476	14	dBA	5981	15	dBA	5707	16	dBA
Roen_FEL	Roen Graval Pit Mobile Crushing Plant Loader (CAT 966H)	6970	17	dBA	6446	17	dBA	6382	18	dBA	5892	18	dBA	5621	19	dBA
Roen_PS	Roen Graval Pit Mobile Primary Crusher (PowerScreen)	7098	15	dBA	6568	15	dBA	6501	16	dBA	6005	17	dBA	5729	18	dBA
Roen_SCNR	Roen Graval Pit Mobile Screener (Atlas Copco HCS3715)	7095	4	dBA	6556	4	dBA	6485	5	dBA	5983	6	dBA	5701	6	dBA
T1	Transformer 1	6110	14	dBA	5639	14	dBA	5606	14	dBA	5165	15	dBA	4949	16	dBA
T2	Transformer 2	6102	14	dBA	5630	14	dBA	5596	14	dBA	5155	15	dBA	4937	16	dBA
TD01	Track Dozer 01 (Pit - Komatsu D475)	6055	18	dBA	5341	19	dBA	5181	18	dBA	4577	16	dBA	4192	13	dBA
TD02	Track Dozer 02 (Pit -CAT D10)	6283	18	dBA	5557	19	dBA	5389	20	dBA	4776	19	dBA	4378	16	dBA
TD03	Track Dozer 03 (Pit -CAT D10)	6161	18	dBA	5441	19	dBA	5276	19	dBA	4666	15	dBA	4275	13	dBA
TD04	Track Dozer 04 (Pit -CAT D10)	6100	13	dBA	5391	13	dBA	5233	15	dBA	4632	14	dBA	4250	12	dBA
TD05	Track Dozer 05 (PAG - Komatsu D375)	4195	19	dBA	3777	18	dBA	3789	20	dBA	3442	20	dBA	3341	22	dBA
TD06	Track Dozer 06 (PAG - Komatsu D375)	3936	20	dBA	3443	20	dBA	3424	22	dBA	3035	22	dBA	2904	24	dBA
TD07D	Track Dozer 07 (PAG - Komatsu D475)	4373	24	dBA	3918	24	dBA	3909	25	dBA	3527	26	dBA	3391	28	dBA
TD07N	Track Dozer 07 (PAG - Komatsu D475)	4373	0	dBA	3918	0	dBA	3909	0	dBA	3527	0	dBA	3391	0	dBA
TD08D	Track Dozer 08 (PAG - Komatsu D375)	4518	23	dBA	4126	23	dBA	4145	24	dBA	3804	25	dBA	3700	26	dBA
TD08N	Track Dozer 08 (PAG - Komatsu D375)	4518	0	dBA	4126	0	dBA	4145	0	dBA	3804	0	dBA	3700	0	dBA
TD09	Track Dozer 09 (Ore -CAT D9)	4232	19	dBA	3682	19	dBA	3629	21	dBA	3182	22	dBA	2990	24	dBA
TD10	Track Dozer 10 (Ore -CAT D8)	4533	18	dBA	3928	18	dBA	3842	20	dBA	3342	25	dBA	3091	24	dBA
TD11D	Track Dozer 11 (NPAG/OB - Komatsu D475)	8467	13	dBA	7728	14	dBA	7543	15	dBA	6909	16	dBA	6480	18	dBA
TD11N	Track Dozer 11 (NPAG/OB - Komatsu D475)	8467	0	dBA	7728	0	dBA	7543	0	dBA	6909	0	dBA	6480	0	dBA
TD12D	Track Dozer 12 (NPAG/OB - Komatsu D375)	7143	16	dBA	6501	17	dBA	6376	18	dBA	5807	19	dBA	5455	20	dBA
TD12N	Track Dozer 12 (NPAG/OB - Komatsu D375)	7143	0	dBA	6501	0	dBA	6376	0	dBA	5807	0	dBA	5455	0	dBA
TD13	Track Dozer 13 (NPAG/OB -CAT D9)	7757	9	dBA	6986	10	dBA	6785	12	dBA	6137	13	dBA	5693	14	dBA
TD14	Track Dozer 14 (NPAG/OB -CAT D9)	7363	10	dBA	6594	11	dBA	6395	13	dBA	5750	13	dBA	5309	15	dBA
TD15	Track Dozer 15 (NPAG/OB -CAT D9)	7029	11	dBA	6361	11	dBA	6223	13	dBA	5639	13	dBA	5272	15	dBA
TD16	Track Dozer 16 (NPAG/OB -CAT D9)	8063	9	dBA	7335	9	dBA	7158	11	dBA	6532	12	dBA	6113	13	dBA
WD	Komatsu Wheel Dozer KM WD600	6101	5	dBA	5383	6	dBA	5221	6	dBA	4614	5	dBA	4225	2	dBA
WL1	Komatsu Wheel Loader WA1200	6264	17	dBA	5537	17	dBA	5368	18	dBA	4754	18	dBA	4356	15	dBA
WL2	Komatsu Wheel Loader WA900	6236	17	dBA	5511	17	dBA	5343	18	dBA	4731	17	dBA	4335	15	dBA
WP01	Water Pump WP01	6180	3	dBA	5470	3	dBA	5311	5	dBA	4708	5	dBA	4324	4	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR07	POR08	POR09	POR10	POR11
Point of Reception ID	POR07	POR08	POR09	POR10	POR11
Point of Reception Description	House 07 - South	House 08 - South	House 9 - South	House 10 - South	House 11 - South
Point of reception coordinates X	431034	430117	429796	429116	428590
Point of reception coordinates Y	5406873	5406700	5406515	5406626	5406620
Point of reception coordinates Z	378.5	367.8	367.9	361.5	369.5

Source ID	Source Description	Point of Reception 6 Distance (m)	Point of Reception 6 Sound Level at PoR	Point of Reception 6 Units	Point of Reception 7 Distance (m)	Point of Reception 7 Sound Level at PoR	Point of Reception 7 Units	Point of Reception 8 Distance (m)	Point of Reception 8 Sound Level at PoR	Point of Reception 8 Units	Point of Reception 9 Distance (m)	Point of Reception 9 Sound Level at PoR	Point of Reception 9 Units	Point of Reception 10 Distance (m)	Point of Reception 10 Sound Level at PoR	Point of Reception 10 Units
WP02	Water Pump WP02	6038	3	dBA	5334	3	dBA	5180	4	dBA	4582	4	dBA	4205	1	dBA
WP03	Water Pump WP03	5975	1	dBA	5268	1	dBA	5113	1	dBA	4514	-1	dBA	4137	-3	dBA
WP04	Water Pump WP04	5936	-10	dBA	5223	-10	dBA	5063	-10	dBA	4461	-10	dBA	4079	-10	dBA
WP05	Water Pump WP05	6027	-4	dBA	5305	-5	dBA	5141	-6	dBA	4532	-7	dBA	4142	-8	dBA
WP06	Water Pump WP06	6142	-1	dBA	5415	-3	dBA	5247	-5	dBA	4634	-6	dBA	4239	-8	dBA
WP07	Water Pump WP07	6254	1	dBA	5523	-1	dBA	5351	-3	dBA	4734	-6	dBA	4332	-7	dBA
WP08	Water Pump WP08	6326	2	dBA	5599	3	dBA	5429	4	dBA	4814	4	dBA	4414	1	dBA
WP09	Water Pump WP09	6069	3	dBA	5313	4	dBA	5126	5	dBA	4496	7	dBA	4079	8	dBA
WP10	Water Pump WP10	5623	4	dBA	4882	5	dBA	4708	7	dBA	4092	8	dBA	3694	10	dBA
WP11	Water Pump WP11	5275	5	dBA	4568	6	dBA	4416	7	dBA	3826	9	dBA	3463	11	dBA
WP12	Water Pump WP12	7311	1	dBA	6504	1	dBA	6280	3	dBA	5616	4	dBA	5151	5	dBA
WP13	Water Pump WP13	7011	1	dBA	6230	2	dBA	6024	3	dBA	5374	4	dBA	4928	6	dBA
WP14	Water Pump WP14	8678	-2	dBA	7922	-2	dBA	7727	0	dBA	7084	0	dBA	6644	2	dBA
WP15	Water Pump WP15	8643	-2	dBA	7888	-2	dBA	7694	0	dBA	7052	1	dBA	6612	2	dBA
WP16	Water Pump WP16	6567	2	dBA	5895	2	dBA	5756	3	dBA	5174	4	dBA	4811	6	dBA
WP17	Water Pump WP17	8055	-1	dBA	7380	-1	dBA	7234	0	dBA	6638	1	dBA	6255	2	dBA
WP18	Water Pump WP18	9471	-3	dBA	8646	-3	dBA	8405	-2	dBA	7730	-1	dBA	7245	0	dBA
WP19	Water Pump WP19	5807	-16	dBA	5234	-16	dBA	5154	-15	dBA	4648	-14	dBA	4372	-13	dBA
WP20	Pinewood River Water Pump	15441	-10	dBA	14527	-9	dBA	14212	-9	dBA	13528	-8	dBA	13002	-8	dBA
WS	Wet Scrubber	6039	-15	dBA	5532	-10	dBA	5482	-13	dBA	5017	-12	dBA	4778	-12	dBA
MGR_SP	Motor Grader Route Stockpile	N/A	4	dBA	N/A	4	dBA	N/A	6	dBA	N/A	7	dBA	N/A	9	dBA
MGR_NPAG	Motor Grader Route NPAG	N/A	4	dBA	N/A	4	dBA	N/A	5	dBA	N/A	7	dBA	N/A	7	dBA
MGR_OB	Motor Grader Route OB	N/A	-1	dBA	N/A	0	dBA	N/A	1	dBA	N/A	2	dBA	N/A	3	dBA
MGR_OPMill	Motor Grader Route Open Pit to Mill	N/A	4	dBA	N/A	4	dBA	N/A	6	dBA	N/A	7	dBA	N/A	8	dBA
MGR_PAG	Motor Grader Route PAG	N/A	3	dBA	N/A	3	dBA	N/A	5	dBA	N/A	6	dBA	N/A	7	dBA
TRE_NPAG	Truck Route-NPAG (Empty Truck)	N/A	9	dBA	N/A	9	dBA	N/A	10	dBA	N/A	12	dBA	N/A	11	dBA
TRE_OB	Truck Route-Overburden (Empty Truck)	N/A	8	dBA	N/A	9	dBA	N/A	10	dBA	N/A	11	dBA	N/A	11	dBA
TRE_OPMill	Truck Route Open Pit to Mill (Empty Truck)	N/A	5	dBA	N/A	5	dBA	N/A	6	dBA	N/A	7	dBA	N/A	7	dBA
TRE_PAG	Truck Route PAG (Empty Truck)	N/A	11	dBA	N/A	12	dBA	N/A	13	dBA	N/A	14	dBA	N/A	15	dBA
TRE_SP	Truck Route Stockpile (Empty Truck)	N/A	6	dBA	N/A	6	dBA	N/A	7	dBA	N/A	8	dBA	N/A	9	dBA
TRL_NPAG	Truck Route-NPAG (Loaded Truck)	N/A	23	dBA	N/A	24	dBA	N/A	24	dBA	N/A	26	dBA	N/A	26	dBA
TRL_OB	Truck Route-Overburden (Loaded Truck)	N/A	23	dBA	N/A	23	dBA	N/A	24	dBA	N/A	25	dBA	N/A	25	dBA
TRL_OPMill	Truck Route Open Pit to Mill (Loaded Truck)	N/A	19	dBA	N/A	20	dBA	N/A	21	dBA	N/A	21	dBA	N/A	22	dBA
TRL_PAG	Truck Route PAG (Loaded Truck)	N/A	26	dBA	N/A	26	dBA	N/A	27	dBA	N/A	28	dBA	N/A	29	dBA
TRL_SP	Truck Route Stockpile (Loaded Truck)	N/A	21	dBA	N/A	21	dBA	N/A	22	dBA	N/A	23	dBA	N/A	23	dBA
WTR_NPAG	Water Truck Route NPAG	N/A	1	dBA	N/A	1	dBA	N/A	3	dBA	N/A	5	dBA	N/A	5	dBA
WTR_OB	Water Truck Route OB	N/A	-4	dBA	N/A	-3	dBA	N/A	-2	dBA	N/A	-1	dBA	N/A	1	dBA
WTR_OPMill	Water Truck Route Open Pit to Mill	N/A	2	dBA	N/A	2	dBA	N/A	3	dBA	N/A	5	dBA	N/A	6	dBA
WTR_PAG	Water Truck Route PAG	N/A	1	dBA	N/A	1	dBA	N/A	3	dBA	N/A	4	dBA	N/A	6	dBA
WTR_SP	Water Truck Route Stockpile	N/A	2	dBA	N/A	2	dBA	N/A	4	dBA	N/A	6	dBA	N/A	8	dBA
LD4_TR	LD4 Aggregate Pit Truck Route	N/A	6	dBA	N/A	6	dBA	N/A	7	dBA	N/A	8	dBA	N/A	9	dBA
OC3_TR	OC3 Aggregate Pit Truck Route	N/A	1	dBA	N/A	1	dBA	N/A	2	dBA	N/A	3	dBA	N/A	4	dBA
EO_TR	EO Aggregate Pit Truck Route	N/A	11	dBA	N/A	11	dBA	N/A	13	dBA	N/A	15	dBA	N/A	15	dBA
Roen_TR	Roen Aggregate Pit Truck Route	N/A	7	dBA	N/A	7	dBA	N/A	8	dBA	N/A	9	dBA	N/A	10	dBA
EG1	Emergency Generator 1 (CAT 2.5 MW)	6147	33	dBA	5668	33	dBA	5632	34	dBA	5185	34	dBA	4963	35	dBA
EG2	Emergency Generator 2 (CAT 2.5 MW)	7756	30	dBA	7273	30	dBA	7226	31	dBA	6755	31	dBA	6499	32	dBA
FP1	Fire Pump 1	6158	36	dBA	5664	36	dBA	5621	38	dBA	5163	39	dBA	4931	40	dBA
FP2	Fire Pump 2	6134	36	dBA	5637	36	dBA	5592	38	dBA	5133	39	dBA	4899	39	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR12			POR14			POR15			POR16			POR17		
Point of Reception ID	POR12			POR14			POR15			POR16			POR17		
Point of Reception Description	House 12 - South			House 14 - South			House 15 - West			House 16 - West			House 17 - Nothwest		
Point of reception coordinates	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
	428175	5406947	361.5	427450	5406952	362.9	419623	5410178	358.0	419645	5410314	359.5	419827	5413577	372.5

Source ID	Source Description	Point of Reception 11 Distance (m)	Sound Level at PoR	Units	Point of Reception 12 Distance (m)	Sound Level at PoR	Units	Point of Reception 13 Distance (m)	Sound Level at PoR	Units	Point of Reception 14 Distance (m)	Sound Level at PoR	Units	Point of Reception 15 Distance (m)	Sound Level at PoR	Units
AC1	WMP Air Compressor 1	8279	-2	dBA	7677	15	dBA	2024	14	dBA	1925	11	dBA	2556	0	dBA
AC2	WMP Air Compressor 2	8980	-4	dBA	8363	15	dBA	1604	14	dBA	1477	13	dBA	2129	1	dBA
AC3	WMP Air Compressor 3	9614	-5	dBA	9018	11	dBA	2191	10	dBA	2054	11	dBA	1331	-1	dBA
AC4	WMP Air Compressor 4	8498	-3	dBA	7924	12	dBA	2508	11	dBA	2395	12	dBA	2186	-1	dBA
BD1	Blast Hole Drill 1- Sandvik DR461i	3811	22	dBA	3327	7	dBA	5852	15	dBA	5845	12	dBA	6881	5	dBA
BD2	Blast Hole Drill 2- Sandvik DR461i	3799	22	dBA	3317	8	dBA	5868	15	dBA	5861	12	dBA	6895	5	dBA
BD3	Blast Hole Drill 3 - Sandvik DP1500i	3774	11	dBA	3281	-1	dBA	5842	8	dBA	5837	5	dBA	6909	-1	dBA
BD4	Blast Hole Drill 4 - Sandvik DP1500i	3764	11	dBA	3272	0	dBA	5856	8	dBA	5851	5	dBA	6920	-1	dBA
C	Crusher	3550	16	dBA	3326	9	dBA	7152	9	dBA	7131	8	dBA	7721	3	dBA
DC1	Dust Collector 1	3586	12	dBA	3366	4	dBA	7158	4	dBA	7136	3	dBA	7708	-4	dBA
DC2	Dust Collector 2	3858	11	dBA	3620	1	dBA	6995	1	dBA	6969	4	dBA	7461	-4	dBA
E1	Komatsu Diesel Excavator PC5500	3832	23	dBA	3344	9	dBA	5819	16	dBA	5813	14	dBA	6857	9	dBA
E2	Komatsu Diesel Excavator PC5500	3734	23	dBA	3261	15	dBA	5953	16	dBA	5946	14	dBA	6968	9	dBA
E3	Komatsu Diesel Excavator PC8000	3749	27	dBA	3268	18	dBA	5912	21	dBA	5905	19	dBA	6946	14	dBA
E4	Komatsu Diesel Excavator PC3000	3754	29	dBA	3268	21	dBA	5885	25	dBA	5879	23	dBA	6935	18	dBA
E5	Komatsu Diesel Excavator PC800LC	3669	13	dBA	3197	10	dBA	6005	11	dBA	5999	9	dBA	7032	4	dBA
E6	Komatsu Diesel Excavator PC360LC	3728	19	dBA	3247	11	dBA	5926	14	dBA	5920	12	dBA	6966	7	dBA
EO_E	East Outcrop Aggregate Pit Excavator PC360LC	2942	24	dBA	2696	11	dBA	7272	11	dBA	7262	12	dBA	8096	7	dBA
EO_FEL	East Outcrop Graval Pit Mobile Crushing Plant Loader (CAT 966H)	2923	23	dBA	2678	16	dBA	7285	16	dBA	7275	18	dBA	8114	15	dBA
EO_PS	East Outcrop Graval Pit Mobile Primary Crusher (PowerScreen)	2937	26	dBA	2688	13	dBA	7268	13	dBA	7258	15	dBA	8096	10	dBA
EO_SCNR	East Outcrop Graval Pit Mobile Screener (Atlas Copco HCS3715)	2947	13	dBA	2694	3	dBA	7248	3	dBA	7238	2	dBA	8078	-2	dBA
LD4_E	LD4 Aggregate Pit Excavator PC360LC	6185	15	dBA	5593	21	dBA	3404	21	dBA	3377	18	dBA	4529	13	dBA
LD4_FEL	LD4 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	6138	19	dBA	5550	23	dBA	3476	24	dBA	3448	21	dBA	4563	19	dBA
LD4_PS	LD4 Graval Pit Mobile Primary Crusher (PowerScreen)	6179	18	dBA	5587	24	dBA	3416	24	dBA	3389	20	dBA	4532	16	dBA
LD4_SCNR	LD4 Graval Pit Mobile Screener (Atlas Copco HCS3715)	6128	6	dBA	5538	11	dBA	3472	11	dBA	3445	8	dBA	4577	2	dBA
Outcrop3_E	Outcrop 3 Aggregate Pit Excavator PC360LC	3298	22	dBA	3466	8	dBA	8996	8	dBA	8974	7	dBA	9412	4	dBA
Outcrop3_FEL	Outcrop 3 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	3305	23	dBA	3467	13	dBA	8967	13	dBA	8946	13	dBA	9382	14	dBA
Outcrop3_PS	Outcrop 3 Graval Pit Mobile Primary Crusher (PowerScreen)	3291	24	dBA	3458	10	dBA	8990	10	dBA	8968	9	dBA	9409	8	dBA
Outcrop3_SCI	Outcrop3 Graval Pit Mobile Screener (Atlas Copco HCS3715)	3267	11	dBA	3429	0	dBA	8959	0	dBA	8938	-1	dBA	9387	-4	dBA
PG1	Pinewood River Pumphouse Generator (CAT 660 kW)	12587	-2	dBA	11862	10	dBA	5109	11	dBA	5211	4	dBA	7788	28	dBA
RD1	RC Drill Sandvik DR580	3588	15	dBA	3127	16	dBA	6102	16	dBA	6096	14	dBA	7122	10	dBA
RD2	RC Drill Sandvik DR580	3576	13	dBA	3111	16	dBA	6094	16	dBA	6089	14	dBA	7129	10	dBA
Roen_E	Roen Aggregate Pit Excavator PC360LC	5220	16	dBA	4921	13	dBA	6281	16	dBA	6231	16	dBA	6252	7	dBA
Roen_FEL	Roen Graval Pit Mobile Crushing Plant Loader (CAT 966H)	5137	20	dBA	4847	17	dBA	6364	21	dBA	6315	21	dBA	6356	16	dBA
Roen_PS	Roen Graval Pit Mobile Primary Crusher (PowerScreen)	5241	19	dBA	4939	16	dBA	6254	19	dBA	6204	19	dBA	6222	11	dBA
Roen_SCNR	Roen Graval Pit Mobile Screener (Atlas Copco HCS3715)	5211	7	dBA	4899	5	dBA	6191	6	dBA	6142	6	dBA	6194	-1	dBA
T1	Transformer 1	4497	17	dBA	4313	10	dBA	7173	10	dBA	7133	13	dBA	7293	3	dBA
T2	Transformer 2	4485	17	dBA	4301	10	dBA	7171	10	dBA	7132	13	dBA	7297	3	dBA
TD01	Track Dozer 01 (Pit - Komatsu D475)	3668	22	dBA	3200	17	dBA	6024	18	dBA	6018	15	dBA	7039	9	dBA
TD02	Track Dozer 02 (Pit -CAT D10)	3852	24	dBA	3356	4	dBA	5774	16	dBA	5768	15	dBA	6831	9	dBA
TD03	Track Dozer 03 (Pit -CAT D10)	3749	23	dBA	3266	13	dBA	5903	18	dBA	5897	15	dBA	6943	9	dBA
TD04	Track Dozer 04 (Pit -CAT D10)	3726	20	dBA	3263	11	dBA	5999	12	dBA	5992	9	dBA	6988	4	dBA
TD05	Track Dozer 05 (PAG - Komatsu D375)	2988	25	dBA	3068	6	dBA	8547	6	dBA	8530	7	dBA	9100	2	dBA
TD06	Track Dozer 06 (PAG - Komatsu D375)	2535	28	dBA	2607	6	dBA	8492	6	dBA	8482	7	dBA	9219	2	dBA
TD07D	Track Dozer 07 (PAG - Komatsu D475)	3008	28	dBA	3029	12	dBA	8302	12	dBA	8285	14	dBA	8872	7	dBA
TD07N	Track Dozer 07 (PAG - Komatsu D475)	3008	0	dBA	3029	0	dBA	8302	0	dBA	8285	0	dBA	8872	0	dBA
TD08D	Track Dozer 08 (PAG - Komatsu D375)	3338	26	dBA	3389	12	dBA	8449	12	dBA	8427	14	dBA	8878	7	dBA
TD08N	Track Dozer 08 (PAG - Komatsu D375)	3338	0	dBA	3389	0	dBA	8449	0	dBA	8427	0	dBA	8878	0	dBA
TD09	Track Dozer 09 (Ore -CAT D9)	2571	28	dBA	2532	7	dBA	8102	7	dBA	8093	8	dBA	8873	3	dBA
TD10	Track Dozer 10 (Ore -CAT D8)	2630	28	dBA	2476	8	dBA	7700	8	dBA	7693	9	dBA	8538	3	dBA
TD11D	Track Dozer 11 (NPAG/OB - Komatsu D475)	5952	19	dBA	5379	25	dBA	3740	29	dBA	3711	21	dBA	4721	16	dBA
TD11N	Track Dozer 11 (NPAG/OB - Komatsu D475)	5952	0	dBA	5379	0	dBA	3740	0	dBA	3711	0	dBA	4721	0	dBA
TD12D	Track Dozer 12 (NPAG/OB - Komatsu D375)	4938	22	dBA	4509	19	dBA	5454	19	dBA	5419	22	dBA	5927	12	dBA
TD12N	Track Dozer 12 (NPAG/OB - Komatsu D375)	4938	0	dBA	4509	0	dBA	5454	0	dBA	5419	0	dBA	5927	0	dBA
TD13	Track Dozer 13 (NPAG/OB -CAT D9)	5167	16	dBA	4570	17	dBA	4224	18	dBA	4219	13	dBA	5545	10	dBA
TD14	Track Dozer 14 (NPAG/OB -CAT D9)	4783	17	dBA	4196	15	dBA	4608	16	dBA	4605	12	dBA	5908	9	dBA
TD15	Track Dozer 15 (NPAG/OB -CAT D9)	4751	17	dBA	4298	14	dBA	5392	13	dBA	5364	15	dBA	6031	7	dBA
TD16	Track Dozer 16 (NPAG/OB -CAT D9)	5585	14	dBA	5031	18	dBA	4164	17	dBA	4137	15	dBA	5076	7	dBA
WD	Komatsu Wheel Dozer KM WD600	3700	8	dBA	3225	4	dBA	5968	5	dBA	5962	3	dBA	6999	-1	dBA
WL1	Komatsu Wheel Loader WA1200	3830	21	dBA	3334	7	dBA	5788	16	dBA	5783	15	dBA	6852	10	dBA
WL2	Komatsu Wheel Loader WA900	3808	21	dBA	3316	9	dBA	5820	16	dBA	5814	14	dBA	6876	10	dBA
WP01	Water Pump WP01	3800	9	dBA	3331	-2	dBA	5923	-3	dBA	5915	0	dBA	6910	-4	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR12			POR14			POR15			POR16			POR17		
Point of Reception ID	POR12			POR14			POR15			POR16			POR17		
Point of Reception Description	House 12 - South			House 14 - South			House 15 - West			House 16 - West			House 17 - Nothwest		
Point of reception coordinates	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
	428175	5406947	361.5	427450	5406952	362.9	419623	5410178	358.0	419645	5410314	359.5	419827	5413577	372.5

Source ID	Source Description	Point of Reception 11			Point of Reception 12			Point of Reception 13			Point of Reception 14			Point of Reception 15		
		Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units
WP02	Water Pump WP02	3683	9	dBA	3230	2	dBA	6074	1	dBA	6065	0	dBA	7044	-5	dBA
WP03	Water Pump WP03	3614	5	dBA	3161	2	dBA	6122	2	dBA	6114	-1	dBA	7110	-5	dBA
WP04	Water Pump WP04	3555	-6	dBA	3095	1	dBA	6133	2	dBA	6128	-1	dBA	7157	-5	dBA
WP05	Water Pump WP05	3617	-4	dBA	3141	1	dBA	6025	2	dBA	6020	0	dBA	7078	-5	dBA
WP06	Water Pump WP06	3713	-4	dBA	3223	-2	dBA	5903	2	dBA	5898	0	dBA	6972	-4	dBA
WP07	Water Pump WP07	3805	-3	dBA	3302	-12	dBA	5780	-13	dBA	5776	0	dBA	6871	-4	dBA
WP08	Water Pump WP08	3887	8	dBA	3387	-13	dBA	5727	-3	dBA	5721	0	dBA	6791	-4	dBA
WP09	Water Pump WP09	3550	11	dBA	3021	2	dBA	5887	2	dBA	5890	-1	dBA	7111	-4	dBA
WP10	Water Pump WP10	3168	12	dBA	2688	1	dBA	6350	1	dBA	6352	-1	dBA	7512	-2	dBA
WP11	Water Pump WP11	2946	15	dBA	2547	0	dBA	6760	0	dBA	6758	-2	dBA	7809	-3	dBA
WP12	Water Pump WP12	4631	7	dBA	3999	5	dBA	4575	5	dBA	4589	1	dBA	6178	-2	dBA
WP13	Water Pump WP13	4402	8	dBA	3808	4	dBA	4914	4	dBA	4918	1	dBA	6299	0	dBA
WP14	Water Pump WP14	6117	3	dBA	5523	7	dBA	3446	7	dBA	3421	5	dBA	4600	-1	dBA
WP15	Water Pump WP15	6085	3	dBA	5493	1	dBA	3485	2	dBA	3460	5	dBA	4626	-1	dBA
WP16	Water Pump WP16	4291	7	dBA	3852	2	dBA	5747	2	dBA	5726	1	dBA	6493	-2	dBA
WP17	Water Pump WP17	5729	3	dBA	5236	6	dBA	4553	5	dBA	4510	4	dBA	5005	-3	dBA
WP18	Water Pump WP18	6737	2	dBA	6068	12	dBA	2410	12	dBA	2434	4	dBA	4626	1	dBA
WP19	Water Pump WP19	3889	-12	dBA	3621	-20	dBA	6830	-19	dBA	6804	-1	dBA	7334	-6	dBA
WP20	Pinewood River Water Pump	12581	-7	dBA	11856	5	dBA	5105	5	dBA	5206	-2	dBA	7785	25	dBA
WS	Wet Scrubber	4314	8	dBA	4097	1	dBA	7005	1	dBA	6970	1	dBA	7248	-5	dBA
MGR_SP	Motor Grader Route Stockpile	N/A	12	dBA	N/A	-1	dBA	N/A	0	dBA	N/A	-1	dBA	N/A	-5	dBA
MGR_NPAG	Motor Grader Route NPAG	N/A	10	dBA	N/A	6	dBA	N/A	6	dBA	N/A	5	dBA	N/A	1	dBA
MGR_OB	Motor Grader Route OB	N/A	7	dBA	N/A	3	dBA	N/A	3	dBA	N/A	3	dBA	N/A	-3	dBA
MGR_OPMill	Motor Grader Route Open Pit to Mill	N/A	11	dBA	N/A	2	dBA	N/A	3	dBA	N/A	1	dBA	N/A	-4	dBA
MGR_PAG	Motor Grader Route PAG	N/A	8	dBA	N/A	-5	dBA	N/A	-5	dBA	N/A	-5	dBA	N/A	-9	dBA
TRE_NPAG	Truck Route-NPAG (Empty Truck)	N/A	14	dBA	N/A	10	dBA	N/A	10	dBA	N/A	9	dBA	N/A	7	dBA
TRE_OB	Truck Route-Overburden (Empty Truck)	N/A	14	dBA	N/A	9	dBA	N/A	10	dBA	N/A	9	dBA	N/A	6	dBA
TRE_OPMill	Truck Route Open Pit to Mill (Empty Truck)	N/A	11	dBA	N/A	2	dBA	N/A	4	dBA	N/A	2	dBA	N/A	-1	dBA
TRE_PAG	Truck Route PAG (Empty Truck)	N/A	17	dBA	N/A	7	dBA	N/A	8	dBA	N/A	8	dBA	N/A	4	dBA
TRE_SP	Truck Route Stockpile (Empty Truck)	N/A	12	dBA	N/A	3	dBA	N/A	4	dBA	N/A	3	dBA	N/A	-1	dBA
TRL_NPAG	Truck Route-NPAG (Loaded Truck)	N/A	28	dBA	N/A	25	dBA	N/A	25	dBA	N/A	23	dBA	N/A	21	dBA
TRL_OB	Truck Route-Overburden (Loaded Truck)	N/A	28	dBA	N/A	24	dBA	N/A	24	dBA	N/A	23	dBA	N/A	20	dBA
TRL_OPMill	Truck Route Open Pit to Mill (Loaded Truck)	N/A	24	dBA	N/A	16	dBA	N/A	17	dBA	N/A	17	dBA	N/A	13	dBA
TRL_PAG	Truck Route PAG (Loaded Truck)	N/A	31	dBA	N/A	22	dBA	N/A	22	dBA	N/A	22	dBA	N/A	18	dBA
TRL_SP	Truck Route Stockpile (Loaded Truck)	N/A	26	dBA	N/A	17	dBA	N/A	18	dBA	N/A	17	dBA	N/A	13	dBA
WTR_NPAG	Water Truck Route NPAG	N/A	8	dBA	N/A	4	dBA	N/A	4	dBA	N/A	2	dBA	N/A	-2	dBA
WTR_OB	Water Truck Route OB	N/A	5	dBA	N/A	1	dBA	N/A	1	dBA	N/A	1	dBA	N/A	-6	dBA
WTR_OPMill	Water Truck Route Open Pit to Mill	N/A	10	dBA	N/A	-1	dBA	N/A	0	dBA	N/A	-2	dBA	N/A	-8	dBA
WTR_PAG	Water Truck Route PAG	N/A	6	dBA	N/A	-8	dBA	N/A	-8	dBA	N/A	-8	dBA	N/A	-14	dBA
WTR_SP	Water Truck Route Stockpile	N/A	11	dBA	N/A	-4	dBA	N/A	-3	dBA	N/A	-4	dBA	N/A	-10	dBA
LD4_TR	LD4 Aggregate Pit Truck Route	N/A	10	dBA	N/A	17	dBA	N/A	17	dBA	N/A	19	dBA	N/A	7	dBA
OC3_TR	OC3 Aggregate Pit Truck Route	N/A	7	dBA	N/A	-7	dBA	N/A	-7	dBA	N/A	-5	dBA	N/A	-9	dBA
EO_TR	EO Aggregate Pit Truck Route	N/A	17	dBA	N/A	13	dBA	N/A	13	dBA	N/A	15	dBA	N/A	6	dBA
Roen_TR	Roen Aggregate Pit Truck Route	N/A	12	dBA	N/A	14	dBA	N/A	13	dBA	N/A	12	dBA	N/A	5	dBA
EG1	Emergency Generator 1 (CAT 2.5 MW)	4508	36	dBA	4314	30	dBA	7112	30	dBA	7072	31	dBA	7239	25	dBA
EG2	Emergency Generator 2 (CAT 2.5 MW)	6021	33	dBA	5739	31	dBA	6335	33	dBA	6269	33	dBA	5864	26	dBA
FP1	Fire Pump 1	4470	45	dBA	4260	41	dBA	7017	41	dBA	6978	44	dBA	7182	40	dBA
FP2	Fire Pump 2	4437	45	dBA	4225	41	dBA	7012	41	dBA	6974	44	dBA	7194	40	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR19	POR20	POR21	POR22	POR23
Point of Reception ID	POR19	POR20	POR21	POR22	POR23
Point of Reception Description	Vacant Lot Near Pinewood River	Vacant Lot 56041-0138	Vacant Lot 56036-0023	Vacant Lot 56036-0184	Vacant Lot 56041-0037
Point of reception coordinates X	416140	425325	429474	428602	424360
Y	5407200	5406877	5408438	5406751	5407033
Z	344.5	373.2	384.1	366.5	369.5

Source ID	Source Description	Point of Reception 16			Point of Reception 17			Point of Reception 18			Point of Reception 19			Point of Reception 20		
		Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units
AC1	WMP Air Compressor 1	6605	1	dBA	6134	-4	dBA	8786	-4	dBA	8745	3	dBA	5406	1	dBA
AC2	WMP Air Compressor 2	6128	-1	dBA	6741	-6	dBA	9533	-5	dBA	9447	2	dBA	5962	-1	dBA
AC3	WMP Air Compressor 3	6506	-2	dBA	7468	-6	dBA	10058	-6	dBA	10078	-1	dBA	6716	-2	dBA
AC4	WMP Air Compressor 4	7081	0	dBA	6490	-5	dBA	8878	-5	dBA	8959	1	dBA	5813	1	dBA
BD1	Blast Hole Drill 1- Sandvik DR461i	9612	22	dBA	2734	18	dBA	4196	18	dBA	4257	11	dBA	2795	21	dBA
BD2	Blast Hole Drill 2- Sandvik DR461i	9628	21	dBA	2735	17	dBA	4180	16	dBA	4245	11	dBA	2801	22	dBA
BD3	Blast Hole Drill 3 - Sandvik DP1500i	9578	4	dBA	2662	10	dBA	4193	6	dBA	4223	1	dBA	2722	4	dBA
BD4	Blast Hole Drill 4 - Sandvik DP1500i	9591	5	dBA	2663	10	dBA	4180	6	dBA	4212	1	dBA	2728	4	dBA
C	Crusher	11052	18	dBA	3634	16	dBA	3229	13	dBA	3911	17	dBA	3990	18	dBA
DC1	Dust Collector 1	11069	14	dBA	3675	12	dBA	3247	9	dBA	3946	13	dBA	4027	14	dBA
DC2	Dust Collector 2	10972	10	dBA	3821	11	dBA	3513	8	dBA	4222	9	dBA	4112	10	dBA
E1	Komatsu Diesel Excavator PC5500	9579	21	dBA	2729	20	dBA	4226	19	dBA	4279	13	dBA	2778	21	dBA
E2	Komatsu Diesel Excavator PC5500	9708	22	dBA	2733	18	dBA	4097	18	dBA	4178	15	dBA	2829	22	dBA
E3	Komatsu Diesel Excavator PC8000	9660	26	dBA	2707	23	dBA	4132	21	dBA	4194	17	dBA	2789	26	dBA
E4	Komatsu Diesel Excavator PC3000	9626	27	dBA	2683	27	dBA	4154	25	dBA	4201	20	dBA	2757	27	dBA
E5	Komatsu Diesel Excavator PC800LC	9743	14	dBA	2693	10	dBA	4039	9	dBA	4113	8	dBA	2809	14	dBA
E6	Komatsu Diesel Excavator PC360LC	9669	17	dBA	2691	16	dBA	4115	13	dBA	4173	10	dBA	2780	17	dBA
EO_E	East Outcrop Aggregate Pit Excavator PC360LC	10992	23	dBA	3118	19	dBA	2845	22	dBA	3321	21	dBA	3580	23	dBA
EO_FEL	East Outcrop Graval Pit Mobile Crushing Plant Loader (CAT 966H)	11000	25	dBA	3110	20	dBA	2828	23	dBA	3302	23	dBA	3576	24	dBA
EO_PS	East Outcrop Graval Pit Mobile Primary Crusher (PowerScreen)	10986	24	dBA	3109	22	dBA	2846	24	dBA	3317	23	dBA	3570	24	dBA
EO_SCNR	East Outcrop Graval Pit Mobile Screener (Atlas Copco HCS3715)	10966	11	dBA	3100	12	dBA	2865	11	dBA	3328	11	dBA	3557	10	dBA
LD4_E	LD4 Aggregate Pit Excavator PC360LC	7576	19	dBA	4182	12	dBA	6735	13	dBA	6650	21	dBA	3593	19	dBA
LD4_FEL	LD4 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	7649	22	dBA	4162	17	dBA	6674	17	dBA	6603	23	dBA	3588	22	dBA
LD4_PS	LD4 Graval Pit Mobile Primary Crusher (PowerScreen)	7589	21	dBA	4181	15	dBA	6726	15	dBA	6644	23	dBA	3594	21	dBA
LD4_SCNR	LD4 Graval Pit Mobile Screener (Atlas Copco HCS3715)	7637	9	dBA	4144	4	dBA	6670	4	dBA	6593	11	dBA	3567	9	dBA
Outcrop3_E	Outcrop 3 Aggregate Pit Excavator PC360LC	12838	17	dBA	4690	25	dBA	1973	21	dBA	3465	15	dBA	5317	17	dBA
Outcrop3_FEL	Outcrop 3 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	12812	20	dBA	4678	28	dBA	1995	23	dBA	3476	19	dBA	5300	20	dBA
Outcrop3_PS	Outcrop 3 Graval Pit Mobile Primary Crusher (PowerScreen)	12830	19	dBA	4682	26	dBA	1970	24	dBA	3459	18	dBA	5308	19	dBA
Outcrop3_SCI	Outcrop3 Graval Pit Mobile Screener (Atlas Copco HCS3715)	12795	8	dBA	4645	13	dBA	1966	11	dBA	3438	6	dBA	5271	8	dBA
PG1	Pinewood River Pumphouse Generator (CAT 660 kW)	574	2	dBA	9738	-5	dBA	13956	-4	dBA	13017	2	dBA	8772	2	dBA
RD1	RC Drill Sandvik DR580	9832	15	dBA	2686	11	dBA	3941	10	dBA	4030	11	dBA	2836	15	dBA
RD2	RC Drill Sandvik DR580	9815	12	dBA	2657	9	dBA	3944	8	dBA	4019	9	dBA	2807	12	dBA
Roen_E	Roen Aggregate Pit Excavator PC360LC	10554	20	dBA	4711	17	dBA	4867	15	dBA	5600	17	dBA	4743	20	dBA
Roen_FEL	Roen Graval Pit Mobile Crushing Plant Loader (CAT 966H)	10623	24	dBA	4677	20	dBA	4766	19	dBA	5514	20	dBA	4730	24	dBA
Roen_PS	Roen Graval Pit Mobile Primary Crusher (PowerScreen)	10531	23	dBA	4717	19	dBA	4895	17	dBA	5623	19	dBA	4743	23	dBA
Roen_SCNR	Roen Graval Pit Mobile Screener (Atlas Copco HCS3715)	10460	9	dBA	4652	7	dBA	4895	6	dBA	5596	8	dBA	4669	9	dBA
T1	Transformer 1	11314	16	dBA	4547	18	dBA	3901	15	dBA	4833	16	dBA	4793	16	dBA
T2	Transformer 2	11310	16	dBA	4535	18	dBA	3893	15	dBA	4822	16	dBA	4782	16	dBA
TD01	Track Dozer 01 (Pit - Komatsu D475)	9769	22	dBA	2714	16	dBA	4023	16	dBA	4110	15	dBA	2836	21	dBA
TD02	Track Dozer 02 (Pit -CAT D10)	9528	20	dBA	2707	22	dBA	4266	19	dBA	4300	11	dBA	2741	20	dBA
TD03	Track Dozer 03 (Pit -CAT D10)	9648	21	dBA	2697	20	dBA	4139	15	dBA	4195	13	dBA	2777	21	dBA
TD04	Track Dozer 04 (Pit -CAT D10)	9766	21	dBA	2775	13	dBA	4060	14	dBA	4167	12	dBA	2884	21	dBA
TD05	Track Dozer 05 (PAG - Komatsu D375)	12334	17	dBA	4175	27	dBA	1988	21	dBA	3214	15	dBA	4787	17	dBA
TD06	Track Dozer 06 (PAG - Komatsu D375)	12161	18	dBA	3795	28	dBA	1736	23	dBA	2778	19	dBA	4458	18	dBA
TD07D	Track Dozer 07 (PAG - Komatsu D475)	12097	23	dBA	4019	32	dBA	2164	27	dBA	3266	21	dBA	4600	23	dBA
TD07N	Track Dozer 07 (PAG - Komatsu D475)	12097	0	dBA	4019	0	dBA	2164	0	dBA	3266	0	dBA	4600	0	dBA
TD08D	Track Dozer 08 (PAG - Komatsu D375)	12324	22	dBA	4377	31	dBA	2318	25	dBA	3573	20	dBA	4934	22	dBA
TD08N	Track Dozer 08 (PAG - Komatsu D375)	12324	0	dBA	4377	0	dBA	2318	0	dBA	3573	0	dBA	4934	0	dBA
TD09	Track Dozer 09 (Ore -CAT D9)	11775	20	dBA	3515	26	dBA	2059	23	dBA	2870	21	dBA	4131	19	dBA
TD10	Track Dozer 10 (Ore -CAT D8)	11365	25	dBA	3214	25	dBA	2400	26	dBA	2979	22	dBA	3778	24	dBA
TD11D	Track Dozer 11 (NPAG/OB - Komatsu D475)	7907	27	dBA	4070	16	dBA	6439	17	dBA	6414	29	dBA	3550	27	dBA
TD11N	Track Dozer 11 (NPAG/OB - Komatsu D475)	7907	0	dBA	4070	0	dBA	6439	0	dBA	6414	0	dBA	3550	0	dBA
TD12D	Track Dozer 12 (NPAG/OB - Komatsu D375)	9592	28	dBA	3900	20	dBA	5004	19	dBA	5365	24	dBA	3795	28	dBA
TD12N	Track Dozer 12 (NPAG/OB - Komatsu D375)	9592	0	dBA	3900	0	dBA	5004	0	dBA	5365	0	dBA	3795	0	dBA
TD13	Track Dozer 13 (NPAG/OB -CAT D9)	8090	25	dBA	3227	13	dBA	5797	13	dBA	5633	27	dBA	2752	25	dBA
TD14	Track Dozer 14 (NPAG/OB -CAT D9)	8404	26	dBA	2947	13	dBA	5406	13	dBA	5248	28	dBA	2571	26	dBA
TD15	Track Dozer 15 (NPAG/OB -CAT D9)	9455	23	dBA	3624	14	dBA	4916	14	dBA	5186	20	dBA	3514	23	dBA
TD16	Track Dozer 16 (NPAG/OB -CAT D9)	8282	18	dBA	3842	12	dBA	6020	12	dBA	6044	20	dBA	3411	18	dBA
WD	Komatsu Wheel Dozer KM WD600	9711	9	dBA	2698	6	dBA	4075	4	dBA	4145	2	dBA	2801	9	dBA
WL1	Komatsu Wheel Loader WA1200	9535	14	dBA	2688	20	dBA	4249	17	dBA	4279	9	dBA	2728	14	dBA
WL2	Komatsu Wheel Loader WA900	9567	19	dBA	2691	19	dBA	4219	17	dBA	4256	11	dBA	2742	19	dBA
WP01	Water Pump WP01	9702	11	dBA	2800	5	dBA	4139	5	dBA	4242	3	dBA	2881	10	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR19			POR20			POR21			POR22			POR23		
Point of Reception ID	POR19			POR20			POR21			POR22			POR23		
Point of Reception Description	Vacant Lot Near Pinewood River			Vacant Lot 56041-0138			Vacant Lot 56036-0023			Vacant Lot 56036-0184			Vacant Lot 56041-0037		
Point of reception coordinates	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
	416140	5407200	344.5	425325	5406877	373.2	429474	5408438	384.1	428602	5406751	366.5	424360	5407033	369.5

Source ID	Source Description	Point of Reception 16			Point of Reception 17			Point of Reception 18			Point of Reception 19			Point of Reception 20		
		Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units	Distance (m)	Sound Level at PoR	Units
WP02	Water Pump WP02	9842	11	dBA	2795	-6	dBA	3991	3	dBA	4121	5	dBA	2928	10	dBA
WP03	Water Pump WP03	9871	6	dBA	2747	-5	dBA	3934	-1	dBA	4053	1	dBA	2899	6	dBA
WP04	Water Pump WP04	9856	-2	dBA	2672	-10	dBA	3908	-10	dBA	3996	-6	dBA	2834	-2	dBA
WP05	Water Pump WP05	9742	-4	dBA	2635	-4	dBA	4009	-7	dBA	4062	-7	dBA	2761	-4	dBA
WP06	Water Pump WP06	9627	-3	dBA	2637	2	dBA	4130	-6	dBA	4160	-6	dBA	2720	-3	dBA
WP07	Water Pump WP07	9509	-6	dBA	2636	4	dBA	4250	-6	dBA	4256	-8	dBA	2675	-6	dBA
WP08	Water Pump WP08	9482	-1	dBA	2707	6	dBA	4312	4	dBA	4337	-6	dBA	2725	-1	dBA
WP09	Water Pump WP09	9500	14	dBA	2322	6	dBA	4117	7	dBA	4007	13	dBA	2412	14	dBA
WP10	Water Pump WP10	9938	16	dBA	2332	8	dBA	3655	8	dBA	3616	12	dBA	2602	16	dBA
WP11	Water Pump WP11	10377	15	dBA	2557	10	dBA	3257	9	dBA	3375	11	dBA	2944	15	dBA
WP12	Water Pump WP12	8145	15	dBA	2540	3	dBA	5447	4	dBA	5101	18	dBA	2070	13	dBA
WP13	Water Pump WP13	8582	15	dBA	2581	4	dBA	5090	4	dBA	4869	14	dBA	2278	15	dBA
WP14	Water Pump WP14	7592	7	dBA	4111	0	dBA	6677	1	dBA	6583	9	dBA	3524	7	dBA
WP15	Water Pump WP15	7629	7	dBA	4091	0	dBA	6640	1	dBA	6550	9	dBA	3512	7	dBA
WP16	Water Pump WP16	9703	9	dBA	3318	5	dBA	4465	5	dBA	4723	9	dBA	3319	9	dBA
WP17	Water Pump WP17	8816	6	dBA	4281	2	dBA	5941	1	dBA	6173	7	dBA	3955	6	dBA
WP18	Water Pump WP18	6205	5	dBA	4268	-2	dBA	7621	-1	dBA	7206	8	dBA	3435	5	dBA
WP19	Water Pump WP19	10799	-12	dBA	3727	-12	dBA	3630	-14	dBA	4265	-13	dBA	3987	-12	dBA
WP20	Pinewood River Water Pump	568	-2	dBA	9732	-9	dBA	13950	-8	dBA	13011	-3	dBA	8766	-2	dBA
WS	Wet Scrubber	11100	11	dBA	4271	-11	dBA	3834	-12	dBA	4665	10	dBA	4511	10	dBA
MGR_SP	Motor Grader Route Stockpile	N/A	12	dBA	N/A	10	dBA	N/A	8	dBA	N/A	10	dBA	N/A	11	dBA
MGR_NPAG	Motor Grader Route NPAG	N/A	16	dBA	N/A	7	dBA	N/A	6	dBA	N/A	14	dBA	N/A	16	dBA
MGR_OB	Motor Grader Route OB	N/A	10	dBA	N/A	2	dBA	N/A	2	dBA	N/A	8	dBA	N/A	10	dBA
MGR_OPMill	Motor Grader Route Open Pit to Mill	N/A	12	dBA	N/A	8	dBA	N/A	7	dBA	N/A	9	dBA	N/A	12	dBA
MGR_PAG	Motor Grader Route PAG	N/A	4	dBA	N/A	10	dBA	N/A	6	dBA	N/A	2	dBA	N/A	4	dBA
TRE_NPAG	Truck Route-NPAG (Empty Truck)	N/A	19	dBA	N/A	11	dBA	N/A	11	dBA	N/A	17	dBA	N/A	19	dBA
TRE_OB	Truck Route-Overburden (Empty Truck)	N/A	18	dBA	N/A	11	dBA	N/A	10	dBA	N/A	15	dBA	N/A	18	dBA
TRE_OPMill	Truck Route Open Pit to Mill (Empty Truck)	N/A	12	dBA	N/A	8	dBA	N/A	7	dBA	N/A	9	dBA	N/A	12	dBA
TRE_PAG	Truck Route PAG (Empty Truck)	N/A	17	dBA	N/A	16	dBA	N/A	14	dBA	N/A	15	dBA	N/A	17	dBA
TRE_SP	Truck Route Stockpile (Empty Truck)	N/A	12	dBA	N/A	10	dBA	N/A	9	dBA	N/A	10	dBA	N/A	12	dBA
TRL_NPAG	Truck Route-NPAG (Loaded Truck)	N/A	31	dBA	N/A	25	dBA	N/A	25	dBA	N/A	30	dBA	N/A	31	dBA
TRL_OB	Truck Route-Overburden (Loaded Truck)	N/A	31	dBA	N/A	25	dBA	N/A	25	dBA	N/A	29	dBA	N/A	31	dBA
TRL_OPMill	Truck Route Open Pit to Mill (Loaded Truck)	N/A	25	dBA	N/A	22	dBA	N/A	21	dBA	N/A	23	dBA	N/A	25	dBA
TRL_PAG	Truck Route PAG (Loaded Truck)	N/A	30	dBA	N/A	30	dBA	N/A	28	dBA	N/A	29	dBA	N/A	30	dBA
TRL_SP	Truck Route Stockpile (Loaded Truck)	N/A	25	dBA	N/A	24	dBA	N/A	23	dBA	N/A	23	dBA	N/A	25	dBA
WTR_NPAG	Water Truck Route NPAG	N/A	15	dBA	N/A	4	dBA	N/A	4	dBA	N/A	13	dBA	N/A	15	dBA
WTR_OB	Water Truck Route OB	N/A	8	dBA	N/A	0	dBA	N/A	-1	dBA	N/A	7	dBA	N/A	8	dBA
WTR_OPMill	Water Truck Route Open Pit to Mill	N/A	11	dBA	N/A	6	dBA	N/A	5	dBA	N/A	8	dBA	N/A	11	dBA
WTR_PAG	Water Truck Route PAG	N/A	3	dBA	N/A	9	dBA	N/A	5	dBA	N/A	0	dBA	N/A	2	dBA
WTR_SP	Water Truck Route Stockpile	N/A	10	dBA	N/A	8	dBA	N/A	7	dBA	N/A	8	dBA	N/A	10	dBA
LD4_TR	LD4 Aggregate Pit Truck Route	N/A	14	dBA	N/A	8	dBA	N/A	8	dBA	N/A	15	dBA	N/A	14	dBA
OC3_TR	OC3 Aggregate Pit Truck Route	N/A	1	dBA	N/A	8	dBA	N/A	3	dBA	N/A	0	dBA	N/A	1	dBA
EO_TR	EO Aggregate Pit Truck Route	N/A	18	dBA	N/A	16	dBA	N/A	14	dBA	N/A	17	dBA	N/A	18	dBA
Roen_TR	Roen Aggregate Pit Truck Route	N/A	16	dBA	N/A	10	dBA	N/A	9	dBA	N/A	14	dBA	N/A	16	dBA
EG1	Emergency Generator 1 (CAT 2.5 MW)	11255	35	dBA	4520	37	dBA	3938	34	dBA	4848	35	dBA	4755	35	dBA
EG2	Emergency Generator 2 (CAT 2.5 MW)	10752	34	dBA	5502	33	dBA	5546	31	dBA	6390	33	dBA	5474	34	dBA
FP1	Fire Pump 1	11148	46	dBA	4425	36	dBA	3950	39	dBA	4817	45	dBA	4650	45	dBA
FP2	Fire Pump 2	11136	46	dBA	4392	34	dBA	3926	39	dBA	4786	45	dBA	4619	46	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	POR24	POR25
Point of Reception ID	POR24	POR25
Point of Reception Description	Vacant Lot 56041-0135	Vacant Lot 56041-0139

Point of reception coordinates	X	Y	Z
POR24	425216	5406873	372.2
POR25	426109	5406850	378.7

Source ID	Source Description	Point of Reception 21 Distance (m)	Sound Level at PoR	Units	Point of Reception 22 Distance (m)	Sound Level at PoR	Units
AC1	WMP Air Compressor 1	6065	0	dBA	6703	0	dBA
AC2	WMP Air Compressor 2	6666	-2	dBA	7344	0	dBA
AC3	WMP Air Compressor 3	7396	-3	dBA	8046	0	dBA
AC4	WMP Air Compressor 4	6427	-1	dBA	7018	0	dBA
BD1	Blast Hole Drill 1- Sandvik DR461i	2744	22	dBA	2836	0	dBA
BD2	Blast Hole Drill 2- Sandvik DR461i	2745	22	dBA	2833	0	dBA
BD3	Blast Hole Drill 3 - Sandvik DP1500i	2672	6	dBA	2772	0	dBA
BD4	Blast Hole Drill 4 - Sandvik DP1500i	2673	6	dBA	2768	0	dBA
C	Crusher	3682	19	dBA	3424	0	dBA
DC1	Dust Collector 1	3722	15	dBA	3466	0	dBA
DC2	Dust Collector 2	3862	10	dBA	3658	0	dBA
E1	Komatsu Diesel Excavator PC5500	2738	23	dBA	2840	0	dBA
E2	Komatsu Diesel Excavator PC5500	2748	18	dBA	2808	0	dBA
E3	Komatsu Diesel Excavator PC8000	2719	26	dBA	2794	0	dBA
E4	Komatsu Diesel Excavator PC3000	2694	28	dBA	2778	0	dBA
E5	Komatsu Diesel Excavator PC800LC	2710	9	dBA	2755	0	dBA
E6	Komatsu Diesel Excavator PC360LC	2704	18	dBA	2775	0	dBA
EO_E	East Outcrop Aggregate Pit Excavator PC360LC	3176	24	dBA	2838	0	dBA
EO_FEL	East Outcrop Graval Pit Mobile Crushing Plant Loader (CAT 966H)	3169	25	dBA	2826	0	dBA
EO_PS	East Outcrop Graval Pit Mobile Primary Crusher (PowerScreen)	3166	25	dBA	2829	0	dBA
EO_SCNR	East Outcrop Graval Pit Mobile Screener (Atlas Copco HCS3715)	3157	11	dBA	2825	0	dBA
LD4_E	LD4 Aggregate Pit Excavator PC360LC	4127	20	dBA	4680	0	dBA
LD4_FEL	LD4 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	4108	20	dBA	4651	0	dBA
LD4_PS	LD4 Graval Pit Mobile Primary Crusher (PowerScreen)	4126	19	dBA	4677	0	dBA
LD4_SCNR	LD4 Graval Pit Mobile Screener (Atlas Copco HCS3715)	4090	8	dBA	4635	0	dBA
Outcrop3_E	Outcrop 3 Aggregate Pit Excavator PC360LC	4769	19	dBA	4198	0	dBA
Outcrop3_FEL	Outcrop 3 Graval Pit Mobile Crushing Plant Loader (CAT 966H)	4757	21	dBA	4190	0	dBA
Outcrop3_PS	Outcrop 3 Graval Pit Mobile Primary Crusher (PowerScreen)	4761	21	dBA	4189	0	dBA
Outcrop3_SCI	Outcrop3 Graval Pit Mobile Screener (Atlas Copco HCS3715)	4724	9	dBA	4154	0	dBA
PG1	Pinewood River Pumphouse Generator (CAT 660 kW)	9630	1	dBA	10523	0	dBA
RD1	RC Drill Sandvik DR580	2706	11	dBA	2720	0	dBA
RD2	RC Drill Sandvik DR580	2677	9	dBA	2694	0	dBA
Roen_E	Roen Aggregate Pit Excavator PC360LC	4726	20	dBA	4732	0	dBA
Roen_FEL	Roen Graval Pit Mobile Crushing Plant Loader (CAT 966H)	4693	24	dBA	4682	0	dBA
Roen_PS	Roen Graval Pit Mobile Primary Crusher (PowerScreen)	4731	23	dBA	4743	0	dBA
Roen_SCNR	Roen Graval Pit Mobile Screener (Atlas Copco HCS3715)	4664	9	dBA	4686	0	dBA
T1	Transformer 1	4584	17	dBA	4396	0	dBA
T2	Transformer 2	4573	17	dBA	4384	0	dBA
TD01	Track Dozer 01 (Pit - Komatsu D475)	2731	14	dBA	2769	0	dBA
TD02	Track Dozer 02 (Pit -CAT D10)	2714	22	dBA	2832	0	dBA
TD03	Track Dozer 03 (Pit -CAT D10)	2709	22	dBA	2787	0	dBA
TD04	Track Dozer 04 (Pit -CAT D10)	2791	16	dBA	2835	0	dBA
TD05	Track Dozer 05 (PAG - Komatsu D375)	4252	22	dBA	3708	0	dBA
TD06	Track Dozer 06 (PAG - Komatsu D375)	3877	24	dBA	3290	0	dBA
TD07D	Track Dozer 07 (PAG - Komatsu D475)	4093	25	dBA	3586	0	dBA
TD07N	Track Dozer 07 (PAG - Komatsu D475)	4093	0	dBA	3586	0	dBA
TD08D	Track Dozer 08 (PAG - Komatsu D375)	4448	24	dBA	3955	0	dBA
TD08N	Track Dozer 08 (PAG - Komatsu D375)	4448	0	dBA	3955	0	dBA
TD09	Track Dozer 09 (Ore -CAT D9)	3591	25	dBA	3064	0	dBA
TD10	Track Dozer 10 (Ore -CAT D8)	3284	27	dBA	2829	0	dBA
TD11D	Track Dozer 11 (NPAG/OB - Komatsu D475)	4022	25	dBA	4524	0	dBA
TD11N	Track Dozer 11 (NPAG/OB - Komatsu D475)	4022	0	dBA	4524	0	dBA
TD12D	Track Dozer 12 (NPAG/OB - Komatsu D375)	3897	27	dBA	4058	0	dBA
TD12N	Track Dozer 12 (NPAG/OB - Komatsu D375)	3897	0	dBA	4058	0	dBA
TD13	Track Dozer 13 (NPAG/OB -CAT D9)	3181	19	dBA	3679	0	dBA
TD14	Track Dozer 14 (NPAG/OB -CAT D9)	2911	24	dBA	3350	0	dBA
TD15	Track Dozer 15 (NPAG/OB -CAT D9)	3620	18	dBA	3800	0	dBA
TD16	Track Dozer 16 (NPAG/OB -CAT D9)	3803	17	dBA	4241	0	dBA
WD	Komatsu Wheel Dozer KM WD600	2713	3	dBA	2770	0	dBA
WL1	Komatsu Wheel Loader WA1200	2695	16	dBA	2810	0	dBA
WL2	Komatsu Wheel Loader WA900	2700	20	dBA	2805	0	dBA
WP01	Water Pump WP01	2813	7	dBA	2879	0	dBA

Table 2: Point of Reception Sound Impact

Project: RRP
Location: Township of Chapple ON

	Point of Reception ID	Point of Reception ID
	POR24	POR25
Point of Reception Description	Vacant Lot 56041-0135	Vacant Lot 56041-0139
Point of reception coordinates (X / Y / Z)	425216 / 5406873 / 372.2	426109 / 5406850 / 378.7

Source ID	Source Description	Point of Reception 21 Distance (m)	Sound Level at PoR	Units	Point of Reception 22 Distance (m)	Sound Level at PoR	Units
WP02	Water Pump WP02	2814	6	dBA	2834	0	dBA
WP03	Water Pump WP03	2768	0	dBA	2774	0	dBA
WP04	Water Pump WP04	2693	-6	dBA	2697	0	dBA
WP05	Water Pump WP05	2652	-6	dBA	2693	0	dBA
WP06	Water Pump WP06	2649	-1	dBA	2730	0	dBA
WP07	Water Pump WP07	2643	-5	dBA	2765	0	dBA
WP08	Water Pump WP08	2712	2	dBA	2846	0	dBA
WP09	Water Pump WP09	2333	13	dBA	2443	0	dBA
WP10	Water Pump WP10	2363	14	dBA	2300	0	dBA
WP11	Water Pump WP11	2604	13	dBA	2392	0	dBA
WP12	Water Pump WP12	2491	13	dBA	3026	0	dBA
WP13	Water Pump WP13	2550	13	dBA	2961	0	dBA
WP14	Water Pump WP14	4055	5	dBA	4609	0	dBA
WP15	Water Pump WP15	4036	5	dBA	4584	0	dBA
WP16	Water Pump WP16	3325	9	dBA	3425	0	dBA
WP17	Water Pump WP17	4254	5	dBA	4590	0	dBA
WP18	Water Pump WP18	4185	7	dBA	4931	0	dBA
WP19	Water Pump WP19	3764	-11	dBA	3597	0	dBA
WP20	Pinewood River Water Pump	9624	-3	dBA	10517	0	dBA
WS	Wet Scrubber	4307	8	dBA	4134	0	dBA
MGR_SP	Motor Grader Route Stockpile	N/A	12	dBA	N/A	0	dBA
MGR_NPAG	Motor Grader Route NPAG	N/A	15	dBA	N/A	0	dBA
MGR_OB	Motor Grader Route OB	N/A	9	dBA	N/A	0	dBA
MGR_OPMill	Motor Grader Route Open Pit to Mill	N/A	12	dBA	N/A	0	dBA
MGR_PAG	Motor Grader Route PAG	N/A	6	dBA	N/A	0	dBA
TRE_NPAG	Truck Route-NPAG (Empty Truck)	N/A	18	dBA	N/A	0	dBA
TRE_OB	Truck Route-Overburden (Empty Truck)	N/A	17	dBA	N/A	0	dBA
TRE_OPMill	Truck Route Open Pit to Mill (Empty Truck)	N/A	11	dBA	N/A	0	dBA
TRE_PAG	Truck Route PAG (Empty Truck)	N/A	17	dBA	N/A	0	dBA
TRE_SP	Truck Route Stockpile (Empty Truck)	N/A	12	dBA	N/A	0	dBA
TRL_NPAG	Truck Route-NPAG (Loaded Truck)	N/A	30	dBA	N/A	0	dBA
TRL_OB	Truck Route-Overburden (Loaded Truck)	N/A	30	dBA	N/A	0	dBA
TRL_OPMill	Truck Route Open Pit to Mill (Loaded Truck)	N/A	24	dBA	N/A	0	dBA
TRL_PAG	Truck Route PAG (Loaded Truck)	N/A	30	dBA	N/A	0	dBA
TRL_SP	Truck Route Stockpile (Loaded Truck)	N/A	25	dBA	N/A	0	dBA
WTR_NPAG	Water Truck Route NPAG	N/A	14	dBA	N/A	0	dBA
WTR_OB	Water Truck Route OB	N/A	8	dBA	N/A	0	dBA
WTR_OPMill	Water Truck Route Open Pit to Mill	N/A	10	dBA	N/A	0	dBA
WTR_PAG	Water Truck Route PAG	N/A	4	dBA	N/A	0	dBA
WTR_SP	Water Truck Route Stockpile	N/A	11	dBA	N/A	0	dBA
LD4_TR	LD4 Aggregate Pit Truck Route	N/A	12	dBA	N/A	0	dBA
OC3_TR	OC3 Aggregate Pit Truck Route	N/A	5	dBA	N/A	0	dBA
EO_TR	EO Aggregate Pit Truck Route	N/A	18	dBA	N/A	0	dBA
Roen_TR	Roen Aggregate Pit Truck Route	N/A	15	dBA	N/A	0	dBA
EG1	Emergency Generator 1 (CAT 2.5 MW)	4556	35	dBA	4379	0	dBA
EG2	Emergency Generator 2 (CAT 2.5 MW)	5511	34	dBA	5549	0	dBA
FP1	Fire Pump 1	4460	46	dBA	4296	0	dBA
FP2	Fire Pump 2	4427	46	dBA	4262	0	dBA

Table 3: Acoustic Assessment Summary Table

Project: RRP
Location: Township of Chapple ON

Point of Reception ID	Point of Reception Description	Operation	Time Period [1]	Operational Sound Level at POR (dBA) [2] Early Operations	Operational Sound Level at POR (dBA) [2] Life of Mine Operations	Verified by Acoustic Audit [3] (Yes/No)	Performance Limit [4] (dBA/dBAI)	Peformance Limit Source [5] (C / M/ D)	Compliance with Performance Limit (Yes/No)
POR01	House 01 - North	Regular	Daytime	35	N/A	No	45	D	Yes
			Evening/Night	34	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	48		No	50		Yes
POR02	House 02 - East	Regular	Daytime	35	N/A	No	45	D	Yes
			Evening/Night	34	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	43		No	50		Yes
POR03	House 03 - East	Regular	Daytime	35	N/A	No	45	D	Yes
			Evening/Night	34	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	45		No	50		Yes
POR04	House 04 - East	Regular	Daytime	35	N/A	No	45	D	Yes
			Evening/Night	34	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	45		No	50		Yes
POR06	House 06 -Southeast	Regular	Daytime	37	N/A	No	45	D	Yes
			Evening/Night	35	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	42		No	50		Yes
POR07	House 07 - South	Regular	Daytime	35	N/A	No	45	D	Yes
			Evening/Night	34	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	40		No	50		Yes
POR08	House 08 - South	Regular	Daytime	36	N/A	No	45	D	Yes
			Evening/Night	35	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	40		No	50		Yes
POR09	House 9 - South	Regular	Daytime	36	N/A	No	45	D	Yes
			Evening/Night	35	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	41		No	50		Yes
POR10	House 10 - South	Regular	Daytime	37	N/A	No	45	D	Yes
			Evening/Night	36	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	42		No	50		Yes

Table 3: Acoustic Assessment Summary Table

Project: RRP
Location: Township of Chapple ON

Point of Reception ID	Point of Reception Description	Operation	Time Period [1]	Operational Sound Level at POR (dBA) [2]		Verified by Acoustic Audit [3] (Yes/No)	Performance Limit [4] (dBA/dBAI)	Peformance Limit Source [5] (C / M/ D)	Compliance with Performance Limit (Yes/No)
				Early Operations	Life of Mine Operations				
POR11	House 11 - South	Regular	Daytime	38	N/A	No	45	D	Yes
			Evening/Night	37	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	43		No	50		Yes
POR12	House 12 - South	Regular	Daytime	38	N/A	No	45	D	Yes
			Evening/Night	37	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	44		No	50		Yes
POR14	House 14 - South	Regular	Daytime	41	N/A	No	45	D	Yes
			Evening/Night	40	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	48		No	50		Yes
POR15	House 15 - West	Regular	Daytime	35	N/A	No	45	D	Yes
			Evening/Night	33	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	44		No	50		Yes
POR16	House 16 - West	Regular	Daytime	36	N/A	No	45	D	Yes
			Evening/Night	35	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	44		No	50		Yes
POR17	House 17 - Nothwest	Regular	Daytime	34	N/A	No	45	D	Yes
			Evening/Night	33	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	48		No	50		Yes
POR19	Vacant Lot Near Pinewood River	Regular	Daytime	33	N/A	No	45	D	Yes
			Evening/Night	32	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	43		No	50		Yes
POR20	Vacant Lot 56041-0138	Regular	Daytime	41	N/A	No	45	D	Yes
			Evening/Night	40	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	49		No	50		Yes
POR21	Vacant Lot 56036-0023	Regular	Daytime	40	N/A	No	45	D	Yes
			Evening/Night	39	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	41		No	50		Yes

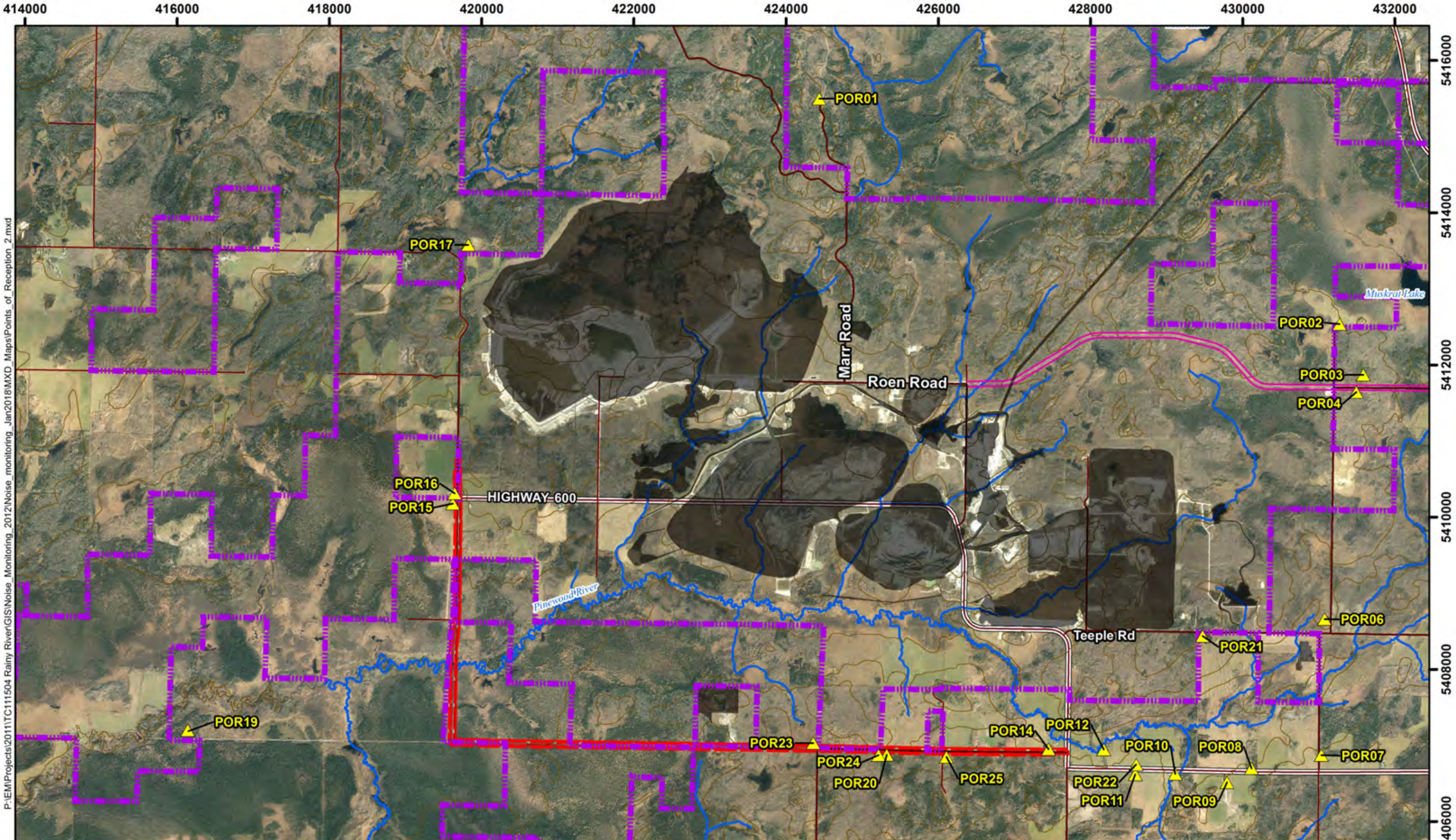
Table 3: Acoustic Assessment Summary Table

Project: RRP
Location: Township of Chapple ON

Point of Reception ID	Point of Reception Description	Operation	Time Period [1]	Operational Sound Level at POR (dBA) [2]		Verified by Acoustic Audit [3]	Performance Limit [4]	Peformance Limit Source [5]	Compliance with Performance Limit
				Early Operations	Life of Mine Operations	(Yes/No)	(dBA/dBAI)	(C / M/ D)	(Yes/No)
POR22	Vacant Lot 56036-0184	Regular	Daytime	38	N/A	No	45	D	Yes
			Evening/Night	37	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	43		No	50		Yes
POR23	Vacant Lot 56041-0037	Regular	Daytime	39	N/A	No	45	D	Yes
			Evening/Night	39	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	48		No	50		Yes
POR24	Vacant Lot 56041-0135	Regular	Daytime	41	N/A	No	45	D	Yes
			Evening/Night	40	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	49		No	50		Yes
POR25	Vacant Lot 56041-0139	Regular	Daytime	41	N/A	No	45	D	Yes
			Evening/Night	40	N/A	No	40		Yes
		Emergency Equipment Testing	Daytime	49		No	50		Yes

Notes :

1 Daytime occurs from 0700-1900h. Evening occurs from 1900h to 2300h. Night-time occurs from 2300-0700h
2 Worst-case cumulative sound level from all applicable sources operating.
3 Has an acoustic audit (as defined in Publication NPC-233) been conducted with source in place and operating?
4 Applicable worst-case NPC-300 sound level limit.
5 Performance limit (aka guideline limit) based on following:
C = Calculated based on road traffic volumes in compliance with NPC-206 requirements.
M = Measured based on monitoring for a minimum 48 hour period, in accordance with NPC-233 requirements.
D = Default guideline minima per NCP300, as applicable (e.g., 45 dBA daytime limit for Class 3 Areas)



P:\EM\Projects\2011\TC111504 Rainy River\GIS\Noise_Monitoring_2012\Noise_monitoring_Jan2018\MXD_Maps\Points_of_Reception_2.mxd

LEGEND

- Receptor (labelled with ID)
- RRP-NG Property Boundary

Proposed Site Features

- Approximate Principal RRP Facilities
- Highway Re-alignment
- East Access Road
- Contours, 10 m interval
- Existing Highway
- Existing Road
- River

NOTES:
- Aerial Imagery provided by NewGold Scene date is October 2017.
- Only major facilities are shown connecting infrastructure and supporting facilities are generally shown.

newgold Rainy River Project

amec foster wheeler

RAINY RIVER MINE

Site Aerial Map with Points of Reception

Datum: NAD83
Projection: UTM Zone 15N

N W E S

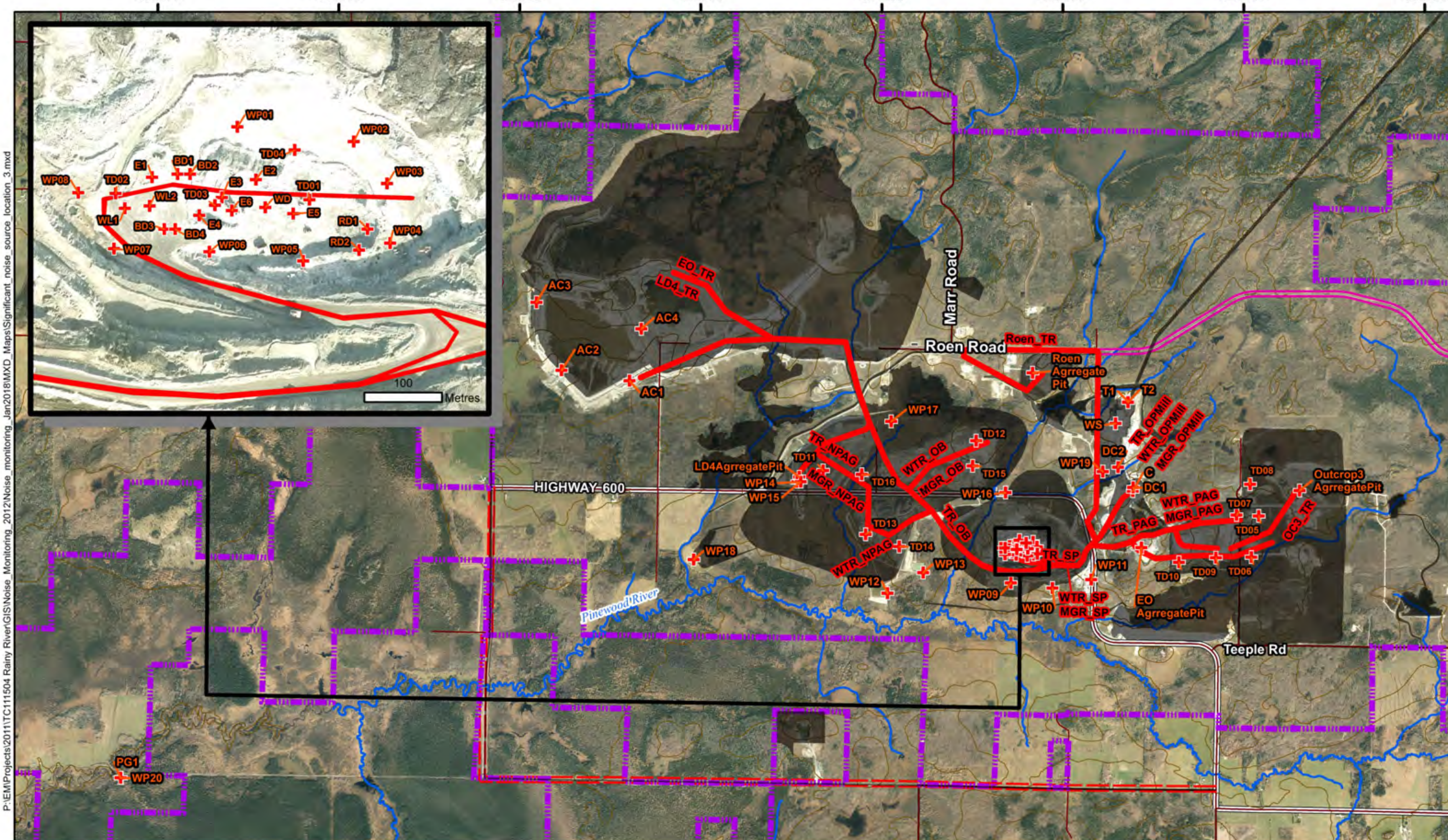
PROJECT N^{o}: TC111504

FIGURE: 1

0 2 4 6 8 Kilometres

SCALE: 1:70,000

DATE: January 2018



LEGEND

- Point Source (labelled with ID)
- Line Source (labelled with ID)
- RRP-NG Property Boundary

Proposed Site Features

- Approximate Principal RRP Facilities
- Highway Re-alignment
- East Access Road

- Contours, 10 m interval
- Existing Highway
- Existing Road
- River

NOTES:
- Aerial Imagery provided by NewGold Scene date is October 2017.
- Only major facilities are shown connecting infrastructure and supporting facilities are generally shown.

Datum: NAD83
Projection: UTM Zone 15N

N W E S

0 2 4 6 8 Kilometres

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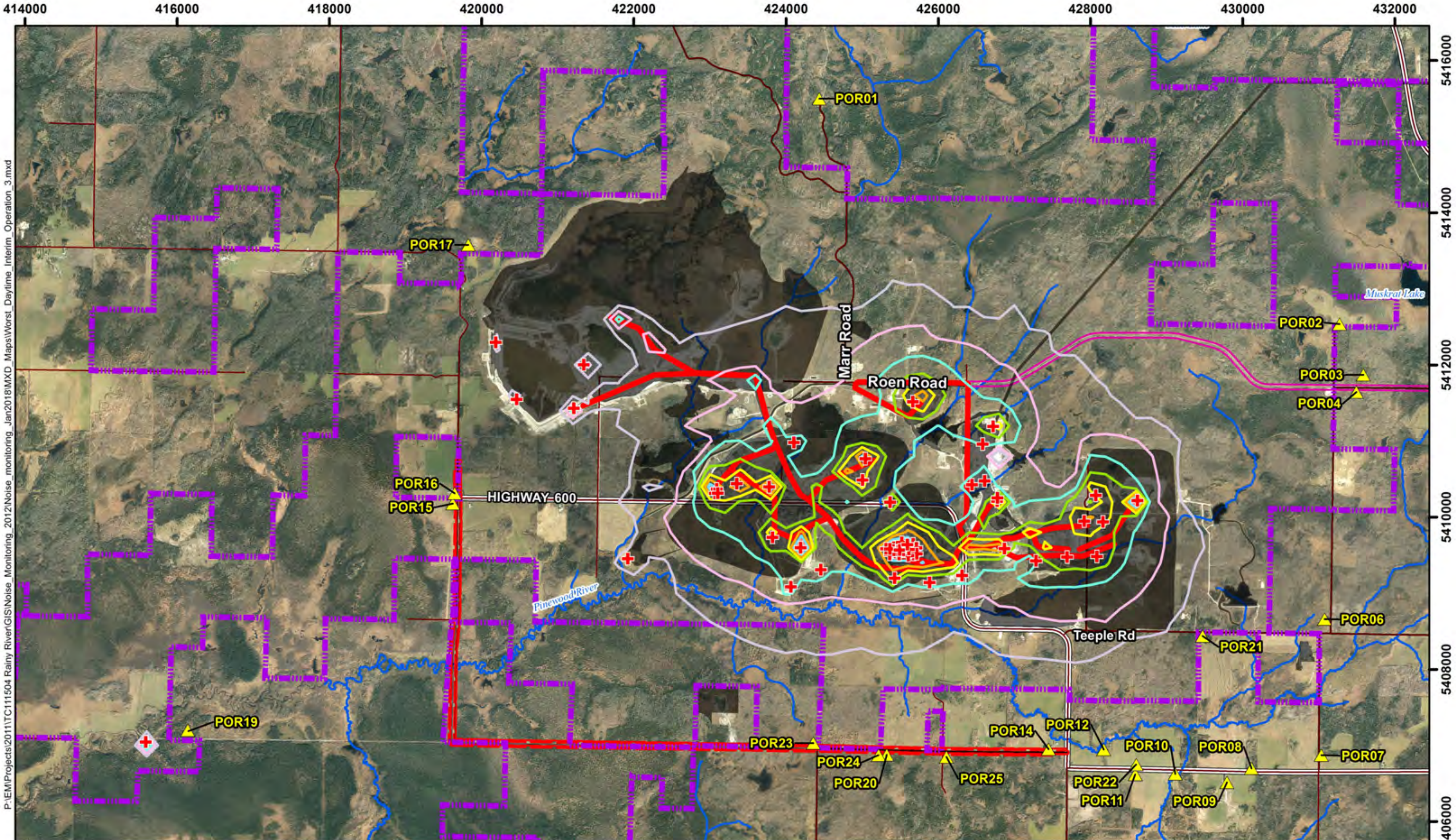
RAINY RIVER MINE

Significant Sound Source Locations

PROJECT N°: TC111504	FIGURE: 2
SCALE: 1:60,000	DATE: January 2018



LEGEND

- Point Source
- Line Source
- Receptor (labelled with ID)
- RRP-NG Property Boundary

Proposed Site Features

- Approximate Principal RRP Facilities
- Highway Re-alignment
- East Access Road

Worst Daytime Interim Operation dBA Contours

>=45	>=60	>=75
>=50	>=65	>=80
>=55	>=70	>=85

0 2 4 6 8 Kilometres

NOTES:
- Aerial Imagery provided by NewGold Scene date is October 2017.
- Only major facilities are shown connecting infrastructure and supporting facilities are generally shown.

Datum: NAD83
Projection: UTM Zone 15N

N W E S

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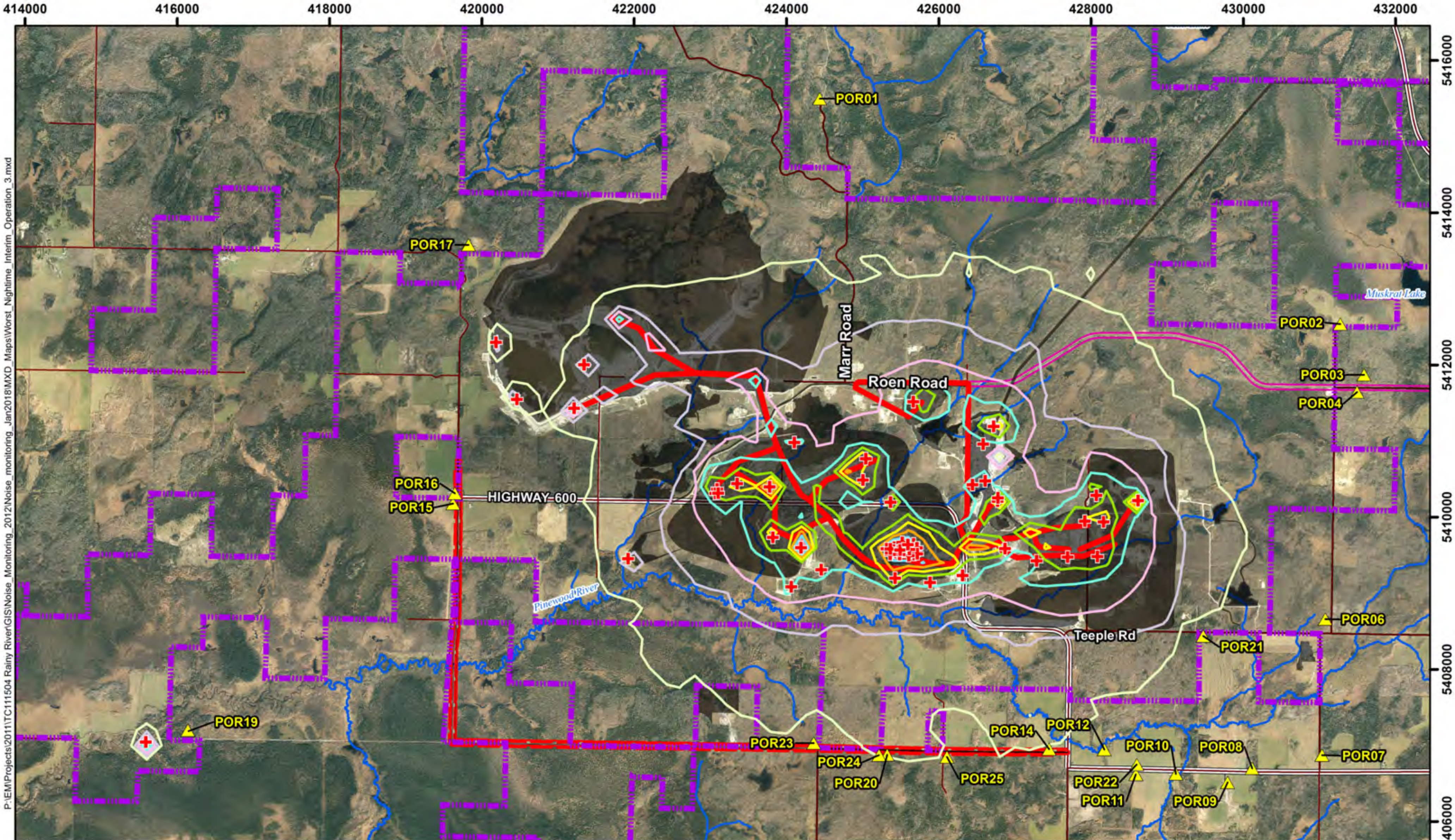
RAINY RIVER MINE

Sound Contours for Worst-Case Daytime Early Operations

PROJECT N°: TC111504	FIGURE: 3
SCALE: 1:70,000	DATE: January 2018



LEGEND

- Point Source
- Line Source
- Receptor (labelled with ID)
- RRP-NG Property Boundary

Proposed Site Features

- Approximate Principal RRP Facilities
- Highway Re-alignment
- East Access Road

Worst Night-time Interim Operation dBA Contours

- >=40
- >=45
- >=50
- >=55
- >=60
- >=65
- >=70
- >=75
- >=80
- >=85

0 2 4 6 8 Kilometres

NOTES:
- Aerial Imagery provided by NewGold Scene date is October 2017.
- Only major facilities are shown connecting infrastructure and supporting facilities are generally shown.

Datum: NAD83
Projection: UTM Zone 15N

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RAINY RIVER MINE

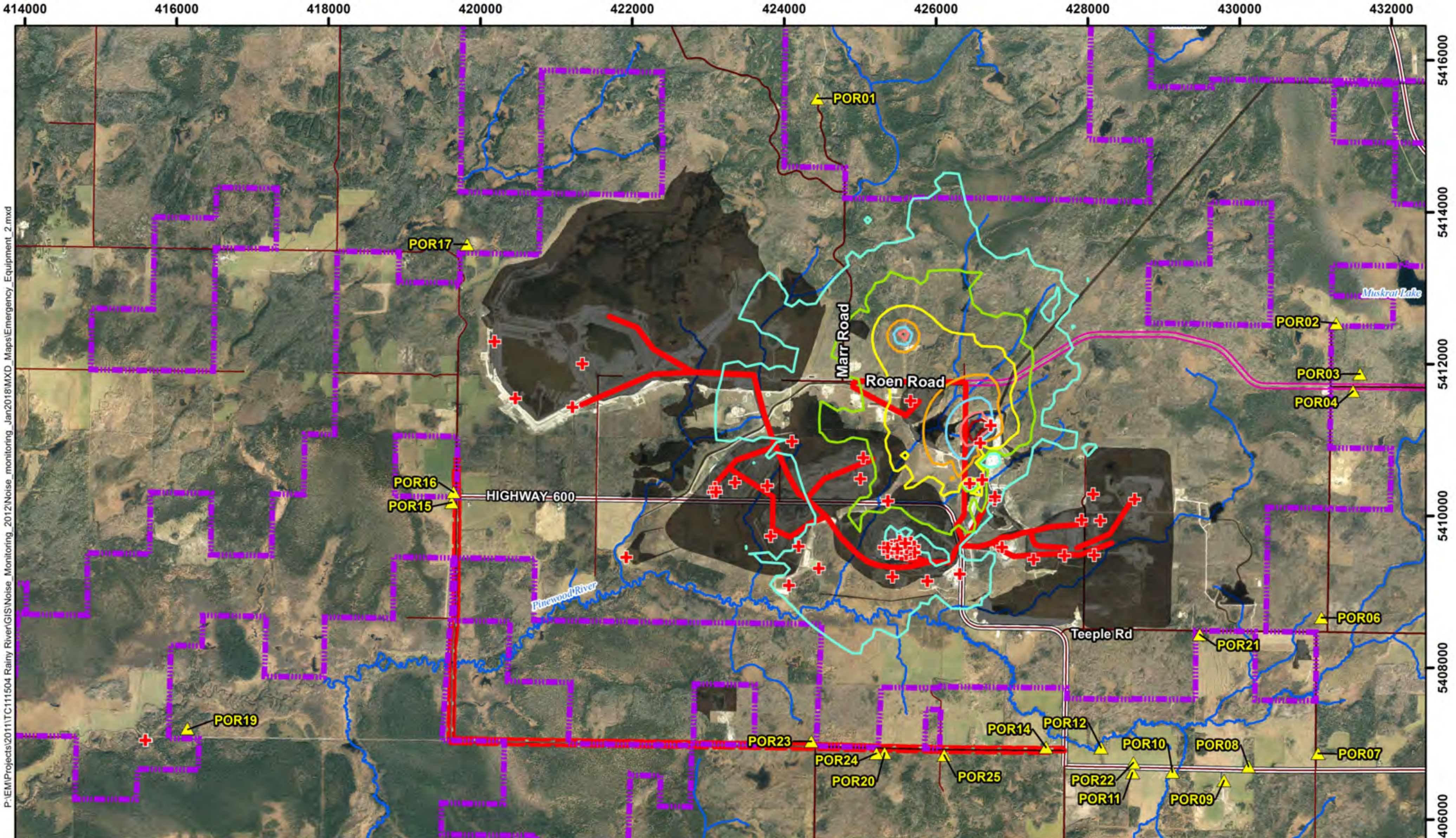
Sound Contours for Worst-Case Evening and Night-time Early Operations

PROJECT N°: TC111504

FIGURE: 4

SCALE: 1:70,000

DATE: January 2018



LEGEND

- Point Source
- Line Source
- Receptor (labelled with ID)
- RRP-NG Property Boundary

Proposed Site Features

- Approximate Principal RRP Facilities
- Highway Re-alignment
- East Access Road

Emergency Equipment Testing Operation dBA Contours

- >=55
- >=60
- >=65
- >=70
- >=75
- >=80
- >=85

NOTES:
- Aerial Imagery provided by NewGold Scene date is October 2017.
- Only major facilities are shown connecting infrastructure and supporting facilities are generally shown.

Datum: NAD83
Projection: UTM Zone 15N

0 2 4 6 8 Kilometres

newgold Rainy River Project

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RAINY RIVER MINE

Sound Contours for Emergency Equipment Testing

PROJECT N°: TC111504

FIGURE: 5

SCALE: 1:70,000

DATE: January 2018

APPENDIX A

ACOUSTIC ASSESSMENT REPORT CHECK-LIST

ACOUSTIC ASSESSMENT REPORT CHECK-LIST

Company Name: New Gold Inc.

Company Address: 1111 Victoria Ave. East
Thunder Bay, Ontario, P7C 1B7

Location of Facility: Rainy River Project
Township of Chapple, Ontario

The attached Acoustic Assessment Report was prepared in accordance with the guidance in the ministry document "Information to be Submitted for Approval of Stationary Sources of Sound" (NPC 233) dated October 1995 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact: New Gold Inc.
Name:
Title:
Phone Number:
Signature:
Date:

Technical Contact: Amec Foster Wheeler
Name: Mohammed Salim, P.Eng.
Representing: New Gold Inc.
Phone Number: (905) 568 2929 Extn. 4212
Signature:
Date: October 20, 2017

ACOUSTIC ASSESSMENT REPORT CHECKLIST

	Required Information			
			Submitted	Explanation/Reference
1.0	**Introduction** (Project Background and Overview)		☑ Yes	Section 1
2.0	**Facility Description**			
	2.1	Operating hours of facility and significant Noise Sources	☑ Yes	Section 2 & Section 3
	2.2	Site Plan identifying all significant Noise Sources	☑ Yes	Figure 2
3.0	**Noise Source Summary**			
	3.1	***Noise Source Summary Table***	☑ Yes	Table 1
	3.2	Source noise emissions specifications	☑ Yes	Section 3
	3.3	Source Power/capacity ratings	☑ Yes	Appendix D
	3.4	Noise control equipment description and acoustical specifications	☑ Yes	Section 4
4.0	**Point of Reception Noise Impact Calculations**			
	4.1	***Point of Reception Noise Impact Table***	☑ Yes	Table 2
	4.2	Point(s) of Reception (POR) list and description	☑ Yes	Section 5
	4.3	Land-use Zoning Plan	☑ Yes	Appendix B
	4.4	Scaled Area Location Plan	☑ Yes	Figure 1
	4.5	Procedure used to assess noise impacts at each POR	☑ Yes	Section 7
	4.6	List of parameters/assumptions used in calculations	☑ Yes	Section 7/Appendix F
5.0	**Acoustic Assessment Summary**			
	5.1	***Acoustic Assessment Summary Table***	☑ Yes	Table 3
	5.2	Rationale for selecting applicable noise guideline limits	☑ Yes	Section 6
	5.3	Predictable Worst Case Impacts Operating Scenario	☑ Yes	Section 7
6.0	**Conclusions**			
	6.1	Statement of compliance with the selected noise performance limits	☑ Yes	Section 8
7.0	**Appendices** (Provide details such as)			
		Listing of Insignificant Noise Sources	☑ Yes	Appendix E
		Manufacture's Noise Specifications	☐ Yes	N/A
		Calculations	☑ Yes	Appendix D
		Instrumentation	☑ Yes	Appendix D
		Meteorology during Sound level Measurements	☑ Yes	Appendix D
		Raw Data from Measurements	☑ Yes	Appendix D
		Drawings (Facility/Equipment)	☑ Yes	Appendix C

newgold Rainy River Project

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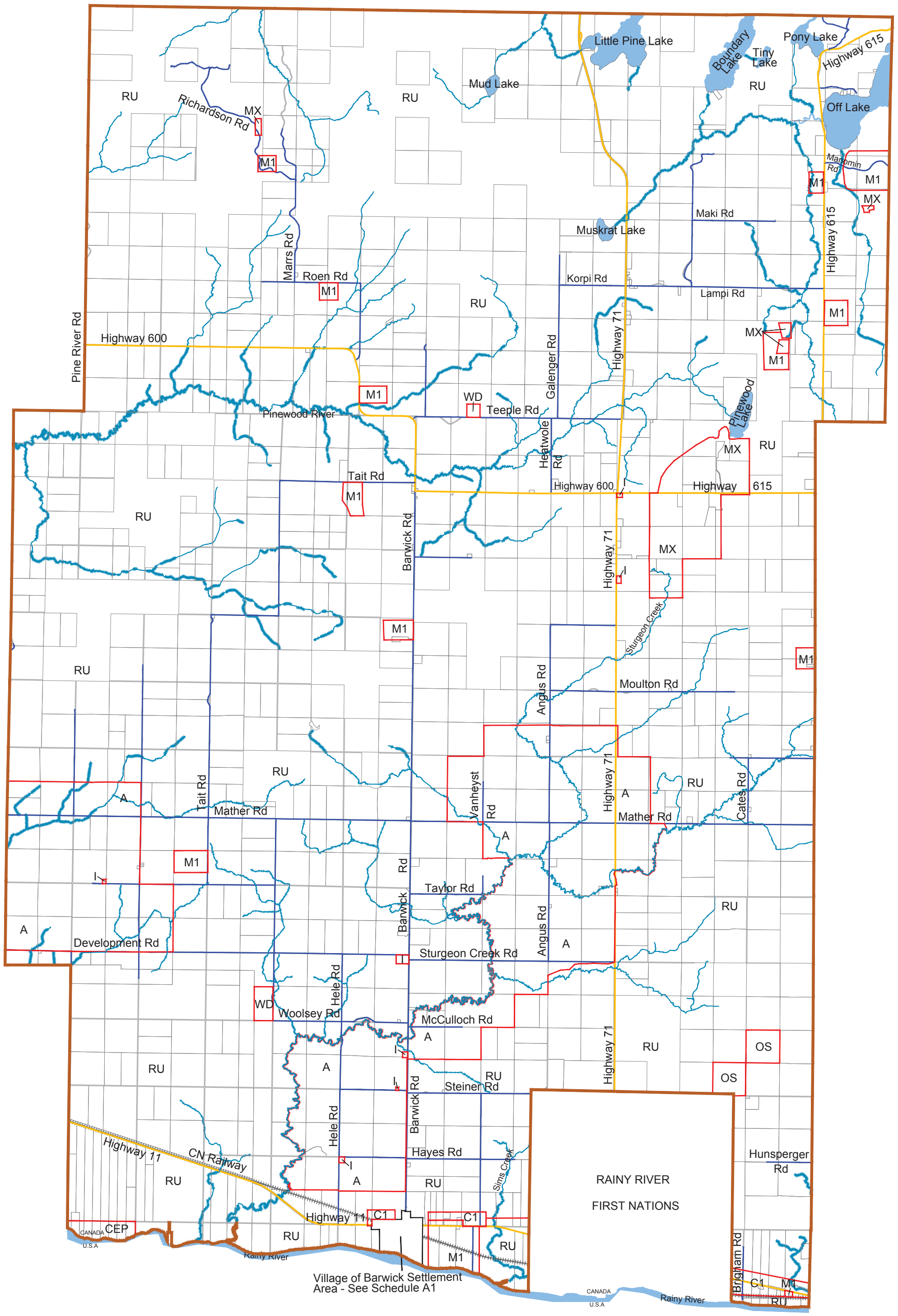
APPENDIX B

LAND-USE ZONING MAP OF THE SITE AND SURROUNDING AREA



TOWNSHIP OF CHAPPLE

ZONING BY-LAW SCHEDULE A

Council Adoption October 8, 2013

Village Settlement Area
Zone Boundary

A	-	Agricultural Zone
RU	-	Rural Zone
C1	-	Highway Commercial Zone
I	-	Institutional
M1	-	Industrial Zone
MX	-	Aggregate Extraction Zone
WD	-	Waste Disposal Zone
OS	-	Open Space Zone
CEP	-	Conservation and Environmental Protection Zone

Transportation
Provincial Highway
Township Roads
CN Railway

Watercourses

FOTENN PLANNING & URBAN DESIGN

500m 1000m 1500m 2000m 2500m

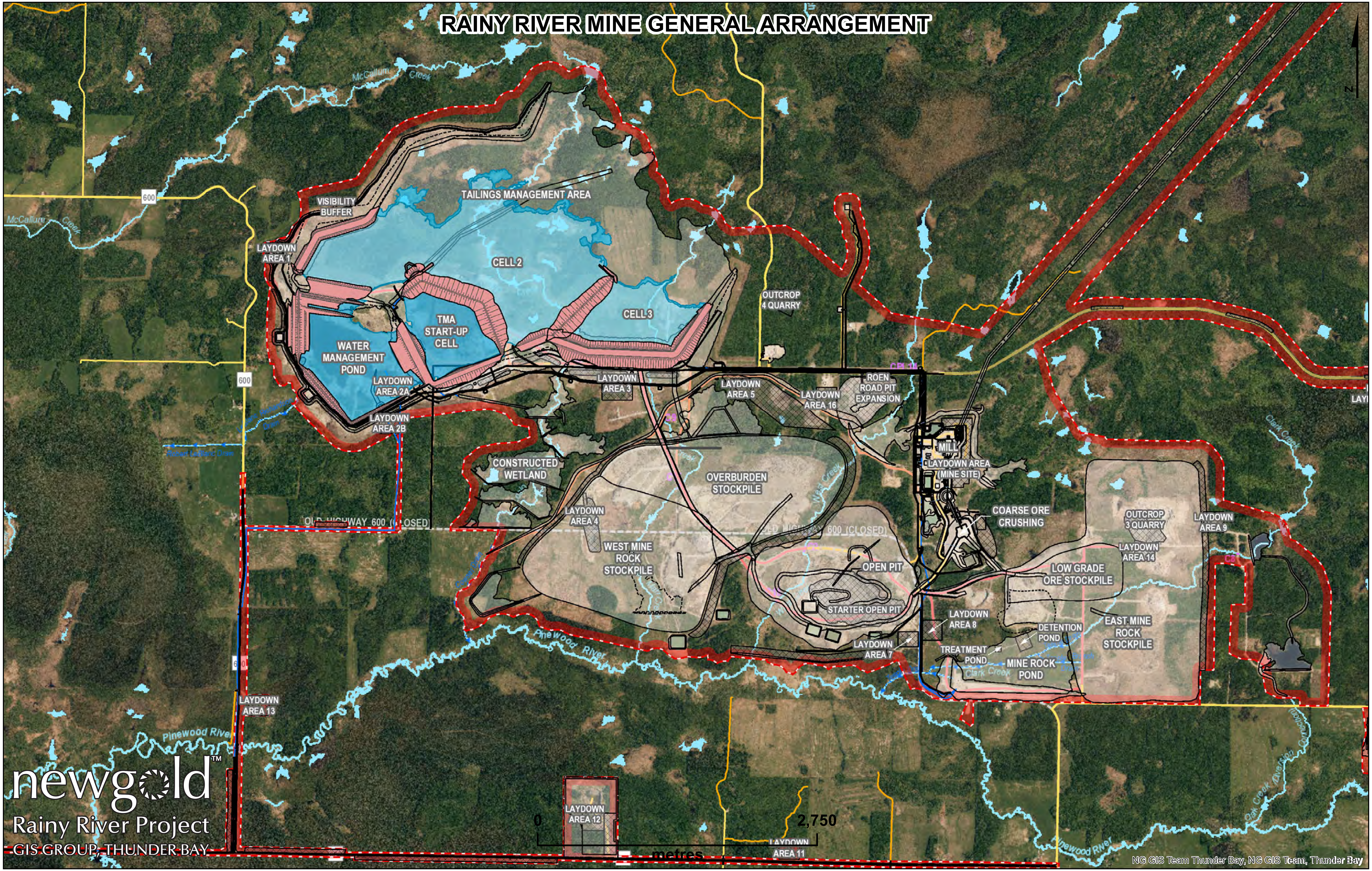
Digital Map Created By:
CGIS Spatial Solutions
52 South Street
Perth, ON K7H 2G7
TEL: 613-368-4321
www.cgis.com

N

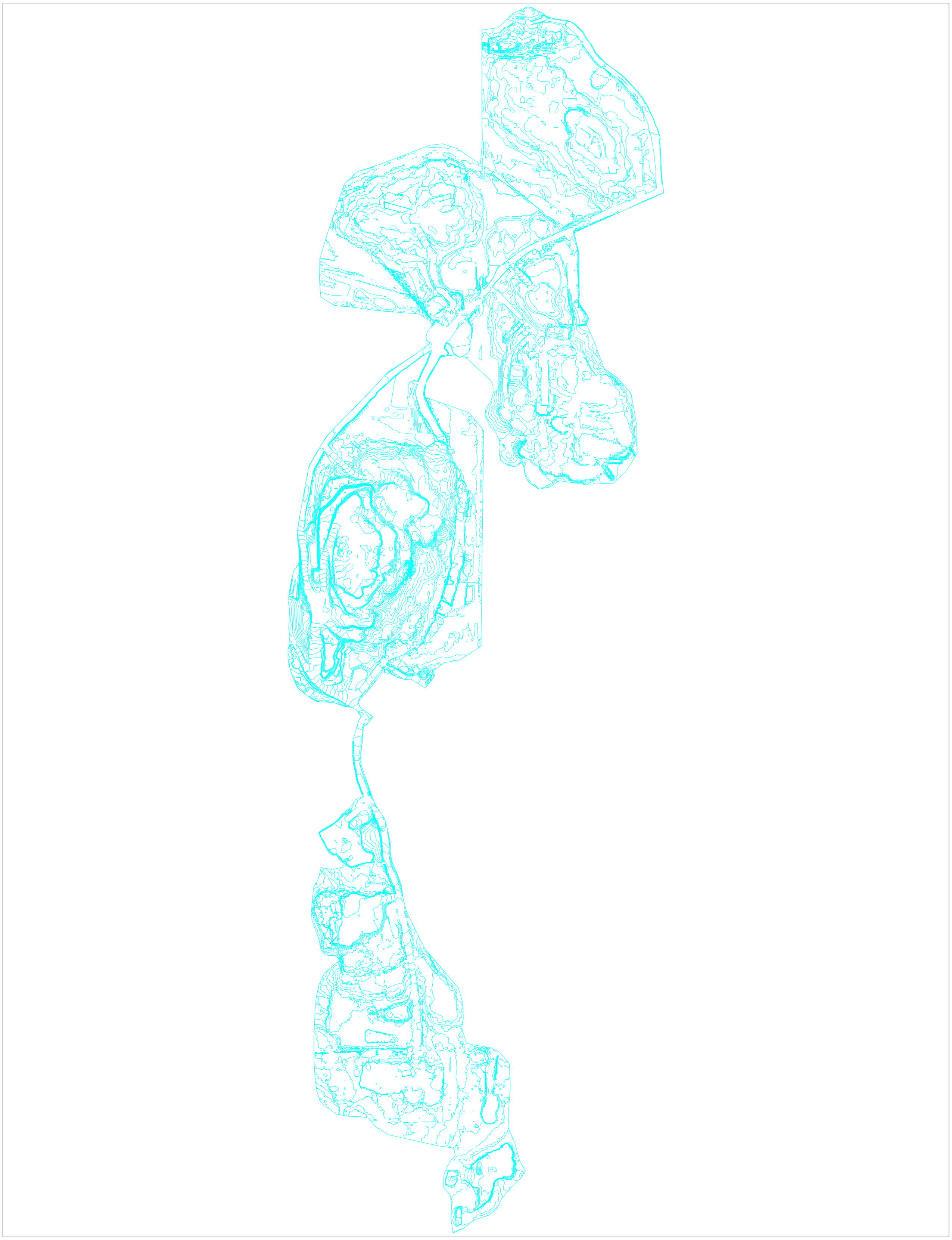
Note: The base information on this plan was prepared from a variety of map sources and was used by permission of the Township of Chapple. It is not a legal plan of survey. For precise location of plan features recourse should be had to the original source data.

APPENDIX C

FACILITY DRAWINGS



RAINY RIVER MINE GENERAL ARRANGEMENT
TAILINGS MANAGEMENT AREA
VISIBILITY BUFFER
LAYDOWN AREA 1
CELL 2
CELL 3
TMA START-UP CELL
WATER MANAGEMENT POND
LAYDOWN AREA 2A
LAYDOWN AREA 2B
LAYDOWN AREA 3
LAYDOWN AREA 5
LAYDOWN AREA 16
ROEN ROAD PIT EXPANSION
OUTCROP 4 QUARRY
MILL
LAYDOWN AREA (MINE SITE)
CONSTRUCTED WETLAND
OVERBURDEN STOCKPILE
LAYDOWN AREA 4
WEST MINE ROCK STOCKPILE
OLD HIGHWAY 600 (CLOSED)
COARSE ORE CRUSHING
OUTCROP 3 QUARRY
LAYDOWN AREA 9
LAYDOWN AREA 14
LOW GRADE ORE STOCKPILE
OPEN PIT
STARTER OPEN PIT
LAYDOWN AREA 8
LAYDOWN AREA 7
DETENTION POND
EAST MINE ROCK STOCKPILE
TREATMENT POND
MINE ROCK POND
LAYDOWN AREA 13
LAYDOWN AREA 12
LAYDOWN AREA 11
600
Pinewood River
McCallum Creek
Clark Creek
0
2,750
metres
newgold
Rainy River Project
GIS GROUP, THUNDER BAY
NG GIS Team Thunder Bay, NG GIS Team, Thunder Bay



APPENDIX D

SOUND MEASUREMENT DETAILS AND CALCULATIONS

CONVERSION OF SOUND PRESSURE LEVELS TO SOUND POWER LEVELS

Project Name: RRP
Project Number: TC111504
Location: Barwick ON

A-WEIGHTING (dB) - Applied to total PWL								
-39.4	-26.2	-16.1	-8.6	-3.2	0.0	1.2	1.0	-1.1

1/4 WAVELENGTH CRITERION (m)								
2.722	1.361	0.686	0.343	0.172	0.086	0.043	0.021	0.011

Measurement Reference [1,2]	Source Description	Calc Type [3] (A, C, or S)	SPL Ref Distance [4] (S or C) (m)	Length [5] (C only) (m)	Partition Coefficient (S or C) (%)	Net Surface Area [5] (m²)	Spectral Weighting (A or Flat)	Octave Band Sound Pressure Level Data (dB or dBA) [6] 31.5	63	125	250	500	1000	2000	4000	8000	Total (dBA)	Octave Band Sound Power Level Data [8] (dB or dBA) [7] 31.5	63	125	250	500	1000	2000	4000	8000	Total (dBA)
831_Data.001	Komatsu Diesel Excavator PC360LC	S	10.0		50%	628.0	Flat	85.1	87.4	89.0	89.0	85.4	84.0	80.1	71.0	65.2	88	113.1	115.4	117.0	117.0	113.3	111.9	108.1	99.0	93.2	116
831_Data.002	Truck Komatsu 830 - Pass-by (Empty Truck)	C	16.0	21.0	50%	1055.0	Flat	83.1	87.8	84.6	77.9	75.9	72.1	68.7	63.9	57.2	78	113.3	118.0	114.8	108.1	106.1	102.3	98.9	94.2	87.4	108
831_Data.003	Truck Komatsu 830 - Pass-by (Loaded Truck)	C	16.0	21.0	50%	1055.0	Flat	90.3	99.4	102.6	89.4	83.9	77.7	72.9	68.6	64.9	89	120.5	129.7	132.9	119.6	114.1	108.0	103.1	98.9	95.2	119
831_Data.006	Komatsu Wheel Loader WA1200	S	15.5		50%	1508.8	Flat	80.9	89.3	91.9	81.2	79.8	78.5	78.2	73.4	68.9	85	112.7	121.1	123.7	113.0	111.6	110.3	110.0	105.2	100.7	117
831_Data.007	Komatsu Wheel Dozer KM WD600	S	11.0		50%	759.9	Flat	77.4	84.7	79.8	74.2	71.7	72.3	68.1	61.1	54.7	76	106.2	113.5	108.6	103.0	100.5	101.1	96.9	89.9	83.5	105
831_Data.008	Motor Grader CAT 16M	S	10.0		50%	628.0	Flat	80.5	84.8	86.4	81.5	80.3	77.6	75.2	71.5	68.2	83	108.5	112.8	114.4	109.5	108.3	105.6	103.1	99.4	96.2	111
831_Data.009	Motor Grader CAT 14	S	7.3		50%	334.7	Flat	74.2	78.5	79.5	84.1	78.7	76.9	74.5	69.4	59.7	82	99.4	103.7	104.8	109.4	103.9	102.2	99.8	94.6	85.0	108
831_Data.010	Track Dozer CAT9T	S	10.0		50%	628.0	Flat	71.8	75.0	78.4	79.1	78.1	76.6	75.9	72.2	65.2	82	99.8	103.0	106.4	107.1	106.0	104.6	103.9	100.2	93.2	110
831_Data.011	Track Dozer CAT10T	S	10.0		50%	628.0	Flat	79.4	82.9	86.9	85.6	85.4	82.4	79.1	70.9	64.4	87	107.4	110.8	114.9	113.6	113.4	110.4	107.1	98.9	92.4	115
831_Data.012	Track Dozer Komatsu 375	S	10.0		50%	628.0	Flat	75.1	82.4	79.7	79.8	78.3	75.3	75.6	67.2	60.3	81	103.1	110.4	107.7	107.8	106.3	103.3	103.6	95.1	88.3	109
831_Data.013	Komatsu Diesel Excavator PC5500	S	13.0		50%	1061.3	Flat	83.2	87.9	91.7	86.6	83.4	79.2	75.8	68.8	61.6	85	113.5	118.2	122.0	116.9	113.7	109.4	106.1	99.1	91.8	116
831_Data.014	Blast Hole Drill 2- Sandvik DR461i	S	10.0		50%	628.0	Flat	80.0	84.6	86.3	86.5	88.5	90.0	85.0	80.6	74.5	93	107.9	112.6	114.3	114.5	116.4	118.0	113.0	108.6	102.5	121
831_Data.015	Komatsu Diesel Excavator PC3000	S	13.0		50%	1061.3	Flat	84.8	87.7	95.9	90.4	86.8	84.5	78.8	73.3	67.2	89	115.1	118.0	126.2	120.6	117.0	114.8	109.0	103.5	97.4	120
831_Data.017	Track Dozer Komatsu 475	S	10.0		50%	628.0	Flat	82.5	82.9	86.3	85.1	87.6	81.9	79.6	77.8	72.3	88	110.5	110.9	114.3	113.1	115.6	109.9	107.6	105.7	100.2	116
831_Data.019	Motor Grader CAT 16H	S	7.0		50%	307.7	Flat	71.1	84.8	72.6	72.4	75.0	77.9	75.1	70.0	64.7	81	96.0	109.6	97.5	97.3	99.9	102.8	100.0	94.9	89.6	106
831_Data.021	Water Truck (Komatsu HD785 / CR20000K) Pass-by	C	9.5	21.0	50%	626.4	Flat	73.4	78.7	84.5	82.0	79.6	81.9	79.6	72.3	65.7	86	101.4	106.7	112.5	109.9	107.6	109.9	107.6	100.3	93.6	114
831_Data.022	Diesel Water Pump WP004	S	2.7		50%	45.8	Flat	83.1	91.9	91.7	80.4	84.0	85.4	84.1	76.9	73.1	90	99.7	108.5	108.3	97.1	100.6	102.0	100.7	93.5	89.7	106
831_Data.023	Blast Hole Drill 3 - Sandvik DP1500i	S	9.0		50%	508.7	Flat	77.7	83.4	82.1	79.4	83.4	83.5	84.1	80.5	83.0	90	104.8	110.4	109.2	106.4	110.5	110.5	111.2	107.6	110.1	117
831_Data.024	Crusher	S	7.9		50%	391.9	Flat	79.0	78.6	74.5	69.9	65.3	58.8	52.2	46.5	42.9	67	104.9	104.5	100.4	95.9	91.3	84.8	78.1	72.4	68.9	93
831_Data.025	Crusher - Dumping	S	15.0		50%	1413.0	Flat	77.1	84.3	77.2	75.0	76.0	74.9	72.3	68.2	61.3	79	108.6	115.9	108.7	106.5	107.5	106.4	103.8	99.7	92.8	111
831_Data.026	Crusher - Filling	S	15.0		50%	1413.0	Flat	71.2	73.1	73.1	71.2	71.2	64.0	64.1	60.6	50.2	72	102.7	104.6	104.6	102.7	102.8	95.5	95.6	92.1	81.7	104
831_Data.027	Aggregate Pit Primary Crusher (Powerscreen)	S	6.0		50%	226.1	Flat	91.1	97.0	93.7	94.9	93.3	90.3	87.4	82.7	76.0	96	114.6	120.6	117.3	118.4	116.9	113.8	110.9	106.3	99.5	119
831_Data.028	Aggregate Pit Loader (CAT 980H)	S	11.0		50%	759.9	Flat	89.7	99.4	92.4	81.2	82.0	81.0	76.3	70.7	65.2	86	118.5	128.2	121.2	110.0	110.8	109.8	105.1	99.5	94.0	114
831_Data.030	Truck Komatsu 400 - Pass-by	C	10.0	21.0	50%	659.4	Flat	74.4	86.8	83.0	82.4	74.9	72.8	68.7	63.9	56.9	79	102.6	114.9	111.2	110.6	103.1	101.0	96.9	92.1	85.1	107
831_Data.031	Dust Collector	S	4.3		50%	116.1	Flat	81.8	80.8	82.7	87.3	81.5	77.9	74.8	71.5	68.9	84	102.5	101.5	103.4	107.9	102.2	98.6	95.4	92.1	89.6	105
831_Data.032	RC Drill Sandvik DR580	S	7.6		50%	362.7	Flat	89.6	100.4	93.1	83.5	87.7	88.9	88.1	83.9	80.7	94	115.2	126.0	118.7	109.1	113.3	114.5	113.7	109.5	106.3	119
831_Data.034	Komatsu Diesel Excavator PC800LC	S	20.0		50%	2512.0	Flat	74.6	81.8	81.4	73.2	77.7	73.1	69.8	64.7	58.8	79	108.6	115.8	115.4	107.2	111.7	107.1	103.8	98.7	92.8	113
831_Data.035	Komatsu Diesel Excavator PC8000	S	15.0		50%	1413.0	Flat	86.2	95.0	90.0	90.6	88.8	83.3	79.9	71.8	63.6	90	117.7	126.5	121.5	122.1	120.3	114.8	111.4	103.3	95.1	121
831_Data.037	Track Dozer CAT8T	S	7.5		50%	353.3	Flat	74.2	78.2	80.4	79.0	78.8	77.3	73.9	67.6	59.1	82	99.7	103.7	105.8	104.5	104.3	102.8	99.4	93.1	84.6	107

Notes:

1. All measurements conducted on September 26-28, 2017, using Larson Davis 831 SLM.
2. All measurements were consistent with the applicable portions of the MOECC Publication NPC-103.
3. Calc Type of C, A, or S refer to the source geometry, and represent Cylindrical, Area, or Spherical sources, respectively.
4. SPL Ref Distance refers to the radial distance from the microphone to the acoustic centre of a spherical source or the symmetrical axis of a cylindrical source.
5. Net surface area refers to surface area corrected for partition coefficient. Partition coefficient applies only to spherical and cylindrical geometries. Sound power level is estimated using an area correction 10 log A.
6. Refer to "Spectral Weighting" column for dB or dBA application information.

Measure Raw Data

File Name	1/1 Octave Frequency Range									1/3 Octave Frequency Band																												
	31.5	63	125	250	500	1000	2000	4000	8000	20	25	32	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500
831_Data.001	85.1	87.4	89.0	89.0	85.4	84.0	80.1	71.0	65.2	70.4	70.6	72.8	84.8	79.7	83.7	83.4	86.0	83.2	83.2	88.2	81.6	77.4	81.9	81.1	78.0	80.3	79.3	77.9	77.8	74.8	71.7	68.8	64.9	63.2	62.7	59.5	57.7	57.5
831_Data.002	83.1	87.8	84.6	77.9	75.9	72.1	68.7	63.9	57.2	70.7	68.0	73.4	82.5	84.1	76.4	84.5	82.5	78.3	75.8	74.2	72.7	72.7	72.9	70.4	69.6	69.1	67.0	65.2	65.3	63.2	62.8	61.2	58.4	56.7	54.6	51.8	49.2	45.4
831_Data.003	90.3	99.4	102.6	89.4	83.9	77.7	72.9	68.6	64.9	73.4	75.0	80.9	89.3	94.6	89.6	97.0	98.9	99.9	88.8	85.4	84.9	82.4	81.2	77.8	77.2	74.7	72.5	70.4	69.1	68.1	66.9	65.4	62.8	63.0	63.7	56.9	54.9	49.2
831_Data.004	86.5	96.2	96.9	88.3	85.5	81.3	77.7	74.4	69.9	73.0	75.0	78.9	85.3	85.3	90.7	93.9	92.8	93.6	87.9	86.0	82.5	78.8	80.3	81.4	80.2	77.4	76.6	75.4	73.6	72.8	72.2	71.0	68.9	68.2	68.0	63.6	60.9	55.9
831_Data.005	80.5	88.5	89.4	80.9	80.7	77.5	74.5	69.9	64.9	68.3	71.7	75.7	77.8	83.0	82.9	84.4	88.2	82.2	79.8	76.1	75.8	76.1	77.0	75.5	75.3	73.7	72.6	71.8	70.6	69.7	68.8	66.4	64.8	63.5	62.9	59.3	55.2	49.7
831_Data.006	80.9	89.3	91.9	81.2	79.8	78.5	78.2	73.4	68.9	75.6	72.5	77.1	77.4	81.0	83.4	86.8	91.0	84.7	80.7	74.6	75.5	77.9	75.9	74.0	75.3	74.6	73.2	73.4	76.0	71.8	71.8	69.1	68.7	67.9	66.7	63.6	59.3	54.0
831_Data.007	77.4	84.7	79.8	74.2	71.7	72.3	68.1	61.1	54.7	62.8	64.4	67.9	76.9	80.3	80.3	79.2	77.5	75.0	71.7	69.4	70.2	68.5	67.0	67.1	66.5	65.9	65.7	69.7	66.1	61.4	60.0	58.3	55.7	54.0	52.0	49.6	46.5	43.6
831_Data.008	80.5	84.8	86.4	81.5	80.3	77.6	75.2	71.5	68.2	65.1	67.7	70.2	79.7	75.7	82.0	80.8	84.4	80.7	79.6	77.2	74.0	77.9	77.3	74.4	73.4	73.5	72.6	72.1	71.0	70.5	69.7	67.9	66.1	65.4	65.6	62.7	60.5	57.9
831_Data.009	74.2	78.5	79.5	84.1	78.7	76.9	74.5	69.4	59.7	65.7	64.9	71.0	70.5	76.1	70.3	72.4	73.8	73.9	76.0	82.9	77.2	75.0	73.6	75.1	72.8	72.5	72.1	72.1	71.3	69.0	68.3	67.5	63.1	59.7	57.0	54.8	50.8	49.1
831_Data.010	71.8	75.0	78.4	79.1	78.1	76.6	75.9	72.2	65.2	64.3	66.5	65.8	68.7	69.8	69.4	71.8	73.8	75.0	71.4	71.6	75.3	75.5	72.2	74.0	73.6	71.7	71.7	72.0	73.3	69.7	69.8	69.3	67.1	65.0	62.3	59.9	57.9	56.6
831_Data.011	79.4	82.9	86.9	85.6	85.4	82.4	79.1	70.9	64.4	70.3	71.3	74.4	76.8	77.2	76.9	79.7	82.3	82.5	81.8	79.7	81.5	81.3	80.4	82.3	77.4	76.7	75.0	80.1	76.9	71.2	69.7	67.9	65.9	63.6	61.3	59.5	57.0	60.2
831_Data.012	75.1	82.4	79.7	79.8	78.3	75.3	75.6	67.2	60.3	69.6	69.4	70.7	71.4	72.5	76.6	80.6	75.0	75.2	74.6	74.4	75.7	75.0	72.5	75.4	72.0	71.7	70.6	69.3	70.2	73.2	66.5	64.3	61.7	60.0	57.2	55.4	52.7	49.4
831_Data.013	83.2	87.9	91.7	86.6	83.4	79.2	75.8	68.8	61.6	74.8	75.6	80.4	78.4	80.1	79.1	85.9	91.9	79.9	79.7	85.9	78.8	76.5	81.2	78.0	74.6	73.5	72.2	76.8	72.0	69.5	68.5	65.9	63.3	61.3	58.9	56.8	52.5	48.2
831_Data.014	80.0	84.6	86.3	86.5	88.5	90.0	85.0	80.6	74.5	69.3	70.0	75.6	77.5	78.4	76.5	82.0	84.9	78.1	79.7	82.6	81.8	80.8	83.5	83.5	84.1	85.9	86.1	83.5	80.8	80.0	79.7	77.0	75.5	74.3	72.0	68.4	66.9	66.3
831_Data.015	84.8	87.7	95.9	90.4	86.8	84.5	78.8	73.3	67.2	73.3	75.5	82.2	80.1	78.8	77.7	86.0	93.3	82.0	92.8	85.7	84.1	84.9	81.8	82.5	81.4	81.2	79.6	77.9	75.8	73.5	71.9	69.8	67.3	68.1	62.2	59.5	64.1	52.8
831_Data.016	84.6	90.3	95.7	87.9	84.9	81.9	76.4	70.6	62.9	73.2	74.7	81.6	80.6	77.3	79.0	89.3	95.8	81.7	85.2	84.3	80.3	83.9	80.7	79.9	79.7	77.7	77.2	76.4	73.0	71.1	69.9	67.0	65.7	63.8	60.0	58.4	53.0	46.9
831_Data.017	82.5	82.9	86.3	85.1	87.6	81.9	79.6	77.8	72.3	71.1	73.9	80.1	76.8	77.5	75.8	80.3	81.4	80.5	82.5	78.8	81.2	80.7	79.9	85.5	80.5	77.5	77.1	76.7	76.2	73.6	74.4	73.3	71.5	73.7	69.9	65.5	65.2	61.6
831_Data.019	71.1	84.8	72.6	72.4	75.0	77.9	75.1	70.0	64.7	61.8	65.0	67.6	65.4	78.8	83.2	68.7	66.5	69.2	66.9	65.5	68.5	68.5	67.6	71.3	71.1	73.3	73.6	72.7	71.2	71.1	68.3	67.2	64.9	62.4	59.9	58.6	60.8	56.7
831_Data.021	73.4	78.7	84.5	82.0	79.6	81.9	79.6	72.3	65.7	66.5	65.8	70.2	68.5	69.3	70.2	77.2	82.0	80.1	76.0	74.5	79.9	74.9	73.5	74.2	76.3	77.3	77.1	77.2	78.0	73.6	69.2	68.4	68.5	64.9	63.5	60.1	56.5	52.0
831_Data.022	83.1	91.9	91.7	80.4	84.0	85.4	84.1	76.9	73.1	59.0	59.0	64.4	80.0	91.9	73.4	82.3	92.6	74.8	69.2	69.3	77.6	76.6	71.9	81.7	79.6	79.5	81.3	80.9	79.8	78.7	79.5	74.3	70.3	69.5	69.8	68.5	66.1	66.3
831_Data.023	77.7	83.4	82.1	79.4	83.4	83.5	84.1	80.5	83.0	67.8	67.9	70.9	76.0	79.2	77.0	79.6	79.7	75.5	75.5	75.5	69.6	76.6	78.0	76.3	80.8	77.4	79.6	78.6	79.3	79.2	79.5	75.4	75.7	76.2	79.9	77.7	76.8	74.0
831_Data.024	79.0	78.6	74.5	69.9	65.3	58.8	52.2	46.5	42.9	71.7	73.5	75.2	73.4	75.5	74.8	67.4	71.0	70.2	66.7	68.3	62.4	62.2	61.8	59.0	60.4	56.0	53.3	51.4	49.0	47.3	44.9	43.5	41.3	39.4	38.3	38.0	38.3	39.0
831_Data.025	77.1	84.3	77.2	75.0	76.0	74.9	72.3	68.2	61.3	68.7	70.5	72.4	73.1	76.3	81.7	80.0	73.0	73.0	71.2	71.2	67.8	70.4	72.5	70.7	70.6	70.9	70.0	69.7	68.6	67.5	66.4	65.1	63.1	61.3	59.0	56.0	52.4	48.4
831_Data.026	71.2	73.1	73.1	71.2	71.2	64.0	64.1	60.6	50.2	65.3	66.0	68.4	64.3	67.1	69.4	68.7	68.3	69.0	67.8	66.4	62.4	68.5	68.0	65.2	65.4	62.2	57.2	55.9	60.0	60.3	57.4	56.9	57.7	48.4	46.2	45.6	44.4	41.6
831_Data.027	91.1	97.0	93.7	94.9	93.3	90.3	87.4	82.7	76.0	75.9	78.6	81.8	90.2	88.7	94.9	90.9	87.9	87.8	90.6	91.9	88.6	89.0	89.5	87.7	88.7	86.8	85.2	84.2	83.1	83.2	81.3	79.9	77.5	75.1	73.1	70.9	68.3	64.4
831_Data.028	89.7	99.4	92.4	81.2	82.0	81.0	76.3	70.7	65.2	62.8	67.3	72.2	89.7	92.9	96.9	92.7	92.3	80.8	78.6	76.8	76.2	76.4	78.1	77.1	76.6	76.2	75.0	77.1	72.6	71.3	69.4	67.1	65.5	64.7	62.0	59.8	58.9	60.6
831_Data.030	74.4	86.8	83.0	82.4	74.9	72.8	68.7	63.9	56.9	59.7	67.4	65.5	73.1	70.9	82.9	84.1	80.4	73.6	78.3	81.9	72.1	70.7	71.4	70.7	68.1	69.3	68.3	66.0	64.9	64.1	62.8	61.2	58.5	56.1	53.7	52.4	49.4	47.7
831_Data.031	81.8	80.8	82.7	87.3	81.5	77.9	74.8	71.5	68.9	80.6	77.9	76.8	77.0	76.3	76.0	75.7	74.0	78.2	79.8	70.9	86.6	77.8	73.3	79.0	76.1	74.7	70.6	72.9	70.0	69.5	70.0	67.4	66.3	66.4	64.1	62.3	65.5	56.7
831_Data.032	89.6	100.4	93.1	83.5	87.7	88.9	88.1	83.9	80.7	70.0	73.1	89.2	76.7	81.0	100.2	86.1	90.0	88.5	86.8	78.1	79.8	78.3	82.5	84.3	81.9	84.9	84.1	83.3	85.0	83.5	80.7	81.0	79.0	76.3	74.5	78.2	73.9	72.6
831_Data.033	74.7	81.3	82.8	73.1	69.0	70.1	69.8	62.9	52.6	70.9	68.1	70.9	70.1	72.1	76.7	78.3	82.7	73.1	70.0	68.1	69.1	68.1	65.3	63.1	64.0	64.2	66.5	64.6	68.4	61.4	63.8	61.7	54.2	52.7	51.4	45.1	40.5	39.6
831_Data.034	74.6	81.8	81.4	73.2	77.7	73.1	69.8	64.7	58.8	69.1	66.8	72.4	68.9	74.3	78.1	77.8	79.6	75.7	73.1	69.6	68.9	65.7	72.7	74.6	71.4	67.9	69.6	66.9	67.0	63.7	64.0	61.7	59.3	57.8	56.3	53.4	50.4	46.7
831_Data.035	86.2	95.0	90.0	90.6	88.8	83.3	79.9	71.8	63.6	74.9	78.6	80.2	83.4	85.1	86.3	93.9	83.0	86.9	84.6	85.8	84.9	86.8	86.1	82.6	82.6	80.0	78.2	77.0	76.7	75.6	71.8	68.8	66.5	64.6	61.4	58.3	53.0	47.8
831_Data.036	69.9	74.8	75.7	72.5	73.4	72.2	70.0	63.9	55.6	61.5	61.6	64.6	67.6	67.8	68.7	72.1	73.3	70.9	67.4	66.0	67.7	68.9	67.6	69.0	68.8	68.7	66.9	66.7	67.4	64.5	62.6	60.8	59.2	56.2	53.4	49.8	47.1	46.2
831_Data.037	74.2	78.2	80.4	79.0	78.8	77.3	73.9	67.6	59.1	64.6	66.7	69.4	71.3	72.0	72.6	75.2	75.7	75.5	75.2	72.4	73.1	76.1	74.0	74.8	73.1	72.4	70.8	74.0	71.3	68.2	66.5	64.8	62.8	59.2	57.0	53.3	50.5	48.0

Sound Level Measurement Instrumentation

Equipment sound level measurements at the RRP site were conducted by Amec Foster Wheeler on September 27 through 29, 2017. A Larson Davis Sound Track 831 Type I sound level meter equipped with a windscreen was used for the measurement. The Model 831 uses a Larson Davis Model PRML831 preamplifier and a PCB Electronics Model 377B02 precision microphone, which have been factory calibrated with the SLM unit. The SLM meets IEC 61672-1 Type 1 requirements. The sound level meter was field calibrated with a Larson-Davis Model CA200 precision acoustic calibrator before and after the measurements.

All measurements were conducted in accordance with MOECC NPC-103 measurement protocols. The sound level meter was programmed to record 1-second L_{eq}, L_{min} and L_{max}.

Vehicle Trips and Speed

Description	Route ID	Vehicle Type	Number of Trips/hr	Speed (km/h)
Motor Grader Route Stockpile	MGR_SP	CAT16M	1	10
Motor Grader Route NPAG	MGR_NPAG	CAT16M	1	10
Motor Grader Route OB	MGR_OB	CAT16M	1	10
Motor Grader Route Open Pit to Mill	MGR_OPMill	CAT16M	1	10
Motor Grader Route PAG	MGR_PAG	CAT16M	1	10
Truck Route-NPAG	TR_NPAG	Komatsu 830E	28	70
Truck Route-Overburden	TR_OB	Komatsu 830E	26	70
Truck Route Open Pit to Mill	TR_OPMill	Komatsu 830E	14	70
Truck Route PAG	TR_PAG	Komatsu 830E	34	70
Truck Route Stockpile	TR_SP	Komatsu 830E	12	70
Water Truck Route NPAG	WTR_NPAG	Komatsu CR20000	2	30
Water Truck Route OB	WTR_OB	Komatsu CR20000	2	30
Water Truck Route Open Pit to Mill	WTR_OPMill	Komatsu CR20000	2	30
Water Truck Route PAG	WTR_PAG	Komatsu CR20000	2	30
Water Truck Route Stockpile	WTR_SP	Komatsu CR20000	2	30
LD4 Aggregate Pit Truck Route	LD4_TR	CAT777/Komatsu 400/Equivalent	32	70
OC3 Aggregate Pit Truck Route	OC3_TR	CAT777/Komatsu 400/Equivalent	6	70
EO Aggregate Pit Truck Route	EO_TR	CAT777/Komatsu 400/Equivalent	12	70
Roen Aggregate Pit Truck Route	Roen_TR	CAT777/Komatsu 400/Equivalent	6	70

APPENDIX E

INSIGNIFICANT SOUND SOURCES

Summary of Insignificant Noise Sources

Project: Norbord Inc.
Location: Barwick, ON

Source ID	Source Description	Reason/Rational
DC3	Furnace Dust Collector	Small unit - no significant noise source
DC4	Lime Bin Dust Collector	Small unit - no significant noise source
DC5	Flocculant Handling Cartridge Filter	Small unit - no significant noise source
DC6	Copper Sulphate Loading & Mixing	Small unit - no significant noise source
DC7	Sodium Metabisulphate Loading	Small unit - no significant noise source
EF2	Cyanide Tank Exhaust	Small unit - no significant noise source
EF3	Dilute Acid Tank	Small unit - no significant noise source
VENT3	Hydrochloric Acid Tank	Not a noise source
LEACH	Leach Tanks	Not a noise source
HCND1	CN Destruction Tank	Not a noise source
HCND2	CN Destruction Tank	Not a noise source
Various	Space Heating in Buildings	Not noise sources

APPENDIX F

KEY PARAMETERS INCLUDED IN THE MODEL AND SAMPLE CALCULATIONS

Key Parameters Included in the Noise Model

Project: RRP
Location: Township of Chapple ON

amec foster wheeler

Parameter	Value	Rationale
Ground Absorption	0.7	Accounts mostly soft surface between facility and receptors of interest.
Temperature	10°C	Ontario standard conditions
Relative Humidity	70%	Ontario standard conditions
Max. Order of Reflection	1	To account reflections from buildings and structures.
Reflection Coefficient	N/A	Accounts for absorption/attenuation from building surfaces

Receiver
Name: House 14 - South
ID: POR14
X: 427450.26
Y: 5406952.27
Z: 362.87

Point Source, ISO 9613, Name: "Komatsu Diesel Excavator PC3000", ID: "E4"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5052	425474.25	5409553.14	273.00	0	DEN	A	124.7	0.0	0.0	0.0	0.0	81.3	6.2	0.7	0.5	0.0	6.7	0.0	0.0	29.3

Point Source, ISO 9613, Name: "Track Dozer 01 (Pit - Komatsu D475)", ID: "TD01"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5053	425616.05	5409573.45	272.00	0	DEN	A	121.4	0.0	0.0	0.0	0.0	81.1	8.2	0.3	0.8	0.0	9.4	0.0	0.0	21.6

Point Source, ISO 9613, Name: "Track Dozer 03 (Pit -CAT D10)", ID: "TD03"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5055	425493.52	5409566.02	272.00	0	DEN	A	121.4	0.0	0.0	0.0	0.0	81.3	8.3	0.3	0.8	0.0	8.1	0.0	0.0	22.6

Point Source, ISO 9613, Name: "Track Dozer 02 (Pit -CAT D10)", ID: "TD02"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5057	425365.79	5409581.00	272.00	0	DEN	A	121.4	0.0	0.0	0.0	0.0	81.5	8.4	0.3	0.9	0.0	6.7	0.0	0.0	23.6

Point Source, ISO 9613, Name: "Komatsu Diesel Excavator PC8000", ID: "E3"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5059	425503.23	5409575.74	274.00	0	DEN	A	121.1	0.0	0.0	0.0	0.0	81.3	6.7	-0.9	0.7	0.0	6.8	0.0	0.0	26.5

Point Source, ISO 9613, Name: "Blast Hole Drill 2- Sandvik DR461i", ID: "BD2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5060	425462.14	5409605.87	272.00	0	DEN	A	121.0	0.0	0.0	0.0	0.0	81.4	10.6	-0.3	0.9	0.0	6.4	0.0	0.0	21.9

Point Source, ISO 9613, Name: "Blast Hole Drill 1- Sandvik DR461i", ID: "BD1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5064	425446.18	5409606.15	272.00	0	DEN	A	121.0	0.0	0.0	0.0	0.0	81.4	10.6	-0.3	0.9	0.0	6.4	0.0	0.0	21.9

Point Source, ISO 9613, Name: "East Outcrop Graval Pit Mobile Primary Crusher (PowerScreen)", ID: "EO_PS"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5065	426865.70	5409576.31	374.00	0	DEN	A	119.1	0.0	0.0	0.0	0.0	79.6	7.1	0.3	0.9	0.0	4.7	0.0	0.0	26.4

Point Source, ISO 9613, Name: "RC Drill Sandvik DR580", ID: "RD2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5068	425679.85	5409508.19	271.50	0	DEN	A	119.4	0.0	0.0	0.0	0.0	80.9	10.7	-0.6	0.1	0.0	15.8	0.0	0.0	12.5

Point Source, ISO 9613, Name: "RC Drill Sandvik DR580", ID: "RD1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5071	425690.73	5409535.38	271.50	0	DEN	A	119.4	0.0	0.0	0.0	0.0	80.9	10.8	-0.6	0.1	0.0	13.2	0.0	0.0	15.1

Point Source, ISO 9613, Name: "East Outcrop Aggregate Pit Excavator PC360LC", ID: "EO_E"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5073	426870.62	5409584.69	374.00	0	DEN	A	116.4	0.0	0.0	0.0	0.0	79.6	6.7	0.8	0.9	0.0	4.2	0.0	0.0	24.3

Point Source, ISO 9613, Name: "Track Dozer 10 (Ore -CAT D8)", ID: "TD10"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5075	427286.03	5409422.56	390.28	0	DEN	A	115.2	0.0	0.0	0.0	0.0	78.9	6.6	0.3	1.1	0.0	0.0	0.0	0.0	28.3

Point Source, ISO 9613, Name: "Track Dozer 09 (Ore -CAT D9)", ID: "TD09"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5076	427694.14	5409472.79	374.00	0	DEN	A	115.2	0.0	0.0	0.0	0.0	79.1	6.7	0.3	1.1	0.0	0.0	0.0	0.0	28.0

Point Source, ISO 9613, Name: "Track Dozer 06 (PAG - Komatsu D375)", ID: "TD06"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5078	428085.83	5409480.41	374.67	0	DEN	A	115.2	0.0	0.0	0.0	0.0	79.3	6.9	0.3	1.1	0.0	0.0	0.0	0.0	27.6

Point Source, ISO 9613, Name: "Blast Hole Drill 4 - Sandvik DP1500i", ID: "BD4"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5079	425442.74	5409534.81	271.50	0	DEN	A	117.0	0.0	0.0	0.0	0.0	81.3	13.1	0.7	0.7	0.0	10.6	0.0	0.0	10.5

Point Source, ISO 9613, Name: "Blast Hole Drill 3 - Sandvik DP1500i", ID: "BD3"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5080	425428.58	5409534.81	271.50	0	DEN	A	117.0	0.0	0.0	0.0	0.0	81.3	13.2	0.7	0.7	0.0	10.5	0.0	0.0	10.6

Point Source, ISO 9613, Name: "Track Dozer 07 (PAG - Komatsu D475)", ID: "TD07D"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5083	427921.22	5409944.86	373.19	0	D	A	121.4	0.0	0.0	0.0	0.0	80.6	7.8	0.3	0.9	0.0	4.1	0.0	0.0	27.6
5083	427921.22	5409944.86	373.19	0	N	A	121.4	0.0	-188.0	0.0	0.0	80.6	7.8	0.3	0.9	0.0	4.1	0.0	0.0	-160.4
5083	427921.22	5409944.86	373.19	0	E	A	121.4	0.0	-188.0	0.0	0.0	80.6	7.8	0.3	0.9	0.0	4.1	0.0	0.0	-160.4

Point Source, ISO 9613, Name: "Komatsu Diesel Excavator PC360LC", ID: "E6"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5084	425516.35	5409558.98	272.00	0	DEN	A	116.4	0.0	0.0	0.0	0.0	81.2	7.6	1.0	0.7	0.0	7.3	0.0	0.0	18.6

Point Source, ISO 9613, Name: "Komatsu Wheel Loader WA900", ID: "WL2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5087	425409.83	5409564.52	272.00	0	DEN	A	116.5	0.0	0.0	0.0	0.0	81.4	7.5	1.4	0.3	0.0	5.1	0.0	0.0	20.9

Point Source, ISO 9613, Name: "Komatsu Wheel Loader WA1200", ID: "WL1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5089	425377.81	5409561.82	273.00	0	DEN	A	116.5	0.0	0.0	0.0	0.0	81.5	7.5	0.7	0.3	0.0	5.4	0.0	0.0	21.2

Point Source, ISO 9613, Name: "East Outcrop Graval Pit Mobile Crushing Plant Loader (CAT 966H)", ID: "EO_FEL"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5090	426882.01	5409568.78	375.35	0	DEN	A	114.3	0.0	0.0	0.0	0.0	79.6	5.6	-1.3	0.5	0.0	6.7	0.0	0.0	23.2

Point Source, ISO 9613, Name: "Track Dozer 05 (PAG - Komatsu D375)", ID: "TD05"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5092	428166.79	5409934.89	379.45	0	DEN	A	115.2	0.0	0.0	0.0	0.0	80.7	7.7	0.5	0.9	0.0	0.0	0.0	0.0	25.3

Point Source, ISO 9613, Name: "Track Dozer 08 (PAG - Komatsu D375)", ID: "TD08D"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5097	428071.74	5410284.02	382.04	0	D	A	121.4	0.0	0.0	0.0	0.0	81.6	8.5	0.3	0.9	0.0	4.1	0.0	0.0	26.0
5097	428071.74	5410284.02	382.04	0	N	A	121.4	0.0	-188.0	0.0	0.0	81.6	8.5	0.3	0.9	0.0	4.1	0.0	0.0	-162.0
5097	428071.74	5410284.02	382.04	0	E	A	121.4	0.0	-188.0	0.0	0.0	81.6	8.5	0.3	0.9	0.0	4.1	0.0	0.0	-162.0

Point Source, ISO 9613, Name: "Komatsu Diesel Excavator PC5500", ID: "E2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5099	425547.03	5409599.19	273.00	0	DEN	A	115.7	0.0	0.0	0.0	0.0	81.3	6.0	0.5	0.6	0.0	4.0	0.0	0.0	23.3

Point Source, ISO 9613, Name: "Komatsu Diesel Excavator PC5500", ID: "E1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5100	425413.33	5409602.18	273.00	0	DEN	A	115.7	0.0	0.0	0.0	0.0	81.5	6.1	0.5	0.6	0.0	4.4	0.0	0.0	22.6

Point Source, ISO 9613, Name: "Track Dozer 04 (Pit -CAT D10)", ID: "TD04"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5102	425597.37	5409636.80	272.00	0	DEN	A	115.2	0.0	0.0	0.0	0.0	81.3	8.1	0.6	0.8	0.0	5.0	0.0	0.0	19.5

Point Source, ISO 9613, Name: "Outcrop 3 Graval Pit Mobile Crushing Plant Loader (CAT 966H)", ID: "Outcrop3_FEL"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5103	428590.07	5410226.58	374.00	0	DEN	A	114.3	0.0	0.0	0.0	0.0	81.8	6.5	-1.5	0.2	0.0	3.9	0.0	0.0	23.4

Point Source, ISO 9613, Name: "Track Dozer 12 (NPAG/OB - Komatsu D375)", ID: "TD12D"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5108	425044.71	5410766.17	368.00	0	D	A	121.4	0.0	0.0	0.0	0.0	84.1	10.4	0.6	0.9	0.0	3.9	0.0	0.0	21.6
5108	425044.71	5410766.17	368.00	0	N	A	121.4	0.0	-188.0	0.0	0.0	84.1	10.4	0.6	0.9	0.0	3.9	0.0	0.0	-166.4
5108	425044.71	5410766.17	368.00	0	E	A	121.4	0.0	-188.0	0.0	0.0	84.1	10.4	0.6	0.9	0.0	3.9	0.0	0.0	-166.4

Point Source, ISO 9613, Name: "Outcrop 3 Graval Pit Mobile Primary Crusher (PowerScreen)", ID: "Outcrop3_PS"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5110	428612.73	5410209.23	374.00	0	D	A	119.1	0.0	0.0	0.0	0.0	81.8	8.4	0.5	0.8	0.0	3.7	0.0	0.0	23.8
5110	428612.73	5410209.23	374.00	0	N	A	119.1	0.0	-188.0	0.0	0.0	81.8	8.4	0.5	0.8	0.0	3.7	0.0	0.0	-164.2
5110	428612.73	5410209.23	374.00	0	E	A	119.1	0.0	-188.0	0.0	0.0	81.8	8.4	0.5	0.8	0.0	3.7	0.0	0.0	-164.2

Point Source, ISO 9613, Name: "Track Dozer 14 (NPAG/OB -CAT D9)", ID: "TD14"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5114	424194.32	5409598.40	352.00	0	DEN	A	115.2	0.0	0.0	0.0	0.0	83.5	9.6	0.9	0.8	0.0	3.6	0.0	0.0	16.9

Point Source, ISO 9613, Name: "Track Dozer 15 (NPAG/OB -CAT D9)", ID: "TD15"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5116	425005.74	5410487.02	360.00	0	DEN	A	115.2	0.0	0.0	0.0	0.0	83.7	9.8	0.9	0.8	0.0	3.5	0.0	0.0	16.5

Point Source, ISO 9613, Name: "Komatsu Diesel Excavator PC800LC", ID: "E5"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5118	425594.55	5409554.60	273.00	0	DEN	A	112.6	0.0	0.0	0.0	0.0	81.1	7.7	-0.8	0.5	0.0	11.0	0.0	0.0	13.2

Point Source, ISO 9613, Name: "Track Dozer 13 (NPAG/OB -CAT D9)", ID: "TD13"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5122	423823.44	5409732.75	358.36	0	DEN	A	115.2	0.0	0.0	0.0	0.0	84.2	10.2	1.0	0.8	0.0	3.5	0.0	0.0	15.6

Point Source, ISO 9613, Name: "Track Dozer 11 (NPAG/OB - Komatsu D475)", ID: "TD11D"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5126	423353.77	5410438.11	364.00	0	D	A	121.4	0.0	0.0	0.0	0.0	85.6	11.8	0.8	0.8	0.0	3.7	0.0	0.0	18.7
5126	423353.77	5410438.11	364.00	0	N	A	121.4	0.0	-188.0	0.0	0.0	85.6	11.8	0.8	0.8	0.0	3.7	0.0	0.0	-169.3
5126	423353.77	5410438.11	364.00	0	E	A	121.4	0.0	-188.0	0.0	0.0	85.6	11.8	0.8	0.8	0.0	3.7	0.0	0.0	-169.3

Point Source, ISO 9613, Name: "Track Dozer 16 (NPAG/OB -CAT D9)", ID: "TD16"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5129	423780.87	5410394.72	352.16	0	DEN	A	115.2	0.0	0.0	0.0	0.0	85.0	10.9	1.1	0.8	0.0	3.4	0.0	0.0	14.1

Point Source, ISO 9613, Name: "Track Dozer 07 (PAG - Komatsu D475)", ID: "TD07N"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5131	427921.22	5409944.86	373.19	0	D	A	115.2	0.0	-188.0	0.0	0.0	80.6	7.6	0.5	0.9	0.0	3.9	0.0	0.0	-166.3
5131	427921.22	5409944.86	373.19	0	N	A	115.2	0.0	0.0	0.0	0.0	80.6	7.6	0.5	0.9	0.0	3.9	0.0	0.0	21.7
5131	427921.22	5409944.86	373.19	0	E	A	115.2	0.0	-188.0	0.0	0.0	80.6	7.6	0.5	0.9	0.0	3.9	0.0	0.0	-166.3

Point Source, ISO 9613, Name: "Roen Graval Pit Mobile Crushing Plant Loader (CAT 966H)", ID: "Roen_FEL"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5136	425842.83	5411524.72	372.00	0	DEN	A	114.3	0.0	0.0	0.0	0.0	84.7	7.6	-1.9	0.1	0.0	3.9	0.0	0.0	19.8

Point Source, ISO 9613, Name: "Transformer 2", ID: "T2"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5142	426722.32	5411191.07	376.55	0	DEN	A	113.3	0.0	0.0	0.0	0.0	83.7	7.8	1.1	0.6	0.0	3.2	0.0	0.0	16.9

Point Source, ISO 9613, Name: "Transformer 1", ID: "T1"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5145	426722.50	5411203.18	375.99	0	DEN	A	113.3	0.0	0.0	0.0	0.0	83.7	7.8	1.1	0.6	0.0	3.2	0.0	0.0	16.8

Point Source, ISO 9613, Name: "Crusher", ID: "C"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5148	426774.93	5410209.00	396.00	0	DEN	A	110.9	0.0	0.0	0.0	0.0	81.4	9.6	-0.5	0.7	0.0	4.1	0.0	0.0	15.6

Point Source, ISO 9613, Name: "Outcrop 3 Aggregate Pit Excavator PC360LC", ID: "Outcrop3_E"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5153	428618.55	5410215.86	374.00	0	D	A	116.4	0.0	0.0	0.0	0.0	81.8	7.9	1.0	0.8	0.0	3.3	0.0	0.0	21.5
5153	428618.55	5410215.86	374.00	0	N	A	116.4	0.0	-188.0	0.0	0.0	81.8	7.9	1.0	0.8	0.0	3.3	0.0	0.0	-166.5
5153	428618.55	5410215.86	374.00	0	E	A	116.4	0.0	-188.0	0.0	0.0	81.8	7.9	1.0	0.8	0.0	3.3	0.0	0.0	-166.5

Point Source, ISO 9613, Name: "Track Dozer 08 (PAG - Komatsu D375)", ID: "TD08N"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5158	428071.74	5410284.02	382.04	0	D	A	115.2	0.0	-188.0	0.0	0.0	81.6	8.3	0.6	0.9	0.0	3.8	0.0	0.0	-167.9
5158	428071.74	5410284.02	382.04	0	N	A	115.2	0.0	0.0	0.0	0.0	81.6	8.3	0.6	0.9	0.0	3.8	0.0	0.0	20.1
5158	428071.74	5410284.02	382.04	0	E	A	115.2	0.0	-188.0	0.0	0.0	81.6	8.3	0.6	0.9	0.0	3.8	0.0	0.0	-167.9

Point Source, ISO 9613, Name: "Roen Graval Pit Mobile Primary Crusher (PowerScreen)", ID: "Roen_PS"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5165	425718.77	5411577.59	372.00	0	D	A	119.1	0.0	0.0	0.0	0.0	84.9	10.6	0.8	0.8	0.0	3.4	0.0	0.0	18.6
5165	425718.77	5411577.59	372.00	0	N	A	119.1	0.0	-188.0	0.0	0.0	84.9	10.6	0.8	0.8	0.0	3.4	0.0	0.0	-169.4
5165	425718.77	5411577.59	372.00	0	E	A	119.1	0.0	-188.0	0.0	0.0	84.9	10.6	0.8	0.8	0.0	3.4	0.0	0.0	-169.4

Point Source, ISO 9613, Name: "LD4 Graval Pit Mobile Crushing Plant Loader (CAT 966H)", ID: "LD4_FEL"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5169	423092.38	5410389.41	353.06	0	DEN	A	114.3	0.0	0.0	0.0	0.0	85.9	8.1	-2.1	0.0	0.0	3.9	0.0	0.0	18.5

Point Source, ISO 9613, Name: "LD4 Graval Pit Mobile Primary Crusher (PowerScreen)", ID: "LD4_PS"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5176	423033.38	5410373.89	356.00	0	D	A	119.1	0.0	0.0	0.0	0.0	85.9	11.5	0.8	0.0	0.0	3.3	0.0	0.0	17.5
5176	423033.38	5410373.89	356.00	0	N	A	119.1	0.0	-188.0	0.0	0.0	85.9	11.5	0.8	0.0	0.0	3.3	0.0	0.0	-170.5
5176	423033.38	5410373.89	356.00	0	E	A	119.1	0.0	-188.0	0.0	0.0	85.9	11.5	0.8	0.0	0.0	3.3	0.0	0.0	-170.5

Point Source, ISO 9613, Name: "Water Pump WP11", ID: "WP11"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5182	426316.27	5409233.06	362.27	0	DEN	A	106.3	0.0	0.0	0.0	0.0	79.1	8.9	2.1	1.0	0.0	0.0	0.0	0.0	15.2

Point Source, ISO 9613, Name: "Water Pump WP10", ID: "WP10"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5186	425887.64	5409139.23	357.61	0	DEN	A	106.3	0.0	0.0	0.0	0.0	79.6	9.2	2.2	0.9	0.0	2.6	0.0	0.0	11.9

Point Source, ISO 9613, Name: "Track Dozer 12 (NPAG/OB - Komatsu D375)", ID: "TD12N"

Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5191	425044.71	5410766.17	368.00	0	D	A	115.2	0.0	-188.0	0.0	0.0	84.1	10.1	1.0	0.8	0.0	3.5	0.0	0.0	-172.2
5191	425044.71	5410766.17	368.00	0	N	A	115.2	0.0	0.0	0.0	0.0	84.1	10.1	1.0	0.8	0.0	3.5	0.0	0.0	15.8

Point Source, ISO 9613, Name: "Track Dozer 12 (NPAG/OB - Komatsu D375)", ID: "TD12N"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5191	425044.71	5410766.17	368.00	0	E	A	115.2	0.0	-188.0	0.0	0.0	84.1	10.1	1.0	0.8	0.0	3.5	0.0	0.0	-172.2

Point Source, ISO 9613, Name: "Roen Aggregate Pit Excavator PC360LC", ID: "Roen_E"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5203	425747.92	5411568.95	372.00	0	D	A	116.4	0.0	0.0	0.0	0.0	84.8	10.0	1.5	0.8	0.0	2.9	0.0	0.0	16.4
5203	425747.92	5411568.95	372.00	0	N	A	116.4	0.0	-188.0	0.0	0.0	84.8	10.0	1.5	0.8	0.0	2.9	0.0	0.0	-171.6
5203	425747.92	5411568.95	372.00	0	E	A	116.4	0.0	-188.0	0.0	0.0	84.8	10.0	1.5	0.8	0.0	2.9	0.0	0.0	-171.6

Point Source, ISO 9613, Name: "Water Pump WP09", ID: "WP09"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5212	425427.68	5409196.41	349.19	0	DEN	A	106.3	0.0	0.0	0.0	0.0	80.6	9.8	2.2	0.6	0.0	2.5	0.0	0.0	10.6

Point Source, ISO 9613, Name: "Water Pump WP04", ID: "WP04"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5218	425720.13	5409517.11	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	80.8	10.0	2.2	0.3	0.0	18.9	0.0	0.0	-5.9

Point Source, ISO 9613, Name: "Water Pump WP05", ID: "WP05"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5219	425608.12	5409494.17	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	80.9	10.1	2.2	0.2	0.0	16.7	0.0	0.0	-3.8

Point Source, ISO 9613, Name: "Water Pump WP03", ID: "WP03"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5221	425716.08	5409594.04	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	81.0	10.1	2.3	0.3	0.0	7.9	0.0	0.0	4.8

Point Source, ISO 9613, Name: "Water Pump WP06", ID: "WP06"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5227	425486.66	5409506.32	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	81.2	10.2	2.3	0.2	0.0	16.3	0.0	0.0	-3.8

Point Source, ISO 9613, Name: "Water Pump WP02", ID: "WP02"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5229	425672.89	5409648.02	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	81.2	10.2	2.3	0.5	0.0	3.3	0.0	0.0	8.9

Point Source, ISO 9613, Name: "LD4 Aggregate Pit Excavator PC360LC", ID: "LD4_E"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5238	423021.76	5410367.74	356.00	0	D	A	116.4	0.0	0.0	0.0	0.0	86.0	10.8	1.6	0.0	0.0	2.8	0.0	0.0	15.2
5238	423021.76	5410367.74	356.00	0	N	A	116.4	0.0	-188.0	0.0	0.0	86.0	10.8	1.6	0.0	0.0	2.8	0.0	0.0	-172.8
5238	423021.76	5410367.74	356.00	0	E	A	116.4	0.0	-188.0	0.0	0.0	86.0	10.8	1.6	0.0	0.0	2.8	0.0	0.0	-172.8

Point Source, ISO 9613, Name: "Track Dozer 11 (NPAG/OB - Komatsu D475)", ID: "TD11N"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5245	423353.77	5410438.11	364.00	0	D	A	115.2	0.0	-188.0	0.0	0.0	85.6	11.4	1.2	0.8	0.0	3.3	0.0	0.0	-175.0
5245	423353.77	5410438.11	364.00	0	N	A	115.2	0.0	0.0	0.0	0.0	85.6	11.4	1.2	0.8	0.0	3.3	0.0	0.0	13.0
5245	423353.77	5410438.11	364.00	0	E	A	115.2	0.0	-188.0	0.0	0.0	85.6	11.4	1.2	0.8	0.0	3.3	0.0	0.0	-175.0

Point Source, ISO 9613, Name: "Water Pump WP07", ID: "WP07"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5251	425363.85	5409510.37	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	81.4	10.4	2.3	0.2	0.0	15.4	0.0	0.0	-3.3

Point Source, ISO 9613, Name: "Water Pump WP01", ID: "WP01"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5256	425523.49	5409667.40	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	81.5	10.4	2.3	0.5	0.0	2.5	0.0	0.0	9.2

Point Source, ISO 9613, Name: "Water Pump WP08", ID: "WP08"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5262	425317.96	5409581.89	270.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	81.6	10.5	2.3	0.4	0.0	3.7	0.0	0.0	7.9

Point Source, ISO 9613, Name: "Water Pump WP19", ID: "WP19"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5280	426445.21	5410424.32	154.89	0	DEN	A	106.3	0.0	0.0	0.0	0.0	82.2	10.9	2.3	0.5	0.0	22.0	0.0	0.0	-11.6

Point Source, ISO 9613, Name: "Komatsu Wheel Dozer KM WD600", ID: "WD"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5291	425558.89	5409562.62	272.00	0	DEN	A	104.9	0.0	0.0	0.0	0.0	81.2	7.8	-0.3	0.3	0.0	8.3	0.0	0.0	7.7

Point Source, ISO 9613, Name: "Water Pump WP13", ID: "WP13"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5295	424459.30	5409308.63	348.45	0	DEN	A	106.3	0.0	0.0	0.0	0.0	82.6	11.2	2.3	0.5	0.0	2.3	0.0	0.0	7.5

Point Source, ISO 9613, Name: "Water Pump WP16", ID: "WP16"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5303	425369.52	5410194.45	350.85	0	DEN	A	106.3	0.0	0.0	0.0	0.0	82.7	11.3	2.3	0.5	0.0	2.2	0.0	0.0	7.3

Point Source, ISO 9613, Name: "Dust Collector 1", ID: "DC1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5307	426780.20	5410251.09	397.00	0	DEN	A	105.0	0.0	0.0	0.0	0.0	81.5	6.9	0.4	0.9	0.0	3.7	0.0	0.0	11.5

Point Source, ISO 9613, Name: "Water Pump WP12", ID: "WP12"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5316	424065.23	5409081.91	350.33	0	DEN	A	106.3	0.0	0.0	0.0	0.0	83.0	11.5	2.3	0.5	0.0	2.2	0.0	0.0	6.8

Point Source, ISO 9613, Name: "Dust Collector 2", ID: "DC2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5327	426611.94	5410474.13	369.41	0	DEN	A	105.0	0.0	0.0	0.0	0.0	82.2	7.3	0.4	0.9	0.0	3.7	0.0	0.0	10.5

Point Source, ISO 9613, Name: "East Outcrop Graval Pit Mobile Screener (Atlas Copco HCS3715)", ID: "EO_SCNR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5358	426845.69	5409577.47	374.00	0	DEN	A	101.5	0.0	0.0	0.0	0.0	79.6	3.3	3.2	0.7	0.0	2.3	0.0	0.0	12.5

Point Source, ISO 9613, Name: "Wet Scrubber", ID: "WS"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5367	426584.81	5410957.29	373.97	0	DEN	A	105.0	0.0	0.0	0.0	0.0	83.3	7.9	1.8	0.9	0.0	2.8	0.0	0.0	8.4

Point Source, ISO 9613, Name: "Water Pump WP17", ID: "WP17"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5381	424105.05	5410979.95	355.42	0	DEN	A	106.3	0.0	0.0	0.0	0.0	85.4	13.1	2.1	0.3	0.0	2.1	0.0	0.0	3.3

Point Source, ISO 9613, Name: "Water Pump WP15", ID: "WP15"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5393	423105.04	5410312.80	346.64	0	DEN	A	106.3	0.0	0.0	0.0	0.0	85.8	13.4	2.1	0.3	0.0	2.1	0.0	0.0	2.6

Point Source, ISO 9613, Name: "Water Pump WP14", ID: "WP14"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5399	423065.90	5410311.46	353.00	0	DEN	A	106.3	0.0	0.0	0.0	0.0	85.8	13.4	2.0	0.0	0.0	2.1	0.0	0.0	2.9

Point Source, ISO 9613, Name: "Water Pump WP18", ID: "WP18"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5426	421921.50	5409452.64	345.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	86.7	14.0	1.9	0.0	0.0	2.2	0.0	0.0	1.6

Line Source, ISO 9613, Name: "Truck Route-NPAG (Loaded Truck)", ID: "TRL_NPAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5215	423588.65	5410425.62	357.09	0	DEN	A	82.3	28.0	0.0	0.0	0.0	85.3	3.7	2.1	0.1	0.0	2.0	0.0	0.0	17.1
5225	424863.06	5409601.02	355.94	0	DEN	A	82.3	25.0	0.0	0.0	0.0	82.4	2.9	2.1	0.2	0.0	2.1	0.0	0.0	17.7
5230	425631.13	5409578.92	272.50	0	DEN	A	82.3	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.3	0.0	0.0	15.9
5249	424652.91	5409852.22	356.25	0	DEN	A	82.3	25.4	0.0	0.0	0.0	83.1	3.1	2.1	0.2	0.0	0.0	0.0	0.0	19.2
5259	425556.58	5409447.84	294.43	0	DEN	A	82.3	23.2	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.0	0.0	0.0	9.8
5263	425588.80	5409328.01	337.34	0	DEN	A	82.3	22.8	0.0	0.0	0.0	80.6	2.5	2.1	0.1	0.0	7.7	0.0	0.0	12.2
5273	423851.12	5410040.68	357.23	0	DEN	A	82.3	26.3	0.0	0.0	0.0	84.5	3.5	2.1	0.1	0.0	8.9	0.0	0.0	9.5
5299	424210.85	5409812.81	355.72	0	DEN	A	82.3	25.0	0.0	0.0	0.0	83.7	3.3	2.1	0.1	0.0	2.0	0.0	0.0	16.1
5304	425316.70	5409335.94	355.75	0	DEN	A	82.3	22.1	0.0	0.0	0.0	81.1	2.6	2.1	0.2	0.0	2.1	0.0	0.0	16.4
5324	425041.41	5409441.92	354.94	0	DEN	A	82.3	22.2	0.0	0.0	0.0	81.8	2.8	2.1	0.2	0.0	2.1	0.0	0.0	15.6
5329	425738.14	5409357.59	325.97	0	DEN	A	82.3	20.7	0.0	0.0	0.0	80.4	2.5	2.1	0.1	0.0	5.9	0.0	0.0	12.1
5331	425715.33	5409425.81	318.99	0	DEN	A	82.3	20.8	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	15.6
5336	423963.54	5409775.56	360.35	0	DEN	A	82.3	24.0	0.0	0.0	0.0	84.0	3.4	2.1	0.1	0.0	2.0	0.0	0.0	14.7
5339	424448.61	5409947.90	354.25	0	DEN	A	82.3	23.6	0.0	0.0	0.0	83.5	3.2	2.1	0.1	0.0	2.0	0.0	0.0	14.9
5341	425171.97	5409370.15	355.50	0	DEN	A	82.3	21.3	0.0	0.0	0.0	81.4	2.7	2.1	0.2	0.0	2.1	0.0	0.0	15.2
5368	425445.75	5409321.97	351.12	0	DEN	A	82.3	19.9	0.0	0.0	0.0	80.8	2.6	2.1	0.2	0.0	2.1	0.0	0.0	14.5
5401	425395.32	5409583.25	272.50	0	DEN	A	82.3	19.6	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	12.4
5415	425423.50	5409490.18	273.88	0	DEN	A	82.3	18.8	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.1	0.0	0.0	0.9
5418	425476.60	5409587.50	272.50	0	DEN	A	82.3	18.7	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	11.7
5453	425790.98	5409416.03	324.43	0	DEN	A	82.3	16.3	0.0	0.0	0.0	80.5	2.5	2.1	0.2	0.0	2.1	0.0	0.0	11.3
5455	425370.43	5409524.25	272.50	0	DEN	A	82.3	17.2	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	10.0	0.0	0.0	3.3
5500	425799.97	5409390.54	324.50	0	DEN	A	82.3	14.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.2	0.0	0.0	9.3
5510	425351.11	5409558.08	272.50	0	DEN	A	82.3	15.0	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	5.3

Line Source, ISO 9613, Name: "Truck Route-Overburden (Loaded Truck)", ID: "TRL_OB"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5197	424849.97	5410618.91	366.88	0	D	A	82.0	28.4	0.0	0.0	0.0	84.1	3.4	2.1	0.2	0.0	0.0	0.0	0.0	20.7
5197	424849.97	5410618.91	366.88	0	N	A	82.0	28.4	0.0	0.0	0.0	84.1	3.4	2.1	0.2	0.0	0.0	0.0	0.0	20.7
5197	424849.97	5410618.91	366.88	0	E	A	82.0	28.4	0.0	0.0	0.0	84.1	3.4	2.1	0.2	0.0	0.0	0.0	0.0	20.7
5261	425630.86	5409578.95	272.50	0	D	A	82.0	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.2	0.0	0.0	15.5
5261	425630.86	5409578.95	272.50	0	N	A	82.0	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.2	0.0	0.0	15.5
5261	425630.86	5409578.95	272.50	0	E	A	82.0	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.2	0.0	0.0	15.5
5266	424653.62	5409851.80	356.23	0	D	A	82.0	25.3	0.0	0.0	0.0	83.1	3.1	2.1	0.2	0.0	0.0	0.0	0.0	18.8
5266	424653.62	5409851.80	356.23	0	N	A	82.0	25.3	0.0	0.0	0.0	83.1	3.1	2.1	0.2	0.0	0.0	0.0	0.0	18.8
5266	424653.62	5409851.80	356.23	0	E	A	82.0	25.3	0.0	0.0	0.0	83.1	3.1	2.1	0.2	0.0	0.0	0.0	0.0	18.8
5267	425555.94	5409447.62	294.25	0	D	A	82.0	23.3	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	9.5
5267	425555.94	5409447.62	294.25	0	N	A	82.0	23.3	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	9.5
5267	425555.94	5409447.62	294.25	0	E	A	82.0	23.3	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	9.5
5275	425591.86	5409328.39	337.02	0	D	A	82.0	22.7	0.0	0.0	0.0	80.6	2.5	2.1	0.1	0.0	8.1	0.0	0.0	11.3
5275	425591.86	5409328.39	337.02	0	N	A	82.0	22.7	0.0	0.0	0.0	80.6	2.5	2.1	0.1	0.0	8.1	0.0	0.0	11.3
5275	425591.86	5409328.39	337.02	0	E	A	82.0	22.7	0.0	0.0	0.0	80.6	2.5	2.1	0.1	0.0	8.1	0.0	0.0	11.3
5286	424427.12	5410109.54	356.23	0	D	A	82.0	25.4	0.0	0.0	0.0	83.8	3.3	2.1	0.2	0.0	0.0	0.0	0.0	18.0
5286	424427.12	5410109.54	356.23	0	N	A	82.0	25.4	0.0	0.0	0.0	83.8	3.3	2.1	0.2	0.0	0.0	0.0	0.0	18.0
5286	424427.12	5410109.54	356.23	0	E	A	82.0	25.4	0.0	0.0	0.0	83.8	3.3	2.1	0.2	0.0	0.0	0.0	0.0	18.0
5311	424413.83	5410358.11	361.50	0	D	A	82.0	25.5	0.0	0.0	0.0	84.2	3.4	2.1	0.1	0.0	2.0	0.0	0.0	15.6
5311	424413.83	5410358.11	361.50	0	N	A	82.0	25.5	0.0	0.0	0.0	84.2	3.4	2.1	0.1	0.0	2.0	0.0	0.0	15.6
5311	424413.83	5410358.11	361.50	0	E	A	82.0	25.5	0.0	0.0	0.0	84.2	3.4	2.1	0.1	0.0	2.0	0.0	0.0	15.6
5320	425308.84	5409337.94	356.01	0	D	A	82.0	22.0	0.0	0.0	0.0	81.1	2.6	2.1	0.2	0.0	2.1	0.0	0.0	15.9
5320	425308.84	5409337.94	356.01	0	N	A	82.0	22.0	0.0	0.0	0.0	81.1	2.6	2.1	0.2	0.0	2.1	0.0	0.0	15.9
5320	425308.84	5409337.94	356.01	0	E	A	82.0	22.0	0.0	0.0	0.0	81.1	2.6	2.1	0.2	0.0	2.1	0.0	0.0	15.9
5322	424825.32	5409635.11	356.44	0	D	A	82.0	23.3	0.0	0.0	0.0	82.5	2.9	2.1	0.2	0.0	0.0	0.0	0.0	17.5
5322	424825.32	5409635.11	356.44	0	N	A	82.0	23.3	0.0	0.0	0.0	82.5	2.9	2.1	0.2	0.0	0.0	0.0	0.0	17.5
5322	424825.32	5409635.11	356.44	0	E	A	82.0	23.3	0.0	0.0	0.0	82.5	2.9	2.1	0.2	0.0	0.0	0.0	0.0	17.5
5343	425738.38	5409357.57	325.93	0	D	A	82.0	20.7	0.0	0.0	0.0	80.4	2.5	2.1	0.1	0.0	5.9	0.0	0.0	11.8
5343	425738.38	5409357.57	325.93	0	N	A	82.0	20.7	0.0	0.0	0.0	80.4	2.5	2.1	0.1	0.0	5.9	0.0	0.0	11.8
5343	425738.38	5409357.57	325.93	0	E	A	82.0	20.7	0.0	0.0	0.0	80.4	2.5	2.1	0.1	0.0	5.9	0.0	0.0	11.8
5344	425716.15	5409425.27	319.14	0	D	A	82.0	20.8	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	15.2

Line Source, ISO 9613, Name: "Truck Route-Overburden (Loaded Truck)", ID: "TRL_OB"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5344	425716.15	5409425.27	319.14	0	N	A	82.0	20.8	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	15.2
5344	425716.15	5409425.27	319.14	0	E	A	82.0	20.8	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	15.2
5350	425046.39	5409436.86	354.50	0	D	A	82.0	21.7	0.0	0.0	0.0	81.8	2.8	2.1	0.2	0.0	2.1	0.0	0.0	14.8
5350	425046.39	5409436.86	354.50	0	N	A	82.0	21.7	0.0	0.0	0.0	81.8	2.8	2.1	0.2	0.0	2.1	0.0	0.0	14.8
5350	425046.39	5409436.86	354.50	0	E	A	82.0	21.7	0.0	0.0	0.0	81.8	2.8	2.1	0.2	0.0	2.1	0.0	0.0	14.8
5360	425167.98	5409371.49	355.50	0	D	A	82.0	21.2	0.0	0.0	0.0	81.4	2.7	2.1	0.2	0.0	2.1	0.0	0.0	14.7
5360	425167.98	5409371.49	355.50	0	N	A	82.0	21.2	0.0	0.0	0.0	81.4	2.7	2.1	0.2	0.0	2.1	0.0	0.0	14.7
5360	425167.98	5409371.49	355.50	0	E	A	82.0	21.2	0.0	0.0	0.0	81.4	2.7	2.1	0.2	0.0	2.1	0.0	0.0	14.7
5363	425443.87	5409323.62	351.10	0	D	A	82.0	20.5	0.0	0.0	0.0	80.8	2.6	2.1	0.2	0.0	2.1	0.0	0.0	14.7
5363	425443.87	5409323.62	351.10	0	N	A	82.0	20.5	0.0	0.0	0.0	80.8	2.6	2.1	0.2	0.0	2.1	0.0	0.0	14.7
5363	425443.87	5409323.62	351.10	0	E	A	82.0	20.5	0.0	0.0	0.0	80.8	2.6	2.1	0.2	0.0	2.1	0.0	0.0	14.7
5385	424943.13	5409519.90	355.44	0	D	A	82.0	20.7	0.0	0.0	0.0	82.1	2.8	2.1	0.2	0.0	2.1	0.0	0.0	13.4
5385	424943.13	5409519.90	355.44	0	N	A	82.0	20.7	0.0	0.0	0.0	82.1	2.8	2.1	0.2	0.0	2.1	0.0	0.0	13.4
5385	424943.13	5409519.90	355.44	0	E	A	82.0	20.7	0.0	0.0	0.0	82.1	2.8	2.1	0.2	0.0	2.1	0.0	0.0	13.4
5409	425395.00	5409583.31	272.50	0	D	A	82.0	19.6	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	12.1
5409	425395.00	5409583.31	272.50	0	N	A	82.0	19.6	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	12.1
5409	425395.00	5409583.31	272.50	0	E	A	82.0	19.6	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	12.1
5428	425421.34	5409491.11	273.60	0	D	A	82.0	18.8	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.1	0.0	0.0	0.7
5428	425421.34	5409491.11	273.60	0	N	A	82.0	18.8	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.1	0.0	0.0	0.7
5428	425421.34	5409491.11	273.60	0	E	A	82.0	18.8	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.1	0.0	0.0	0.7
5434	425476.90	5409587.56	272.50	0	D	A	82.0	18.8	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	11.4
5434	425476.90	5409587.56	272.50	0	N	A	82.0	18.8	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	11.4
5434	425476.90	5409587.56	272.50	0	E	A	82.0	18.8	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	11.4
5458	425791.49	5409415.83	324.49	0	D	A	82.0	16.2	0.0	0.0	0.0	80.5	2.5	2.1	0.2	0.0	2.1	0.0	0.0	10.9
5458	425791.49	5409415.83	324.49	0	N	A	82.0	16.2	0.0	0.0	0.0	80.5	2.5	2.1	0.2	0.0	2.1	0.0	0.0	10.9
5458	425791.49	5409415.83	324.49	0	E	A	82.0	16.2	0.0	0.0	0.0	80.5	2.5	2.1	0.2	0.0	2.1	0.0	0.0	10.9
5460	425368.99	5409525.35	272.50	0	D	A	82.0	17.0	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	9.8	0.0	0.0	3.0
5460	425368.99	5409525.35	272.50	0	N	A	82.0	17.0	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	9.8	0.0	0.0	3.0
5460	425368.99	5409525.35	272.50	0	E	A	82.0	17.0	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	9.8	0.0	0.0	3.0
5509	425800.02	5409390.79	324.50	0	D	A	82.0	14.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.2	0.0	0.0	9.0
5509	425800.02	5409390.79	324.50	0	N	A	82.0	14.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.2	0.0	0.0	9.0
5509	425800.02	5409390.79	324.50	0	E	A	82.0	14.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.2	0.0	0.0	9.0
5521	425350.50	5409558.44	272.50	0	D	A	82.0	15.0	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	4.9
5521	425350.50	5409558.44	272.50	0	N	A	82.0	15.0	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	4.9
5521	425350.50	5409558.44	272.50	0	E	A	82.0	15.0	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	4.9

Point Source, ISO 9613, Name: "Outcrop3 Graval Pit Mobile Screener (Atlas Copco HCS3715)", ID: "Outcrop3_SCNR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5573	428581.67	5410189.02	374.00	0	D	A	101.5	0.0	0.0	0.0	0.0	81.7	3.8	3.3	0.3	0.0	1.4	0.0	0.0	11.1
5573	428581.67	5410189.02	374.00	0	N	A	101.5	0.0	-188.0	0.0	0.0	81.7	3.8	3.3	0.3	0.0	1.4	0.0	0.0	-176.9
5573	428581.67	5410189.02	374.00	0	E	A	101.5	0.0	-188.0	0.0	0.0	81.7	3.8	3.3	0.3	0.0	1.4	0.0	0.0	-176.9

Point Source, ISO 9613, Name: "Pinewood River Water Pump", ID: "WP20"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5611	415594.37	5407042.99	340.75	0	DEN	A	106.3	0.0	0.0	0.0	0.0	92.5	17.7	0.3	0.0	0.0	2.8	0.0	0.0	-7.0

Line Source, ISO 9613, Name: "Water Truck Route PAG", ID: "WTR_PAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5446	427734.84	5409874.76	379.29	0	DEN	A	71.9	26.6	0.0	0.0	0.0	80.4	9.6	-0.3	0.9	0.0	4.0	0.0	0.0	3.9
5595	427428.21	5409835.98	387.44	0	DEN	A	71.9	22.2	0.0	0.0	0.0	80.2	9.5	-0.3	0.9	0.0	4.0	0.0	0.0	-0.1
5647	427277.39	5409801.98	390.95	0	DEN	A	71.9	21.5	0.0	0.0	0.0	80.1	9.4	-0.3	0.9	0.0	4.1	0.0	0.0	-0.7

Line Source, ISO 9613, Name: "Water Truck Route OB", ID: "WTR_OB"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5493	424846.28	5410617.34	365.01	0	DEN	A	71.9	28.4	0.0	0.0	0.0	84.1	12.4	0.4	0.9	0.0	0.0	0.0	0.0	2.6
5606	424426.76	5410109.35	356.24	0	DEN	A	71.9	25.4	0.0	0.0	0.0	83.8	12.2	0.4	0.9	0.0	0.0	0.0	0.0	0.1
5669	424411.70	5410356.21	359.50	0	DEN	A	71.9	25.4	0.0	0.0	0.0	84.2	12.5	0.5	0.8	0.0	3.6	0.0	0.0	-4.1

Line Source, ISO 9613, Name: "Truck Route Open Pit to Mill (Loaded Truck)", ID: "TRL_OPMill"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5289	426038.87	5409390.74	335.10	0	DEN	A	79.3	24.3	0.0	0.0	0.0	80.0	2.4	2.1	0.6	0.0	9.6	0.0	0.0	9.0
5353	425629.72	5409578.70	272.50	0	DEN	A	79.3	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.2	0.0	0.0	12.9
5355	426345.87	5409644.29	366.78	0	DEN	A	79.3	22.9	0.0	0.0	0.0	80.3	2.4	2.1	0.2	0.0	2.1	0.0	0.0	15.1
5357	426538.83	5409923.32	385.70	0	DEN	A	79.3	23.3	0.0	0.0	0.0	80.8	2.6	2.1	0.3	0.0	0.0	0.0	0.0	16.9
5361	425556.60	5409447.40	294.41	0	DEN	A	79.3	23.2	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	6.8
5403	425840.07	5409411.51	324.61	0	DEN	A	79.3	21.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	13.4
5405	426451.31	5409770.81	376.37	0	DEN	A	79.3	21.4	0.0	0.0	0.0	80.5	2.5	2.1	0.3	0.0	0.0	0.0	0.0	15.4
5430	425715.40	5409425.95	319.00	0	DEN	A	79.3	20.8	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	12.5
5435	426198.87	5409424.30	349.80	0	DEN	A	79.3	19.5	0.0	0.0	0.0	79.9	2.4	2.0	0.6	0.0	2.6	0.0	0.0	11.4
5444	426616.94	5410059.66	390.65	0	DEN	A	79.3	20.0	0.0	0.0	0.0	81.1	2.6	2.1	0.2	0.0	2.1	0.0	0.0	11.2
5448	426236.26	5409496.49	356.92	0	DEN	A	79.3	18.8	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	11.4
5472	425394.90	5409583.08	272.50	0	DEN	A	79.3	19.6	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	9.4
5476	426703.70	5410166.27	393.25	0	DEN	A	79.3	19.4	0.0	0.0	0.0	81.4	2.7	2.1	0.2	0.0	2.1	0.0	0.0	10.3
5477	425422.66	5409490.06	273.82	0	DEN	A	79.3	18.8	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.2	0.0	0.0	-2.1
5479	425476.27	5409587.12	272.50	0	DEN	A	79.3	18.7	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	8.7
5488	426261.44	5409555.18	360.19	0	DEN	A	79.3	17.2	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	9.6
5541	425369.42	5409524.53	272.50	0	DEN	A	79.3	17.1	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	10.0	0.0	0.0	0.3
5554	426655.98	5410121.94	389.96	0	DEN	A	79.3	16.6	0.0	0.0	0.0	81.3	2.7	2.1	0.2	0.0	2.1	0.0	0.0	7.6
5694	425350.40	5409558.15	272.50	0	DEN	A	79.3	15.1	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	2.3

Point Source, ISO 9613, Name: "Pinewood River Pumphouse Generator (CAT 660 kW)", ID: "PG1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5710	415588.16	5407043.32	342.00	0	DEN	A	105.2	0.0	0.0	0.0	0.0	92.5	10.7	3.0	0.0	0.0	1.4	0.0	0.0	-2.4

Line Source, ISO 9613, Name: "Motor Grader Route OB", ID: "MGR_OB"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5515	424846.71	5410617.03	365.09	0	DEN	A	71.1	28.4	0.0	0.0	0.0	84.1	9.6	0.5	0.7	0.0	0.0	0.0	0.0	4.6
5685	424426.86	5410109.39	356.24	0	DEN	A	71.1	25.4	0.0	0.0	0.0	83.8	9.4	0.5	0.7	0.0	0.0	0.0	0.0	2.1
5722	424412.01	5410356.27	359.59	0	DEN	A	71.1	25.4	0.0	0.0	0.0	84.2	9.7	0.6	0.6	0.0	3.4	0.0	0.0	-1.9

Line Source, ISO 9613, Name: "Motor Grader Route PAG", ID: "MGR_PAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5473	427734.84	5409874.76	379.29	0	DEN	A	71.1	26.6	0.0	0.0	0.0	80.4	7.4	0.1	0.7	0.0	3.8	0.0	0.0	5.3
5668	427428.21	5409835.98	387.44	0	DEN	A	71.1	22.2	0.0	0.0	0.0	80.2	7.3	0.1	0.7	0.0	3.8	0.0	0.0	1.2
5727	427280.60	5409802.25	390.64	0	DEN	A	71.1	21.3	0.0	0.0	0.0	80.1	7.3	0.1	0.8	0.0	3.8	0.0	0.0	0.5

Point Source, ISO 9613, Name: "Roen Graval Pit Mobile Screener (Atlas Copco HCS3715)", ID: "Roen_SCNR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5804	425668.03	5411515.58	372.00	0	D	A	101.5	0.0	0.0	0.0	0.0	84.8	4.8	3.4	0.3	0.0	1.2	0.0	0.0	7.1
5804	425668.03	5411515.58	372.00	0	N	A	101.5	0.0	-188.0	0.0	0.0	84.8	4.8	3.4	0.3	0.0	1.2	0.0	0.0	-180.9
5804	425668.03	5411515.58	372.00	0	E	A	101.5	0.0	-188.0	0.0	0.0	84.8	4.8	3.4	0.3	0.0	1.2	0.0	0.0	-180.9

Line Source, ISO 9613, Name: "Truck Route Stockpile (Loaded Truck)", ID: "TRL_SP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	I/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5258	427524.15	5409592.10	387.98	0	DEN	A	78.6	25.7	0.0	0.0	0.0	79.4	2.3	2.0	0.6	0.0	6.9	0.0	0.0	13.1
5319	426038.75	5409390.55	335.09	0	DEN	A	78.6	24.3	0.0	0.0	0.0	80.0	2.4	2.1	0.6	0.0	9.8	0.0	0.0	8.1
5334	426432.91	5409603.33	373.37	0	DEN	A	78.6	23.8	0.0	0.0	0.0	80.1	2.4	2.1	0.3	0.0	0.0	0.0	0.0	17.7
5371	425631.27	5409578.87	272.50	0	DEN	A	78.6	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.3	0.0	0.0	12.2
5374	426638.34	5409616.36	380.50	0	DEN	A	78.6	22.4	0.0	0.0	0.0	79.9	2.4	2.0	0.2	0.0	2.1	0.0	0.0	14.4
5375	425557.71	5409447.01	294.74	0	DEN	A	78.6	23.2	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	6.1
5376	426796.68	5409678.62	385.50	0	DEN	A	78.6	22.3	0.0	0.0	0.0	80.0	2.4	2.0	0.2	0.0	2.1	0.0	0.0	14.2
5407	427068.94	5409750.48	394.19	0	DEN	A	78.6	21.6	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	13.5
5416	426935.43	5409722.19	390.52	0	DEN	A	78.6	21.1	0.0	0.0	0.0	80.0	2.4	2.1	0.3	0.0	0.0	0.0	0.0	15.1
5419	425840.98	5409411.19	324.69	0	DEN	A	78.6	21.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	12.7
5436	427267.01	5409719.16	394.50	0	DEN	A	78.6	20.0	0.0	0.0	0.0	79.9	2.4	2.0	0.2	0.0	2.2	0.0	0.0	12.0
5437	425716.63	5409425.45	319.18	0	DEN	A	78.6	20.8	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	11.9
5442	426199.24	5409424.15	349.80	0	DEN	A	78.6	19.5	0.0	0.0	0.0	79.9	2.4	2.0	0.6	0.0	2.6	0.0	0.0	10.7
5462	427177.12	5409782.45	393.17	0	DEN	A	78.6	19.1	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	10.9
5465	426236.18	5409496.59	357.03	0	DEN	A	78.6	18.9	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	10.7

Line Source, ISO 9613, Name: "Truck Route Stockpile (Loaded Truck)", ID: "TRL_SP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5480	425395.60	5409583.43	272.50	0	DEN	A	78.6	19.5	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	8.7
5486	425422.45	5409490.02	274.06	0	DEN	A	78.6	19.0	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.2	0.0	0.0	-2.5
5503	425476.42	5409587.79	272.50	0	DEN	A	78.6	18.7	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	8.1
5507	426261.76	5409556.01	360.53	0	DEN	A	78.6	17.4	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	9.1
5530	426294.77	5409595.16	364.77	0	DEN	A	78.6	16.9	0.0	0.0	0.0	80.2	2.4	2.1	0.2	0.0	2.1	0.0	0.0	8.5
5543	427324.82	5409616.26	399.04	0	DEN	A	78.6	15.9	0.0	0.0	0.0	79.5	2.3	2.0	0.6	0.0	2.1	0.0	0.0	7.9
5574	425368.22	5409524.95	272.50	0	DEN	A	78.6	17.1	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	9.9	0.0	0.0	-0.5
5601	427298.96	5409639.05	398.83	0	DEN	A	78.6	14.9	0.0	0.0	0.0	79.6	2.3	2.0	0.3	0.0	0.0	0.0	0.0	9.3
5660	427231.03	5409784.83	390.50	0	DEN	A	78.6	14.7	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	6.5
5730	427284.95	5409661.13	398.83	0	DEN	A	78.6	13.4	0.0	0.0	0.0	79.7	2.3	2.0	0.3	0.0	0.0	0.0	0.0	7.7
5757	425351.12	5409558.61	272.50	0	DEN	A	78.6	14.9	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	1.6
5877	427249.50	5409774.00	390.50	0	DEN	A	78.6	11.9	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	3.8

Point Source, ISO 9613, Name: "WMP Air Compressor 1", ID: "AC1"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5890	421213.68	5411429.46	370.28	0	DEN	A	99.0	0.0	0.0	0.0	0.0	88.7	8.1	4.0	0.0	0.0	0.6	0.0	0.0	-2.4

Point Source, ISO 9613, Name: "LD4 Graval Pit Mobile Screener (Atlas Copco HCS3715)", ID: "LD4_SCNR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5896	423089.66	5410366.72	352.00	0	D	A	101.5	0.0	0.0	0.0	0.0	85.9	5.2	3.4	0.0	0.0	1.2	0.0	0.0	5.9
5896	423089.66	5410366.72	352.00	0	N	A	101.5	0.0	-188.0	0.0	0.0	85.9	5.2	3.4	0.0	0.0	1.2	0.0	0.0	-182.1
5896	423089.66	5410366.72	352.00	0	E	A	101.5	0.0	-188.0	0.0	0.0	85.9	5.2	3.4	0.0	0.0	1.2	0.0	0.0	-182.1

Point Source, ISO 9613, Name: "WMP Air Compressor 4", ID: "AC4"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5932	421343.51	5412002.41	366.00	0	DEN	A	99.0	0.0	0.0	0.0	0.0	89.0	8.3	4.0	0.0	0.0	0.6	0.0	0.0	-2.9

Point Source, ISO 9613, Name: "WMP Air Compressor 2", ID: "AC2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5969	420461.43	5411544.61	364.13	0	DEN	A	99.0	0.0	0.0	0.0	0.0	89.4	8.6	3.9	0.0	0.0	0.6	0.0	0.0	-3.6

Point Source, ISO 9613, Name: "WMP Air Compressor 3", ID: "AC3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
6006	420185.80	5412295.08	363.39	0	DEN	A	99.0	0.0	0.0	0.0	0.0	90.1	9.0	3.9	0.0	0.0	0.7	0.0	0.0	-4.7

Line Source, ISO 9613, Name: "Water Truck Route NPAG", ID: "WTR_NPAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5534	423588.91	5410425.34	357.10	0	DEN	A	71.9	28.0	0.0	0.0	0.0	85.3	13.4	0.7	0.7	0.0	3.4	0.0	0.0	-3.6
5555	424857.88	5409605.74	356.23	0	DEN	A	71.9	24.8	0.0	0.0	0.0	82.4	11.1	0.1	0.8	0.0	3.8	0.0	0.0	-1.5
5565	424653.14	5409852.45	356.25	0	DEN	A	71.9	25.4	0.0	0.0	0.0	83.1	11.6	0.2	0.9	0.0	0.0	0.0	0.0	1.5
5590	425589.14	5409327.95	337.35	0	DEN	A	71.9	22.7	0.0	0.0	0.0	80.6	9.7	-0.2	0.7	0.0	13.4	0.0	0.0	-9.6
5602	423851.49	5410040.72	357.25	0	DEN	A	71.9	26.3	0.0	0.0	0.0	84.5	12.8	0.5	0.5	0.0	14.2	0.0	0.0	-14.3
5655	424210.92	5409812.69	355.70	0	DEN	A	71.9	25.0	0.0	0.0	0.0	83.7	12.1	0.4	0.8	0.0	3.6	0.0	0.0	-3.6
5697	425036.42	5409446.90	355.23	0	DEN	A	71.9	22.5	0.0	0.0	0.0	81.8	10.6	-0.0	0.8	0.0	3.9	0.0	0.0	-2.7
5713	425301.21	5409339.17	356.08	0	DEN	A	71.9	21.7	0.0	0.0	0.0	81.1	10.1	-0.1	0.9	0.0	4.0	0.0	0.0	-2.3
5724	425736.31	5409357.53	326.16	0	DEN	A	71.9	20.8	0.0	0.0	0.0	80.4	9.6	-0.3	0.7	0.0	11.0	0.0	0.0	-8.7
5746	423963.81	5409775.42	360.34	0	DEN	A	71.9	24.0	0.0	0.0	0.0	84.0	12.4	0.4	0.8	0.0	3.6	0.0	0.0	-5.2
5759	424448.77	5409948.08	354.25	0	DEN	A	71.9	23.6	0.0	0.0	0.0	83.5	12.0	0.3	0.8	0.0	3.7	0.0	0.0	-4.7
5760	425436.44	5409324.57	351.28	0	DEN	A	71.9	20.9	0.0	0.0	0.0	80.9	9.9	-0.2	0.9	0.0	4.0	0.0	0.0	-2.6
5775	425167.88	5409371.59	355.50	0	DEN	A	71.9	21.0	0.0	0.0	0.0	81.4	10.3	-0.1	0.9	0.0	3.9	0.0	0.0	-3.5
6061	425790.18	5409416.40	324.41	0	DEN	A	71.9	16.2	0.0	0.0	0.0	80.5	9.6	-0.2	0.9	0.0	4.1	0.0	0.0	-6.6
6138	425798.97	5409391.23	324.50	0	DEN	A	71.9	14.2	0.0	0.0	0.0	80.4	9.6	-0.3	0.9	0.0	4.2	0.0	0.0	-8.6

Line Source, ISO 9613, Name: "Water Truck Route Open Pit to Mill", ID: "WTR_OPMill"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5498	426041.08	5409390.69	335.36	0	DEN	A	71.9	24.2	0.0	0.0	0.0	80.0	9.3	-0.3	0.8	0.0	16.1	0.0	0.0	-9.8
5553	425631.88	5409578.88	272.50	0	DEN	A	71.9	23.7	0.0	0.0	0.0	81.1	10.1	-0.1	0.7	0.0	8.7	0.0	0.0	-4.8

Line Source, ISO 9613, Name: "Water Truck Route Open Pit to Mill", ID: "WTR_OPMill"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5557	426345.87	5409644.29	366.78	0	DEN	A	71.9	22.9	0.0	0.0	0.0	80.3	9.5	-0.3	0.9	0.0	4.0	0.0	0.0	0.4
5558	426538.83	5409923.32	385.70	0	DEN	A	71.9	23.3	0.0	0.0	0.0	80.8	9.9	-0.2	0.9	0.0	0.0	0.0	0.0	3.7
5568	425560.58	5409446.41	295.26	0	DEN	A	71.9	23.2	0.0	0.0	0.0	80.9	10.0	-0.2	0.6	0.0	16.0	0.0	0.0	-12.2
5675	425844.00	5409411.55	324.96	0	DEN	A	71.9	21.4	0.0	0.0	0.0	80.4	9.6	-0.3	0.9	0.0	4.1	0.0	0.0	-1.3
5693	426451.31	5409770.81	376.37	0	DEN	A	71.9	21.4	0.0	0.0	0.0	80.5	9.7	-0.2	0.9	0.0	0.0	0.0	0.0	2.5
5751	425719.47	5409425.42	319.50	0	DEN	A	71.9	20.7	0.0	0.0	0.0	80.6	9.7	-0.2	0.9	0.0	4.3	0.0	0.0	-2.6
5779	426198.89	5409424.32	349.80	0	DEN	A	71.9	19.5	0.0	0.0	0.0	79.9	9.2	-0.3	1.0	0.0	5.5	0.0	0.0	-3.7
5837	426616.94	5410059.66	390.65	0	DEN	A	71.9	20.0	0.0	0.0	0.0	81.1	10.1	-0.1	0.9	0.0	4.0	0.0	0.0	-4.0
5858	426236.26	5409496.49	356.92	0	DEN	A	71.9	18.8	0.0	0.0	0.0	80.0	9.3	-0.3	0.9	0.0	4.1	0.0	0.0	-3.2
5910	425395.27	5409582.92	272.50	0	DEN	A	71.9	19.7	0.0	0.0	0.0	81.5	10.4	-0.1	0.8	0.0	6.5	0.0	0.0	-7.5
5934	426703.70	5410166.27	393.25	0	DEN	A	71.9	19.4	0.0	0.0	0.0	81.4	10.3	-0.1	0.9	0.0	3.9	0.0	0.0	-5.1
5945	425424.74	5409489.19	274.26	0	DEN	A	71.9	19.0	0.0	0.0	0.0	81.2	10.2	-0.1	0.6	0.0	20.2	0.0	0.0	-21.2
5973	425477.98	5409587.36	272.50	0	DEN	A	71.9	18.8	0.0	0.0	0.0	81.4	10.3	-0.1	0.8	0.0	6.5	0.0	0.0	-8.1
5990	426261.44	5409555.18	360.19	0	DEN	A	71.9	17.2	0.0	0.0	0.0	80.1	9.4	-0.3	0.9	0.0	4.1	0.0	0.0	-5.0
6060	425370.05	5409523.95	272.50	0	DEN	A	71.9	17.2	0.0	0.0	0.0	81.4	10.3	-0.1	0.6	0.0	15.8	0.0	0.0	-18.9
6074	426655.98	5410121.94	389.96	0	DEN	A	71.9	16.6	0.0	0.0	0.0	81.3	10.2	-0.1	0.9	0.0	3.9	0.0	0.0	-7.6
6142	425350.52	5409557.70	272.50	0	DEN	A	71.9	15.0	0.0	0.0	0.0	81.5	10.4	-0.1	0.7	0.0	10.7	0.0	0.0	-16.3

Line Source, ISO 9613, Name: "LD4 Aggregate Pit Truck Route", ID: "LD4_TR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5512	423198.10	5411877.59	359.35	0	DEN	A	73.7	29.1	0.0	0.0	0.0	87.3	9.1	0.4	0.0	0.0	3.1	0.0	0.0	2.8
5550	423595.43	5410813.66	360.92	0	DEN	A	73.7	26.8	0.0	0.0	0.0	85.7	8.1	0.6	0.3	0.0	7.5	0.0	0.0	-1.8
5572	423663.44	5411614.67	357.86	0	DEN	A	73.7	27.0	0.0	0.0	0.0	86.6	8.6	0.5	0.0	0.0	3.1	0.0	0.0	1.8
5589	423224.87	5410573.58	356.47	0	DEN	A	73.7	26.4	0.0	0.0	0.0	85.9	8.2	0.6	0.0	0.0	3.1	0.0	0.0	2.2
5630	422537.17	5412047.57	361.50	0	DEN	A	73.7	27.8	0.0	0.0	0.0	88.0	9.6	0.3	0.0	0.0	3.2	0.0	0.0	0.4
5671	423779.11	5411211.95	357.98	0	DEN	A	73.7	25.3	0.0	0.0	0.0	86.0	8.3	0.6	0.0	0.0	3.1	0.0	0.0	1.0
5846	421882.84	5412552.36	365.03	0	DEN	A	73.7	26.0	0.0	0.0	0.0	88.9	10.2	0.2	0.0	0.0	3.2	0.0	0.0	-2.9
5874	422173.01	5412338.89	363.11	0	DEN	A	73.7	25.5	0.0	0.0	0.0	88.5	10.0	0.2	0.0	0.0	3.2	0.0	0.0	-2.8
6079	423846.06	5411016.09	358.48	0	DEN	A	73.7	19.0	0.0	0.0	0.0	85.7	8.1	0.6	0.5	0.0	3.1	0.0	0.0	-5.4
6145	423839.64	5410910.06	360.92	0	DEN	A	73.7	17.2	0.0	0.0	0.0	85.6	8.0	0.6	0.5	0.0	3.1	0.0	0.0	-7.0
6150	423858.92	5410953.97	358.50	0	DEN	A	73.7	17.1	0.0	0.0	0.0	85.6	8.1	0.6	0.5	0.0	3.1	0.0	0.0	-7.2

Line Source, ISO 9613, Name: "Motor Grader Route NPAG", ID: "MGR_NPAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5579	423588.85	5410425.47	357.07	0	DEN	A	71.1	28.0	0.0	0.0	0.0	85.3	10.4	0.7	0.6	0.0	3.3	0.0	0.0	-1.1
5634	424652.81	5409852.25	356.25	0	DEN	A	71.1	25.4	0.0	0.0	0.0	83.1	9.0	0.4	0.8	0.0	0.0	0.0	0.0	3.2
5644	425588.15	5409327.40	337.43	0	DEN	A	71.1	22.8	0.0	0.0	0.0	80.6	7.5	0.1	0.5	0.0	12.1	0.0	0.0	-6.9
5673	423851.17	5410040.27	357.25	0	DEN	A	71.1	26.3	0.0	0.0	0.0	84.5	9.9	0.6	0.3	0.0	12.2	0.0	0.0	-10.1
5716	424211.06	5409812.83	355.70	0	DEN	A	71.1	25.0	0.0	0.0	0.0	83.7	9.4	0.5	0.6	0.0	3.4	0.0	0.0	-1.5
5741	425302.99	5409338.96	355.91	0	DEN	A	71.1	22.1	0.0	0.0	0.0	81.1	7.8	0.2	0.7	0.0	3.7	0.0	0.0	-0.4
5753	424825.01	5409635.22	356.44	0	DEN	A	71.1	23.3	0.0	0.0	0.0	82.5	8.6	0.3	0.8	0.0	0.0	0.0	0.0	2.2
5791	425736.85	5409358.23	326.08	0	DEN	A	71.1	20.7	0.0	0.0	0.0	80.4	7.4	0.1	0.5	0.0	9.5	0.0	0.0	-6.1
5799	423963.76	5409775.36	360.34	0	DEN	A	71.1	24.0	0.0	0.0	0.0	84.0	9.6	0.5	0.6	0.0	3.4	0.0	0.0	-3.0
5810	424448.65	5409947.94	354.25	0	DEN	A	71.1	23.6	0.0	0.0	0.0	83.5	9.3	0.5	0.6	0.0	3.5	0.0	0.0	-2.6
5824	425041.75	5409441.14	354.52	0	DEN	A	71.1	21.6	0.0	0.0	0.0	81.8	8.2	0.3	0.7	0.0	3.6	0.0	0.0	-1.9
5828	425162.00	5409375.86	355.46	0	DEN	A	71.1	21.2	0.0	0.0	0.0	81.5	8.0	0.2	0.7	0.0	3.7	0.0	0.0	-1.7
5839	425438.48	5409321.87	351.31	0	DEN	A	71.1	20.5	0.0	0.0	0.0	80.9	7.7	0.1	0.7	0.0	3.7	0.0	0.0	-1.5
5947	424941.20	5409521.32	355.47	0	DEN	A	71.1	20.6	0.0	0.0	0.0	82.1	8.4	0.3	0.7	0.0	3.6	0.0	0.0	-3.4
6081	425790.31	5409416.47	324.40	0	DEN	A	71.1	16.2	0.0	0.0	0.0	80.5	7.5	0.1	0.7	0.0	3.8	0.0	0.0	-5.2
6154	425799.18	5409391.28	324.50	0	DEN	A	71.1	14.3	0.0	0.0	0.0	80.4	7.4	0.1	0.7	0.0	3.9	0.0	0.0	-7.2

Line Source, ISO 9613, Name: "EO Aggregate Pit Truck Route", ID: "EO_TR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5484	428105.04	5409564.14	373.36	0	DEN	A	69.4	26.5	0.0	0.0	0.0	79.6	5.1	0.6	0.8	0.0	3.3	0.0	0.0	6.5
5529	427735.51	5409493.45	379.10	0	DEN	A	69.4	25.1	0.0	0.0	0.0	79.2	4.9	0.5	0.9	0.0	0.0	0.0	0.0	9.0
5536	427179.61	5409478.46	394.62	0	DEN	A	69.4	24.8	0.0	0.0	0.0	79.1	4.9	0.5	0.9	0.0	0.0	0.0	0.0	8.9
5584	427452.74	5409495.59	390.75	0	DEN	A	69.4	23.9	0.0	0.0	0.0	79.1	4.9	0.5	0.9	0.0	0.0	0.0	0.0	7.8
5607	426038.92	5409390.64	335.11	0	DEN	A	69.4	24.3	0.0	0.0	0.0	80.0	5.3	0.6	0.6	0.0	12.5	0.0	0.0	-5.3
5642	426932.32	5409512.59	385.21	0	DEN	A	69.4	23.3	0.0	0.0	0.0	79.3	5.0	0.5	0.8	0.0	3.4	0.0	0.0	3.6
5645	426435.00	5409603.38	373.36	0	DEN	A	69.4	23.9	0.0	0.0	0.0	80.1	5.3	0.6	0.7	0.0	0.0	0.0	0.0	6.7

Line Source, ISO 9613, Name: "EO Aggregate Pit Truck Route", ID: "EO_TR"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5699	425792.43	5409363.59	326.46	0	DEN	A	69.4	23.7	0.0	0.0	0.0	80.3	5.4	0.6	0.5	0.0	7.3	0.0	0.0	-1.0
5731	424859.74	5409603.46	356.03	0	DEN	A	69.4	24.9	0.0	0.0	0.0	82.4	6.3	0.6	0.6	0.0	3.2	0.0	0.0	1.1
5768	426642.31	5409616.20	380.50	0	DEN	A	69.4	22.4	0.0	0.0	0.0	79.9	5.2	0.6	0.7	0.0	3.3	0.0	0.0	2.1
5774	425585.85	5409327.03	337.73	0	DEN	A	69.4	22.8	0.0	0.0	0.0	80.6	5.5	0.6	0.4	0.0	10.4	0.0	0.0	-5.4
5786	423199.78	5411875.06	359.16	0	DEN	A	69.4	29.0	0.0	0.0	0.0	87.3	9.1	0.4	0.0	0.0	3.1	0.0	0.0	-1.5
5796	424426.43	5410109.22	356.23	0	DEN	A	69.4	25.4	0.0	0.0	0.0	83.8	7.0	0.6	0.6	0.0	0.0	0.0	0.0	2.8
5822	423948.39	5410776.29	359.04	0	DEN	A	69.4	26.6	0.0	0.0	0.0	85.3	7.9	0.6	0.5	0.0	3.1	0.0	0.0	-1.4
5860	426797.33	5409607.09	381.33	0	DEN	A	69.4	21.0	0.0	0.0	0.0	79.7	5.1	0.6	0.7	0.0	3.3	0.0	0.0	0.9
5879	425309.13	5409338.51	356.04	0	DEN	A	69.4	22.0	0.0	0.0	0.0	81.1	5.7	0.6	0.7	0.0	3.3	0.0	0.0	-0.0
5908	423662.25	5411616.62	357.86	0	DEN	A	69.4	27.0	0.0	0.0	0.0	86.6	8.6	0.5	0.0	0.0	3.1	0.0	0.0	-2.4
5935	425035.40	5409445.48	355.03	0	DEN	A	69.4	22.1	0.0	0.0	0.0	81.8	6.0	0.6	0.7	0.0	3.3	0.0	0.0	-0.8
5941	424113.03	5410432.85	359.04	0	DEN	A	69.4	24.8	0.0	0.0	0.0	84.7	7.5	0.6	0.6	0.0	0.0	0.0	0.0	0.9
5959	422538.38	5412043.38	361.30	0	DEN	A	69.4	27.8	0.0	0.0	0.0	88.0	9.6	0.3	0.0	0.0	3.2	0.0	0.0	-3.8
5970	425166.31	5409373.36	355.50	0	DEN	A	69.4	21.4	0.0	0.0	0.0	81.4	5.9	0.6	0.7	0.0	3.3	0.0	0.0	-1.1
5988	426199.13	5409423.64	349.76	0	DEN	A	69.4	19.5	0.0	0.0	0.0	79.8	5.2	0.6	0.8	0.0	4.2	0.0	0.0	-1.7
5996	424701.04	5409782.55	355.50	0	DEN	A	69.4	22.3	0.0	0.0	0.0	82.9	6.6	0.6	0.6	0.0	3.2	0.0	0.0	-2.3
6000	425439.62	5409323.21	351.51	0	DEN	A	69.4	20.3	0.0	0.0	0.0	80.9	5.6	0.6	0.7	0.0	3.3	0.0	0.0	-1.4
6016	424604.21	5409922.56	355.23	0	DEN	A	69.4	22.3	0.0	0.0	0.0	83.3	6.8	0.6	0.6	0.0	3.2	0.0	0.0	-2.8
6025	426236.11	5409496.00	356.95	0	DEN	A	69.4	18.9	0.0	0.0	0.0	80.0	5.3	0.6	0.7	0.0	3.3	0.0	0.0	-1.5
6054	423814.06	5411112.67	358.10	0	DEN	A	69.4	24.3	0.0	0.0	0.0	85.8	8.2	0.6	0.0	0.0	3.1	0.0	0.0	-4.1
6100	422167.72	5412339.23	363.20	0	DEN	A	69.4	25.6	0.0	0.0	0.0	88.6	10.0	0.2	0.0	0.0	3.2	0.0	0.0	-7.0
6102	426261.40	5409555.40	360.35	0	DEN	A	69.4	17.3	0.0	0.0	0.0	80.1	5.3	0.6	0.7	0.0	3.3	0.0	0.0	-3.4
6108	421879.42	5412552.90	365.12	0	DEN	A	69.4	25.9	0.0	0.0	0.0	89.0	10.2	0.2	0.0	0.0	3.2	0.0	0.0	-7.3
6112	424241.91	5410262.81	357.50	0	DEN	A	69.4	21.2	0.0	0.0	0.0	84.3	7.3	0.6	0.6	0.0	0.0	0.0	0.0	-2.1
6118	426294.34	5409594.72	364.62	0	DEN	A	69.4	17.0	0.0	0.0	0.0	80.2	5.3	0.6	0.5	0.0	7.1	0.0	0.0	-7.3
6152	426742.17	5409646.73	382.09	0	DEN	A	69.4	15.5	0.0	0.0	0.0	79.9	5.2	0.6	0.7	0.0	3.3	0.0	0.0	-4.8
6158	423747.65	5411306.00	357.60	0	DEN	A	69.4	21.5	0.0	0.0	0.0	86.1	8.4	0.5	0.0	0.0	3.1	0.0	0.0	-7.2

Line Source, ISO 9613, Name: "Truck Route-NPAG (Empty Truck)", ID: "TRE_NPAG"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5564	423589.38	5410424.95	357.09	0	DEN	A	71.4	28.0	0.0	0.0	0.0	85.3	8.1	-0.2	0.3	0.0	3.5	0.0	0.0	2.4
5581	424862.12	5409602.31	356.00	0	DEN	A	71.4	24.9	0.0	0.0	0.0	82.4	6.6	-0.2	0.5	0.0	3.6	0.0	0.0	3.4
5592	425632.16	5409578.97	272.50	0	DEN	A	71.4	23.6	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	1.2
5600	424652.84	5409852.46	356.25	0	DEN	A	71.4	25.4	0.0	0.0	0.0	83.1	7.0	-0.2	0.5	0.0	0.0	0.0	0.0	6.3
5608	425556.47	5409447.71	294.40	0	DEN	A	71.4	23.2	0.0	0.0	0.0	80.9	6.0	-0.2	0.2	0.0	12.4	0.0	0.0	-4.8
5640	425590.88	5409327.62	337.15	0	DEN	A	71.4	22.6	0.0	0.0	0.0	80.6	5.8	-0.2	0.2	0.0	10.5	0.0	0.0	-3.0
5652	423851.43	5410040.49	357.26	0	DEN	A	71.4	26.3	0.0	0.0	0.0	84.5	7.7	-0.2	0.1	0.0	11.0	0.0	0.0	-5.5
5712	424210.84	5409812.70	355.71	0	DEN	A	71.4	25.0	0.0	0.0	0.0	83.7	7.3	-0.2	0.4	0.0	3.5	0.0	0.0	1.7
5718	425310.42	5409335.82	355.91	0	DEN	A	71.4	22.1	0.0	0.0	0.0	81.1	6.1	-0.2	0.5	0.0	3.6	0.0	0.0	2.3
5764	425039.36	5409442.94	355.00	0	DEN	A	71.4	22.2	0.0	0.0	0.0	81.8	6.4	-0.2	0.5	0.0	3.6	0.0	0.0	1.5
5773	425736.90	5409358.02	326.06	0	DEN	A	71.4	20.7	0.0	0.0	0.0	80.4	5.8	-0.2	0.3	0.0	8.2	0.0	0.0	-2.3
5782	425715.39	5409425.73	319.04	0	DEN	A	71.4	20.8	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	1.5
5784	423963.84	5409775.37	360.36	0	DEN	A	71.4	24.0	0.0	0.0	0.0	84.0	7.4	-0.2	0.4	0.0	3.5	0.0	0.0	0.2
5788	424448.71	5409947.88	354.25	0	DEN	A	71.4	23.6	0.0	0.0	0.0	83.5	7.2	-0.2	0.4	0.0	3.5	0.0	0.0	0.5
5806	425168.16	5409370.27	355.50	0	DEN	A	71.4	21.3	0.0	0.0	0.0	81.4	6.2	-0.2	0.5	0.0	3.6	0.0	0.0	1.0
5825	425444.91	5409321.30	351.00	0	DEN	A	71.4	20.4	0.0	0.0	0.0	80.8	6.0	-0.2	0.5	0.0	3.6	0.0	0.0	1.0
5972	425395.34	5409583.21	272.50	0	DEN	A	71.4	19.5	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.1
5991	425422.22	5409491.23	273.76	0	DEN	A	71.4	18.9	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.2	0.0	0.0	-13.4
5994	425478.06	5409587.36	272.50	0	DEN	A	71.4	18.9	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.6
6076	425790.28	5409416.53	324.40	0	DEN	A	71.4	16.2	0.0	0.0	0.0	80.5	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	-2.7
6077	425369.34	5409525.41	272.50	0	DEN	A	71.4	17.0	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.1	0.0	0.0	-11.3
6146	425799.09	5409391.23	324.50	0	DEN	A	71.4	14.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.8	0.0	0.0	-4.6
6159	425351.11	5409558.34	272.50	0	DEN	A	71.4	15.0	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-9.5

Line Source, ISO 9613, Name: "Motor Grader Route Open Pit to Mill", ID: "MGR_OPMill"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5518	426040.12	5409390.47	335.25	0	DEN	A	71.1	24.2	0.0	0.0	0.0	80.0	7.2	0.1	0.7	0.0	14.5	0.0	0.0	-7.2
5612	425632.28	5409578.86	272.50	0	DEN	A	71.1	23.6	0.0	0.0	0.0	81.1	7.8	0.2	0.6	0.0	7.6	0.0	0.0	-2.4
5614	426345.87	5409644.29	366.78	0	DEN	A	71.1	22.9	0.0	0.0	0.0	80.3	7.4	0.1	0.7	0.0	3.8	0.0	0.0	1.7
5632	426538.83	5409923.32	385.70	0	DEN	A	71.1	23.3	0.0	0.0	0.0	80.8	7.7	0.1	0.8	0.0	0.0	0.0	0.0	4.9
5635	425561.17	5409447.20	295.36	0	DEN	A	71.1	23.2	0.0	0.0	0.0	80.9	7.7	0.2	0.4	0.0	14.2	0.0	0.0	-9.1

Line Source, ISO 9613, Name: "Motor Grader Route Open Pit to Mill", ID: "MGR_OPMill"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5736	425842.66	5409411.08	324.85	0	DEN	A	71.1	21.3	0.0	0.0	0.0	80.4	7.4	0.1	0.7	0.0	3.8	0.0	0.0	0.0
5749	426451.31	5409770.81	376.37	0	DEN	A	71.1	21.4	0.0	0.0	0.0	80.5	7.5	0.1	0.8	0.0	0.0	0.0	0.0	3.6
5809	425718.94	5409425.59	319.45	0	DEN	A	71.1	20.7	0.0	0.0	0.0	80.6	7.5	0.1	0.7	0.0	4.0	0.0	0.0	-1.1
5862	426198.86	5409424.30	349.80	0	DEN	A	71.1	19.5	0.0	0.0	0.0	79.9	7.1	0.0	0.9	0.0	4.9	0.0	0.0	-2.1
5912	426616.94	5410059.66	390.65	0	DEN	A	71.1	20.0	0.0	0.0	0.0	81.1	7.8	0.2	0.7	0.0	3.7	0.0	0.0	-2.4
5919	426236.26	5409496.49	356.92	0	DEN	A	71.1	18.8	0.0	0.0	0.0	80.0	7.2	0.1	0.8	0.0	3.8	0.0	0.0	-1.9
5979	425395.38	5409583.21	272.50	0	DEN	A	71.1	19.5	0.0	0.0	0.0	81.5	8.0	0.2	0.6	0.0	5.7	0.0	0.0	-5.4
5983	426703.70	5410166.27	393.25	0	DEN	A	71.1	19.4	0.0	0.0	0.0	81.4	8.0	0.2	0.7	0.0	3.7	0.0	0.0	-3.5
5987	425424.53	5409489.89	274.41	0	DEN	A	71.1	19.1	0.0	0.0	0.0	81.2	7.9	0.2	0.4	0.0	18.3	0.0	0.0	-17.8
6009	425478.21	5409587.42	272.50	0	DEN	A	71.1	18.9	0.0	0.0	0.0	81.4	7.9	0.2	0.6	0.0	5.7	0.0	0.0	-5.8
6048	426261.44	5409555.18	360.19	0	DEN	A	71.1	17.2	0.0	0.0	0.0	80.1	7.3	0.1	0.8	0.0	3.8	0.0	0.0	-3.7
6089	425369.19	5409524.43	272.50	0	DEN	A	71.1	17.1	0.0	0.0	0.0	81.4	8.0	0.2	0.4	0.0	14.1	0.0	0.0	-15.9
6110	426655.98	5410121.94	389.96	0	DEN	A	71.1	16.6	0.0	0.0	0.0	81.3	7.9	0.2	0.7	0.0	3.7	0.0	0.0	-6.1
6162	425351.20	5409558.11	272.50	0	DEN	A	71.1	15.0	0.0	0.0	0.0	81.5	8.0	0.2	0.5	0.0	9.3	0.0	0.0	-13.5

Line Source, ISO 9613, Name: "Truck Route-Overburden (Empty Truck)", ID: "TRE_OB"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5525	424847.12	5410617.13	365.01	0	D	A	71.0	28.4	0.0	0.0	0.0	84.1	7.5	-0.2	0.4	0.0	0.0	0.0	0.0	7.7
5525	424847.12	5410617.13	365.01	0	N	A	71.0	28.4	0.0	0.0	0.0	84.1	7.5	-0.2	0.4	0.0	0.0	0.0	0.0	7.7
5525	424847.12	5410617.13	365.01	0	E	A	71.0	28.4	0.0	0.0	0.0	84.1	7.5	-0.2	0.4	0.0	0.0	0.0	0.0	7.7
5615	425631.51	5409579.05	272.50	0	D	A	71.0	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	0.9
5615	425631.51	5409579.05	272.50	0	N	A	71.0	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	0.9
5615	425631.51	5409579.05	272.50	0	E	A	71.0	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	0.9
5637	425555.68	5409447.77	294.14	0	D	A	71.0	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.2	0.0	12.5	0.0	0.0	-5.1
5637	425555.68	5409447.77	294.14	0	N	A	71.0	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.2	0.0	12.5	0.0	0.0	-5.1
5637	425555.68	5409447.77	294.14	0	E	A	71.0	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.2	0.0	12.5	0.0	0.0	-5.1
5665	425590.26	5409327.63	337.22	0	D	A	71.0	22.7	0.0	0.0	0.0	80.6	5.8	-0.2	0.2	0.0	10.4	0.0	0.0	-3.2
5665	425590.26	5409327.63	337.22	0	N	A	71.0	22.7	0.0	0.0	0.0	80.6	5.8	-0.2	0.2	0.0	10.4	0.0	0.0	-3.2
5665	425590.26	5409327.63	337.22	0	E	A	71.0	22.7	0.0	0.0	0.0	80.6	5.8	-0.2	0.2	0.0	10.4	0.0	0.0	-3.2
5692	424426.85	5410109.31	356.24	0	D	A	71.0	25.4	0.0	0.0	0.0	83.8	7.3	-0.2	0.4	0.0	0.0	0.0	0.0	5.1
5692	424426.85	5410109.31	356.24	0	N	A	71.0	25.4	0.0	0.0	0.0	83.8	7.3	-0.2	0.4	0.0	0.0	0.0	0.0	5.1
5692	424426.85	5410109.31	356.24	0	E	A	71.0	25.4	0.0	0.0	0.0	83.8	7.3	-0.2	0.4	0.0	0.0	0.0	0.0	5.1
5732	424411.86	5410356.31	359.55	0	D	A	71.0	25.4	0.0	0.0	0.0	84.2	7.5	-0.2	0.4	0.0	3.5	0.0	0.0	1.1
5732	424411.86	5410356.31	359.55	0	N	A	71.0	25.4	0.0	0.0	0.0	84.2	7.5	-0.2	0.4	0.0	3.5	0.0	0.0	1.1
5732	424411.86	5410356.31	359.55	0	E	A	71.0	25.4	0.0	0.0	0.0	84.2	7.5	-0.2	0.4	0.0	3.5	0.0	0.0	1.1
5755	425307.41	5409338.58	355.98	0	D	A	71.0	22.0	0.0	0.0	0.0	81.1	6.1	-0.2	0.5	0.0	3.6	0.0	0.0	1.9
5755	425307.41	5409338.58	355.98	0	N	A	71.0	22.0	0.0	0.0	0.0	81.1	6.1	-0.2	0.5	0.0	3.6	0.0	0.0	1.9
5755	425307.41	5409338.58	355.98	0	E	A	71.0	22.0	0.0	0.0	0.0	81.1	6.1	-0.2	0.5	0.0	3.6	0.0	0.0	1.9
5762	424825.15	5409635.14	356.44	0	D	A	71.0	23.2	0.0	0.0	0.0	82.5	6.7	-0.2	0.5	0.0	0.0	0.0	0.0	4.7
5762	424825.15	5409635.14	356.44	0	N	A	71.0	23.2	0.0	0.0	0.0	82.5	6.7	-0.2	0.5	0.0	0.0	0.0	0.0	4.7
5762	424825.15	5409635.14	356.44	0	E	A	71.0	23.2	0.0	0.0	0.0	82.5	6.7	-0.2	0.5	0.0	0.0	0.0	0.0	4.7
5767	424625.17	5409892.14	355.24	0	D	A	71.0	23.9	0.0	0.0	0.0	83.2	7.0	-0.2	0.4	0.0	3.5	0.0	0.0	0.9
5767	424625.17	5409892.14	355.24	0	N	A	71.0	23.9	0.0	0.0	0.0	83.2	7.0	-0.2	0.4	0.0	3.5	0.0	0.0	0.9
5767	424625.17	5409892.14	355.24	0	E	A	71.0	23.9	0.0	0.0	0.0	83.2	7.0	-0.2	0.4	0.0	3.5	0.0	0.0	0.9
5794	425736.91	5409358.26	326.07	0	D	A	71.0	20.7	0.0	0.0	0.0	80.4	5.8	-0.2	0.3	0.0	8.1	0.0	0.0	-2.6
5794	425736.91	5409358.26	326.07	0	N	A	71.0	20.7	0.0	0.0	0.0	80.4	5.8	-0.2	0.3	0.0	8.1	0.0	0.0	-2.6
5794	425736.91	5409358.26	326.07	0	E	A	71.0	20.7	0.0	0.0	0.0	80.4	5.8	-0.2	0.3	0.0	8.1	0.0	0.0	-2.6
5813	425715.66	5409425.93	319.06	0	D	A	71.0	20.7	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	1.2
5813	425715.66	5409425.93	319.06	0	N	A	71.0	20.7	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	1.2
5813	425715.66	5409425.93	319.06	0	E	A	71.0	20.7	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	1.2
5829	425046.70	5409438.38	354.50	0	D	A	71.0	21.6	0.0	0.0	0.0	81.8	6.4	-0.2	0.5	0.0	3.6	0.0	0.0	0.6
5829	425046.70	5409438.38	354.50	0	N	A	71.0	21.6	0.0	0.0	0.0	81.8	6.4	-0.2	0.5	0.0	3.6	0.0	0.0	0.6
5829	425046.70	5409438.38	354.50	0	E	A	71.0	21.6	0.0	0.0	0.0	81.8	6.4	-0.2	0.5	0.0	3.6	0.0	0.0	0.6
5838	425167.03	5409374.35	355.50	0	D	A	71.0	21.2	0.0	0.0	0.0	81.4	6.2	-0.2	0.5	0.0	3.6	0.0	0.0	0.6
5838	425167.03	5409374.35	355.50	0	N	A	71.0	21.2	0.0	0.0	0.0	81.4	6.2	-0.2	0.5	0.0	3.6	0.0	0.0	0.6
5838	425167.03	5409374.35	355.50	0	E	A	71.0	21.2	0.0	0.0	0.0	81.4	6.2	-0.2	0.5	0.0	3.6	0.0	0.0	0.6
5864	425442.63	5409322.08	351.13	0	D	A	71.0	20.5	0.0	0.0	0.0	80.8	6.0	-0.2	0.5	0.0	3.6	0.0	0.0	0.8
5864	425442.63	5409322.08	351.13	0	N	A	71.0	20.5	0.0	0.0	0.0	80.8	6.0	-0.2	0.5	0.0	3.6	0.0	0.0	0.8
5864	425442.63	5409322.08	351.13	0	E	A	71.0	20.5	0.0	0.0	0.0	80.8	6.0	-0.2	0.5	0.0	3.6	0.0	0.0	0.8
5936	424943.07	5409519.90	355.44	0	D	A	71.0	20.8	0.0	0.0	0.0	82.1	6.5	-0.2	0.5	0.0	3.6	0.0	0.0	-0.7
5936	424943.07	5409519.90	355.44	0	N	A	71.0	20.8	0.0	0.0	0.0	82.1	6.5	-0.2	0.5	0.0	3.6	0.0	0.0	-0.7
5936	424943.07	5409519.90	355.44	0	E	A	71.0	20.8	0.0	0.0	0.0	82.1	6.5	-0.2	0.5	0.0	3.6	0.0	0.0	-0.7

Line Source, ISO 9613, Name: "Truck Route-Overburden (Empty Truck)", ID: "TRE_OB"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5985	425394.30	5409583.13	272.50	0	D	A	71.0	19.5	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.5
5985	425394.30	5409583.13	272.50	0	N	A	71.0	19.5	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.5
5985	425394.30	5409583.13	272.50	0	E	A	71.0	19.5	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.5
6011	425476.38	5409587.61	272.50	0	D	A	71.0	18.9	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.9
6011	425476.38	5409587.61	272.50	0	N	A	71.0	18.9	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.9
6011	425476.38	5409587.61	272.50	0	E	A	71.0	18.9	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-2.9
6014	425420.93	5409490.49	273.48	0	D	A	71.0	18.7	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.5	0.0	0.0	-14.1
6014	425420.93	5409490.49	273.48	0	N	A	71.0	18.7	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.5	0.0	0.0	-14.1
6014	425420.93	5409490.49	273.48	0	E	A	71.0	18.7	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.5	0.0	0.0	-14.1
6046	424722.88	5409750.81	355.50	0	D	A	71.0	20.0	0.0	0.0	0.0	82.8	6.9	-0.2	0.4	0.0	3.5	0.0	0.0	-2.5
6046	424722.88	5409750.81	355.50	0	N	A	71.0	20.0	0.0	0.0	0.0	82.8	6.9	-0.2	0.4	0.0	3.5	0.0	0.0	-2.5
6046	424722.88	5409750.81	355.50	0	E	A	71.0	20.0	0.0	0.0	0.0	82.8	6.9	-0.2	0.4	0.0	3.5	0.0	0.0	-2.5
6086	425790.23	5409416.55	324.40	0	D	A	71.0	16.2	0.0	0.0	0.0	80.5	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	-3.0
6086	425790.23	5409416.55	324.40	0	N	A	71.0	16.2	0.0	0.0	0.0	80.5	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	-3.0
6086	425790.23	5409416.55	324.40	0	E	A	71.0	16.2	0.0	0.0	0.0	80.5	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	-3.0
6090	425369.34	5409524.48	272.50	0	D	A	71.0	17.0	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.2	0.0	0.0	-11.8
6090	425369.34	5409524.48	272.50	0	N	A	71.0	17.0	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.2	0.0	0.0	-11.8
6090	425369.34	5409524.48	272.50	0	E	A	71.0	17.0	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.2	0.0	0.0	-11.8
6157	425799.05	5409391.27	324.50	0	D	A	71.0	14.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.8	0.0	0.0	-4.9
6157	425799.05	5409391.27	324.50	0	N	A	71.0	14.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.8	0.0	0.0	-4.9
6157	425799.05	5409391.27	324.50	0	E	A	71.0	14.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.8	0.0	0.0	-4.9
6163	425350.90	5409558.06	272.50	0	D	A	71.0	15.0	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-9.8
6163	425350.90	5409558.06	272.50	0	N	A	71.0	15.0	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-9.8
6163	425350.90	5409558.06	272.50	0	E	A	71.0	15.0	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-9.8

Line Source, ISO 9613, Name: "OC3 Aggregate Pit Truck Route", ID: "OC3_TR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5638	428074.24	5409670.23	374.16	0	DEN	A	66.4	26.7	0.0	0.0	0.0	79.9	5.2	0.6	0.7	0.0	6.1	0.0	0.0	0.6
5714	428414.53	5409951.17	375.07	0	DEN	A	66.4	26.6	0.0	0.0	0.0	81.0	5.7	0.6	0.7	0.0	0.0	0.0	0.0	5.0
6167	428555.99	5410180.09	376.07	0	DEN	A	66.4	19.4	0.0	0.0	0.0	81.7	6.0	0.6	0.7	0.0	3.3	0.0	0.0	-6.4

Line Source, ISO 9613, Name: "Water Truck Route Stockpile", ID: "WTR_SP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5451	427525.13	5409591.57	387.26	0	DEN	A	71.9	25.7	0.0	0.0	0.0	79.4	8.9	-0.4	0.9	0.0	15.7	0.0	0.0	-6.9
5506	426435.67	5409603.46	373.34	0	DEN	A	71.9	23.9	0.0	0.0	0.0	80.1	9.4	-0.3	0.9	0.0	0.0	0.0	0.0	5.8
5569	426643.41	5409615.78	380.58	0	DEN	A	71.9	22.4	0.0	0.0	0.0	79.9	9.2	-0.3	0.9	0.0	4.1	0.0	0.0	0.6
5583	426799.68	5409678.92	385.50	0	DEN	A	71.9	22.2	0.0	0.0	0.0	80.0	9.3	-0.3	0.9	0.0	4.1	0.0	0.0	0.3
5639	427068.74	5409750.73	394.26	0	DEN	A	71.9	21.6	0.0	0.0	0.0	80.0	9.3	-0.3	0.9	0.0	0.0	0.0	0.0	3.6
5687	426936.24	5409723.09	390.54	0	DEN	A	71.9	21.1	0.0	0.0	0.0	80.0	9.3	-0.3	0.9	0.0	0.0	0.0	0.0	3.1
5734	427267.00	5409718.30	394.50	0	DEN	A	71.9	20.0	0.0	0.0	0.0	79.9	9.2	-0.3	0.9	0.0	4.5	0.0	0.0	-2.2
5834	427176.72	5409781.97	393.22	0	DEN	A	71.9	19.1	0.0	0.0	0.0	80.1	9.4	-0.3	0.9	0.0	4.1	0.0	0.0	-3.1
6045	427324.32	5409616.81	399.02	0	DEN	A	71.9	15.9	0.0	0.0	0.0	79.5	9.0	-0.4	1.0	0.0	4.1	0.0	0.0	-5.4
6087	427299.54	5409638.56	398.79	0	DEN	A	71.9	14.5	0.0	0.0	0.0	79.6	9.0	-0.4	0.9	0.0	0.0	0.0	0.0	-2.8
6091	427231.00	5409784.30	390.50	0	DEN	A	71.9	14.8	0.0	0.0	0.0	80.1	9.4	-0.3	0.9	0.0	4.1	0.0	0.0	-7.4
6133	427285.54	5409659.63	398.79	0	DEN	A	71.9	13.6	0.0	0.0	0.0	79.7	9.1	-0.4	0.9	0.0	0.0	0.0	0.0	-3.8
6172	427249.55	5409773.60	390.50	0	DEN	A	71.9	12.0	0.0	0.0	0.0	80.0	9.3	-0.3	0.9	0.0	4.1	0.0	0.0	-10.1

Line Source, ISO 9613, Name: "Motor Grader Route Stockpile", ID: "MGR_SP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5475	427525.13	5409591.57	387.26	0	DEN	A	71.1	25.7	0.0	0.0	0.0	79.4	6.9	0.0	0.7	0.0	13.9	0.0	0.0	-4.1
5539	426435.67	5409603.46	373.34	0	DEN	A	71.1	23.9	0.0	0.0	0.0	80.1	7.2	0.1	0.8	0.0	0.0	0.0	0.0	6.9
5636	426643.41	5409615.78	380.58	0	DEN	A	71.1	22.4	0.0	0.0	0.0	79.9	7.2	0.0	0.8	0.0	3.8	0.0	0.0	1.9
5643	426799.68	5409678.92	385.50	0	DEN	A	71.1	22.2	0.0	0.0	0.0	80.0	7.2	0.1	0.8	0.0	3.8	0.0	0.0	1.6
5706	427068.88	5409751.09	394.16	0	DEN	A	71.1	21.7	0.0	0.0	0.0	80.0	7.2	0.1	0.8	0.0	3.8	0.0	0.0	0.9
5739	426936.03	5409722.77	390.52	0	DEN	A	71.1	21.1	0.0	0.0	0.0	80.0	7.2	0.1	0.8	0.0	0.0	0.0	0.0	4.1
5792	427267.00	5409718.30	394.50	0	DEN	A	71.1	20.0	0.0	0.0	0.0	79.9	7.1	0.0	0.7	0.0	4.1	0.0	0.0	-0.8
5915	427177.06	5409782.65	393.14	0	DEN	A	71.1	19.0	0.0	0.0	0.0	80.1	7.3	0.1	0.8	0.0	3.8	0.0	0.0	-1.8
6066	427324.32	5409616.81	399.02	0	DEN	A	71.1	15.9	0.0	0.0	0.0	79.5	7.0	0.0	0.9	0.0	3.8	0.0	0.0	-4.2
6129	427299.54	5409638.56	398.79	0	DEN	A	71.1	14.5	0.0	0.0	0.0	79.6	7.0	0.0	0.8	0.0	0.0	0.0	0.0	-1.9
6137	427231.00	5409784.30	390.50	0	DEN	A	71.1	14.8	0.0	0.0	0.0	80.1	7.3	0.1	0.8	0.0	3.8	0.0	0.0	-6.1

Line Source, ISO 9613, Name: "Motor Grader Route Stockpile", ID: "MGR_SP"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
6151	427285.54	5409659.63	398.79	0	DEN	A	71.1	13.6	0.0	0.0	0.0	79.7	7.0	0.0	0.8	0.0	0.0	0.0	0.0	-2.9
6185	427249.55	5409773.60	390.50	0	DEN	A	71.1	12.0	0.0	0.0	0.0	80.0	7.2	0.1	0.8	0.0	3.8	0.0	0.0	-8.8

Line Source, ISO 9613, Name: "Truck Route Open Pit to Mill (Empty Truck)", ID: "TRE_OPMill"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5703	426039.27	5409390.58	335.15	0	DEN	A	68.3	24.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	12.3	0.0	0.0	-5.7
5817	425631.53	5409578.99	272.50	0	DEN	A	68.3	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	-1.8
5826	426345.87	5409644.29	366.78	0	DEN	A	68.3	22.9	0.0	0.0	0.0	80.3	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	1.2
5832	426538.83	5409923.32	385.70	0	DEN	A	68.3	23.3	0.0	0.0	0.0	80.8	6.0	-0.2	0.6	0.0	0.0	0.0	0.0	4.5
5836	425559.43	5409446.22	295.04	0	DEN	A	68.3	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.2	0.0	12.5	0.0	0.0	-7.8
5974	425841.43	5409411.18	324.75	0	DEN	A	68.3	21.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	-0.5
5976	426451.31	5409770.81	376.37	0	DEN	A	68.3	21.4	0.0	0.0	0.0	80.5	5.8	-0.2	0.6	0.0	0.0	0.0	0.0	3.0
6018	425718.41	5409424.81	319.50	0	DEN	A	68.3	20.7	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	-1.5
6052	426198.89	5409424.31	349.80	0	DEN	A	68.3	19.5	0.0	0.0	0.0	79.9	5.5	-0.2	0.7	0.0	4.5	0.0	0.0	-2.5
6071	426616.94	5410059.66	390.65	0	DEN	A	68.3	20.0	0.0	0.0	0.0	81.1	6.1	-0.2	0.5	0.0	3.6	0.0	0.0	-2.8
6075	426236.26	5409496.49	356.92	0	DEN	A	68.3	18.8	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	-2.4
6113	425396.33	5409583.55	272.50	0	DEN	A	68.3	19.5	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-5.2
6115	426703.70	5410166.27	393.25	0	DEN	A	68.3	19.4	0.0	0.0	0.0	81.4	6.2	-0.2	0.5	0.0	3.6	0.0	0.0	-3.8
6119	425422.84	5409489.28	274.04	0	DEN	A	68.3	19.0	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.5	0.0	0.0	-16.6
6134	425477.27	5409587.88	272.50	0	DEN	A	68.3	18.8	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-5.7
6141	426261.44	5409555.18	360.19	0	DEN	A	68.3	17.2	0.0	0.0	0.0	80.1	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-4.2
6168	425368.73	5409523.74	272.50	0	DEN	A	68.3	17.1	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.4	0.0	0.0	-14.6
6174	426655.98	5410121.94	389.96	0	DEN	A	68.3	16.6	0.0	0.0	0.0	81.3	6.2	-0.2	0.5	0.0	3.6	0.0	0.0	-6.4
6188	425351.54	5409557.98	272.50	0	DEN	A	68.3	15.1	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-12.3

Line Source, ISO 9613, Name: "Truck Route Stockpile (Empty Truck)", ID: "TRE_SP"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5604	427524.15	5409592.10	387.98	0	DEN	A	67.7	25.7	0.0	0.0	0.0	79.4	5.4	-0.2	0.6	0.0	9.5	0.0	0.0	-1.4
5748	426038.59	5409390.36	335.07	0	DEN	A	67.7	24.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	12.5	0.0	0.0	-6.6
5780	426432.91	5409603.33	373.37	0	DEN	A	67.7	23.8	0.0	0.0	0.0	80.1	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	5.4
5878	425631.13	5409578.50	272.50	0	DEN	A	67.7	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	-2.5
5897	425555.66	5409447.88	294.17	0	DEN	A	67.7	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.2	0.0	12.4	0.0	0.0	-8.4
5900	426638.34	5409616.36	380.50	0	DEN	A	67.7	22.4	0.0	0.0	0.0	79.9	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	0.6
5916	426796.68	5409678.62	385.50	0	DEN	A	67.7	22.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	0.4
5977	427069.33	5409751.17	394.11	0	DEN	A	67.7	21.7	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	-0.3
6007	426935.43	5409722.42	390.52	0	DEN	A	67.7	21.1	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	2.8
6010	425840.18	5409410.87	324.63	0	DEN	A	67.7	21.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	-1.2
6055	427267.01	5409719.16	394.50	0	DEN	A	67.7	20.0	0.0	0.0	0.0	79.9	5.5	-0.2	0.5	0.0	3.8	0.0	0.0	-1.9
6057	425715.96	5409425.31	319.13	0	DEN	A	67.7	20.8	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	-2.1
6069	426199.24	5409424.15	349.80	0	DEN	A	67.7	19.5	0.0	0.0	0.0	79.9	5.5	-0.2	0.7	0.0	4.5	0.0	0.0	-3.2
6093	426236.18	5409496.59	357.03	0	DEN	A	67.7	18.9	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	-3.1
6095	427177.51	5409782.91	393.09	0	DEN	A	67.7	19.0	0.0	0.0	0.0	80.1	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	-3.0
6139	425395.14	5409583.20	272.50	0	DEN	A	67.7	19.5	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-5.8
6144	425420.26	5409490.94	273.50	0	DEN	A	67.7	18.8	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.4	0.0	0.0	-17.3
6147	425476.61	5409587.11	272.50	0	DEN	A	67.7	18.8	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-6.4
6155	426261.76	5409556.01	360.53	0	DEN	A	67.7	17.4	0.0	0.0	0.0	80.1	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-4.7
6166	426294.77	5409595.16	364.77	0	DEN	A	67.7	16.9	0.0	0.0	0.0	80.2	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-5.3
6169	427324.82	5409616.26	399.04	0	DEN	A	67.7	15.9	0.0	0.0	0.0	79.5	5.4	-0.2	0.8	0.0	3.7	0.0	0.0	-5.6
6178	425368.17	5409525.22	272.50	0	DEN	A	67.7	17.1	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.1	0.0	0.0	-15.0
6186	427298.96	5409639.05	398.83	0	DEN	A	67.7	14.9	0.0	0.0	0.0	79.6	5.4	-0.2	0.6	0.0	0.0	0.0	0.0	-2.9
6187	427231.03	5409784.83	390.50	0	DEN	A	67.7	14.7	0.0	0.0	0.0	80.1	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	-7.3
6190	427284.95	5409661.13	398.83	0	DEN	A	67.7	13.4	0.0	0.0	0.0	79.7	5.5	-0.2	0.6	0.0	0.0	0.0	0.0	-4.5
6191	425350.77	5409558.82	272.50	0	DEN	A	67.7	14.9	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	7.9	0.0	0.0	-13.2
6192	427249.50	5409774.00	390.50	0	DEN	A	67.7	11.9	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	-10.0

Line Source, ISO 9613, Name: "Roen Aggregate Pit Truck Route", ID: "Roen_TR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5469	426388.49	5411303.58	371.91	0	DEN	A	66.4	29.3	0.0	0.0	0.0	84.0	7.2	0.6	0.6	0.0	3.2	0.0	0.0	0.2
5471	426377.10	5410443.70	369.96	0	DEN	A	66.4	29.3	0.0	0.0	0.0	82.3	6.3	0.6	0.6	0.0	3.2	0.0	0.0	2.7
5682	425300.41	5411772.54	364.93	0	DEN	A	66.4	28.5	0.0	0.0	0.0	85.4	8.0	0.6	0.5	0.0	3.1	0.0	0.0	-2.7

Line Source, ISO 9613, Name: "Roen Aggregate Pit Truck Route", ID: "Roen_TR"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5684	426013.16	5411765.80	370.47	0	DEN	A	66.4	28.5	0.0	0.0	0.0	85.0	7.7	0.6	0.6	0.0	3.1	0.0	0.0	-2.1
5841	426038.88	5409389.89	335.07	0	DEN	A	66.4	24.3	0.0	0.0	0.0	80.0	5.3	0.6	0.6	0.0	13.7	0.0	0.0	-9.4
5855	425255.37	5411510.42	364.70	0	DEN	A	66.4	29.0	0.0	0.0	0.0	85.1	7.7	0.6	0.6	0.0	3.1	0.0	0.0	-1.7
5938	425791.92	5409362.56	326.48	0	DEN	A	66.4	23.7	0.0	0.0	0.0	80.3	5.4	0.6	0.5	0.0	7.4	0.0	0.0	-4.1
5944	426318.77	5409769.11	366.24	0	DEN	A	66.4	23.7	0.0	0.0	0.0	80.6	5.5	0.6	0.7	0.0	3.3	0.0	0.0	-0.7
5998	424652.94	5409851.38	356.21	0	DEN	A	66.4	25.3	0.0	0.0	0.0	83.1	6.7	0.6	0.6	0.0	0.0	0.0	0.0	0.7
6021	423204.42	5411872.47	358.94	0	DEN	A	66.4	29.0	0.0	0.0	0.0	87.3	9.1	0.4	0.0	0.0	3.1	0.0	0.0	-4.5
6022	425590.51	5409325.83	337.31	0	DEN	A	66.4	22.5	0.0	0.0	0.0	80.6	5.5	0.6	0.4	0.0	11.5	0.0	0.0	-9.7
6034	422037.26	5411766.76	372.50	0	DEN	A	66.4	27.1	0.0	0.0	0.0	88.2	9.7	0.3	0.0	0.0	0.0	0.0	0.0	-4.7
6040	421568.11	5411565.39	372.50	0	DEN	A	66.4	27.1	0.0	0.0	0.0	88.5	9.9	0.3	0.0	0.0	0.0	0.0	0.0	-5.2
6044	424427.00	5410108.00	356.21	0	DEN	A	66.4	25.4	0.0	0.0	0.0	83.8	7.0	0.6	0.6	0.0	0.0	0.0	0.0	-0.2
6049	423948.30	5410773.96	359.08	0	DEN	A	66.4	26.6	0.0	0.0	0.0	85.3	7.9	0.6	0.5	0.0	3.1	0.0	0.0	-4.4
6063	423673.19	5411583.93	357.85	0	DEN	A	66.4	27.5	0.0	0.0	0.0	86.5	8.6	0.5	0.0	0.0	3.1	0.0	0.0	-4.9
6065	426322.13	5409945.21	365.98	0	DEN	A	66.4	22.3	0.0	0.0	0.0	81.1	5.7	0.6	0.7	0.0	3.3	0.0	0.0	-2.7
6067	425308.53	5409336.85	356.01	0	DEN	A	66.4	22.0	0.0	0.0	0.0	81.1	5.7	0.6	0.7	0.0	3.3	0.0	0.0	-3.0
6070	424900.13	5409562.69	356.00	0	DEN	A	66.4	23.0	0.0	0.0	0.0	82.2	6.3	0.6	0.6	0.0	3.2	0.0	0.0	-3.6
6078	425038.73	5409443.21	355.00	0	DEN	A	66.4	22.2	0.0	0.0	0.0	81.8	6.0	0.6	0.7	0.0	3.3	0.0	0.0	-3.7
6083	424113.98	5410428.24	359.08	0	DEN	A	66.4	24.9	0.0	0.0	0.0	84.7	7.5	0.6	0.6	0.0	0.0	0.0	0.0	-2.1
6116	425167.68	5409370.33	355.50	0	DEN	A	66.4	21.2	0.0	0.0	0.0	81.4	5.9	0.6	0.7	0.0	3.3	0.0	0.0	-4.3
6117	425444.83	5409322.13	351.01	0	DEN	A	66.4	20.6	0.0	0.0	0.0	80.8	5.6	0.6	0.7	0.0	3.3	0.0	0.0	-4.0
6121	423801.02	5411149.17	358.00	0	DEN	A	66.4	25.4	0.0	0.0	0.0	85.9	8.2	0.6	0.0	0.0	3.1	0.0	0.0	-6.0
6122	426199.81	5409423.62	349.79	0	DEN	A	66.4	19.5	0.0	0.0	0.0	79.8	5.2	0.6	0.8	0.0	4.2	0.0	0.0	-4.7
6128	422539.50	5411878.60	366.10	0	DEN	A	66.4	27.3	0.0	0.0	0.0	87.8	9.5	0.4	0.0	0.0	3.2	0.0	0.0	-7.1
6130	425692.32	5411414.77	370.74	0	DEN	A	66.4	24.1	0.0	0.0	0.0	84.6	7.5	0.6	0.6	0.0	3.2	0.0	0.0	-5.9
6143	426236.92	5409496.84	356.99	0	DEN	A	66.4	18.9	0.0	0.0	0.0	80.0	5.3	0.6	0.7	0.0	3.3	0.0	0.0	-4.5
6160	426338.53	5409636.49	368.87	0	DEN	A	66.4	18.6	0.0	0.0	0.0	80.3	5.4	0.6	0.7	0.0	0.0	0.0	0.0	-1.9
6165	424789.26	5409672.09	356.50	0	DEN	A	66.4	20.5	0.0	0.0	0.0	82.6	6.4	0.6	0.6	0.0	0.0	0.0	0.0	-3.4
6176	426262.22	5409556.21	360.50	0	DEN	A	66.4	17.2	0.0	0.0	0.0	80.1	5.3	0.6	0.7	0.0	3.3	0.0	0.0	-6.4
6181	424243.35	5410259.78	357.50	0	DEN	A	66.4	21.1	0.0	0.0	0.0	84.3	7.3	0.6	0.6	0.0	0.0	0.0	0.0	-5.2
6183	426294.90	5409594.61	364.78	0	DEN	A	66.4	16.9	0.0	0.0	0.0	80.2	5.3	0.6	0.7	0.0	3.4	0.0	0.0	-6.9
6197	424908.35	5411724.09	360.59	0	DEN	A	66.4	16.8	0.0	0.0	0.0	85.7	8.1	0.6	0.5	0.0	3.1	0.0	0.0	-14.8
6201	424927.24	5411761.88	361.46	0	DEN	A	66.4	16.4	0.0	0.0	0.0	85.7	8.1	0.6	0.5	0.0	3.1	0.0	0.0	-15.2
6203	426379.05	5411757.85	373.26	0	DEN	A	66.4	13.2	0.0	0.0	0.0	84.8	7.6	0.6	0.6	0.0	3.2	0.0	0.0	-17.1
6208	426391.38	5411743.40	373.09	0	DEN	A	66.4	13.1	0.0	0.0	0.0	84.8	7.6	0.6	0.6	0.0	3.2	0.0	0.0	-17.2

Line Source, ISO 9613, Name: "Truck Route PAG (Loaded Truck)", ID: "TRL_PAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5150	427736.36	5409874.78	379.22	0	D	A	83.2	26.5	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	22.5
5150	427736.36	5409874.78	379.22	0	N	A	83.2	26.5	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	22.5
5150	427736.36	5409874.78	379.22	0	E	A	83.2	26.5	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	22.5
5180	426038.55	5409390.92	335.07	0	D	A	83.2	24.3	0.0	0.0	0.0	80.0	2.4	2.1	0.6	0.0	9.4	0.0	0.0	13.1
5180	426038.55	5409390.92	335.07	0	N	A	83.2	24.3	0.0	0.0	0.0	80.0	2.4	2.1	0.6	0.0	9.4	0.0	0.0	13.1
5180	426038.55	5409390.92	335.07	0	E	A	83.2	24.3	0.0	0.0	0.0	80.0	2.4	2.1	0.6	0.0	9.4	0.0	0.0	13.1
5184	426432.69	5409603.26	373.27	0	D	A	83.2	23.9	0.0	0.0	0.0	80.1	2.4	2.1	0.3	0.0	0.0	0.0	0.0	22.2
5184	426432.69	5409603.26	373.27	0	N	A	83.2	23.9	0.0	0.0	0.0	80.1	2.4	2.1	0.3	0.0	0.0	0.0	0.0	22.2
5184	426432.69	5409603.26	373.27	0	E	A	83.2	23.9	0.0	0.0	0.0	80.1	2.4	2.1	0.3	0.0	0.0	0.0	0.0	22.2
5199	427242.73	5409796.07	393.05	0	D	A	83.2	23.3	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	19.5
5199	427242.73	5409796.07	393.05	0	N	A	83.2	23.3	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	19.5
5199	427242.73	5409796.07	393.05	0	E	A	83.2	23.3	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	19.5
5206	425633.22	5409578.74	272.50	0	D	A	83.2	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.3	0.0	0.0	16.7
5206	425633.22	5409578.74	272.50	0	N	A	83.2	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.3	0.0	0.0	16.7
5206	425633.22	5409578.74	272.50	0	E	A	83.2	23.7	0.0	0.0	0.0	81.1	2.6	2.1	0.1	0.0	4.3	0.0	0.0	16.7
5208	426640.46	5409616.78	380.50	0	D	A	83.2	22.5	0.0	0.0	0.0	79.9	2.4	2.0	0.2	0.0	2.1	0.0	0.0	19.0
5208	426640.46	5409616.78	380.50	0	N	A	83.2	22.5	0.0	0.0	0.0	79.9	2.4	2.0	0.2	0.0	2.1	0.0	0.0	19.0
5208	426640.46	5409616.78	380.50	0	E	A	83.2	22.5	0.0	0.0	0.0	79.9	2.4	2.0	0.2	0.0	2.1	0.0	0.0	19.0
5209	425555.63	5409447.83	294.11	0	D	A	83.2	23.3	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	10.7
5209	425555.63	5409447.83	294.11	0	N	A	83.2	23.3	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	10.7
5209	425555.63	5409447.83	294.11	0	E	A	83.2	23.3	0.0	0.0	0.0	80.9	2.6	2.1	0.1	0.0	10.1	0.0	0.0	10.7
5216	426800.25	5409680.19	385.50	0	D	A	83.2	22.3	0.0	0.0	0.0	80.0	2.4	2.0	0.2	0.0	2.1	0.0	0.0	18.7
5216	426800.25	5409680.19	385.50	0	N	A	83.2	22.3	0.0	0.0	0.0	80.0	2.4	2.0	0.2	0.0	2.1	0.0	0.0	18.7
5216	426800.25	5409680.19	385.50	0	E	A	83.2	22.3	0.0	0.0	0.0	80.0	2.4	2.0	0.2	0.0	2.1	0.0	0.0	18.7
5224	427429.10	5409836.24	387.41	0	D	A	83.2	22.3	0.0	0.0	0.0	80.2	2.4	2.1	0.2	0.0	2.1	0.0	0.0	18.5

Line Source, ISO 9613, Name: "Truck Route PAG (Loaded Truck)", ID: "TRL_PAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5224	427429.10	5409836.24	387.41	0	N	A	83.2	22.3	0.0	0.0	0.0	80.2	2.4	2.1	0.2	0.0	2.1	0.0	0.0	18.5
5224	427429.10	5409836.24	387.41	0	E	A	83.2	22.3	0.0	0.0	0.0	80.2	2.4	2.1	0.2	0.0	2.1	0.0	0.0	18.5
5254	427069.39	5409750.84	394.06	0	D	A	83.2	21.7	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	18.1
5254	427069.39	5409750.84	394.06	0	N	A	83.2	21.7	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	18.1
5254	427069.39	5409750.84	394.06	0	E	A	83.2	21.7	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	18.1
5274	425839.72	5409411.72	324.57	0	D	A	83.2	21.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	17.3
5274	425839.72	5409411.72	324.57	0	N	A	83.2	21.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	17.3
5274	425839.72	5409411.72	324.57	0	E	A	83.2	21.3	0.0	0.0	0.0	80.4	2.5	2.1	0.2	0.0	2.1	0.0	0.0	17.3
5278	426936.78	5409723.25	390.51	0	D	A	83.2	21.0	0.0	0.0	0.0	80.0	2.4	2.1	0.3	0.0	0.0	0.0	0.0	19.5
5278	426936.78	5409723.25	390.51	0	N	A	83.2	21.0	0.0	0.0	0.0	80.0	2.4	2.1	0.3	0.0	0.0	0.0	0.0	19.5
5278	426936.78	5409723.25	390.51	0	E	A	83.2	21.0	0.0	0.0	0.0	80.0	2.4	2.1	0.3	0.0	0.0	0.0	0.0	19.5
5309	425715.83	5409425.84	319.09	0	D	A	83.2	20.7	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	16.3
5309	425715.83	5409425.84	319.09	0	N	A	83.2	20.7	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	16.3
5309	425715.83	5409425.84	319.09	0	E	A	83.2	20.7	0.0	0.0	0.0	80.6	2.5	2.1	0.2	0.0	2.2	0.0	0.0	16.3
5326	426198.97	5409423.50	349.74	0	D	A	83.2	19.5	0.0	0.0	0.0	79.8	2.4	2.0	0.6	0.0	2.6	0.0	0.0	15.1
5326	426198.97	5409423.50	349.74	0	N	A	83.2	19.5	0.0	0.0	0.0	79.8	2.4	2.0	0.6	0.0	2.6	0.0	0.0	15.1
5326	426198.97	5409423.50	349.74	0	E	A	83.2	19.5	0.0	0.0	0.0	79.8	2.4	2.0	0.6	0.0	2.6	0.0	0.0	15.1
5348	426236.40	5409495.89	356.85	0	D	A	83.2	18.9	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	15.3
5348	426236.40	5409495.89	356.85	0	N	A	83.2	18.9	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	15.3
5348	426236.40	5409495.89	356.85	0	E	A	83.2	18.9	0.0	0.0	0.0	80.0	2.4	2.1	0.2	0.0	2.1	0.0	0.0	15.3
5373	425395.07	5409583.04	272.50	0	D	A	83.2	19.5	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	13.2
5373	425395.07	5409583.04	272.50	0	N	A	83.2	19.5	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	13.2
5373	425395.07	5409583.04	272.50	0	E	A	83.2	19.5	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	3.1	0.0	0.0	13.2
5382	425477.97	5409587.51	272.50	0	D	A	83.2	19.0	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	12.8
5382	425477.97	5409587.51	272.50	0	N	A	83.2	19.0	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	12.8
5382	425477.97	5409587.51	272.50	0	E	A	83.2	19.0	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	3.1	0.0	0.0	12.8
5388	425420.99	5409490.77	273.43	0	D	A	83.2	18.7	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.2	0.0	0.0	1.6
5388	425420.99	5409490.77	273.43	0	N	A	83.2	18.7	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.2	0.0	0.0	1.6
5388	425420.99	5409490.77	273.43	0	E	A	83.2	18.7	0.0	0.0	0.0	81.2	2.6	2.1	0.1	0.0	14.2	0.0	0.0	1.6
5412	426293.15	5409593.86	364.37	0	D	A	83.2	17.2	0.0	0.0	0.0	80.2	2.4	2.1	0.2	0.0	2.1	0.0	0.0	13.3
5412	426293.15	5409593.86	364.37	0	N	A	83.2	17.2	0.0	0.0	0.0	80.2	2.4	2.1	0.2	0.0	2.1	0.0	0.0	13.3
5412	426293.15	5409593.86	364.37	0	E	A	83.2	17.2	0.0	0.0	0.0	80.2	2.4	2.1	0.2	0.0	2.1	0.0	0.0	13.3
5413	426260.95	5409554.66	360.11	0	D	A	83.2	17.0	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	13.3
5413	426260.95	5409554.66	360.11	0	N	A	83.2	17.0	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	13.3
5413	426260.95	5409554.66	360.11	0	E	A	83.2	17.0	0.0	0.0	0.0	80.1	2.4	2.1	0.2	0.0	2.1	0.0	0.0	13.3
5438	425369.28	5409524.87	272.50	0	D	A	83.2	17.1	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	9.9	0.0	0.0	4.1
5438	425369.28	5409524.87	272.50	0	N	A	83.2	17.1	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	9.9	0.0	0.0	4.1
5438	425369.28	5409524.87	272.50	0	E	A	83.2	17.1	0.0	0.0	0.0	81.4	2.7	2.1	0.1	0.0	9.9	0.0	0.0	4.1
5485	425350.93	5409558.03	272.50	0	D	A	83.2	14.9	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	6.0
5485	425350.93	5409558.03	272.50	0	N	A	83.2	14.9	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	6.0
5485	425350.93	5409558.03	272.50	0	E	A	83.2	14.9	0.0	0.0	0.0	81.5	2.7	2.1	0.1	0.0	5.7	0.0	0.0	6.0
6209	426553.92	5409594.59	378.50	0	D	A	83.2	-15.7	0.0	0.0	0.0	79.9	2.4	2.0	0.3	0.0	0.0	0.0	0.0	-17.1
6209	426553.92	5409594.59	378.50	0	N	A	83.2	-15.7	0.0	0.0	0.0	79.9	2.4	2.0	0.3	0.0	0.0	0.0	0.0	-17.1
6209	426553.92	5409594.59	378.50	0	E	A	83.2	-15.7	0.0	0.0	0.0	79.9	2.4	2.0	0.3	0.0	0.0	0.0	0.0	-17.1

Line Source, ISO 9613, Name: "Truck Route PAG (Empty Truck)", ID: "TRE_PAG"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5439	427736.36	5409874.78	379.22	0	D	A	72.2	26.5	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	8.6
5439	427736.36	5409874.78	379.22	0	N	A	72.2	26.5	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	8.6
5439	427736.36	5409874.78	379.22	0	E	A	72.2	26.5	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	8.6
5483	426038.88	5409390.91	335.10	0	D	A	72.2	24.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	11.9	0.0	0.0	-1.4
5483	426038.88	5409390.91	335.10	0	N	A	72.2	24.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	11.9	0.0	0.0	-1.4
5483	426038.88	5409390.91	335.10	0	E	A	72.2	24.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	11.9	0.0	0.0	-1.4
5501	426432.69	5409603.26	373.27	0	D	A	72.2	23.9	0.0	0.0	0.0	80.1	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	10.0
5501	426432.69	5409603.26	373.27	0	N	A	72.2	23.9	0.0	0.0	0.0	80.1	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	10.0
5501	426432.69	5409603.26	373.27	0	E	A	72.2	23.9	0.0	0.0	0.0	80.1	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	10.0
5528	427242.46	5409796.07	393.09	0	D	A	72.2	23.3	0.0	0.0	0.0	80.1	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	5.7
5528	427242.46	5409796.07	393.09	0	N	A	72.2	23.3	0.0	0.0	0.0	80.1	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	5.7
5528	427242.46	5409796.07	393.09	0	E	A	72.2	23.3	0.0	0.0	0.0	80.1	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	5.7
5545	425632.54	5409579.12	272.50	0	D	A	72.2	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	2.0
5545	425632.54	5409579.12	272.50	0	N	A	72.2	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	2.0
5545	425632.54	5409579.12	272.50	0	E	A	72.2	23.7	0.0	0.0	0.0	81.1	6.1	-0.2	0.3	0.0	6.5	0.0	0.0	2.0

Line Source, ISO 9613, Name: "Truck Route PAG (Empty Truck)", ID: "TRE_PAG"																					
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Di	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
5551	426640.46	5409616.78	380.50	0	D	A	72.2	22.5	0.0	0.0	0.0	79.9	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	5.2
5551	426640.46	5409616.78	380.50	0	N	A	72.2	22.5	0.0	0.0	0.0	79.9	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	5.2
5551	426640.46	5409616.78	380.50	0	E	A	72.2	22.5	0.0	0.0	0.0	79.9	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	5.2
5552	425554.97	5409448.47	293.93	0	D	A	72.2	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.3	0.0	21.3	0.0	0.0	-12.8
5552	425554.97	5409448.47	293.93	0	N	A	72.2	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.3	0.0	21.3	0.0	0.0	-12.8
5552	425554.97	5409448.47	293.93	0	E	A	72.2	23.3	0.0	0.0	0.0	80.9	6.0	-0.2	0.3	0.0	21.3	0.0	0.0	-12.8
5567	426800.25	5409680.19	385.50	0	D	A	72.2	22.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	4.9
5567	426800.25	5409680.19	385.50	0	N	A	72.2	22.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	4.9
5567	426800.25	5409680.19	385.50	0	E	A	72.2	22.3	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	4.9
5575	427429.10	5409836.24	387.41	0	D	A	72.2	22.3	0.0	0.0	0.0	80.2	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	4.6
5575	427429.10	5409836.24	387.41	0	N	A	72.2	22.3	0.0	0.0	0.0	80.2	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	4.6
5575	427429.10	5409836.24	387.41	0	E	A	72.2	22.3	0.0	0.0	0.0	80.2	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	4.6
5603	427069.23	5409750.98	394.10	0	D	A	72.2	21.7	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	4.2
5603	427069.23	5409750.98	394.10	0	N	A	72.2	21.7	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	4.2
5603	427069.23	5409750.98	394.10	0	E	A	72.2	21.7	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	4.2
5657	425840.04	5409411.71	324.61	0	D	A	72.2	21.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	3.4
5657	425840.04	5409411.71	324.61	0	N	A	72.2	21.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	3.4
5657	425840.04	5409411.71	324.61	0	E	A	72.2	21.3	0.0	0.0	0.0	80.4	5.8	-0.2	0.5	0.0	3.7	0.0	0.0	3.4
5663	426936.88	5409723.39	390.51	0	D	A	72.2	21.0	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	7.2
5663	426936.88	5409723.39	390.51	0	N	A	72.2	21.0	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	7.2
5663	426936.88	5409723.39	390.51	0	E	A	72.2	21.0	0.0	0.0	0.0	80.0	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	7.2
5719	425715.61	5409425.90	319.05	0	D	A	72.2	20.7	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	2.4
5719	425715.61	5409425.90	319.05	0	N	A	72.2	20.7	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	2.4
5719	425715.61	5409425.90	319.05	0	E	A	72.2	20.7	0.0	0.0	0.0	80.6	5.9	-0.2	0.5	0.0	3.8	0.0	0.0	2.4
5769	426198.96	5409423.51	349.74	0	D	A	72.2	19.5	0.0	0.0	0.0	79.8	5.5	-0.2	0.7	0.0	4.5	0.0	0.0	1.2
5769	426198.96	5409423.51	349.74	0	N	A	72.2	19.5	0.0	0.0	0.0	79.8	5.5	-0.2	0.7	0.0	4.5	0.0	0.0	1.2
5769	426198.96	5409423.51	349.74	0	E	A	72.2	19.5	0.0	0.0	0.0	79.8	5.5	-0.2	0.7	0.0	4.5	0.0	0.0	1.2
5816	426236.40	5409495.89	356.85	0	D	A	72.2	18.9	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	1.5
5816	426236.40	5409495.89	356.85	0	N	A	72.2	18.9	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	1.5
5816	426236.40	5409495.89	356.85	0	E	A	72.2	18.9	0.0	0.0	0.0	80.0	5.6	-0.2	0.5	0.0	3.7	0.0	0.0	1.5
5880	425395.02	5409583.17	272.50	0	D	A	72.2	19.6	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-1.3
5880	425395.02	5409583.17	272.50	0	N	A	72.2	19.6	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-1.3
5880	425395.02	5409583.17	272.50	0	E	A	72.2	19.6	0.0	0.0	0.0	81.5	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-1.3
5943	425477.69	5409587.63	272.50	0	D	A	72.2	18.9	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-1.8
5943	425477.69	5409587.63	272.50	0	N	A	72.2	18.9	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-1.8
5943	425477.69	5409587.63	272.50	0	E	A	72.2	18.9	0.0	0.0	0.0	81.4	6.2	-0.2	0.4	0.0	5.1	0.0	0.0	-1.8
5946	425420.18	5409491.64	273.29	0	D	A	72.2	18.7	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.3	0.0	0.0	-12.8
5946	425420.18	5409491.64	273.29	0	N	A	72.2	18.7	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.3	0.0	0.0	-12.8
5946	425420.18	5409491.64	273.29	0	E	A	72.2	18.7	0.0	0.0	0.0	81.2	6.1	-0.2	0.2	0.0	16.3	0.0	0.0	-12.8
5980	426293.15	5409593.86	364.37	0	D	A	72.2	17.2	0.0	0.0	0.0	80.2	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-0.5
5980	426293.15	5409593.86	364.37	0	N	A	72.2	17.2	0.0	0.0	0.0	80.2	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-0.5
5980	426293.15	5409593.86	364.37	0	E	A	72.2	17.2	0.0	0.0	0.0	80.2	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-0.5
5982	426260.95	5409554.66	360.11	0	D	A	72.2	17.0	0.0	0.0	0.0	80.1	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-0.6
5982	426260.95	5409554.66	360.11	0	N	A	72.2	17.0	0.0	0.0	0.0	80.1	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-0.6
5982	426260.95	5409554.66	360.11	0	E	A	72.2	17.0	0.0	0.0	0.0	80.1	5.7	-0.2	0.5	0.0	3.7	0.0	0.0	-0.6
6058	425369.10	5409525.28	272.50	0	D	A	72.2	17.0	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.1	0.0	0.0	-10.5
6058	425369.10	5409525.28	272.50	0	N	A	72.2	17.0	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.1	0.0	0.0	-10.5
6058	425369.10	5409525.28	272.50	0	E	A	72.2	17.0	0.0	0.0	0.0	81.4	6.2	-0.2	0.2	0.0	12.1	0.0	0.0	-10.5
6140	425350.94	5409558.34	272.50	0	D	A	72.2	14.9	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-8.7
6140	425350.94	5409558.34	272.50	0	N	A	72.2	14.9	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-8.7
6140	425350.94	5409558.34	272.50	0	E	A	72.2	14.9	0.0	0.0	0.0	81.5	6.2	-0.2	0.3	0.0	8.0	0.0	0.0	-8.7
6211	426553.92	5409594.59	378.50	0	D	A	72.2	-15.7	0.0	0.0	0.0	79.9	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	-29.3
6211	426553.92	5409594.59	378.50	0	N	A	72.2	-15.7	0.0	0.0	0.0	79.9	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	-29.3
6211	426553.92	5409594.59	378.50	0	E	A	72.2	-15.7	0.0	0.0	0.0	79.9	5.6	-0.2	0.6	0.0	0.0	0.0	0.0	-29.3

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January 18, 2017

Ray Boivin
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Ray.Boivin@ontario.ca

Dear Mr. Boivin,

RE: 150L Dyed Diesel Fuel Spill - SAC Reference #2733-AHPQSH

Further to the notification to the Spills Action Centre (SAC) Reference #2733-AHPQSH regarding a spill of dyed diesel fuel on January 17th 2017, the following report is submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine removal of overburden from the Phase 1 Pit to Finger 1 of the Overburden Stockpile an operator noticed a Komatsu 830E haul truck was leaking fuel.
- The operator of the leaking haul truck (unit number 205) was informed immediately and found a safe place to park and shut down the unit.

Cause

- Spill was caused by a lose piece of frozen overburden impacting the fuel filter. The operator had tried to straddle the lose piece of frozen overburden on the haul road.

Clean Up and Recovery

- There was no impact to any water source.
- 150 liters of dyed diesel was spilled;
  - Approximately 250L of dyed diesel fuel was lost from the fuel tank by the time the leak was stopped.100L of dyed diesel was captured in spill trays and totes before the leak was stopped from the fuel tank.
- Approximately 50 tonnes (27.8 m^3) of contaminated soil was removed from the haul road using heavy equipment. Spill pads, boom socks, shovels and barrels were used to clean up the remaining material.
- The 50 tonnes / 27.8 m^3 of contaminated soil was removed by heavy equipment to the Richardson Township Landfill as per the New Gold Rainy River Project (RRP) Spill Procedure for Large Spills. The Richardson Township Landfill is a certified receiver of contaminated soil as per the Certificate of Approval.
- The New Gold RRP Spill Procedure continued to be followed for the disposal of the spill pads, boom socks and a small amount of contaminated soil; they were placed in appropriate barrels.

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The barrels are labelled appropriately and stored at Laydown 7 for pick up by the New Gold RRP contaminated waste disposal contractor, Green For Life.

Preventative Measures

- The Canadian Model was followed and the operator of Unit 205 was taken for drug and alcohol testing in relation to this incident. The operator was found fit for duty.
- The incident was reviewed with all crews with emphasis on the importance of situational awareness, driving to conditions and what can happen when shortcuts or poor decisions are made.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions you may have.

Regards,

Nathan Baird

Nathan Baird
Environmental Technician
New Gold Rainy River Project
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(807) 271 3190

cc: Adam Scheepers,EC; adam.scheepers@canada.ca
Gary Cooper, DFO; gary.cooper@dfo-mpo.gc.ca
CEAA, compliance.conformite@ceaa-acee.gc.ca
Dan McDonnell, EC; dan.mcdonell@canada.ca

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October 19th, 2017

Matt Hoffmeister
Senior Environment Officer, Kenora Area
Ministry of the Environment and Climate Change
808 Robertson Street
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: Leach Tank Slurry 100L Spill – SAC Reference #0207-AS7UTC

Further to the notification to the Spills Action Centre (SAC) Reference #0270-AS7UTC regarding a spill of Leach Tank Slurry (20% solids) on October 16th, 2017, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC).

Discovery

- As part of the regular commissioning and operation of the Mill, Leach Tank Slurry (slurry) runs through the process from the Leach Tank 1 to Leach Tank 2 through a square chute called a launder. The launder is near the top of the tanks, approximately 12 m high.
- The Leach Tanks are within secondary, outside the west side of the Mill building.
- Slurry was overtopping the launder and was blown past the secondary.

Cause

- Currently the target solids concentration is 52% for the slurry leaving Leach Tank 1. That target is likely to change due to commissioning and refining the process. If the slurry leaving Leach Tank 1 is not at the target solids concentration, the slurry is to recirculate in Leach Tank 1.
- The slurry leaving Leach Tank 1 was measured at 20% solids, below the target solids concentration, and should have recirculated. The operator did not activate the recirculation system causing the launder between Leach Tank 1 and Leach Tank 2 to overflow.
- During the time of the spill, wind speeds were 32 km/hr sustained. The high wind speed pushed the slurry running out of the launder out past secondary containment. The slurry fell approximately 12 m and some fell outside of the secondary containment for the Leack Tanks because of the wind.

Clean Up and Recovery

- There was no impact to any water body.
- The majority of the slurry that spilled out of the launder was contained within the secondary containment, however due to the wind, 100 L was not contained.
- The slurry spilled outside the secondary containment was cleaned up and put back into the Mill process for disposal.

Preventative Measures

- Review procedure for the Leach Tank recirculation until the density is above 52% solids and make changes as appropriate.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions.

Respectfully submitted,

Amanda Jacobs

(on behalf of)

Robyn Gaebel
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newgold Rainy River Project

September 19, 2017

Matt Hoffmeister
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: Request for additional information regarding 5300 L Dyed Diesel Fuel Spill - SAC Reference #2425-AQRHFH

As per your request for additional information please find attached the following documents; photos of the incident (entitled Clean up, Post Clean up), and a letter stating the Richardson Landfill has the approval of the MOECC to receive contaminated soil (dated 2015-05-28).

To address your second question, Richardson Township's ECA number is A610704.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions you may have.

Regards,

Nathan Baird

Nathan Baird
Environmental Technician
New Gold Rainy River Project
Nathan.Baird@newgold.com
(807) 271 3190

newgold Rainy River Project

September 6, 2017

Matt Hoffmeister
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: 5300 L Dyed Diesel Fuel Spill - SAC Reference #2425-AQRHFH

Further to the notification to the Spills Action Centre (SAC) Reference #2425-AQRHFH regarding a spill of dyed diesel fuel on August 31th 2017, the following report is submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine removal of basil till material an 830E Komatsu Heavy Haul truck (unit number 212) was pulling away from a PC5500 Komatsu Shovel (unit number 601) and the box of the haul truck made contact with the fuel tank of the shovel.
- The operator of the haul truck noticed the leak on the shovel, froze the scene and reported it to the Mine Shift Supervisor who then took steps to secure the scene and stop the spread of fuel.

Cause

- While being loaded the haul truck was parked on a slight slope towards the shovel on slick material.
- When the haul truck pulled away from the shovel it slipped and the box of the haul truck made contact with the fuel tank of the shovel puncturing the fuel tank, which was ¾ full at the time.

Clean Up and Recovery

- There was no impact to any water body.
- 5300 liters of dyed diesel was spilled.
- Due to the height of the impact and size of the hole the leak could not be stopped at the source, instead a berm was built to contain the fuel on the ground and stop the spread.
- A vehicle known as a DSV (Drill Service Vehicle) was able to suck up most of the fuel that was contained behind the berm, the remainder was either bailed up by hand using pails, or absorbed with spill pads.
- Approximately 110 m^3 of contaminated soil was removed from the open pit in roll off bins and picked up by Green For Life for disposal.

- Green For Life determined that the Richardson Township Landfill was the most appropriate location to handle this volume of contaminated material. The Richardson Township Landfill is a certified receiver of contaminated soil as per the Certificate of Approval.
- The New Gold Rainy River Project Spill Procedure continued to be followed for the disposal of the spill pads, and liquid waste fuel; which was placed in appropriate containers and stored at the truck shop on the plant site for pick up by Green For Life at a later date.

Preventative Measures

- The Canadian Model for work place incidents was followed and both operators were taken for drug and alcohol testing in relation to this incident. The operators were found fit for duty.
- Discuss with all crews about the importance of keeping shovel loading area clean and of calling for a cleanup when necessary.
- Spot haul trucks in a safe location when spotting them into the loading area and ensure haul truck operators are able to pull straight out of the loading area at a smooth consistent speed.
- Allocate a dozer to each shovel to ensure shovel pit floors and loading areas are kept in good condition.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions you may have.

Regards,

Nathan Baird
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newgold™ Rainy River Project

October 4th, 2017

Matt Hoffmeister
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: 2m^3 Cyanide Destruction Tailings Slurry Spill - SAC Reference #6281-ARNKQ7

Further to the notification to the Spills Action Centre (SAC) Reference #6281-ARNKQ7 regarding a spill of cyanide destruction tailings slurry on September 27th 2017, the following report is submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- During routine maintenance on the tailings slurry sampler on the second floor of the Mill, operators disconnected a hose and tailings slurry flowed out of the hose.
- The majority of the tailings slurry spilled out of the hose was contained in the Mill however some of the tailings slurry flowed to the ground floor of the Mill and out of the north outside door 3 (3N).

Cause

- Currently the Mill is being commissioned, and is in the commissioning phase. During the commissioning phase, process upsets occur regularly because the processes and procedures are being fine-tuned and refined.
- While during commissioning and normal operations, capacity to contain spills exists within the Mill, a process upset had already flooded the internal capacity.
- When the operators disconnected the hose from the sampler tailings slurry spilled out of the hose and instead of being contained in the Mill, flowed onto the ground outside of door 3N.

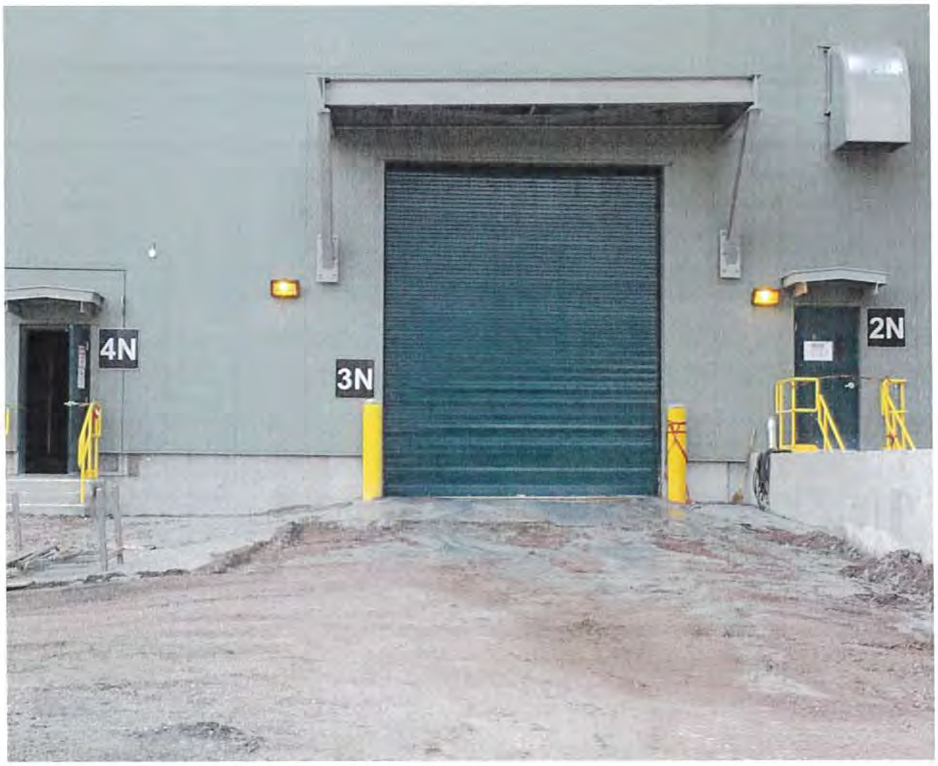

Figure 1: Door 3N Exterior Mill Spill

Clean Up and Recovery

- There was no impact to any water body.
- The majority of the cyanide destruction tailings slurry spilled out of the process was contained within the Mill however 2m^3 of cyanide destruction tailings slurry was spilled to the exterior of the Mill.
- The 3N door was closed to stop the spill out of the Mill and a berm was constructed to stop flow further from the door.
- The exterior spilled material was dug up and put back into the Mill process for disposal. The interior spilled material will be pumped and put back into the Mill process for disposal.

Preventative Measures

- Discuss with all crews about the importance of housekeeping (ensuring the Mill sumps are empty) and keeping containment capacity available for maintenance operations.
- Review maintenance procedure for the tailings slurry sampler and make changes as appropriate.
- Floor drainage is being reviewed and redesigned to ensure proper drainage to sumps.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions you may have.

Regards,

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newgold™ Rainy River Project

October 4th, 2017

Matt Hoffmeister
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: Process Water 2.85m^3 Spill - SAC Reference #6621-ARSKJ5

Further to the notification to the Spills Action Centre (SAC) Reference #6621-ARSKJ5 regarding a spill of Mill Process Water on October 3rd 2017, the following report is submitted to the Ministry of Environment and Climate Change (MOECC).

Discovery

- As part of the regular commissioning phase, the Mill process was shut down.
- During the Mill shut down, an operator did not stop the flow from one of the water sources, resulting in a flow of water into an interior Mill sump.
- Due to a process upset previously, the interior sump already contained some process water. With the additional volume the interior sump overflowed.
- Process water filled the interior Mill capacity and overflowed outside the Mill building.

Cause

- Currently the Mill is being commissioned, and is in the commissioning phase. During the commissioning phase, process upsets occur regularly because the processes and procedures are being fine-tuned and refined.
- While during commissioning and normal operations, capacity to contain spills exists within the Mill, a process upset had already flooded the internal capacity.
- When the operator did not stop the flow, process water flowed onto the ground outside of door 17W of the Mill.

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Figure 1: Door 17W Exterior Mill Spill

Clean Up and Recovery

- There was no impact to any water body.
- The majority of the process water spilled out of the process was contained within the Mill however 2.85 m^3 of process water was spilled to the exterior of the Mill.
- The exterior spilled material, as well as the interior spilled material, will be pumped and put back into the Mill process for disposal.

Preventative Measures

- Discuss with all crews about the importance of housekeeping (ensuring the Mill sumps are empty) and keeping containment capacity available for maintenance operations.
- Review procedure for the addition of water to the process and make changes as appropriate.
- Floor drainage is being reviewed and redesigned to ensure proper drainage to sumps.

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Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions you may have.

Regards,

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November 14th, 2017

Matt Hoffmeister
Senior Environment Officer, Kenora Area
Ministry of the Environment and Climate Change
808 Robertson Street
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: High Calcium Quicklime Spill 5 Kg – SAC Reference #2864-ASXVP9

Further to the notification to the Spills Action Centre (SAC) Reference #2864-ASXVP9 regarding a spill of High Calcium Quicklime Spill on November 9th, 2017, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC).

Discovery

- As part of the regular operation of the Mill, High Calcium Quicklime is pumped via tanker truck into the Lime Silo.
- The pipe used to fill the Lime Silo was found to have a hole in it.
- High Calcium Quicklime was falling from a height of 20m unto snow directly beside the Lime Silo.

Cause

- Regular wear and tear from loading the Lime Silo caused a hole to erode in the loading pipe.

Clean Up and Recovery

- There was no impact to any water body.
- High Calcium Quicklime in these conditions is a non-migrating material.
- Snow containing the High Calcium Quicklime was placed inside the mill and hosed into the process, this was completed November 10th, 2017 at 10 am.

Preventative Measures

- A temporary patch has been placed on the existing pipe and a new pipe is on order.
- Spill trays are now in use during the Lime Silo loading procedure.
- The specifications of the Lime Silo loading pipe will be reviewed to ensure a proper grade material is being used.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions.

Regards,

Nathan Baird

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newgold Rainy River Project

November 28, 2017

Matt Hoffmeister
Senior Environment Officer, Kenora Area
Ministry of the Environment and Climate Change
808 Robertson Street
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: 500L Process Water Spill – SAC Reference #4758-ATDNL7

Further to the notification to the Spills Action Centre (SAC) Reference #4758-ATDNL7 regarding a spill of process Water on November 23rd, 2017, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC).

Discovery

- As part of the regular operation of the Mill, process water can be used to clean up spills and rinse equipment within the Mill.
- The Refinery within the Mill was found to be flooded with process water and this water escaped containment outside door 25W.
- This spill was thought to be related to the earlier incident that night of spilled mill process slurry (see SAC reference # 1244-ATDJZ8), but upon further investigation this was not found to be the case.

Cause

- A ball valve was left partially open on a process water rinse hose in the refinery.
- The process water reported to a sump on the Refinery floor, however the sump pump did not turn on, as the sump pump had been operated in manual.
- Process water continued to flood the floor of the Refinery until the water escaped door 25W.

Clean Up and Recovery

- There was no impact to any water body.
- The Process Water only migrated 15 meters outside the 25W door. The volume was estimated by visual estimate, noting the surface area impacted and that the water pooled in a small depression within the secure Refinery yard.
- Snow, ice and gravel containing the mill process slurry was collected and returned to the process, this was completed by November 23th, 2017 at 530 pm.

Preventative Measures

- Under normal operations, solution spills within the Refinery are designed to be addressed by the Refinery area sump pump.
- Operations within this area require a dry floor.
- An instruction has been made to ensure that refinery personnel are to return this sump pump to automatic mode if used in manual.
- A sign will be placed at the manual control switch to this effect.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions.

Regards,

Nathan Baird

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newgold™ Rainy River Project

November 28, 2017

Matt Hoffmeister
Senior Environment Officer, Kenora Area
Ministry of the Environment and Climate Change
808 Robertson Street
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: 3000L Mill Process Slurry Spill – SAC Reference #1244-ATDJZ8

Further to the notification to the Spills Action Centre (SAC) Reference #1244-ATDJZ8 regarding a spill of mill process slurry on November 23rd, 2017, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC).

Discovery

- As part of the regular operation of the Mill, mill process slurry is pumped in and out of various tanks and between different unit operations within the Mill.
- This slurry was found to have escaped the 9E door of the Mill.
- Containment piping to direct slurry from the carbon safety screen within the Mill to existing sumps is still under construction.

Cause

- A high travel alarm activated on the carbon safety screen, causing it to shut down.
- Bypass is effected by a valve that takes approximately 12 minutes to shut resulting in spillage from the screen to an elevated platform under the screen and then into an access corridor outside of the main containment bund.
- Due to the volume of material spilled, 3000L of mill process slurry escaped door 9E.

Clean Up and Recovery

- There was no impact to any water body.
- The mill process slurry did not make it as far as the ditching that surrounds the Mill area, which would have directed it to the containment ponds (North/South Pond).
- Snow, ice and gravel containing the mill process slurry was collected and returned to the process, this was completed by November 23th, 2017 at 530 pm.

Preventative Measures

- The maintenance team is examining means to bypass the carbon safety screen faster.
- Construction on the piping to direct slurry from the carbon safety screen platform to the main mill containment will continue with an anticipated completion date of December 4th.
- A temporary sump has been cut into the area impacted by the spill.
- A civil engineer has been retained to examine construction of permanent sumps within the area of the spill, and exterior door 9E with anticipated completion by December 15th.
- In the interim mill operations personnel will monitor the area for spills regularly.
- During construction a temporary berm will be placed using earthen materials on either side of door 9E.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions.

Regards,

Nathan Baird
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November 28, 2017

Matt Hoffmeister
Senior Environment Officer, Kenora Area
Ministry of the Environment and Climate Change
808 Robertson Street
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: 300L Process Water Spill – SAC Reference #6828-ATEL7A

Further to the notification to the Spills Action Centre (SAC) Reference #6828-ATEL7A regarding a spill of process water on November 24rd, 2017, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC).

Discovery

- As part of the regular operation of the Mill, process water can be used to clean up spills and rinse floors and equipment within the Mill.
- While using process water to clean the area around the carbon safety screen that caused mill process slurry spill as outlined by SAC reference #1244-ATDJZ8, process water was found to have escaped door 9E.
- Berms had been created on either side of door 9E and were thought to be sufficient to contain further slurry spills. When it was observed the berms were not sufficient to hold process water, the work was stopped.

Cause

- Temporary berms installed to protect door 9E as an interim solution for containment, were unable to contain process wash water being used to effect slurry spill clean up

Clean Up and Recovery

- There was no impact to any water body.
- The process water migrated about 3 meters outside the 9E door resulting in 100-300L exiting the Mill.
- This spill was caught quickly by the operators and work ceased.
- Snow, ice and gravel containing the process water was placed inside the mill and returned into the process, this was completed November 24th, 2017 at 830 am.

Preventative Measures

- A civil engineer has been retained to examine construction of permanent sumps within the area of the spill, and exterior door 9E with anticipated completion by December 15th.
- In the interim mill operations personnel will monitor the area for spills regularly.

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions.

Regards,

Nathan Baird

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New Gold Rainy River
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newgold Rainy River Project

November 28, 2017

Matt Hoffmeister
Senior Environment Officer, Kenora Area
Ministry of the Environment and Climate Change
808 Roberston Street
Kenora, ON P9N 1X9
Via email; Matt.Hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: 100-150L Waste Oil Spill – SAC Reference #2863-ATFPZE

Further to the notification to the Spills Action Centre (SAC) Reference #2863-ATFPZE regarding a spill of waste oil on November 25th, 2017, the following report is submitted to the Ministry of the Environment and Climate Change (MOECC).

Discovery

- Contractors from Sigfusson Northern made the decision to relocate a waste oil bin within a laydown area.
- While attempting to load the bin onto a trailer the bin fell on its side.
- The contents of this bin were an unknown volume of used oil filters and waste oil.
- As part of regular incident reporting Sigfusson Northern supervisors contacted New Gold.
- Upon inspection New Gold Environment staff estimated the initial size of the hydrocarbon spill to be between 100-150L.

Cause

- Improper equipment selected to move bin
- A front-end loader with forks that were too large for the gap under the bin was used.
- The loader was unable to slide the forks out from under the bin, then operator attempted to tilt the forks and slide the bin off onto the trailer, this caused the bin to topple over.

Clean Up and Recovery

- There was no impact to any water body or land other than the gravel of the laydown yard.
- Spill pads and boom socks were utilized to soak up the spill.
- Approximately 10 m^3 of hydrocarbon contaminated gravel was scraped up and placed in contaminated soil bins, the bins have been removed from site and transported by certified contractor to their facility in Thunder Bay.
- Clean up was completed at 1630 on November 25th 2017.
- After reviewing the amount of materials removed during the clean-up, the waste oil spill volume was re-estimated to be between 50-75L.

Preventative Measures

- Sigfusson Northern will update their procedure for handling of hazardous waste and submit to New Gold for review

Once you have had the opportunity to review this information please feel free to contact the undersigned or Darrell Martindale (at darrell.martindale@newgold.com or 807-707-3497) with any additional questions.

Regards,

Nathan Baird

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newgold Rainy River Project

January 3, 2018

Matt Hoffmeister
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email; matt.hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: SAC REF # 3480-AUGQUK PROCESS PLANT SLURRY SPILL

In accordance with ECA 5178-9TUPD9, notification was made to the Spills Action Centre (SAC Ref. # 3480-AUGQUK) regarding a spill of tailings slurry on December 24th, 2017. The following modified report is being submitted to the Ministry of Environment and Climate Change (MOECC) as per condition 11(4) of ECA 5178-9TUPD9 and replaces previous version dated December 29, 2017.

Discovery

- During night shift of December 24th, a small quantity (>20 L) of tailings solution flowed outside mill door 8E and onto ice in front of the adjacent mill overhead door 9E.

Cause

- The carbon safety screen underpan, located within the mill gold recovery building, plugged.
- Subsequently the carbon safety screen was bypassed to mitigate the volume of tailings slurry which overflowed the pan and immediate containment, which includes a new diversion pipe to a sump.
- Tailings slurry that was not intercepted, flowed into the mobile equipment access corridor and solution decanted from the solids and flowed towards the 9E overhead mill door.

Clean Up and Recovery

- A Bobcat Skidsteer was brought in to direct the slurry away from the door and pumping initiated. A volume of solution that contacted the door was wicked outside and froze.
- The ice imprint was immediately scraped up and returned to the gold recovery process.

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- Clean up of spillage on the plant floor was completed during the shift to prevent further travel.
- The berm located in front of the overhead door was re-established.
- There was no environmental harm recorded due to the small volume.

Preventative measures and schedule of implementation

- Installation of concrete speed bumps in front of the overhead doors - January 2018;
- Evaluation of engineering controls such as bypass valve replacement (greater speed) and area monitoring cameras is being evaluated – January 2018.

Should you have any questions after reviewing this letter, please contact the undersigned at (807) 708-2407.

Regards,

Twila Griffith

Twila Griffith
Sr. Environmental Specialist
twila.griffith@newgold.com

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cc: Adam Scheepers (Environment Canada)
Andrea Doherty (Department of Fisheries and Oceans)
Karli Allen (Ministry of Natural Resources and Forestry)
Canadian Environmental Assessment Agency (CEAA)

newgold™ Rainy River Project

December 22, 2017

Matt Hoffmeister
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email; matt.hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: SAC REF. 0241-AU6T3F POTENTIALLY HYDROCARBON CONTAMINATED TRUCK WASH BAY WASTE WATER SPILL

In accordance with ECA 5178-9TUPD9, notification was made to the Spills Action Centre (SAC Ref. # 0241-AU6T3F) regarding a 22,710 L spill of potentially hydrocarbon contaminated truck wash bay waste water on December 14th, 2017. The following report is being submitted to the Ministry of Environment and Climate Change (MOECC) as per condition 11(4) of ECA 5178-9TUPD9.

Discovery

- During the afternoon on December 14th, a vacuum truck was contracted to collect and dispose of potentially hydrocarbon contaminated waste water from the truck wash bay sump.
- Waste water was disposed on the plant site in a shallow rock and gravel lined trench between Haul Road 1 and the South Pond.
- On December 15th, the volume of waste water disposed of was confirmed to be approximately 22, 710 L (6000 Gallons).
- The Spills Action Centre was notified at 15:25 hours and an investigation initiated.

Cause

- The correct procedure was not followed for the disposal of potentially hydrocarbon-contaminated wastewater generated at the truck wash i.e., discharge to the plant site pond following the removal of potential hydrocarbons per *Management of Water of Water Used For Dust Suppression and Other Industrial Uses V2 Sept 2015* (permit to take water conditions 4.1.5/6). Disposal actions were based on the observed absence of hydrocarbons i.e., no sheen.

Clean Up and Recovery

- A small quantity of the truck wash water froze onto gravel and rock in shallow ditch area. Majority migrated under the snow pack into the plant site south pond. No material was recovered however, this storm water pond provides water for processing plant operations and is therefore contained.

Preventative measures and schedule of implementation

- Follow up with MOECC for the approval of the truck wash oil/water separator, submitted March 17, 2017; January 2018
- Request approval from MOECC for the disposal of truck wash liquids and solids into the TMA; January 2018
- Review, update and communicate the standard operating procedure (SOP) for managing wastes from the truck wash in the interim prior to approvals from MOECC; January 2018; and
- Include analytical testing in the truck wash SOP to determine the absence or presence of hydrocarbons to inform the handling and disposal of truck wash wastes; January 2018.

Should you have any questions after reviewing this letter, please contact the undersigned at (807) 708-2407.

Regards,

Twila Griffith

Twila Griffith
Sr. Environmental Specialist
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New Gold Inc.
Rainy River Project
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cc: Adam Scheepers (Environment Canada)
Andrea Doherty (Department of Fisheries and Oceans)
Karli Allen (Ministry of Natural Resources and Forestry)
Canadian Environmental Assessment Agency (CEAA)

newgold™ Rainy River Project

December 29, 2017

Matt Hoffmeister
Senior Environmental Officer
Ministry of the Environment and Climate Change
808 Robertson St.
Kenora ON P9N 1X9
Via email; matt.hoffmeister@ontario.ca

Dear Mr. Hoffmeister,

RE: SAC REF # 3480-AUGQUK PROCESS PLANT SLURRY SPILL

In accordance with ECA 5178-9TUPD9, notification was made to the Spills Action Centre (SAC Ref. # 3480-AUGQUK) regarding a spill of tailings slurry on December 24th, 2017. The following report is being submitted to the Ministry of Environment and Climate Change (MOECC) as per condition 11(4) of ECA 5178-9TUPD9.

Discovery

- During night shift of December 24th, a small quantity (<20 L) of tailings slurry flowed outside mill door 8E and onto ice in front of the adjacent mill overhead door 9E.

Cause

- The carbon safety screen underpan, located within the mill gold recovery building, plugged.
- Subsequently the carbon safety screen was bypassed to mitigate the volume of tailings slurry.
- Tailings slurry decanted and overflowed into the mobile maintenance corridor and flowed towards the 9E overhead mill door.

Clean Up and Recovery

- A Bobcat Skidsteer was brought in to direct the slurry away from the door and pumping initiated. The slurry that escaped outside froze and was immediately scraped up along with ice and returned to the gold recovery process.
- The area was over excavated to recover the slurry and clean up was completed during the shift.

- The berm located in front of the overhead door was re-established.
- There was no environmental harm recorded due to the minor nature and proximity of the event.

Preventative measures and schedule of implementation

- Review spill reporting procedure with crews - January 2108; and
- Construct secondary containment in front of each mill overhead door to capture and minimize extent of external spills - January 2018.

Should you have any questions after reviewing this letter, please contact the undersigned at (807) 708-2407.

Regards,

Twila Griffith

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RAINY RIVER PROJECT

OPERATION, MAINTENANCE AND SURVEILLANCE MANUAL WATER MANAGEMENT STRUCTURES

New Gold Inc.
Rainy River Project
5967 Highway 11/71, P.O. Box 5
Emo, Ontario
P0W 1E0

August 2017

Version 2017-08

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1.0 INTRODUCTION

The Rainy River Mine (RRM) is located in the Rainy River District, in northwestern Ontario in Chapple Township, approximately 65 kilometers (km) northwest of Fort Frances and 420 km west of Thunder Bay. The mine includes an open pit mine, a mill, tailings management area (TMA), process water and water treatment structures. The project is currently in its second year of construction and close to operations in late 2017 at the time of this Operation, Maintenance and Surveillance (OMS) manual update (to August 15, 2017).

This OMS Manual has been prepared by the Rainy River Mine with the assistance of AMEC Foster Wheeler (AMECFW) and the Engineer of Record for the dams. The OMS is a requirement of the Ministry of Natural Resources and Forestry (MNRF), Lakes Rivers Improvement Act (LRIA) approvals, and has been prepared in general accordance with the latest guidelines titled "Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities:" developed by the Mining Association of Canada (MAC, 2011).

The goal of the OMS Manual is to provide specific guidance the operation to the Tailings, Water Management and Water Diversion dams. The objectives of this OMS are to define and describe the following:

- Roles and responsibilities of personnel assigned to the facility;
- The key components of the facility;
- Set out procedures required to operate, monitor the performance of, and maintain a facility to ensure that it functions in accordance to design, meets regulatory and corporate policy obligations, and links to emergency preparedness and response;
- Procedures and processes for managing change;
- Requirements for analysis and documentation of the performance of the facility;
- Serve as a training document for personnel that are new to the mine;
- Identify potentially unsafe conditions or indicators and provide links to emergency response procedures; and
- Satisfy the requirements of the Mining Association of Canada's (MAC) guidelines Towards Sustainable Mining (TSM) initiative.

The OMS Manual covers operations of the facility through the commissioning, operations, and closure phases of the Rainy River Mine. The tailings facilities include the equipment and operations beginning with the tailings discharge from the mine mill, pipelines, deposition equipment, tailings, water treatment and water management (seepage collection ponds) and water diversion. In addition, the OMS guides operators and staff on when to initiate the EPRP.

This document has been prepared primarily for use by the mine personnel who are responsible for the operation, maintenance and surveillance of the tailings facility. It contains information and instructions necessary to perform the above required activities. Comprehensive checklists and procedures for operation, maintenance and annual inspections are utilized by the RRM e.g., through the SAP work order system and are not reproduced herein.

1.1 Regulatory Requirements and Guidelines

This document is consistent with the New Gold Tailings, Heap Leach and Waste Rock Facilities Management Policy and was prepared pursuant to the MAC guidelines for *Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities* (MAC, 2011).

There are a number of Federal and Provincial environmental approvals required to construct, operate, and eventually reclaim the mine. Key Provincial legislation related to the RRM includes the: *Ontario Water Resources Act*, *Environmental Protection Act*, *Endangered Species Act*, *Mining Act*, *Lakes and Rivers Improvement Act*, *Public Lands Act* and *Planning Act*. From the Federal perspective, the *Fisheries Act* and the associated Metal Mining Effluent Regulation are the primary regulatory instruments related to the RRM.

The primary approval(s) for construction of the various hydraulic structures and associated water storage facilities are as follows:

- Work Permits from Ontario Ministry of Natural Resources and Forestry (MNRF), under the *Lakes and Rivers Improvement Act* (LRIA).
  - These permits approve the design of the dams and appurtenances, in accordance with the provided design drawings and report.
  - LRIA approvals are generally required for each annual dam raising campaign.
- Discharge of effluent (e.g. from the TMA) is governed by the Environmental Compliance Approvals (ECAs) for Industrial Sewage Works issued under the *Environmental Protection Act* by the Ontario Ministry of the Environment and Climate Change (MOECC).
  - The ECAs dictate the quality and quantity of effluent allowed to be discharged to the environment as well as other measures intended to ensure the environment is protected; as well as the overall design of the facility.
- Permits to Take Water (PTTWs) issued under the *Ontario Water Resources Act* direct water takings associated with the Site, including dam foundation dewatering and water supply from the Pinewood River.
  - Where water takings (surface or groundwater) are required to support construction and operation, they are generally restricted by the PTTWs received from the MOECC which limit the volume of water that can be taken from the environment.
- A Closure Plan has been filed with the Ministry of Northern Development and Mines (MNDM) under the *Mining Act,* which describes the planned development and operation of the RRM, the proposed approach to closure of the RRM, and outlines the associated financial assurance related to closure aspects.
  - This Closure Plan will be amended from time to time as required, such as any changes to the proposed operation of the TMA, or other changes to the RRM which are deemed to be material.
  - The Closure Plan primarily focuses on the physical and chemical stability of the site post-closure or during a temporary shutdown scenario.

- Planning to date has assumed permanent flooding of the potentially acid generating (PAG) tailings to inhibit oxidation.

In addition to these and other regulatory approval requirements, a number of commitments were made regarding the RRM through the Federal and Provincial environmental assessment processes. These commitments were initially tabulated in Table 14-1 of the Rainy River Project, Final Environmental Assessment Report (AMEC, January 2014) and are maintained and tracked by the Environmental Department as the Rainy River Project Commitments Registry.

Where pertinent to the operation of tailings and water management and water diversions, specific regulatory approvals have been included in this manual (Table 1-1). However, the full list of regulatory conditions has not been reproduced herein and should be reviewed, where required, including when changes to the OMS of the facilities are considered. The full list of regulations, permits and approvals associated with this OMS are available through the site environmental team who should be contacted for the most current environmental approval and regulatory requirements.

Table 1-1; Summary of Permits and Approvals Relating to the OMS

Legislation	Permit	OMS Component	Influence
Environmental Protection Act	Environmental Compliance Approval #0412-A2LR4V (Air)	TMA	Limits and requirements related to emissions and discharges related to air.
	Environmental Compliance Approval #5178-9TUPD9 (Industrial Sewage)	TMA, process water management and water treatment	Limits and requirements related to emissions and discharges to the environment.
Ontario Water Resources Act and O.Reg 387/04	PTTW number 8776-9W2QN3	WMP/Pinewood River	Defines water taking limits and defines reporting and monitoring requirement
	Permit to Take Water – Surface and Groundwater PTTW 0040-9VUL6B TMA Infrastructure	TMA and process water management	Defines water taking limits and defines reporting and monitoring requirement
	Permit to Take Water – Surface and Groundwater PTTW 2133-9VUPVZ Construction Phase	Fresh Water Diversions and Water Treatment	Defines water taking limits and defines reporting and monitoring requirement
Lakes Rivers Improvement Act	FF-2015-02B (as amended) West Creek Diversion and Dam	Freshwater Diversions	Management, protection, preservation and use of waters and lakes. Ensure that dams are suitably located, constructed, operated and maintained.
	FF-2015-03B Clark Creek Diversion (as amended)	Freshwater Diversions	
	FF-2015-04 Tailings Management Area	TMA, Process Water Management and Water Treatment	

Legislation	Permit	OMS Component	Influence
	FF-2015-04A (as amended March 6, 2017) Water Management 4 and 5	Process Water Management	
	FF-2015-04B (as amended March 6, 2017) Water Management Ponds1, 2 and 3	Process Water Management	
	FF-2015-04C Tailings Management Area (Start-Up Arrangement), Haul Road 13 and TMA Start-Up Cell	Tailings Management Area	
	FF-2015-05A (as amended) Mine Rock Pond	Process Water Management	
	FF-2015-07 Pinewood River Intake/Discharge Structure	Process Water/Water Treatment	Management, protection, preservation and use of waters and lakes.
	FF-2017-03 Tailings Management Area Cell 2	Tailings Management Area	Management, protection, preservation and use of waters and lakes. Ensure that dams are suitably located, constructed, operated and maintained.
Endangered Species Act	ESA Permit FF-C-001-14	All	Defines project boundaries, disturbance limits including noise and dust and reclamation
Fisheries Act	Authorization 15-HCAA-00039	Freshwater diversions	West, Clark, Teeple, Stockpile dams and diversions
	Metal Mining Effluent Regulation (MMER) discharge notification	TMA, WMP Water Treatment and seepage	Standards/limits for quality of effluent discharged into waters frequented by fish.
Ontario Environmental Assessment Act	Provincial EA Approval Conditions	All	Conditions subject to the Approval to proceed with the planning, design, construction, operation and closure of a combination open pit and underground gold mine.
Federal Canadian Environmental Assessment Act 2012	Federal EA Approval Conditions	All	Conditions in relation to the environmental effects referred to in subsection 5(1) of CEAA 2012, with which the Proponent must comply.
Environmental Assessment (EA) Act	Environmental Assessment (EA) Commitments	All	Commitments identified in the final Environmental Assessment (EA) Report, in accordance with the Federal

Legislation	Permit	OMS Component	Influence
			Environmental Impact Statement (EIS) Guidelines and Provincially approved Amended Terms of Reference (ToR).

1.2 Review and Update

The accountability for review and updates of the OMS Manual is with the Mill Manager (who will designate responsibility for the review) as well as the General Manager who has final site authority.

Updates to the OMS manual are required to incorporate change as facilities are constructed or change in facility design, performance, capacity, operations/closure requirements, site management, roles and responsibilities, regulations or procedures. When updated the OMS manual will be reviewed by the Environmental Department, Engineer of Record (EOR) and annually, as part of review by the Independent Tailings Review Board (ITRB) or as at their request.

The OMS will be updated prior to operating new structures. The OMS manual will be reviewed, at minimum, on an annual basis. The OMS manual will be submitted to MNRF as defined by permit conditions as part of annual updates.

Previous revisions and future proposed revisions are outlined in the revision history presented below (Table 1-2). Comments from the MNRF and ITRB are included in Appendix G. This revision history will be updated for each revision – **this revision is current to August 15, 2017.**

Table 1-2; OMS Revision History

Revision	Addition	Details	Date
Pre-Production OMS Manual (3098004-000000-A1-EMA-0001):			
AG	Revised Final for Pre-Production	Updated dam design criteria, instrumentation details – submitted for MNRF review and comment	August 31, 2016
AH	Revised Final for Pre-Production	Updated in response to MNRF comments – see appendix G	October 5, 2016
AI	Revised Final for Pre-Production	Removed reference to WMP filling plan	November 10, 2016
AJ	Final with West Creek Diversion updates	Required by MNRF in West Creek Diversion LRIA approval	March 31, 2017
00	For Use	WMP Filling, Clark Creek Diversion (MNRF approval April 28, 2017)	May 1, 2017
01	For Use	Updated for WMP filling above 364.7	July 2017
OMS Manual for Operations (3098004-000000-A1-EMA-0002):			

Revision	Addition	Details	Date
AC	Final draft	Including TMA Start-up Cell details submitted to MNRF	March 31, 2017
OMS Manual – Current revisions			
2017-08	Updated based on ITRB comments and MNRF conditions for MRP and Cell 2 and 3	ITRB comments (Appendix G) responses • Updated sections to current project status and current to Aug 15, 2017 • Contact list updated (s2.3) • Revised geology section re plastic clay tills (s3.3) • Included trigger levels for instrumentation and defined thresholds for event driven surveillance (Table 7.3) • States responsibility for OMS updates (s1.2 and s2.2) • Reworded reference to MNRF screening but submission for comment (s1.2) MNRF requirements consistent with LRIA permit conditions • Mine Rock Pond (s4.3.2 and s5.3.2) • Cell 2 (s4.2.2. and s5.1.2) • Cell 3 (s4.2.3 and s5.1.2)	August 2017
Future Planned Updates – excludes updates required as a result of unplanned changes			
TBD	TMA Starter Cell Completion	Update OMS prior to completion of TMA south starter dam	May 1, 2018 or as determined by LRIA conditions of approval
TBD	Water Discharge Pond and Constructed Wetland	Update OMS prior to the commissioning of theses facilities	June 30, 2018 or as determined by LRIA conditions of approval
TBD	Sediment Ponds 1 and 2	Update OMS prior to the commissioning of theses facilities	
TBD	Annual update 2018	Annual review and update e.g., include ITRB comments	August 2018

1.3 Supporting Documents

The OMS manual and supporting documents will be stored in a location accessible to those required to follow the manual i.e., RRM sharepoint site. The list of supporting documents (Table 1-3) isn't an exhaustive list and permit approvals are based on applications and supplemental information which need to be followed (see list of regulatory permits and approvals Table 1-2).

The following documents and procedures are relevant to the geotechnical site investigations, design, construction, and operation of the TMA, process water ponds, and freshwater diversion dams and channels are listed below (Table 1-3). However, additional information is provided in the facility description section of this manual (see section 4). A list of supporting drawings is provided in Appendix A. Additional details regarding pumping requirements, tailings pumping and pipeline designs and water recirculation pumping and pipeline designs are provided in Appendix B.

Safety requirements for work at the RRM and apply to work associated with the OMS are documented on the RRM health and safety sharepoint site and include;

- Hazard Identification and Risk Management;
- Document Records and Development Control;
- Training and Competency Awareness;
- Incident Management;
- Job Hazard Analysis; and
- Emergency Preparedness and Response Plan (EPRP) for the Site (New Gold, 2017).

Table 1-3; Supporting Documents

Document Number				Document Title
RRP	GEO	MEM	001	ITRB Recommendations and Implications
RRP	GEO	MEM	002	Dam Change Effect on Constraint in Northwest
RRP	GEO	MEM	004	Supplemental Information West Creek Diversion Amendment
RRP	GEO	MEM	006	Design Criteria for TMA Dams
RRP	GEO	MEM	011	WMP Fill Plan Memo
RRP	GEO	MEM	012	West Creek Diversion Channel - Overflow Diversion Structure
RRP	GEO	MEM	013	Clark Diversion Channel - As Built Hydraulic Assessment
RRP	GEO	MEM	17A	WMP Borrow Filling (Formally WMP Level 1 Filling)
RRP	GEO	MEM	019	LRIA: Mine Rock Pond Amendment
RRP	GEO	MEM	020	WMP Borrow Filling - Supplemental Information
RRP	GEO	MEM	021	West Creek Diversion Amendment Box Culvert
RRP	GEO	MEM	025	Dam 1 Work Authorization
RRP	GEO	MEM	026	WMP Dam 1 - Geotech Investigation and Stability Analysis
RRP	GEO	MEM	030	TMA South Dam - Haul Road 13 Construction
RRP	GEO	MEM	033	Teeple Dam IDF Stability
RRP	GEO	MEM	034	West Creek Diversion Channel - Sequencing of Sediment Pond 1 Dams
RRP	GEO	MEM	037	Water Management Pond Water Intake Structure
RRP	GEO	MEM	039	Clark Creek Plans and Specifications Comments & Responses

RRP	GEO	MEM	043	TMA LRIA - TMA Start Up Cell Seepage Collection - Supplemental Information
RRP	GEO	MEM	056	Teeple Permanent Repair - Supplemental Information
RRP	GEO	MEM	063	Seismic Stability Assessment of TMA Dams
RRP	GEO	MEM	065	Permanent Seepage Collection Drawings Comments & Reponses
RRP	GEO	MEM	071	Teeple Pond Diversion Channel Completion
RRP	GEO	MEM	074	Clark Pond Diversion Channel Completion
RRP	GEO	MEM	076	Addendum to WMP Dams 1,2,3 and Dam 4 and 5
RRP	GEO	MEM	080	Stockpile Pond Diversion Channel Completion
RRP	GEO	MEM	088	Clark Creek Dam Completion
RRP	GEO	MEM	089	Teeple Road Dam Completion
RRP	GEO	MEM	100	MNRF QAQC Information Request
RRP	GEO	MEM	104	Seismic Stability Assessment of MRP Dam
RRP	GEO	MEM	106	Seismic Stability Assessment of MRP Dam - ITRB Responses
RRP	GEO	MEM	108	TMA Cell 2 - Design Criteria
RRP	GEO	MEM	114	Appendix A of RRP-GEO-REP-026
RRP	GEO	MEM	115	Appendix B of RRP-GEO-REP-026
RRP	GEO	MEM	116	TMA Cell 2 - Sump Sizing
RRP	GEO	MEM	119	Stockpile Dam Completion
RRP	GEO	MEM	130	Sediment Pond Spillway Details
RRP	GEO	MEM	134A	West Creek Diversion Channel - As-built Review
RRP	GEO	MEM	134B	West Creek Diversion Channel - As-built Review
RRP	GEO	MEM	138	West Creek Dam Compliance
RRP	GEO	MEM	141	WMP Dams Final Stage Design Compliance
RRP	GEO	MEM	143	Cell 1 Borrow Deposition
RRP	GEO	MEM	144	TMA Cell 1 - Pre-Commissioning
RRP	GEO	REP	001	TMA geotechnical investigations
RRP	GEO	REP	1A	Geotechnical Investigations Report, Tailings Management Area, Volume 1 – Design Implications – Version 3
RRP	GEO	REP	1B	Geotechnical Investigations Report, Tailings Management Area, Volume 2 – Investigation and Interpretations
RRP	GEO	REP	003	West Creek Pond Dam - Design Revision and Operating Guidelines
RRP	GEO	REP	004	Stockpile Pond Dam Design Revision
RRP	GEO	REP	006	Design Update - Clark Creek Dams
RRP	GEO	REP	007	MRP Dam Design Revision Report
RRP	GEO	REP	008	Design brief TMA start up cell
RRP	GEO	REP	017	Instrumentation Plan Water Dams
RRP	GEO	REP	018	WMP Filling Plan - To Elevation 367m
RRP	GEO	REP	022	WMP Dewatering Plan
RRP	GEO	REP	024	2016 Dam Instrumentation
RRP	GEO	REP	026	TMA Cell 2 Design Brief
RRP	GEO	REP	027	Clark Diversion As-built Report
3098004-004000-A1-ETR-0004-00				2013/2014 Geotechnical Site Investigations Report
3098004-004400-A1-ETR-0003-00				Water Management Plan for Operations
3098004-004400-A1-ETR-0004-00				Design Brief – Water Management Dams
3098004-004000-A1-ETR-0012-00				Dam Instrumentation During Construction

3098004-001100-A1-ETR-0001-00	Mine Waste Management Plan
3098004-004400-A1-ETR-0002-00	Water Management Plan for Construction
3098004-004000-A1-ETR-0005-AB	Tailings Deposition Plan
	Fish Habitat Offset Strategy
3098004-004000-A1-ETR-0006-00	Design Brief – Tailings Management Dams
3098400-004000-A1-ETR-0004-00	2013-2014 Geotechnical Field Investigations

1.4 Document and Records Control

Records from shift and periodic (daily, weekly and annual) TMA and water management system inspections will be retained in a secure repository as per the requirements of the site document control system. Once documents are printed, they are uncontrolled. Document Control follows the New Gold RRM document control procedures.

All records relating this OMS manual shall be retained for a minimum period of 25 years or until decommissioning ends, whichever is longer, as per regulatory requirements in the Federal CEAA Decision Statement. This includes place, date, time of sampling, dates and types of analysis performed, analytical techniques, methods or procedures, results of analysis and the names of persons who collected, analysed each sample and documentation of their training. All records and documents shall be retained at a facility close to the RRM.

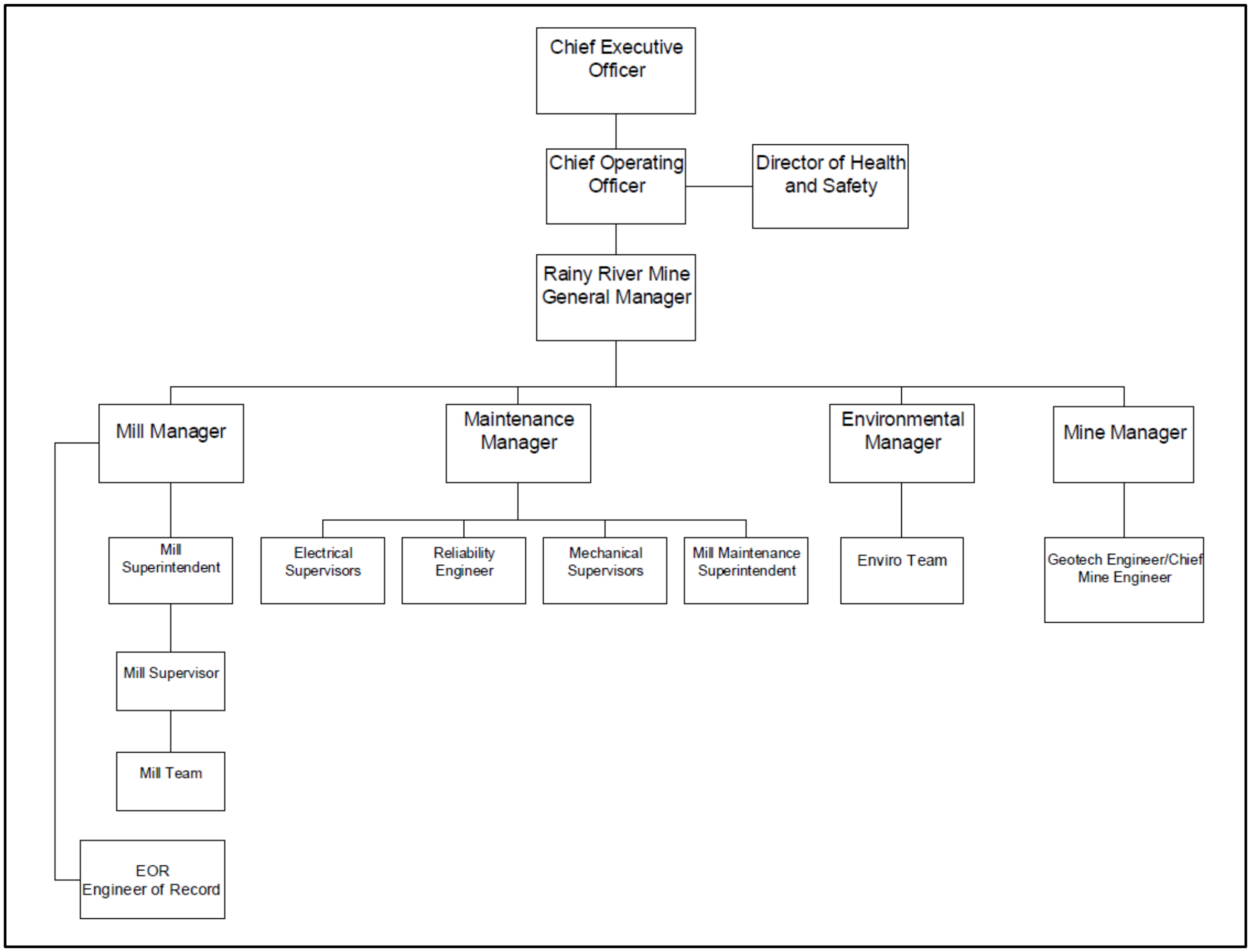
2.0 ROLES AND RESPONSIBILITIES

This section identifies the individuals having responsibility for the operation, maintenance and surveillance of the tailings, process water and freshwater dams and diversion channels. Though the accountability of tailings and water management lies with the General Manager, the Mill Manager is responsible for the operation of the tailings and water management at the RRM. The Environmental Department provides environmental technical support, including monitoring, land and water management and environmental contact with regulatory agencies.

2.1 Organizational Structure

The organizational structure for the RRM, relative to the OMS, is illustrated in Figure 2-1. The RRM/New Gold personnel and contact information associated with the positions referenced within each organizational flow chart can be found in Table 2-1. The organization chart is representative of the organization of persons related to the OMS following the construction and hand over of facilities. Prior to the handover of facilities, the EOR reports through the construction management team, for those facilities under construction.

Figure 2-1; Organisation Chart For Tailings and Water Management



2.2 Roles and Responsibilities

Executive Vice President / Chief Operating Officer:

- Is formally responsible for all of New Gold's operations; and
- Has responsibility for corporate "*Tailings, Heap-leach and Waste Rock Facilities Management Policy*". (included in Appendix C)

General Manager:

- Has accountability for tailings management;
- Shall ensure that all TMA, process water and freshwater structures meet Canadian Dam Association, Dam Safety Guidelines;

Mill Manager:

- Has responsibility for the tailings management facility and ancillary process water management structures, and water diversion structures including operation, maintenance and surveillance;

- Accountable for ensuring maintenance of the OMS Manual and conformance to the Mining Association of Canada's "Guide to Developing Operation, Maintenance and Surveillance for Tailings and Water Management Facilities";
- Ensures that manuals for the tailings and water management systems are reviewed annually, including an assessment of the effectiveness of the established system and performance against objectives, and updated as required;
- Ensures that the tailings handling and disposal operation is staffed by trained and competent persons;
- Integrates guidance from the Environment Department under the requirements of regulatory approvals and the Environmental Management System (EMS) where applicable to tailings management;
- Shall submit an annual dam safety inspection report for all dams (TMA area and others) to MOECC/MNRF where required; and
- Report any potential facility design changes that could affect the facility's integrity.
- Coordination of activities with the EOR during operations; and
- Has emergency management and response roles.

Maintenance Manager:

- Has primary responsibility for the maintenance work and maintenance management systems including dams and water management structures; and
- Ensures records of maintenance inspections for the dams and water management structures and related activities are accurately and permanently recorded and provided to the Geotechnical Engineer and the Engineer of Record (EOR).

Reliability Engineer, Mechanical Superintendent and Electrical Supervisors:

- Oversees planning and execution of equipment maintenance through the work order system;
- Arranges/conducts maintenance for equipment e.g., calibration and maintains instrumentation calibration records; and
- Identifies issues and corrective actions to prevent incidents.

Chief Mine Engineer / Geotechnical Engineer:

- Manages dam design, construction and contracts;
- Completing quarterly and annual inspections on TMA, process water and freshwater dams, diversion channels;
- Ensuring monitoring activities are undertaken as per schedule;
- Responding to concerns raised by operations personnel;
- Maintaining a dam raise schedule;
- Review spigotting and dam construction schedules;
- Construction oversight for major dam raise projects;

- Ensure that the OMS Manual is updated appropriately, as assigned by the Mill Manager; and
- Coordinating and managing survey.

Mill Superintendent:

- Responsible for ensuring daily, monthly and as-required reports with respect to all aspects of the operation, maintenance and surveillance of the tailings facilities are prepared, including all records of inspection and monitoring;
- Ensures that a system exists to implement the OMS manual procedures and requirements and the system is subjected to regular review and effectiveness checks;
- Oversees water taking from the Pinewood River;
- Participates in the review cycle for the OMS manual; and
- Undertakes any modifications as required to maintain a safe and effective tailings operation including adjustments to deposition plans, equipment and facilities.

Mill Supervisor:

- Responsible for the day-to-day operation, maintenance and surveillance of the tailings distribution system and related works including buildings, equipment, pipes, pumps, and dams;
- Verifies work order completion;
- Identifies new and revised maintenance requirements; and
- Performs visual inspection surveillance of tailings facilities including dams, pipelines, decants and other operations.

Mill Team:

- Responsible for operating, inspecting and maintaining dams and water pump houses;
- Responsible for security inspections during the shift, via work requests;
- Perform inspections, monitoring, audits and assessments including but not limited to;
    - Visual inspection (dams, water, spillways and pipelines);
    - Water levels;
    - Freeboard; and
    - Instrumentation.
- Ensures adequate maintenance, via work requests, of access roads, diversion ditches, emergency spill catchment areas and the reclaim water system; and
- Adjusting spigotting as directed by the supervisor.

Engineer of Record (EOR):

- Verifies the TMA and water diversion structures are constructed and operated as per the design intent;
- Performs Annual Dam Safety Inspections as per regulatory requirements; and

- Provides support for safe operation of the TMA and water diversion structures.

Environmental Manager:

- Support the Operation, Maintenance and Surveillance activities;
- Maintain contact and communication with regulatory agencies;
- Assist with environment related technical support such as inspection and evaluation of stability by an external expert;
- Ensure regulatory and other sampling, monitoring, and analyses programs are conducted as required and all analytical results and/or reports are reviewed and reported to the appropriate internal and external stakeholders;
- Ensure rehabilitation and stabilization programs are conducted for tailings in conjunction with closure plan requirements;
- Prepare Annual Reports to regulatory agencies; and
- Administer and track compliance against Permits.

Environmental Team:

- Monitor conformance with relevant permits for the OMS manual requirements;
- Perform inspections, monitoring, audits and assessments including but not limited to;
  - Visual inspection (dams, water, spillways and pipelines); and
  - Instrumentation.
- Integrate tailings operations activities into the EMS;
- Identify and assess applicable tailings related regulatory requirements including permits, licenses, authorizations;
- Support tailings/geotechnical engineering and operations efforts; and
- Provides environmental support to the mill area activities and parties including but not limited to: construction, earth moving, erosion and dust control and water discharges.
-

2.3 Contact Information

The RRM contact information, for the positions listed in Sections 2.1 and 2.2, can be found in Table 2-1.

Table 2-1; Rainy River Project Contact Information

Position	Name	Phone Number	Ext	Mobile	Email
President CEO	Hannes Portmann	(416) 324-6014		(416) 303-1511	hannes.portmann@newgold.com
Chief Operating Officer (Interim)	Raymond Threlkeld			(571) 577-0198	raymond.threlkeld@newgold.com

Position	Name	Phone Number	Ext	Mobile	Email
Director HSE	Dennis Wilson	(647) 789-5002		(647) 209-9508	Dennis.wilson@newgold.com
General Manager	Greg Bowkett	(807) 482-0902	8002	(807) 456-3668	greg.bowkett@newgold.com
Mine Manager	Hubert Schimann	807 482 0911	2253	(807) 707 2578	hubert.schimann@newgold.com
Mill Manager	Dave Hall	(807) 482-0926	8021	(807) 707-1014	dave.hall@newgold.com
Environmental Manager	Darrell Martindale	(807) 482-0900	8055	(807) 707-3497	darrell.martindale@newgold.com
Maintenance Manager	Tony Lord	(807) 482-0900	8006		tony.lord@newgold.com
Mill Superintendent	Don Emms	(807) 482-0907	8066	(807) 708-1853	don.emms@newgold.com
Mill Shift Supervisor	Jean Tougas	(807) 482-0900	8077	(807) 708-1172	jean.tougas@newgold.com
Mill Shift Supervisor	Ron Langdon	(807) 482-0900	8077	(807) 708-1172	ron.langdon@newgold.com
Mill Shift Supervisor	Gilbert Tougas	(807) 482-0900	8077	(807) 708-1172	gilbert.tougas@newgold.com
Mill Shift Supervisor	Terry Hamilton	(807) 482-0900	8077	(807) 708-1172	terry.hamilton@newgold.com
Mill Maintenance Supervisor	Don Ibey	(807) 482-0900	8006	(807) 707 1061	Don.Ibey@newgold.com
Maintenance Mechanical Supervisor	Derek Nelson	(807) 482-0900			derek.nelson@newgold.com
Maintenance Mechanical Supervisor	Mitch Lemaire	(807) 482-0900			
Maintenance Electrical Supervisor	Lewis Kempf	(807) 482-0900			Lewis.Kempf@newgold.com
Maintenance Electrical Supervisor	Bill Cole	(807) 482-0900			bill.cole@newgold.com
Reliability Engineer - Maintenance	Ian Strain	(807) 482-0919	8019	(807) 707-1060	ian.strain@newgold.com
Geotech Engineer	TBD				

Position	Name	Phone Number	Ext	Mobile	Email
New Gold Environment On Call		(807) 632-6152			rainyriver.enviro@newgold.com
Ministry of Natural Resources and Forestry – MNRF	Andrew Bromley	(807) 475-1368			Andrew.bromley@ontario.ca
Ministry of Environment and Climate Change	Matt Hoffmeister	1-807-468-2703			Matt.hoffmeister@ontario.ca
Spills Action Centre (SAC)		1-800-268-6060			
Ministry of Northern Development and Mines	Neal Bennett	1-807-475-1123			Neal.bennett@ontario.ca
Ministry of Northern Development and Mines	Bryce Voca	1-807-475-1434			Bryce.voca@ontario.ca
Environmental Canada and Climate Change	Adam Scheepers	1-613-990-9744			Adam.scheepers@canada.ca
Engineer of Record	Mickey Davachi	1-403-387-1917		403-826-8666	mickey.davachi@amecfw.com

2.4 Competency and Training

Training and education will be provided to employees to enhance their performance and RRM will ensure that all personnel receive the level of training to ensure they are competent. Tailings specific training is essential in ensuring safe and effective operation of the TMA as well as correct construction. The RRM in conjunction with the Engineer of Record will provide training programs or opportunities as required and job related training covering aspects related to requirements for the specific types of equipment and operational requirements.

Table 2-1 demonstrates the training that will be provided at a minimum, to support operation of the tailings water, process water, water treatment and freshwater management structures as required.

Table 2-1; OMS Manual Training Matrix

Training	TMA contractor	Mill Crews and Supervisor	Mill Supt.	Geotech. Engineer	Enviro Dept.	Mgmt. Team
Site Orientation	x	x	x	x	x	x
Daily Inspection		x				
Quarterly Inspection			x	x	x	
OMS / General Tailings & Ponds	x	x	x	x	x	
EPRP training	x	x	x	x	x	x
Construction method of TMA raises	x			x		
Towards Sustainable Mining			x	x	x	x
Instrument Data Collection		x		x	x	

3.0 SITE CONDITIONS

3.1 Site Location and Tenure

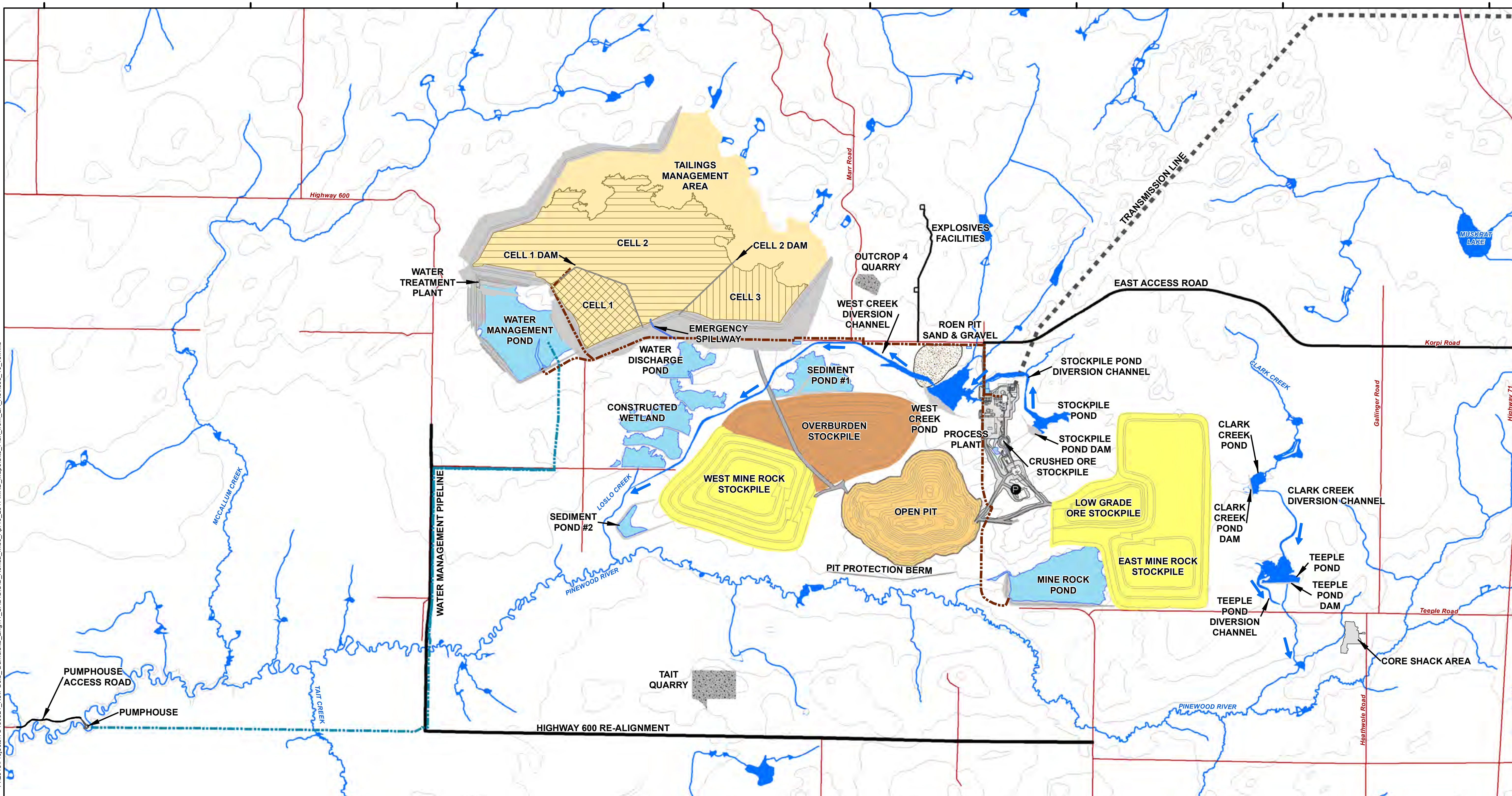
The site is located in the Township of Chapple, approximately 65 kilometers (km) by road northwest of Fort Frances, in northwestern Ontario. New Gold has 100% interest in the lands forming the RRM through direct ownership or option agreement, however surface rights are not owned throughout the site boundary.

The RRM is located with lands used by Indigenous Groups for traditional and ceremonial purposes including but not limited to the following groups; Rainy River First Nations, Naicatchewenin First Nation, Big Grassy River First Nation, Naotkamegwanning (Whitefish Bay) First Nation, Anishinaabeg of Naongashiing (Big Island) First Nation, Ojibways of Onigaming First Nation, and the Sunset Country Métis community (represented by Métis Nation of Ontario Region 1 Consultation Committee). New Gold has regulatory requirements and/or biparty agreements to engage with these communities.

Road access to the site is by provincial Highways 600 and 71 and Korpi Road (east access road). A site location map is provided in Figure 3-1. The mine is serviced by local municipal infrastructure and is in close proximity to Fort Frances, Ontario for support and supply.

The site topography is variable with elevations ranging from 350 m to 390 m. The terrain is comprised of both forested and non-forested areas, including agricultural and wetland areas. The local drainage systems are characterized by numerous small creeks that drain into the Pinewood River. The small creeks typically originate from rocky uplands or headwater wetland systems.

The forested areas are dominated by mixed poplar and black spruce forests. Wetlands are comprised mainly of treed and open fens, together with wetland thickets and marsh areas.



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LEGEND

Proposed Site Features

- Underground Portal
- Open Pit
- Process Plant
- Water Management Pipelines
- Tailings/Reclaim Pipeline
- Pond
- 230 kV Transmission Line
- Tailings Management Area
- TMA Cell 1
- TMA Cell 2
- TMA Cell 3
- Overburden Stockpile
- Rock Stockpile
- Dam
- Site Roads
- Flow Direction
- Quarry
- Sand & Gravel Pit

NOTES:
-

newgold Rainy River Project

amec foster wheeler

RAINY RIVER PROJECT

Site Plan
General Arrangment

Datum: NAD83
Projection: UTM Zone 15N

PROJECT N°: TC150321

FIGURE: 3-1

SCALE: 1:45,000

DATE: April 2017

0 1.5 3 6 9 12 Kilometres

3.2 Climate

Weather at the site is seasonal with cold winters with freezing conditions from November until March. The site receives ~700 mm of precipitation in an average year and the pond evaporation is estimated to be ~540 mm (Table 3-1). An estimated evapotranspiration of 500 mm is inferred by the difference between precipitation and runoff in the Pinewood River.

Table 3-1; Mean Annual and 1:20 year Precipitation and Evaporation

Barwick - 1981 to 2010 Canadian Climate Normals station data													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Daily Average (°C)	-15	-11.6	-4.4	4.4	11.4	16.4	19	17.9	12.6	5.5	-3.4	-11.8	3.4
Rainfall (mm)	0.2	3	11	30.4	75.1	124.7	102.9	78.8	75.5	51.3	13.6	2.1	568
Snowfall (cm)	29.5	18.3	18.8	8.9	1.1	0	0	0	0.8	7.5	28.3	28.6	142
Precipitation (mm)	29.8	21.3	29.8	39.2	76.2	124.7	102.9	78.8	76.2	58.8	41.8	30.7	710
Pond Evaporation													
Pond Evaporation (mm)	0	0	0	0	109	110	129	104	63	23	0	0	538
Barwick 2017 station data													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug*	Sep	Oct	Nov	Dec	Year
Daily Average (°C)	-12	-9	-3.6	4.9	10.2	16.7	18.9	17.5					
Difference (°C)	3.6	2.6	0.8	0.5	-1.2	0.3	-0.1	-0.4					
Rainfall (mm)	5	14.4	5.2	21.6	38.4	106.5	33.4	48.8					
Snowfall (cm)	37.4	23.4	6.4	6.6	0	0	0	0					
Precipitation (mm)	42.4	37.8	11.6	28.2	38.4	106.5	33.4	48.8					
% Difference	42.3	77.5	-61.1	-28.1	-49.6	-14.6	-67.5	-38.1	* = Data to Aug 11				

Site runoff varies widely in response to the climatic conditions. In normal (50% non-exceedance) and wetter years there is surplus water available for taking for site catchments or the Pinewood River. However, the Pinewood River frequently has no flow in September, and in extreme dry years, presents a water supply risk to the project.

Further details regarding the climatic conditions and hydrology can be found in the Water Management Plan for Operations (RRP-GEO-REP-026 R1). The site and project climatic characteristics (and seismic hazard analysis) are summarized in Table 3-2.

Table 3-2; Site Characteristics used in Geotechnical Design

Criterion	Source or Calculation	Value	Unit
Climatic Data			
Monthly temperatures (Note 1)			
Mean		3.2	°C
Low (February)		-15.9	°C

Criterion	Source or Calculation	Value	Unit
High (August)	Environment Canada - Barwick Station (Stn 6020559)	18.8	°C
Period of freezing		November to March	-
Precipitation (Note 2)			
Mean annual precipitation	Environment Canada - Barwick Station (Stn 6020559)	682.1	mm
Mean annual rainfall		543.7	mm
Mean annual snowfall		138.4	cm
Storm events (24-hour) (Note 3)			
2-yr	Ministry of Transportation (MTO)	51	mm
5-yr		51	mm
10-yr		93	mm
25-yr		102	mm
100-yr		129	mm
Regional Flood (Timmins Storm)		193	mm
Probable Maximum Precipitation (PMP)		586	mm
Wind velocities (for wind-wave calculations)			
Average annual maximum	(Note 4)	16	km/h
Maximum likely		80	km/h
Probabilistic Seismic Hazard Analysis (Note 5)			
Peak Ground Acceleration for Rock Sites (outcrops) Return Period (Years)			
475	Natural Resources Canada	0.009	g
2,475		0.036	g
10,000		0.096	g
Peak Ground Acceleration for Overburden Sites (20 to 30 m) Return Period (Years)			
475	Natural Resources Canada	0.014	g
2,475		0.054	g
10,000		0.136	g

Notes:

1. Data obtained between 1971-2000
2. Data obtained between 1979-2012
3. Data for 2 to 100 year return obtained from MTO (2010), PMP) from AES IDF values prepared by the Hydrometeorology Division, Canadian Climate Centre, Station Rainy River, ON, Station Number 6026852
4. AMEC, 2013. Rainy River Gold Project, Climate, Air Quality, and Sound Baseline Study

5. The 1:10,000 year earthquake is considered equivalent to the maximum credible earthquake. AMEC, 2012. Earthquake Ground Motion Hazard Assessment, Rainy River Gold Project, Richardson Township, Ontario

3.3 Surficial and Bedrock Geology

The RRM is positioned within the Achaean age Rainy River Greenstone Belt that forms part of the 900 km long, east-west trending Wabigoon Subprovince of the Canadian Shield. In general, the Rainy River Greenstone Belt is bounded by the Sabaskong Batholith in the north and the Rainy Lake Batholithic Complex in the east. It extends south into Minnesota where the Long Point Intrusive Rocks, the Baudette Intrusive Rocks (both granitoid), and the Rainy Lake – Seine River Fault, the Vermillion Fault and the Four Towns Fault constrain the belt.

The site is characterized by gently undulating topography, strongly influenced by a sequence of glaciations, which on higher ground has left bedrock exposed with little to no overburden cover. In the lower lying areas, thick overburden deposits primarily of glacial origin (e.g., till) are found.

The mine site area can be divided into two general physiographic types based on topography and frequency of bedrock outcrops. The north and east portions of the project site have numerous bedrock outcrops, with variable soil cover, where the bedrock has a significant influence on the surface topography. The southwest and central portions of the site have thicker and more extensive soil deposits, with isolated bedrock outcrops.

The surficial geology generally consists of the following stratigraphy:

- Peat/Holocene: variable thickness ranging from thin veneers to greater than 3 m in thickness;
- Glaciolacustrine clay: typically located below the peat layer (Brenna Formation) and above the Whiteshell Till (Whylie Formation). The upper unit is typically low to high plastic silty clay, with occasional sand layers. The lower unit is typically clay silt and fine sand. Both units have varved silt and clay with varying thickness typically in the millimeter scale;
- Whitemouth Lake (WML) Till: Thickest and most widespread unit on site. The till is typically medium to high plastic silty clay with trace to some sand and gravel;
- Whiteshell Till: confined under the Whitemouth Till, the Whiteshell Till is a silty sand till with some gravel and cobbles and trace clay with some boulders. It is an aquifer with artesian pressures (above the ground surface) in some locations; and
- Bedrock: underlying the Whiteshell Till.

Groundwater recharge to the deeper groundwater system (shallow bedrock and Whiteshell Till) is limited to areas where the bedrock is at surface or has limited cover of overburden, mainly to the north and east of the open pit. Very limited recharge to the deeper groundwater system is probable through the Whitemouth Lake Till on higher ground. Where glaciolacustrine clays and peat are present, recharge to the deeper groundwater system is minimal.

Note; the TMA dams have been designed assuming high pore pressures and residual strength in the clayey foundation units (Upper/Lower Glaciolacustrine and WML Till). Further details regarding the surficial geology at the site and design criteria for the TMA Dams is provided in TMA – Volume 1 – Dam Design Implications (Amec Foster Wheeler, 2016f) and Volume 2 – Investigation and Interpretations (Amec Foster Wheeler, 2016g).

3.4 Geochemistry

3.4.1 Mine Rock

Static and kinetic geochemical testing representing all major lithology types of non-ore mine rock in the vicinity of the proposed pit development determined that approximately 50% of the mine rock samples were unlikely to generate acidic drainage (NPAG) in the future (neutralization potential ratio [NPR] >2). The remainder of the samples were classified as potentially acid generating (PAG) materials with NPR<2. It's noted that NPR ratios are influences by the low concentrations of both sulphides and carbonates.

Progressive encapsulation of the PAG rock during operations and at closure will limit precipitation infiltration and flushing of oxidation products from the mine rock. Restriction of oxygen inflow to the PAG rock may occur as a result of complete encapsulation of the pile.

The dam design includes only non-potentially acid generating (NPAG) mine rock downstream of the dam core. PAG rock is used in the completion of portions the TMA starter cell/cell 1, cell 2 dam and the upstream sections of the ultimate TMA dams.

3.4.2 Tailings

Based on geochemical testing, the tailings are PAG with an expected lag time to net acidic conditions of approximately 30 years. In addition, there is a potential risk of elevated cadmium concentrations in the TMA during operations due to leaching from the tailings.

Metal release from subaerial (beached) tailings may occur prior to acidic conditions and management of the tailings pond water may be required at this time. Metal release may occur from submerged tailings; however, subaerial tailings appear to be a greater source of loadings than submerged tailings. The milled ore is also a substantial source of loadings to the tailings pond, in some cases (e.g., cadmium) it is the dominant loading source early in mining operations.

Geochemical assessments suggest that Cd concentrations in the TMA may exceed the working site specific value (0.001 mg/L subject to confirmation through permitting) within 1 year after mining begins. Reductions in the tailings beach areas could extend the period of time until exceedance is reached. Water treatment in the WMP is planned to be employed to support discharges from the WMP meeting discharge effluent quality targets.

3.5 Hydrology and Water Flow

The collection of runoff and hydrology data for the RRM is challenged by low gradient, small systems and frequent beaver impoundment. Water Survey of Canada Station 05PC011 at the Pinewood River provides the longest and most reliable available data set. Water Survey of Canada Station 05PC023 (at Highway 617) provides a shorter period of record and is known to provide erroneous readings of up to 20 %. Table 3-3 presents mean streamflow data in the Pinewood River as presented in the EA application, which have been pro-rated where required and in winter months.

Table 3-3; Monthly Streamflow in the Pinewood River at WSC 05PC011

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean	0.218	0.144	0.538	9.595	7.135	5.412	3.163	1.536	1.787	2.352	1.913	0.383	194.8
5th %ile	0.073	0.049	0.181	3.228	2.400	1.820	1.064	0.517	0.601	0.791	0.644	0.129	65.5
95 %ile	0.440	0.292	1.087	19.41	14.43	10.95	6.398	3.107	3.615	4.758	3.870	0.776	394.1

The RRM site on the north side of the Pinewood River is drained by four small creek systems, which from east to west are: Clark Creek (Teeple Drain), West Creek, Marr Creek and Loslo Creek (Cowser Drain). These creek basins range in size from 7.3 km2 (Marr Creek) to 16.35 km2 (West Creek). Major portions of the Clark Creek, Marr Creek and Loslo Creek basins will be overprinted by RRM developments, principally the tailings management area and stockpiles. West Creek currently flows through the proposed open pit and will have to be diverted around the pit in order for the RRM to proceed.

It should be also noted that the lower approximately 3.3 km reach of Loslo Creek and 2.3 km of Clark Creek leading to the outflow into the Pinewood River have been previously designated as Municipal drains under the Drainage Act (respectively, the Cowser Drain constructed in 1980 and the Teeple Drain constructed in 1994).

3.6 Water Quality

Water quality in the area of the RRM is influence by the presence of clays/silts and water quality guidelines are frequently exceeded at baseline or upstream sites. There are a number of circumstances where exceedance of the Provincial Water Quality Objectives (PWQO) and Canadian Environmental Quality Guidelines (CEQG) values are common:

- Total metal values for samples showing elevated total suspended solids (TSS), especially for very common minerals such as aluminum and iron;
- Total aluminum concentrations in areas where clay / silt soils are common, as aluminum is a common clay mineral;
- Samples collected from under the ice in low volume water systems, because the process of ice formation tends to exclude ions from the ice crystal lattice, thereby concentrating the ejected ions in the underlying water column; and
- Samples collected during summer drought conditions in low volume water systems, because of ion concentration due to evaporative processes

The majority of parameters for surface waters met PWQO and CEQG for the protection of aquatic life, with the exception of common exceedances for aluminum (mainly CEQG), iron and phosphorus; frequent exceedances for cadmium (CEQG), copper (mainly CEQG) and cobalt (PWQO); and occasional, to rare, exceedances for arsenic, lead, nickel and zinc.

3.7 Hydrogeology

Regional groundwater flow is generally towards the west in the Pinewood River watershed, but locally is towards the Pinewood River corridor. Horizontal gradients are relatively steep on higher ground, approaching 0.01, but become more subdued in the lower lying areas where they decrease to approximately 0.003. This change in horizontal gradient is a strong indication that, as the groundwater flows from the higher ground to lower elevations, there is flow from the relatively impermeable shallow bedrock to the more permeable Whiteshell Till and other granular material immediately above the bedrock, referred to generically as the Pleistocene lower granular deposits (PLGD).

Groundwater in the shallow bedrock and PLGD becomes confined as it moves westwards and towards the Pinewood River beneath the lower permeability silty clays of the Whitemouth Lake Till and the glaciolacustrine deposits that largely sandwich this till (the Pleistocene Aquitard). Artesian conditions within the shallow bedrock and PLGD are common along the stream corridors with upwards gradients on the order of 0.03 to 0.1, while downwards gradients occur in the higher areas between the streams.

Groundwater quality is typical calcium magnesium-bicarbonate type water with the majority of sampling points having total dissolved solids exceeding 500 mg/L. Sampling of groundwater since 2007 has indicated metal concentrations above application guidelines e.g., arsenic, cobalt, iron, molybdenum, zinc, mercury and uranium.

3.8 Biological

3.8.1 Fisheries

The fish community proximal to the RRM is dominated by baitfish and forage fish species with sportfish (e.g., Walleye and Northern Pike) in the lower Pinewood River below the Pinewood Pumphouse. Presently Marr and Loslo Creek are fish bearing and a fish relocation porgram is underway. West Creek and Clark Creek are former tributaries to the Pinewood River and have been offset for by the Clark Creek Diversion and West Creek Diversion. Clark Creek Diversion and West Creek Diversion are offsetting habitat and support all life history stages of baitfish and forage fish species.

The freshwater diversions are fish bearing waters and subject to protection under numerous permits and legislation e.g., *Fisheries Act*. Cowser Drain (Loslo Creek) and the Pinewood River are also fish bearing. Water quality discharges into these areas must meet MMER and ECA permit requirements. Additional studies as required by the ECA e.g., for mercury, sulphate and ammonia are ongoing, the results of which may influence operation of the TMA.

3.8.2 Vegetation

The RRM is within Ecoregion 5S (Agassiz Clay Plain) and there are no published Significant Wildlife Habitat Ecoregion Criteria Schedules for this ecoregion. Apsen-Birch hardwood forest is the dominant (46.6 %) forest type proximal to the mine, followed by coniferous swamp / wetland (29.4 %). Agricultural lands are present across 8 % of the area proximal to the mine, primarily along roads and in areas of well drained clays. No records of rare vegetation communities or rare plants were identified during the Environmental Assessment.

Based on the ecoregion, the growing season length is 180-190 days with mean annual temperatures of 1.5 to 3.0 ºC. The frost free period is ~125 days from mid-May to mid/late September (Ministry of Agriculture; 1976-2005).

3.8.3 Wildlife

Key wildlife aspects influencing the OMS manual include the presence of;

- Species at risk including but not limited to Eastern Whip-poor-will and bobolink which require consideration of limits of disturbance, timing of works, noise mitigation and dust management;

- Snapping turtles, for which measures must be taken to prevent them entering the TMA, process water and water treatment facilities;
- Migratory birds requiring noise mitigation measures, reduced light pollution, timing windows on clearing, deterrents to prevent use of the TMA and monitoring for use of the TMA;
- Deer, which along with other wildlife require that a fence is to be constructed around the active tailings deposition areas; and
- Bear, which along with other wildlife need to be managed through controlling wildlife-human interactions including reporting, no harassing of wildlife, no fishing or hunting on the mine site, speed restriction and waste management to exclude wildlife.

3.9 Natural Hazards

Natural hazards to the RRM are limited to weather related hazards e.g., flooding, drought, extreme cold or high winds and forest fires. Other natural hazards e.g., volcanic activity, subsidence, avalanches and landslides are not expected to affect the mine given surrounding geology and topography. Responses to natural hazards are considered as part of the site EPRP. Potential natural hazards relating to the OMS are discussed here, however further consideration on how to respond to natural hazards is considered in the maintenance and contingency sections.

- Forest Fire; there is potential for forest fire to affect operations of the mine, with the cycle in the area of the RRM being 63 to 210 years. The RRM has a fire prevention and preparedness plan (June 2017) developed with the MNRF.
- Pit Slope Failure; could be cause by flooding or slope instability. Modelling of the 1:100 year flow in the Pinewood River would result in the Pinewood River cresting adjacent to the pit at between 347-349 masl. A berm is proposed to protect the pit. This is the same mitigation proposed as for managing ice jams in the Pinewood River.
- Flooding; there is potential for flooding, and associated rainfall to affect operations of the mine. Design of the dams and diversion structures has considered these events as described in section 4 and contingencies are discussed in section 10. Results of flooding leading to a potential need to discharge additional water is offset by the increased assimilative capacity of the receiving environmental at the permitted 1:1 discharge ratio.
- Drought; drought conditions may result in a reduction in water availability for processing and discharge. Drought conditions for processing is mitigated through the design of the WMP and water storage. In the event of 5th %ile low flow fall, only 1.53 Mm^3 could be discharged. However, this is managed through capacity in the TMA, WMP and water treatment.
- Seismic hazard; the site is located in the Canadian Shield which is comprised of Precambrian granites and gneisses that host some of the oldest rocks in the world. No earthquakes recorded with a magnitude greater than M 4.5 have occurred within approximately 500 km of the site. The results of the probabilistic seismic hazard analysis (PSHA) are shown in Table 3-1. Further details regarding the PSHA are provided in the *2013/2014 Geotechnical Site Investigations Report* (AMEC, 2014d).

4.0 FACILITY DESCRIPTIONS

The components of the RRM relative to the scope of the OMS include tailings and process water management, freshwater diversions and water treatment. The site layout is shown on Figure 3-1. While there is interconnectivity between the systems, for the purposes of the OMS they are categorised in these groupings and reference made between them where required e.g., water management pond, water discharge pond and constructed wetland.

Tailings and process water management are provided by the following;

- Tailings Management Area –TMA (including cells 1, 2 and 3 and associated pipelines);
- Water Management Pond - WMP; and
- Mine Rock Pond - MRP.

The TMA provides long term containment for the tailings. The mill make-up water is reclaimed from the Tailings Management Area (TMA) and the Mine Rock Pond (MRP). The TMA dam raising schedule is divided into five stages and has been set to ensure ample pond storage is available to satisfy mill make-up water supply and effluent management requirements.

The TMA has been designed to optimize natural degradation processes, by ensuring there is sufficient time to allow for heavy metals to precipitate to low levels in the pond. The natural degradation processes are most effective during warm weather conditions when biophysical activity is optimal, and are also augmented by exposure to sunlight.

Freshwater is supplied to the mill from the WMP. Mill make-up water is provided through reclaim from the TMA and the transfer of contact water from the Mine Rock Pond (MRP). Surplus water (effluent) is transferred to the WMP before it is discharged to the environment via the constructed wetland or pipeline to the Pinewood River. Effluents planned for discharge to the environment will be held for a sufficient period under warm weather conditions, to maximize the effects of natural degradation. Such effluent aging will take place mainly in the summer.

Freshwater diversion is provided by the following;

- Clark Creek diversion including the Clark Creek and Teeple dam and diversions; and
- West Creek diversion including the Stockpile and West Creek dam and diversions.

The freshwater diversions function to reduce inflows to the RRM and provide offsetting habitat for the loss of portions of Loslo, Marr, Clark and West creeks. Diversion of the non-contact runoff from these catchments reduces the effluent management requirements. All structures support fish habitat.

Water treatment is provided by the following;

- Water Discharge Pond (WDP) and the Constructed wetland – (CW); and
- Sediment ponds 1 and 2.

Sedimentation ponds have been designed to allow for the settlement of total suspended solids present in the non-contact runoff or effluent prior to discharge to the environment. Sediment Ponds #1 and #2 receive runoff and seepage from the West Mine Rock Stockpile (WMRS). The Water Discharge Pond (WDP) and Constructed Wetland receive discharge water from the WMP. The constructed wetland in the primary and priority discharge location from the WMP (to mitigate flow reductions in the Pinewood River) ahead of discharging to the Pinewood River downstream of McCallum Creek.

4.1 Design Criteria and Basis

The basis for design of the tailings, process water, freshwater diversion and sedimentation dams are summarized in the subsequent sections. Where practically possible, the RRM has been designed to minimize effort at closure by promoting progressive reclamation opportunities including but not limited to: establishing the TMA closure cover and developing the East Mine Rock Stockpile (EMRS) and West Mine Rock Stockpile (WMRS) to closure slopes.

Results from field investigations (subsurface and groundwater conditions) have been incorporated to the design as per the documented findings from the *2013/2014 Geotechnical Site Investigations* (AMEC, 2014d) and *Geotechnical Investigations Report – TMA, Volume 1 – Design Implications* (Amec Foster Wheeler, 2016f).

Table 4-1; Summary of Dam Design Criteria

Dam	Hazard Potential Classification	Upstream Watershed	Maximum Operating Pond Level		Environmental Design Flood		Inflow Design Flood	Spillway design/Emergency Spillway design			Design Slopes
			Volume	Level	Storm Event	Volume		Width	Design Flow	Max. flow depth (IDF)	
-	-	-	Mm3	m	-	Mm^3	-	m	m3/s	m	(_H:1V)
Tailings Management Area											
Cell 1	Very high	None/Tailings		369.9	100 yr 30 day	0.320	PMF	8			11
Cell 2	Very high	Loslo/Tailings		364.05	100 yr 24h	0.828	PMF	19	293.0	1.4	11
Process Water Management											
WMP	Very high	TMA	5.0	369.7	100 yr 30 day	0.630	PMF	8	3.7	0.50	4-9.2
MRP	Very high	EMRS	0.5	356.8	100 yr 30 day	1.0	PMF	15	64.7	1.60	11
Freshwater Diversions											
Clark Creek Dam	Low	Clark Creek		378.75	n/a	n/a	100-yr	20		0.30	5.5
Teeple Dam	Low			378.5	n/a	n/a	100-yr	120		0.10	6.0
Stockpile Pond Dam	Very high	West Creek	0.095 NOWL	372.2	n/a	n/a	PMF	33	79.6	2.30	6.5
West Creek Dam	Very high		0.156 NOWL	361.0	n/a	n/a	PMF	8			7.9

Notes
Hazard potential classification per LRIA
Spillways have been designed to pass an IDF event while satisfying minimum freeboard requirements
PMF is probably maximum flood
To be updated for WDP, CW and Sediment ponds 1 and 2 based on approvals

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Table 4-2; Summary of Dam Characteristics

Purpose & Facility	Dam Name	Type of Dam	Construction Method	Crest Elev.	Max. Dam Height	Dam Length	Crest Width	Slopes	Spillway Invert Elev.	Spillway Width	Normal Freeboard
				(m)	(m)	(m)	(m)	(_H : 1V)	(m)	(m)	(m)
Tailings containment dams											
Tailings Management Area (TMA)	TMA North	Central core	Staged centreline raises	366.5 (final 379.5)	2.5	3620	20	11.0	365.5 (emergency)	10	varies
	TMA South				11.0	3505	20				
	TMA West				7.5	1865	20				
	TMA Cell 1	Rockfill & liner	Final	371.5		1470	10	11.0	370.5 (emergency)	8	varies
Process Water Management											
Water Management Pond (WMP)	WMP Dam 1	Homogeneous	Final	371.5	4.2	850	10	4.0	370.5 (emergency)	8	3.6
	WMP Dam 2			371.5	9.5	800	10	5.5 *			
	WMP Dam 3			371.5	13.3	750	10	9.2 *			
	Settling Pond			371.5		550	5	4.0	n/a		3.6
Mine Rock Pond	Mine Rock Pond	Central core	Final	360.2	13.0	1655	10	11.0	358.9 (emergency)	80	3.4
Freshwater Diversion											
Clark Creek Diversion	Clark Creek	Homogeneous	Final	380.0	2.0	285	6	5.5 *	379.9	6	1.3
	Teeple Road	Homogeneous	Final	379.0	5.0	465	6	6.0 *	378.7	6	0.5
West Creek Diversion	Stockpile Pond	Central core	Fianl	375.5	9.8	380	6	6.5 *	372.3	20	3.2
	West Creek	Central core	Final	364.9	8.9	750	10	7.9 *	360.9	8	3.9
Sediment Control											
Water Discharge Pond (WDP)	Water Discharge Pond	Homogeneous	Final	355.2	2.2	350	6	4.0	354.2	5	1.0
Constructed Wetlands	Pond A	Homogeneous	Final	347.5	1.5	715	5	3.0	347	50	0.5
	Pond B			349.0	2.0	840			348.5		0.5
	Pond C			350.5	2.5	1015			350		0.5
	Pond D			351.5	1.5	305			351		0.5
	Pond E			352.5	1.5	190			352		0.5
West Mine Rock Stockpile	Sediment Pond #1	Central core	Final	354.0	3.8	1750	6	4.0	353.7 (emergency)	60	0.8
	Sediment Pond #2	Homogeneous	Final	348.2	5.2	1460	6	4.0	348 (emergency)	115	2.2
	Temporary Sediment Pond	Homogeneous	Final, temporary	348.6		600	6	4.0	348.5 (emergency)	60	0.6

Notes:
1) Refer to the relevant design reports for design details.
2) Normal freeboard is the height between the normal pond level and dam crest
3) Emergency spillways are noted in parenthesis for contact water ponds that require Environmental Design Flood (EDF) containment. Otherwise, spillways are working or overflow spillway.
4) Inclinations with an asterisk (*) include toe berms

4.2 Tailings Management Area

Design criteria, including mill throughput, used in the design of the TMA dams is summarised in the follow table. Subsequent sections describe tailings cells 1, 2 and 3 and associated seepage collection systems and supporting infrastructure.

Testing carried out in 2012 for the feasibility study determined that the tailings are non-plastic, predominantly silt sized particles, with 71% of the particles passing the 0.075 mm sieve. The specific gravity is 2.82. Column settling tests (undrained and drained) support a deposited void ratio of 1.0 for deposition planning purposes, inferring a dry density of about 1.4 t/m^3. This is quite typical for hard rock gold tailings. A much more conservative dry density of 1.1 t/m^3 was adopted for the design of the initial start-up cell due to the small footprint and relatively rapid filling.

Table 4-3; Mill and Tailings Operating Data used for design

Revision G	Symb ol	Source	Total	Years 1 - 4	Years 4 - 14	Units (metric)

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				Total	Total	Total	
Operating data provided (design criteria)							
Ore production							
Resource - Open Pit		A	New Gold	100.1	53.4	46.7	Mt
- underground		B	New Gold	4.2	0.5	3.7	Mt
Design production rate *(while operating)*		C	BBA		21,739	21,739	t/day
Mill availability *(% of the time the Mill operates)*		D	BBA	92			%
Nominal production rate		E	C x D		21,000	21,000	t/day
Tailings production							
Tailings / ore ratio		F	BBA	1.0			
Slurry density in the Mill		s_o	BBA		50.0	50.0	% solids
Discharge slurry percent solids (*mass of solids / total mass)*		s_d	BBA		46.7	46.7	% solids
Tailings properties							
Specific gravity of solid tailings particles		G_s	AMEC		2.82	2.82	-
Void ratio of deposited tailings *(vol. of voids / vol. of solids)*		e	AMEC		1.0	1.0	-
Flows affecting the Mill water balance							
- Moisture content of the ore entering the Mill (mass of water/mass of solids)		G	New Gold	3.0			%
- Freshwater for glands & reagent mixing *(per ton of ore)*		H	AMEC M&M	0.08			m^3/ t
- Evaporation and spillage losses in the Mill (*per ton of ore)*		I	assumed	0.02			m^3/t
Calculated data (design parameters)							
Project design life		J	(A) / (E x 365)	13.5	7.0	6.6	years
Tailings production							
- Nominal tailings production	daily	K	E x F		21,000	21,000	t/d
	monthly		E x F x 30		630,000	630,000	t/mo
	annual		E x F x 365		7,665,000	7,665,000	t/y
	total		E x F x 365 x J	103.8	53.4	50.4	Mt
Deposited tailings							
- Dry density		r_d	G_s / (1+e)		1.41	1.41	t/m^3
- Volume	daily	L	K / r_d		14,894	14,894	m^3/d
	monthly				446,809	446,809	m^3/mo
	annual				5,436,170	5,436,170	m^3/y
	total		A+B/r_d	73.96	38.19	35.77	M-m^3
- Water content (at 100% saturation) *(mass of water/mass of solids)*		w	e / G_s x 100		35.5	35.5	%
- Water retained in voids	daily	M	K x w		7,447	7,447	m^3/d
	monthly				223,404	223,404	m^3/mo

annual				2,718,085	2,718,085	m^3/y
Mill water balance						
- Water in ore entering the Mill	N	E x G x 30		18,900	18,900	m^3/mo
- Freshwater for glands and reagent mixing	O	E x H		51,881	51,881	m^3/mo
- Water leaving the Mill with the tailings	P	(K / s) - K		719,036	719,036	m^3/mo
- Losses in the Mill	Q	E x I		12,600	12,600	m^3/mo
- Make-up water required to balance the Mill	R	P + Q - N - O		677,326	677,326	m^3/mo

4.2.1 TMA Cell 1

The purpose of Cell 1 is to allow for the deposition of tailings, outside of fish bearing waters i.e., no MMER Schedule 2 requirement. Cell 1 has been designed to contain 3.3 Mm^3 of tailings, or 6 months storage capacity. The dam has a 'very high' hazard potential classification equivalent to extreme hazard classification by the CDA. The design information for Cell 1 is within RRP-GEO-LRIA-004C August, 2016 and the design brief is RRP-GEO-REP-008 R2. A summary of design characteristics is provided in the table below. The IDF for spillway and design is the 24h PMF (516 mm) and the EDF is the 100 year 30 day event. The facility creates a ring dam therefore reducing inflows and water management requirements. As the TMA is raised in stages over the life of mine the cell will become encapsulated within the ultimate TMA facility requiring no change to the closure plan.

The Cell 1 will have a crest elevation of 371.5 masl, and consists of (also see Table 4-4):

- a continuous raise of the TMA south starter dam from elevation 366.5 masl to 371.5 masl between stations 0+000 to 0+800;
- a raise of the TMA west dam (WMP dam 4) from 366.5 masl to 371.5 masl between stations 1+000 to 1+900; and
- a standalone internal containment dam also built to elevation 371.5 masl.

Table 4-4; Summary of Cell 1 Dam Characteristics

	Spillway Invert Elevation (m)	Dam Crest Elevation (m)	Minimum Ground Elevation[1] (m^3)	Maximum Height (m)	Length (m)	Dam Fill Volume (incremental) (Mm^3)
TMA Start-Up Cell Dam	370.5	371.5	360.0	11.5	1,500	1.17
TMA South Dam - Stage 1		371.5	365.0	6.5	800	0.24
TMA West Dam - Stage 1		371.5	363.0	8.5	700	0.19

Notes:
1 Minimum ground elevation noted is original ground

The TMA start-up cell will have a normal operating water level (NOWL) of approximately 369.90 masl at the conclusion of six months of production, which corresponds to the operational pond volume of 200,000 m^3. Once the water level rises above the NOWL it must be pumped from the TMA start-up cell to the WMP at a rate of approximately 57,000 m^3/day, to maintain sufficient capacity to contain the EDF event. Due to the limited storage in the TMA start-up cell at this point in mine operations, no operating range can be allowed (i.e., any water above the NOWL must be pumped immediately). The TMA Cell 1 spillway has an invert elevation of 370.5 m and a base width of 8 m. The spillway discharges north into TMA Cell 2.

The primary dam construction materials are mine waste rock and select clay (overburden) obtained from a local borrow or from open pit development. The TMA South and West Dam have a clay core with select or processed sand filter/drain zones provided downstream of the core and above the foundation to inhibit the migration (piping) of fine-grained soils under seepage forces. The TMA Start-Up Cell Dam has an upstream bituminous liner to minimize seepage.

Work on Cell 1 is scheduled to be completed in late August with tailings deposition commencing in September 2017, pending approval from MNRF.

4.2.2 TMA Cell 2

The purpose of Cell 2, is to allow for continued operations and tailings deposition, following filling of Cell 1, as the ultimate TMA dams are constructed. TMA Cell 2 has been designed to provide containment for 12 months of tailings deposition based on the design criteria provided in this section (Table 4-1). The dam has a ‘very high’ hazard potential classification equivalent to extreme hazard classification by the CDA. The Design brief for Cell 2 dam is within RRP-GEO-REP-026 R1 Design Brief, April 28, 2017. A summary of dam characteristics is provided in the table below (Table 4-5). The IDF for spillway and design is the 24h PMF (516 mm) and the EDF is the 1:100 year 24h (127 mm) for containment below the spillway. The 19 m wide spillway with an invert of 364.70 is located in the north starter dam.

The TMA Cell 2 Dam has a crest elevation of 366.5 m which is equal to the crest elevation of the TMA Starter Dams and north starter dam forms part of the containment for tailings deposition. The cell provides containment for approximately 5.5 Mm3 of tailings. The facility is bounded by natural topography (high ground) in the north and by impoundment dams along the remaining perimeter. The facility will be encapsulated during the life of mine when the TMA Stage 2 raise (elevation 371.5 m) is constructed.

The dam section is a central clay core embankment with rockfill shells and a crest elevation of 366.5 m. Sand filter and transition zones are provided downstream of the clay core and a partial blanket beneath the downstream shell. The dam section requires shallow side slopes due to the characteristics of the foundation soils. Clean (NPAG) rockfill is required for construction of the downstream shell. Any rockfill (NPAG or PAG) may be used for construction of the upstream shell (outside Loslo Creek). Given the Schedule 2 approval schedule, 2x1600mm culverts will be placed in Loslo Creek until the approval is received, then these will be grouted and sheet piling used to close the dam.

Work on the dam is scheduled between approval (August) and December for clay placement, and sheet piling across Loslo Creek to be completed in 1Q2018, pending MMER Schedule 2 approval.

Table 4-5; Summary of Dam Characteristics for Cell 2

Tailings Management Area Dam	Spillway Invert Elevation (m)	Dam Crest Elevation (m)	Minimum Ground Elevation[1] (m^3)	Maximum Height (m)	Length (m)	Dam Fill Volume[2] (Mm^3)
Start-Up Cell Dam (Cell 1 Dam)	364.7	371.5	360.0	11.5	1,500	-
North Dam – Stage 1		366.5	363.5	3.0	1,100	-
West Dam (0+000 to 1+000)		366.5	363.5	3.0	600	-
West Dam (1+000 to 1+900)		371.5	363.0	8.5	650	-
South Dam (0+000 to 0+800)		371.5	365.0	6.5	800	-
South Dam (0+800 to 1+250)		366.5	364.5	2.0	300	-
Cell 2 Dam		366.5	356.0	10.5	900	0.47

Notes:
1 Minimum ground elevation noted is original ground.
2 Incremental fill volume to currently permitted structure.

4.2.3 TMA Cell 3

TMA cell 3 is a component of the ultimate TMA bounded by the TMA south starter dam and the Cell 2 dam. Cell 3 will provide containment for tailings/water for approximately 6 month (April to October 2019 prior to adjoining with Cell 2 through a spillway as part of the overall TMA.

The TMA south starter dam is will be built to 366.5 m and has a ‘very high’ hazard potential classification equivalent to extreme hazard classification by the CDA. The design brief for TMA dams is within Detailed Design Brief Design Brief - Tailings Management Dams 3098004-004000-A1-ETR-0006-00, July, 2014. This was revised following review by the ITRB and, for the starter dams, little design change was required to the 10:1 downstream slopes and the 4:1 upstream slopes (RRP-GEO-MEM-006 Rev 1). A summary of design characteristics is provided in design brief and in the summary table in this section. The IDF for spillway and design is the 24h PMF (516 mm) and the EDF is the 1:100 year 30 day event for containment below the spillway.

When full containment in the TMA is available (i.e. TMA South Dam is constructed to elevation 366.5 m), tailings will be discharged from the north side of the TMA South Dam (upstream slope).

An overflow spillway will connect TMA Cell 2 and 3 to allow for water reclaim during this period of operation. As tailings are discharged from the TMA South Dam, starting in April 2019 (approx.) the pond level in the cell will continue to increase until the water begins to passively overflow at elevation 364.5 m into TMA Cell 2. The TMA Cell 3 Overflow Spillway has an invert elevation of 364.5 m and a base width of 19 m. The spillway will allow TMA Cells 2 and 3 to act as one pond above this invert elevation.

4.2.4 Seepage Collection System

Seepage collection systems have been designed consistent with permitting requirements (MOECC ECA #5178-9TUPD9) to contain seepage and a 1:25 yr 24h storm event (102 mm). However, seepage and runoff reporting to the MRP, from the EMRS and LGOS, is through ditching designed for a 1:100 yr 24h storm event, also consistent with the ECA approval. There is no requirement for seepage collection from the MRP, however, as noted elsewhere in this manual (section 5) the MRP will be managed with a minimum water level to reduce seepage and dewatered in winter to 5,000 m^3.

Seepage collection systems may be modified during construction, however the design criteria will not be reduced.

4.2.4.1 Cell 1

Cell 1 seepage collection is based on continuous ditches reporting to sumps and pump back. Cell 1 seepage details are outlined in RRP-GEO-MEM-043-R1. Seepage to the south east (through WMP Dam 4) is part of inflows to the WMP and managed as part of the WMP water.

Three sumps are proposed with the base of the sump 1 to 2 m below grade to allow for the incoming ditch invert. Combined seepage flow to these sumps is 29 m^3/day and final dimensions are being field fitted. Where required, the downstream side of the ditches will be raised to 362.0 m to prevent back flooding from Loslo Creek. Pumping sizing is intended to drain the sumps within 5 days.

Table 4-6; TMA Cell 1 Seepage Collection Sumps

Parameter	Sump 1	Sump 2	Sump 3
Location	North side of cell 1	East side of cell 1	South of TMA south dam
Seepage flow (m^3/day)	12	7	10
Runoff (m^3/day)	9,321	4,113	5,257
Ditch steady flow (m^3/day)	200	117	173
Storage volume required (m^3)	9,532	4,237	5,440
Pump capacity (m^3/day)	2,500	1,000	1,500

4.2.4.2 Cell 2

Seepage from cell 2 dam has been estimated to be approximately 9.2 m^3/day when the cell is at capacity (364.7 m). Until the TMA south dam is completed i.e., Marr and Loslo Creek are impounded this seepage will be collected and pumped back into Cell 2, as such Cell 2 seepage management is temporary. Sumps and ditching have been designed for a 1:25 year event, consistent with seepage collection commitments;

- Seepage collection sump will be built with ~8,000 m^3 of live storage (NWL 354.0, MOWL 355.5)
- Minimum pumping capacity 1,600 m^3/day to dewater sump in 5 days

Seepage from the north starter dam, is estimated at 0.02 to 0.03 m3/day/m per metre run of dam which will be captured in WMP sump 3.

4.2.4.3 Cell 3

Cell 3 is not anticipated to impound tailings until April 2019 and as such seepage is not anticipated until after this time. Seepage from the south starter dam, is estimated at 0.02 to 0.03 m3/day/m per metre run of dam which will be directed via ditching to the water discharge pond, or if necessary pumped back.

4.2.4.4 WMP

Seepage from the WMP, similar to other dams is designed to be collected in ditches, routed to sumps and pumped back to the WMP. The ditches are designed to convey the 1:25 yr 24h event with flows typically around 5 m^3/s and up to 8.3 m^3/s. The ditches have 1 m bottom width, 3:1 slopes and up to 2 m flow depth. The following table provides a summary of the sumps.

Table 4-7; WMP Seepage Collection Sumps

Parameter	Sump 1	Sump 2	Sump 3
Location	Dam 2	Dam 3	North of WMP by North starter dam
NWL	359.5	358.0	361.5
MOWL	361.1	360.2	364.0
Storage volume required (m^3)	18,200	11,800	20,000
Pump capacity (m^3/day)	4,000	2,500	3,500
Note; Sump 3 to be expanded in 2018 to include seepage from North Dam – Cell 2			

4.2.5 Supporting Infrastructure

Site infrastructure have been constructed with locally available materials produced through the development of the Open Pit or quarrying sand/gravel deposits and bedrock. Figure 3-1 shows the general arrangement of the RRM, including site and haul roads, laydown areas, and stockpiles.

4.2.5.1 Pipelines

There are five pipeline corridors used to transfer tailings, fresh water, and reclaim water on site. Drawing 100126-4500-DD10-PIP-0001.001 shows the key plan of the tailings and reclaim pipelines that interact with the plant site. Drawing 100126-6200-DD10-PIP-0001.001 shows the key plan of the Pinewood Pipeline used for effluent discharge (see Appendix B).

- Tailings Pipeline: the tailings pipelines are 4,000 m in length between the Mill and the TMA and are used to transfer tailings to the TMA for discharge. The tailings line is contained within a lined corridor with six emergency dump ponds. The line is with in additional containment over West Creek and its tributaries.
- TMA Reclaim Pipeline: the TMA reclaim pipeline is 4,000 m in length between the TMA and the Mill and is used to transfer mill make-up water. The reclaim line is contained within a lined corridor with six emergency dump ponds. The line is with in additional containment over West Creek and its tributaries.
- MRP Reclaim Pipeline: The MRP reclaim pipeline is 1,750 m in length between the MRP and the Mill and is used to transfer mill make-up water.
- Open Pit Pipeline: The Open Pit pipeline is 1,400 m in length between the Open Pit and the MRP and used to transfer pit dewatering to the MRP.
- TMA Transfer Pipeline: The TMA transfer pipeline is 2,300 m in length between the TMA and the WMP and are used to transfer TMA surplus water to the WMP.
- WMP Freshwater Pipeline: The WMP freshwater pipeline is 4,000 m in length between the WMP and the plant site and used to transfer freshwater to plant site infrastructure and the Mill (if required).

- Pinewood Pipeline: The Pinewood pipeline is 10,300 m in length between the WMP and the Pinewood Pumphouse. It is used to discharge WMP effluent into the Pinewood River.

4.2.5.2 Utilities

The following utilities are used on site:

- Power to the plant site is provided by 230 kV transmission lines that are connected to Hydro One northwest of the site at a Switching Station;
- The main 230 kV substation is located near the concentrator building to provide power to the process equipment via underground supply lines. Power to the remainder of the site is provided by a network of overhead power lines fed from the main substation; and
- Site telecommunications and Process Control are distributed via fiber optic lines.

4.2.5.3 Tailings Distribution Systems

Mill tailings are produced and detoxified in a cyanide destruction circuit as shown on the process flow diagram 100126-3200-DC00-PFD-0017 (Appendix B). Pipelines to the TMA are shown on the process flow diagram 100126-3200-DC00-PFD-0022 (Appendix B). Tailings are beached from the TMA dams. A wide beach against the dams enhances safety and reduces seepage.

4.2.5.4 Water Circulation Systems

Appendix B contains supporting information for the pumping requirements and design of pumps and pipelines. Mill make-up water is provided from the TMA and MRP. The TMA reclaim recirculates water from the mill after the tailings solids have settled in the TMA. The MRP reclaim pumps water collected from the EMRS and Open Pit/future underground mine. Mill make-up water will be preferentially pumped from the MRP with the TMA supplying the remainder of make-up water.

Freshwater pipelines transfer water to the Plant site for the freshwater requirements at the Mill, as well as to provide water to the truck filling station, truck shop, truck wash facility, and fire water tank. Surplus water in the WMP may also be pumped to the Pinewood Discharge Structure for discharge into the Pinewood River. Details on effluent discharge via the Pinewood Pipeline are described in Section 4.4.

4.2.5.5 Mill Make-up Water Supply

Mill make-up water is provided by reclaim from the WMP, TMA cells and MRP. The reclaim water from the TMA is pumped from the central pond using the following three pumps:

Table 4-8; Make up water supply pump ID and capacity

Equipment ID	Name	Capacity
4520-PU-0023	Process Plant Pumps	1,350 m^3/hr
4520-PU-0024	Process Plant Pumps (Standby)	1,350 m^3/hr
4520-PU-0025	WMP Pump	1,516 m^3/hr

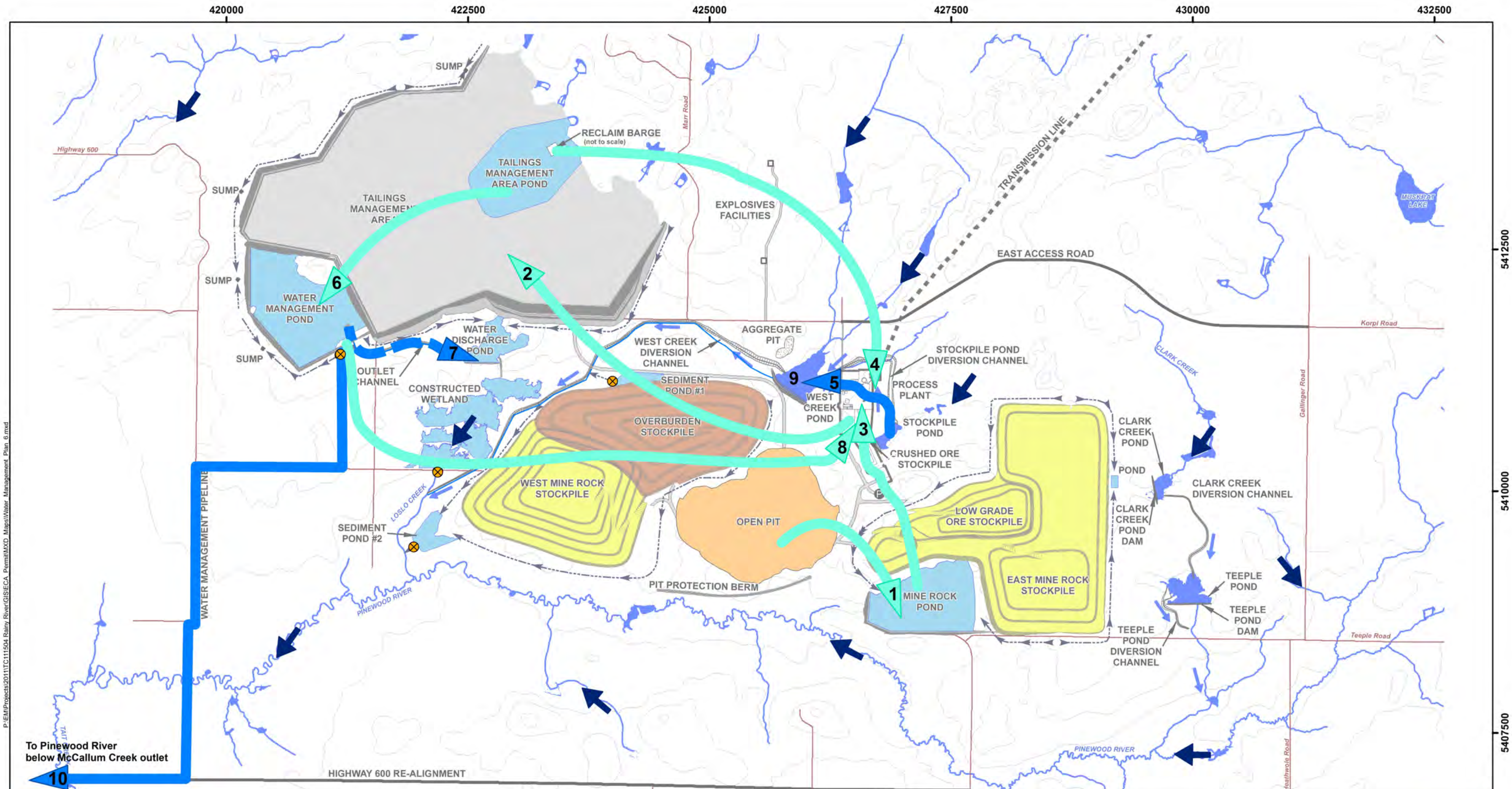
Reclaim water from the MRP is pumped using the following two pumps.

Equipment ID	Name	Capacity
2590-PU-0030	Mine Rock Pond Water Pump	680 m^3/hr

2590-PU-0030	Mine Rock Pond Water Pump	680 m^3/hr

4.3 Process Water and Water Management

Summary of the process water is shown in Figure 4-1 – process flow diagram water flow sheet. Appendix B includes process flow diagrams. Appendix E includes the process water balance for the TMA and WMP includes TMA cells 1, 2 and 3.



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LEGEND

- Integrated Water Recycle
- Excess Water Discharge
- General Surface Water Flow Direction
- Final Compliance Point

ID (on this Figure)	Flow From	Flow To	Method	Purpose	Control Logic
1	Open Pit	Mine Rock Pond	Pumped	Dewatering of the Open Pit	Rate to match inflows (lower bench may flood during storm events).
2	Process Plant	TMA	Pumped	Tailings slurry discharge.	Pumped at fixed rate.
3	Mine Rock Pond	Process Plant	Pumped	Process Plant Make-up.	Fixed rate with on/off float switch at minimum pond level.
4	TMA	Process Plant	Pumped	Process Plant Make-up.	Pumped at fixed rate adjusted according to Mine Rock Pond supply.
5	Stockpile Pond	West Creek Pond	Gravity	Divert clean runoff.	Free draining to match inflow.
6	TMA	Water Management Pond	Pumped	Seasonal transfer. Net annual inflow to the system.	Transfer net annual inflow after effluent is released from the Water Management
7	Water Management Pond	Water Discharge Pond /Constructed Wetland	Gravity	Discharge treated effluent to the Pinewood River via the constructed wetland.	Seasonal discharge to constructed wetland (all months except Feb./March) for added treatment and maintain Pinewood River flows.
8	Water Management Pond	Process Plant	Pumped	Mill process fresh water and make-up requirements	Pumped at variable rates as needed.
9	West Creek Pond	Potable	Pumped	Provide potable water	Pumped at variable rates as needed.
10	Water Management Pond	Pinewood River / McCallum Creek	Pumped	Discharge treated effluent to the Pinewood River.	Discharge treated effluent to the Pinewood River.

NOTES:
- Nominal monthly pump rates indicate on figure are based on average annual conditions.
- Pump rates are provided on table 9

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RAINY RIVER PROJECT

Process Water Flow Schematic

Datum: NAD83
Projection: UTM Zone 15N

0 1.25 2.5 5 7.5 10 Kilometres

SCALE: 1:37,500

PROJECT Nº: TC111504

FIGURE: 4-1

DATE: August 2014

4.3.1 Water Management Pond

The WMP collects runoff from direct drainage area, pumping from the Pinewood River and receives transfer from TMA. Initially the WMP will be utilized to build an inventory of 3.8 Mm^3 of water required for mill start-up and process operations. The start-up inventory of water will be provided by pumping from the Pinewood River via the pinewood pipeline.

WMP is made up of 5 dams with a crest of 371.5 m and MOWL of 369.7 m. The dams have a 'very high' hazard potential classification equivalent to extreme hazard classification by the CDA. As-built details will be provided in the WMP as-built report to be issued following construction completion. The IDF is 24h PMF with the emergency spillway invert at 370.5 m in bedrock on the north end of dam 5 into cell 2 / Loslo Creek catchment.

All the WMP dams were completed to their final crest elevation in July 2017 and EOR confirmation of compliance was completed on July 27, 2017. The WMP has been developed in accordance with the design details presented in the following documents and drawings. As-built details will be provided in the *WMP As-built Report*, which will be issued within 90 days of construction completion.

The design basis for the WMP includes, but is not limited to, the following;

- Minimum operating volume of 1.0 Mm^3 (i.e., dead storage below the intake for the pumps to the mill); and
- Maximum operating volume of 5.0 Mm^3;

The WMP will discharge via pumping to the Water Discharge Pond (except in winter); and pumping surplus effluent, above 10,000m^3/day, to the Pinewood River (spring and fall). The design criteria for the WMP dams are summarized in section 4.1.

Construction of the WMP began in September 2015 and finished in July 2017. Approval to proceed with the Intermediate Stage of filling to 364.5 m was granted by MNRF in April, 2017. Approval is pending to raise the fill level above 354.5 m to the ultimate elevation, as discussed in section 5.

4.3.1.1 Freshwater Taking from the Pinewood

The Pinewood Water Intake/Discharge Structure is located along the Pinewood River on the outside of a meander bend. The pumphouse is used for the initial filling of the WMP, after which it becomes a discharge structure used to discharge effluent from the WMP.

The Pinewood Water Intake/Discharge has been constructed to support the requirements of the *Water Management Plan for Operations* (Amec Foster Wheeler, 2015a). These features are illustrated in the following drawings:

Drawing Title	New Gold Drawing Number
Pinewood Water Intake/Discharge Earthworks – General Arrangement	3098004-006200-A1-D20-0002
Pinewood Water Intake/Discharge Earthworks - Channel	3098004-006200-A1-D70-0003

The Pinewood Pump House structural and mechanical details are illustrated in the following General Arrangement Drawings:

Drawing Title	New Gold Drawing Number
Pinewood River Water Intake Pipeline – Key Plan	100126-6200-DD10-PIP-0001.001
Mechanical General Arrangement Pinewood River Pump Station Plan	100126-6200-DE10-GAD-0002.001
Mechanical General Arrangement Pinewood River Pump Station Elevation	100126-6200-DE10-GAD-0003.001
Pinewood Water Intake Structure Structural General Arrangement	100126-6200-DT00-GAD-0003.001
Pinewood Water Intake/Discharge Mechanical General Arrangement	100126-200-DT00-GAD-0004.001
Piping General Arrangement Pinewood River Pump Station Plan and Section	100126-6210-DE20-GAD-0001.001
General Arrangement Pinewood River Pumphouse Grounding Plan	100126-6210-DF00-GAD-0001.001

4.3.2 Mine Rock Pond

The Mine Rock Pond has been designed to collect runoff and seepage from the East Mine Rock Stockpile (EMRS), Low Grade Ore Stockpile (LGOS), and dewatering from the Open Pit and future underground mine. The MRP design details are summarized in the following documents and drawings with the latest revision RRP-GEO-MEM-019 R0 – AMECFW 2016h. The dam has a 'very high' hazard potential classification equivalent to extreme hazard classification by the CDA. As-built details will be provided in the MRP as-built report to be issued 90 days following construction completion.

Document Title	Reference
Design Brief – Water Management Dams	(Amec Foster Wheeler, 2015b)
Mine Rock Pond Dam – Design Revision and Operating Guidelines	(Amec Foster Wheeler, 2016h)
MRP As-built Report	TBD
Drawing Title	**New Gold Document Number**
Mine Rock Pond Dam – Typical Cross Section	3098004-002590-A1-D70-0004
Interim Mine Rock Pond – Plan, Cross Sections, and Details	3098004-002590-A1-D50-0006

The design criteria for the MRP ultimate dams are summarized in section 4.1. Typical dam cross sections are provided on Drawings 3098004-002590-A1-D70-0004 for the MRP ultimate dam. The design basis for the MRP includes, but is not limited to, the following:

- 24h PMF and 1:100 year 30 day storm
- Maximum operating water volume: 0.5 Mm^3;
- Maximum water stored: 1.3 Mm^3;
- Minimum operating water volume: 0.05 Mm^3;
- Constructed from local materials as a clay core and rockfill embankment; and
- Decant pumping to the Mill via pipeline is at a rate of up to 680 m^3/hr.

The dam crest elevation is 360.2 m with an emergency spillway invert of 358.9 m. The available pond storage at the emergency spillway invert is reduced to 1.3 Mm^3. The MRP pumps will pump 680m^3/hr, and run continuously until the pond is empty. This 30% increase to the pumping rate and change in pumping philosophy means the normal pond will range between 5000 m^3 and about 525,000 m^3 depending on the open pit dewatering pump capacity. The larger decant pumps also mean that the EDF capacity required in the MRP is 775,000 m^3. The Maximum Operating Water Level (MOWL) in the MRP has been set at elevation 356.8 m (525,000 m^3).

Completion of the Mine Rock Pond Dam commenced in 2015, and with a hiatus in 2016, is expected to be completed in the fall of 2017. Until the dam is complete, runoff and seepage water from the EMRS will be diverted to the temporary Sediment Pond system located within the north portion of the ultimate MRP footprint and discharged to the remnant Clark Creek.

4.4 Water Treatment

At the time of preparation for this revision the constructed wetland and sediment ponds 1 and 2 have not been constructed or received all regulatory approvals. Based on the anticipated MMER schedule 2 approval timing, construction of these facilities is planned for 2018. The following section provides a summary of their design and intended operation, which is intended to be updated on receipt of all regulatory approvals.

4.4.1 Water Discharge Pond and Constructed Wetland

The Water Discharge Pond (WDP) has been designed to collect runoff from natural ground catchment south of the TMA, seepage from the seepage collection ditch, and bleed flow from the WMP (design rate of 10,000 m^3/day) for discharge to the constructed wetland. The WDP will also provide sediment control south of the TMA.

The constructed wetlands collect the water discharged from the WDP. They have been designed to provide a target 30-day retention time following discharge from the WDP. The wetlands are comprised of five ponds (Pond A, B, C, D, E), and the downstream pond (Pond A) will feature a control structure to stop discharge if the water quality does not meet discharge criteria. If required, water in Pond A would be pumped back to the TMA or WMP.

The design criteria for the Water Discharge and constructed wetland dams and ponds are provided in Tables 4-3 and 4-5, respectively. Further design details and typical cross-sections of the effluent dams are provided in the following documents:

Table 4-9; Water Discharge Pond and Constructed Wetland Documents

Document Title	Reference
LAKES AND RIVERS IMPROVEMENT ACT WORK PERMIT APPLICATION SUPPORT DOCUMENT WATER DISCHARGE POND AND CONSTRUCTED WETLAND	RRP-GEO-LRIA-004D R2
As-built Report(s)	TBD
Drawing Title	**New Gold Document Number**
Water Discharge Pond Dam – Plan and Typical Cross Sections	3098004-004410-A1-D70-0002
Constructed Wetland – Plan, Profiles & Section	3098004-004420-A1-D70-0002

4.4.2 Sediment Ponds 1 & 2

Sediment Ponds #1 and #2 collect seepage and runoff from the West Mine Rock Stockpile (WMRS) to allow for settlement of Total Suspended Solids (TSS). The sediment ponds have been designed to provide a 12-day hydraulic retention time. Sediment Pond #1 will also receive overflow water from the West Creek Overflow Weir during large storm events. Critical to the function of the sediment ponds is progressive reclamation. The ponds have been designed to meet the retention time objectives for Year 3 of mine operations. Further details on design are provided in the following documents:

Table 4-10; Sediment Ponds 1 and 2 Design Detail Documents

Document Title	Reference
LAKES AND RIVERS IMPROVEMENT ACT WORK PERMIT APPLICATION SUPPORT DOCUMENT SEDIMENT PONDS	RRP-GEO-LRIA-012 R1
As-built Report	TBD
Drawing Title	**New Gold Document Number**
Sediment Pond #1 – Sections & Details	3098004-004430-A1-D70-0002
Sediment Pond #2 – Plan, Cross Sections, and Details	3098004-004440-A1-D70-0002

After 2018, progressive rehabilitation would be required to reduce the sediment load on the ponds, or the ponds could be increased in size. After 3 years of mine operations, a better estimate of sediment loading from the stockpile area should be available to adequately design for additional area as required.

Seepage collection ditches will be constructed around the Overburden and NPAG stockpiles to convey runoff to the sediment ponds. The ditches will be constructed to minimize erosion protection requirements where practically possible. Flows may also be directed to the ponds using road side ditches.

Good engineering practices for placement, sediment and erosion control will be adopted for the management of the overburden pile to help reduce the sediment load and increase the chance that settling alone (as opposed to the addition of coagulants and flocculants) can be used for settling out the TSS. These practices include pre-settling ponds that are regularly cleaned out, construction of ditches with appropriate slopes, maintenance of the ditches, and progressive re-vegetation of the overburden stockpile.

4.5 Freshwater Diversion Dams and Channels

The freshwater ponds are designed to minimize the net freshwater inflows into the project by diverting non-contact runoff around the site via dams, ponds and diversion channels. The West Creek Pond, Clark Creek, Stockpile Pond and Teeple Road dams were developed in a single dam raise during the construction phase to support the requirements of the *Water Management Plan for Operations* (Amec Foster Wheeler, 2015a). Additional details regarding these dams, ponds, and diversion channels are provided in section 4.1.

The freshwater diversion structures have been developed in accordance with the following design briefs. As-built reports have been issued. A detailed list of Drawings is provided in Appendix A.

Table 4-11; Supporting Documents for the West Creek and Clark Creek Diversions

Document Title	**Reference**
Design Brief – Water Management Dams	(Amec Foster Wheeler, 2015b)
Design Update – Clark Creek Pond Dam	(Amec Foster Wheeler, 2016i)
Stockpile Pond Dam – Design Revision and Operating Guidelines	(Amec Foster Wheeler, 2016j)
West Creek Dam – Design Revision and Operating Guidelines	(Amec Foster Wheeler, 2016k)
Clark Creek Diversion – As-built Report	(Amec Foster Wheeler, 2017a)
West Creek Diversion – As-built Report in preparation	(Amec Foster Wheeler, 2017b)
Drawing Title	**New Gold Document Number**
West Creek Pond Dam – Layout and Foundation – Plan & Details	3098004-002510-A1-D50-0001
West Creek Diversion Channel – Plan and Profile	3098004-002510-A1-D50-0003
Stockpile Pond Dam – Plan, Typical Section and Profile	3098004-002580-A1-D70-0002
Stockpile Pond Diversion Channel – Plan and Profile	3098004-002580-A1-D70-0004
Clark Creek Pond Dam – Plan, Typical Section and Profile	3098004-004400-A1-D70-0001
Clark Creek Diversion Channel – Plan and Profile	3098004-004400-A1-D70-0002
Teeple Road Dam – Plan, Typical Section and Profile	3098004-004400-A1-D70-0003
Teeple Road Diversion Channel – Plan and Profile	3098004-004400-A1-D70-0004

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Table 4-12; Summary of the Diversion Characteristics

Dam and Pond				Channel											
Dam		Pond		Channel Design Criteria											Additional features
Name	Crest Elev.	Area	Vol.	Diversion Channel Inlet/Outlet	Design Peak Flow Event	Segment	Function	Design Flow	Freeboard	Flow Depth	Base Width	Length	Gradient	Side Slopes	
	(m)	(ha.)	(Mm^3)		(-)	(Sta.)		(m^3/s)	(m)	(m)	(m)	(m)	(%)	(H : V)	
Clark Creek Diversion															
Clark Creek	380.0	9.2		Clark Creek Pond to Teeple Road Pond	100-yr 24-hr	0+000 - 1+229	Channel				6	1229	0.10	4 : 1	
Teeple Road	379.0	2.9		Teeple Road Pond to Pinewood River	100-yr 24-hr	0+020 - 0+580	Channel				6	560	1.25	4 : 1	
West Creek Diversion															
Stockpile Pond	375.5	4.6		Stockpile Pond to West Creek Pond	PMF	0+150 - 0+200	Spillway				33	50	0.96	4 : 1	- Tributary 2 confluence (Sta. 0+775)
						0+200 - 0+250	Channel				33 to 6	50			
						0+250 - 1+346					6	1096			
West Creek	364.9	13.2		West Creek Pond to Loslo Creek	PMF	0+000 - 0+584.5	Spillway				8	584.5	0.00 to 1.00	4 : 1	- High level side weir at flow control structure - Culverts?
					100-yr 24-hr	0+584.5 - 0+647	Flow control structure				8 to 3	62.5	1.00		
						0+647 - 2+150	Channel				3	1503	1.00 to 0.10		
						2+150 - 2+750					5	600	0.10		
						2+750 - 4+576					3	1826	0.10 to 0.57		

Notes
1) Low flow and fish habitat features are included in all diversion channels below the hydraulic flow section

4.5.1 West Creek Diversion

The West Creek Diversion system diverts flows from the West Creek and its tributaries around the Open Pit and discharges into the Pinewood River at Loslo Creek. It includes the Stockpile Pond Dam and Diversion Channel, which divert flows around the Plant Site, and the West Creek Pond and Diversion Channel, which divert flows around the Open Pit. The dams have a 'very high' hazard potential classification equivalent to extreme hazard classification by the CDA. The following sections describe the components of this diversion.

4.5.1.1 Stockpile Pond and Diversion Channel

The objective of the Stockpile Pond is to divert freshwater from natural ground into the West Creek Watershed. The Stockpile Pond Diversion Channel was designed to convey the Probable Maximum Flood (PMF) from the plant site area to the West Creek Pond. The Stockpile Pond Diversion will also provide fish habitat compensation. The Stockpile Pond Diversion Channel base width varies from 6 to 33 m with 4H:1V side slopes. The total length of the diversion channel is about 1,200 m.

The dam height is 7.5 m with 4:1 slopes with a crest width of 6 m and length of 175 m. The dam crest elevation is 375.5 m and the diversion channel invert is 372.2 m. NOWL provides capacity for 93,700 m^3 of storage with greater volumes discharges through the 33 m spillway into the diversion channel. The diversion channel is a low (<1%) gradient channel reporting to the West Creek Pond with a typical bottom width of 6 m.

The design brief for the dam is RRP-GEO-REP-003. Construction was completed on the diversion in November 2016 and confirmed by the EOR (RRP-GEO-MEM-080-R1). Construction of the dam was completed in May 2017 and confirmed by the EOR (RRP-GEO-MEM-119-R1). The dam was constructed with a central clay core and random fill and or NPAG rock shells.

4.5.1.2 West Creek Pond and Diversion Channel

The West Creek Pond is located upstream of the Open Pit and west of the Process Plant at a point that allows for the raising of the pond water level sufficiently to divert flows westerly through a diversion channel and around the Open Pit. The West Creek Dam intercepts all West Creek flows from the north, as well as drainage from two tributaries to the east, diverted through the Stockpile Diversion Channel.

The West Creek Dam is a central clay core with random fill upstream shell and NPAG mine rock downstream shell. It has a crest elevation of 364.9 m (~156,000 m^3), maximum height of 7.4 m, and overall side slopes of 7.9H:1V including rock toe berms. The West Creek Pond has been designed to contain the PMF while discharging to the West Creek Diversion Channel.

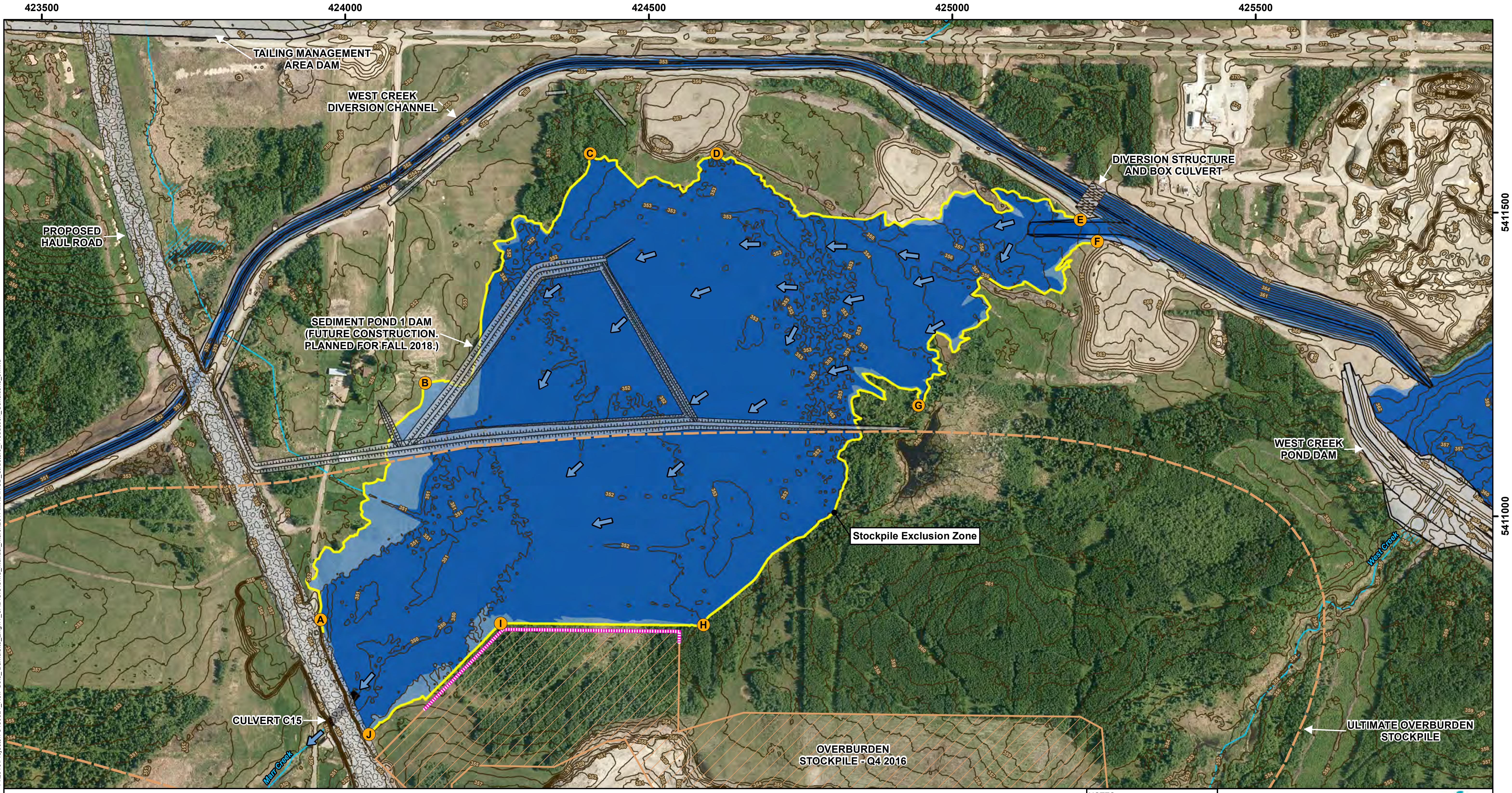
The first 615 m of the West Creek Diversion Channel acts as the Emergency Spillway of the West Creek Dam and has been designed to convey a PMF event. The spillway invert elevation is 361.0 m and is 8 m wide. This provides a freeboard of 4.0 m at normal water level in the pond. During a PMF event the peak water level would rise to 364.5 m, leaving 0.4 m of freeboard.

4.5.1.3 West Creek Diversion Overflow Structure

The Overflow Structure (or weir) is located at Sta. 0+615 within the Diversion Channel. A box culvert (62.5 m long by 2.4 m wide/tall) constricts the channel flow such that a side overflow weir may be activated (invert elevation 360 m, width 50 m). The purpose of the overflow structure is to restrict the flow rate discharging from the culvert under high flow conditions. The remaining ~4,000 m of diversion channel is over flat ground with minimal elevation change. The reduced flows through this section of diversion channel allow a much smaller channel excavation.

The overflow structure has been designed such that during a PMF event, the flow rate downstream of the culvert, i.e., in the channel, does not exceed the 100-year flood outflow from the West Creek Pond (26.9 m^3/s). The diversion channel upstream of the diversion structure will back up, with excess flows diverted through the side overflow channel. Containment is provided above the culvert by a berm across the diversion channel with a crest elevation of 363 m. The peak water level in the diversion channel during a PMF event will be 362.5 m, providing 0.5 m of freeboard to the crest of the berm.

The overflow structure will be activated for events greater than the 10-year storm. The peak overflow channel discharge during a PMF event will be 163.8 m^3/s. The overflow channel discharges onto a flat, grassy plain south of the West Creek Diversion Channel and north of the ultimate WMRS. This area, termed the exclusion zone, is shown on Figure 4-2 and is required to remain undeveloped to prevent the loss of natural vegetation until Sediment Pond 1 berm is constructed, north of the WMRS. In the field, this area is demarcated by bright coloured stakes and ribbons. The ground topography will naturally drain any overland flow through Culvert C15 into Marr Creek.



LEGEND

- Setting Out Point
- Estimated 25 year Floodline
- Estimated 100 year Floodline
- Flow Direction
- Stockpile Exclusion Zone
- Silt Fence
- Culvert C15
- Diversion Structure and Box Culvert
- Dam
- Ultimate Overburden Stockpile
- Overburden Stockpile Progression
- Existing Contours (1 m interval)
- Watercourse
- Waterbody

Setting Out Points:

Label	Northing	Easting
A	5410830	423959
B	5411220	424131
C	5411598	424403
D	5411598	424612
E	5411489	425211

Label	Northing	Easting
F	5411453	425239
G	5411183	424944
H	5410821	424590
I	5410824	424256
J	5410641	424039

NOTES:
- Aerial imagery - Pleiades June 2016

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RAINY RIVER PROJECT

West Creek Diversion Structure
Pre-Production Conditions

Datum: NAD83
Projection: UTM Zone 15N

N W E S

PROJECT N°: TC150321 | **FIGURE: 4-2**

SCALE: 1:6,000 | DATE: March 2017

0 0.1 0.2 0.4 0.6 0.8 1 Kilometres

4.5.2 Clark Creek Diversion

The purpose of the Clark Creek diversion is to divert natural drainage and runoff around the East Mine Rock Stockpile and provide fish habitat offsetting. The Clark Creek Diversion Channel diverts runoff from the Clark Creek upstream of the Clark Creek Dam and the EMRS, through the Clark Creek diversion channel into Teeple Pond and subsequently into Teeple Diversion and to the Pinewood River via a culvert under Teeple Road.

Construction of the Clark Creek Diversion occurred between August 29, 2015 and December 4, 2016 and authorised by LRIA FF-2015-03A and the Fisheries Act approval. There are applicable federal and provincial EA commitments, however as a freshwater diversion there a limited MOECC requirements beyond sediment control.

Clark Creek and Teeple Road Dams were constructed as homogenous clay fill embankments utilizing native clay overburden. The clay fill is protected by gravel and cobble sized materials, with a layer of geotextile separation, to prevent erosion. Overflow sections for Teeple Dam are included on the dams to carry storm flows (i.e., activated by 2-year event) and have been designed to handle events in excess of the 100-year return design flow. Overflow sections are provided to permit the safe passage of water in the event the pond level exceeds the maximum operating water level. There are no active controls on the water flows. Clark Creek Dam features a 20 m wide overflow section and Teeple Road Dam features a 150 m wide overflow section designed to allow water and fish to flow over the structure.

The diversions are designed to convey the 1:100 year flow and are typically 6 m wide (base width) with 4:1 slopes. The Clark Creek diversion is 1,200 m and the Teeple Diversion is 580 m long.

Table 4-13; Design Parameters for the Clark Creek Diversion

Design Parameter	Unit	Clark Creek	Teeple
Embankment dam crest elevation	m	380.0	379.0
Dam overflow section invert elevation	m	379.9	378.7
Normal Water Level (NWL) elevation	m	378.75	378.5
Diversion channel inlet invert elv.	m	378.75	378.5
Diversion channel outlet elv.	m	377.6	371.5
Diversion channel gradient (average)	%	0.1	1.2
Diversion channel side slopes		4:1	4:1

Deviations from design occurred for both diversions, however not anticipated to have a negative effect of stability. Examples of deviation include absence of low flow channel, oversized boulders, variances on habitat feature frequency and riffles either not meeting design elevation or being too steep

4.6 Instrumentation

4.6.1 Dam Safety

Instrumentation has been and will be installed during construction. Instrumentation will include instrumented dam sections that will monitor dam foundation and clay fill pore pressures to infer consolidation characteristics, as well as monitor any movement of dam fill due to deformation.

Each dam instrumentation section will include: standpipe(s), a settlement plate, slope inclinometer(s), survey pins/monuments, and a terminal arrangement with data logger and vibrating wire piezometers.

Following construction, the instrumentation will remain for dam monitoring purposes. A detailed report containing the proposed locations, usage, and analysis of all instrumentation is provided in the *Geotechnical Monitoring Plan* (Amec Foster Wheeler, 2016b). The design details for the installed or proposed dam instrumentation is summarized in Table 4-14. The design information provided in Table 4-14 will be confirmed and updated as may be required following development of the As-Built drawings.

Table 4-14; Dam Instrumentation Summary

Facility		Dam Instrumentation							
		Slope Stability			Foundation Consolidation		Phreatic Level and Seepage		
	Section	Slope Inclinometers	Survey Pins	Survey Monuments	Vibrating Wire Piezometers	Settlement Plates	Vibrating Wire Piezometers	Standpipe Piezometers	Pond Level Gauge
	(Sta.)	(no.)	(no.)	(no.)	(no.)	(no.)	(no.)	(no.)	(type)
TMA North	3+300	0		0	2	1	1	2	
	Mass array				142				
TMA South	1+000				2				
	1+380				2	1	1	1	
	1+450	2		2	4	2	1	2	
	1+600	1			4	2	1	1	
	2+200	2		2	4	2	1	2	TBD
	2+350	1			4	2	1	1	
	Mass array				176				
TMA West	0+300			0	1		1		
	0+460	2		0	5		2	1	
	1+450	0	35	0	0	1		0	
	1+500	2		0	4	0	3	0	
	Mass array				82				
TMA Start-up Cell	0+400				2				
	1+000				2				TBD
	Mass array				88				
WMP Dam 1			16						- Staff gauge
WMP Dam 2	0+950	1	34	0	2	0	2	2	- Survey stakes
WMP Dam 3	0+300	0	17	0	1	0	1	2	
	0+500	1		0	2	1	4	1	
Mine Rock Pond	0+220	1		2	2	1	1	4	- Staff gauge
Clark Creek									- Staff gauge
Teeple Road									- Staff gauge
Stockpile Pond	0+125	1	8	0	1	0	1	2	- Staff gauge
West Creek	0+291				2			2	
	0+320	2	2						- Staff gauge
	0+340	2	2		2	1	1		
Water Discharge Pond									TBD
Constructed Wetlands									
- Pond A									TBD
- Pond B									TBD
- Pond C									TBD
- Pond D									TBD
- Pond E									TBD
Sediment Pond #1									TBD
Sediment Pond #2									TBD
Temporary Sediment Pond									TBD

Notes:
1) Survey pins installed at 100 m centres along 3-5 lengthwise lines (crest, toes, etc.) Quantities are total for each dam
2) TMA Dams feature mass array of VWP instruments installed in grids within the dam foundation. Installation of these instruments is currently on-going

In addition to the instrumentation described above, the TMA dams are equipped with an additional suite of vibrating wire piezometers (VWPs) to provide enhanced monitoring resolution during construction. A total of 524 VWPs were installed in the TMA dam foundations, arranged in a grid pattern, and managed with a remote wireless data acquisition and management system.

Instrumentation associated with the management of the dams is being managed through a software system that includes integration with data loggers and data storage and is configured such that alarms for alert levels are defined and available. The software routinely generates reports and if trigger levels are exceeded sends out alarm notifications.

4.6.2 Other instrumentation

Additional instrumentation to support the OMS manual and management of water includes;

- Densometer on the tailings pipeline;
- Flow meters on the water management pipelines including from the Pinewood River, tailings reclaim lines, MPR line and freshwater line from the WMP and
- Pressure transducers in the WMP, Clark/Teeple Ponds.

This instrumentation provides continuous recording, which is collected during routine inspections and included.

4.7 Regulatory Requirements

Regulatory requirements, permits and authorizations are summarized in section 1.1. Key approvals include the Federal and Provincial Environmental Assessment conditions and commitments and permits including those issued pursuant to the LRIA and EPA. Additional legislation to be considered in implementing the OMS manual includes the MMER and various Ontario regulations including waste management.

No direct discharges are intended from any of the structures described in this section except the WMP which is described in sections 4 and 5. Seepage will be collected and pumped back from the WMP and TMA cells. Subsequent to this revision and LRIA approvals, additional details for the WDP, CW and sediment ponds discharges will be developed.

5.0 OPERATIONS

The overall operational objectives of the TMA and associated dams and facilities are to dispose and store the tailings and to manage all site water in a safe, economical and environmentally responsible manner. This section defines operating standards in accordance with design criteria and regulatory requirements specified in section 4.

5.1 Tailings transport and deposition

The RRM mill will be commissioning in fall 2017 with a design throughput of 22,000 tpd. As discussed in further detail in Section 4, final expected effluent quality results indicate that a high-quality effluent approaching ECA permit values can be achieved through a combination of in-plant cyanide destruction using the SO_2/Air process combined with natural aging in the TMA and the WMP.

5.1.1 Tailings Transport

Tailings will be pumped from the tailings pump box in the mill to the TMA and deposited as outlined in the tailings deposition plans (section 5.1.2) and Appendix D. The tailings and reclaim lines are HDPE pipe and are within lined containment and held in place with clay anchors. The lined containment drains to one of six emergency dump ponds located along the tailings corridor.

5.1.2 Tailings Deposition

The life of mine tailings deposition report (Document 3098004-004000-A1-ETR-0005) is being updated to reflect the operation of Cells 1 and 2. The deposition plan described here is based on the planned revisions. The tailings deposition plan involves discharging tailings from the crest of the dams to produce wide tailings beaches to enhance dam stability and inhibit seepage. In the non-winter months, spigotting will be carried out, with pipeline end-discharge in the winter once suitable beaches are present.

5.1.2.1 TMA Cell 1

Deposition will commence in the start-up cell (TMA Cell 1), which is planned for a total period of six months (October 1, 2017 to March 31, 2018 approx). During this period, supernatant water will be continuously pumped to the WMP. Table 5-1 provides an overview of the tailings deposition volumes and elevations. Tailings deposition for cell 1 is discussed in more detail in the LRIA application (RRP-GEO-LRIA-004C R1 Comments and Responses).

Table 5-1; Cell 1 Tailings Deposition

	Tailings		Water	
Time Elapsed	Volume	Discharge Elev.	Volume	Pond Elev.
(months)	(m^3)	(m)	(m^3)	(m)
<1	130,000	362.0	10,000	<362.0
1	580,000	366.0	200,000	365.0
6	3,300,000	371.4	200,000	369.9

Notes: Supernatant and water will be transferred to the WMP daily by pumping, recirculation to the processing plant via WMP intake pumps

Tailings pipelines will follow the TMA South Dam alignment and branch off to the TMA Start-up Cell Dam and West Dam. Spiggotting of tailings into the TMA Start-up Cell (TMA Cell 1) will occur from the TMA South, West, and Start-up Cell Dams, forming a beach upstream of these dams and a central pond that will be pumped into the WMP from the north end of the cell.

Spiggotting will initially occur into a borrow area not exceeding 362 m i.e., below the toe of the start up cell dams. The tailings discharge rate is 5,000 m^3/day to 9.000 m^3/day into the borrow, and will be measured by a flow meter on the tailings line reporting to the borrow. This initial volume of tailings will backfill Borrow Area B6 within the footprint of the start-up cell and will not exceed 130,000 m^3, and will remain below elevation 362.0m. The top of tailings surface will not contact any of the toes of the TMA dams forming the start-up cell until approval to operate the TMA / Start-up Cell has been granted by the MNRF.

For operation of the borrow, the normal operating pond volume is 10,000 m^3. The maximum operating water level is 361.9 m. If the MOWL is exceeded tailings discharge will cease and the pond drawn down by pumping to the WMP (e.g., 2 tractor pumps at a combined capacity of 40,000 m3/day). A staff gauge will be installed in the SW corner of the borrow (furthest from the tailings discharge), which will be monitored twice per 24h period (every 12h approx.). Within the borrow the volume of storage is 80,343 m^3, 104,276 m^3 and 164,005 m^3 at elevation 360.0, 361.0 and 362.0 respectively.

Upon regulatory approval for tailings deposition into Cell 1, tailings will be discharged from an elevation of 366.0 m. Areas where the ground elevation is higher than 366.0 m will not discharge tailings (i.e. the high ground around the dam abutments). By month 6 of deposition, the discharge elevation will be moved up to 371.4 m and spiggots will discharge from the south, west, and east sides of the cell. Provisions will be made, as required, to facilitate ongoing construction while discharging tailings.

Cell 1 will not discharge to the environment and there is no reclaim direct to the mill, for dam safety and emergency spillway to the north at elevation 370.5 has been constructed. The TMA start-up cell will have a normal operating water level (NOWL) of approximately 369.90 masl at the conclusion of six months of production, which corresponds to the operational pond volume of 200,000 m^3. Once the water level rises above the NOWL of 369.90 m, it will be pumped to the WMP at a rate of 57,000 m^3/day to contain the EDF event. Due to the limited storage in the TMA start-up cell at this point in mine operations, no operating range can be allowed (i.e., any water above the NOWL must be pumped immediately). During operation of Cell 2, cell 1 will passively overflow into Cell 2.

Figure 5-1; TMA Cell 1 Borrow Stage - Storage Relationship

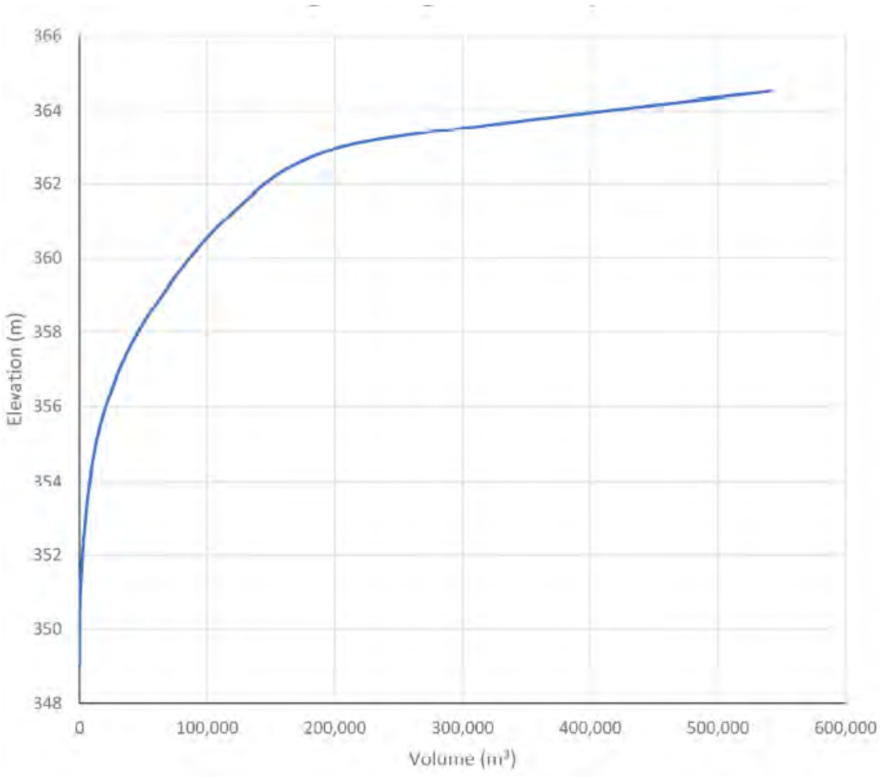
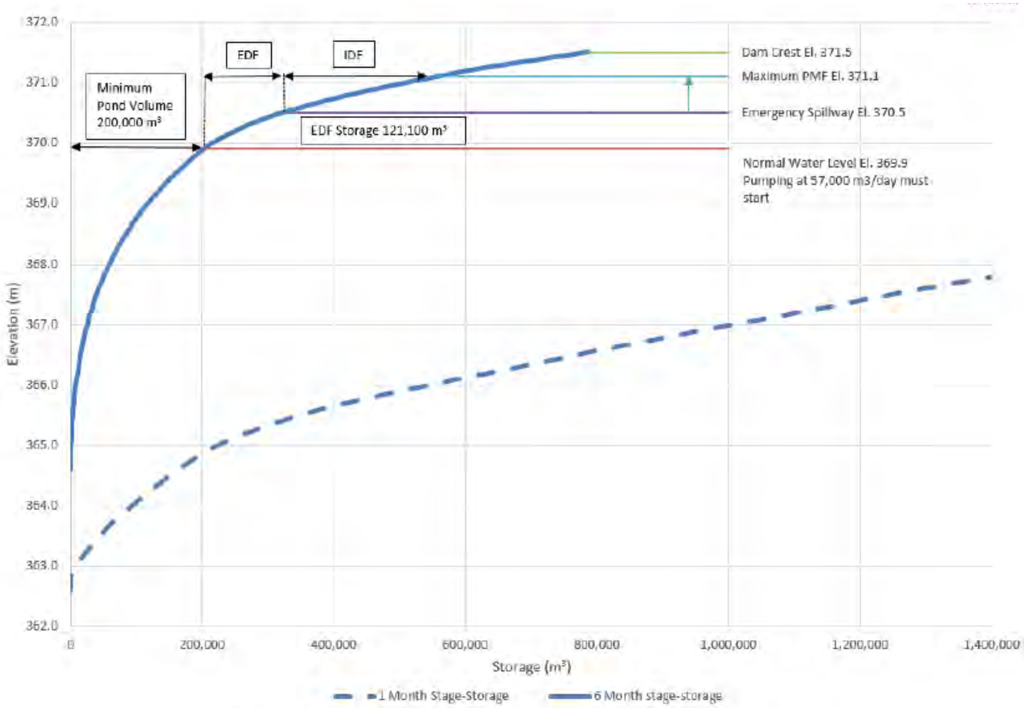


Figure 5-2; TMA Cell 1 Stage Storage Relationship



5.1.2.2 Future Tailings Deposition – Cell 2 and Cell 3

Cell 2 provides for 12 months (April 2018 to April 2019 approx.) of tailings deposition (5.5 Mm^3 of tailings) with a crest elevation of 366.5 m. 12months is the maximum permitted operating duration for cell 2. Following completion of this dam, and approval from MNRF, Cell 2 will operate as described here based on RRP-GEO-REP-026 R1, April 28, 2017 or as updated in the as-built report. A stage storage relationship is provided below.

- Tailings will be discharged from the northwest side of the dam (upstream slope) for 6 months. This will be followed by discharging from the downstream slope of the TMA Cell 1 Dam for an additional 6 months (or until the TMA South Dam is completed to elevation 366.5 m).
- Surplus water from TMA Cell 1 will overflow by gravity into TMA Cell 2 through the existing emergency spillway. A pond will form in the northwest end of TMA Cell 2 and be reclaimed to the mill via the reclaim line or transferred into the WMP.
- The MOWL of Cell 2 is 364.05 m providing 1 Mm3 of storage below the 19 m wide north dam spillway invert (364.7 m) to contain the 828,200 m3 EDF. This will be maintained at all times.

- The spillway will provide 0.39 m of freeboard from the maximum still pond IDF level (366.11 m) to the dam crest (366.5 m)
- Water reclaim to the mill from TMA cell 2 is to occur once water levels in the WMP are below 1.0 Mm^3. At minimum pumping will commence once Cell 2 pond volume increases to within approx. 800,000 m^3 of the MOWL and will continue until water levels are 1.2 Mm^3 below the MOWL.
- Pumping capacity of 40,000 m^3/day between TMA Cell 2 to Cell 3 and to the WMP will allow for management inflows to cell 2. As contingency, pumping will be considered from the WMP to TMA Cell 3 to reduce WMP volumes below 1.0 Mm3 prior to discharge from the WTP.

When full containment in the TMA is available (i.e. TMA South Dam is constructed to elevation 366.5 m), tailings will be discharged from the north side of the TMA South Dam (upstream slope) into an area referred to in this report as TMA Cell 3. Cell 3 will be constructed for completion in June 2018, at which time it will be used to manage excess water from cell 2 and the water impounded in the WMP (as described in this manual).

An overflow spillway is detailed for construction at the left abutment of the TMA Cell 2 Dam once the TMA South Dam is constructed to elevation 366.5. This overflow spillway (at 364.5) will provide a conduit to connect the TMA Cell 3 pond with the TMA Cell 2 pond and ultimately with the reclaim/transfer pumps. It’s anticipated tailings deposition will occur for 6 months until this occurs.

Figure 5-3; TMA Cell 2 Stage Storage and Design Pond Levels

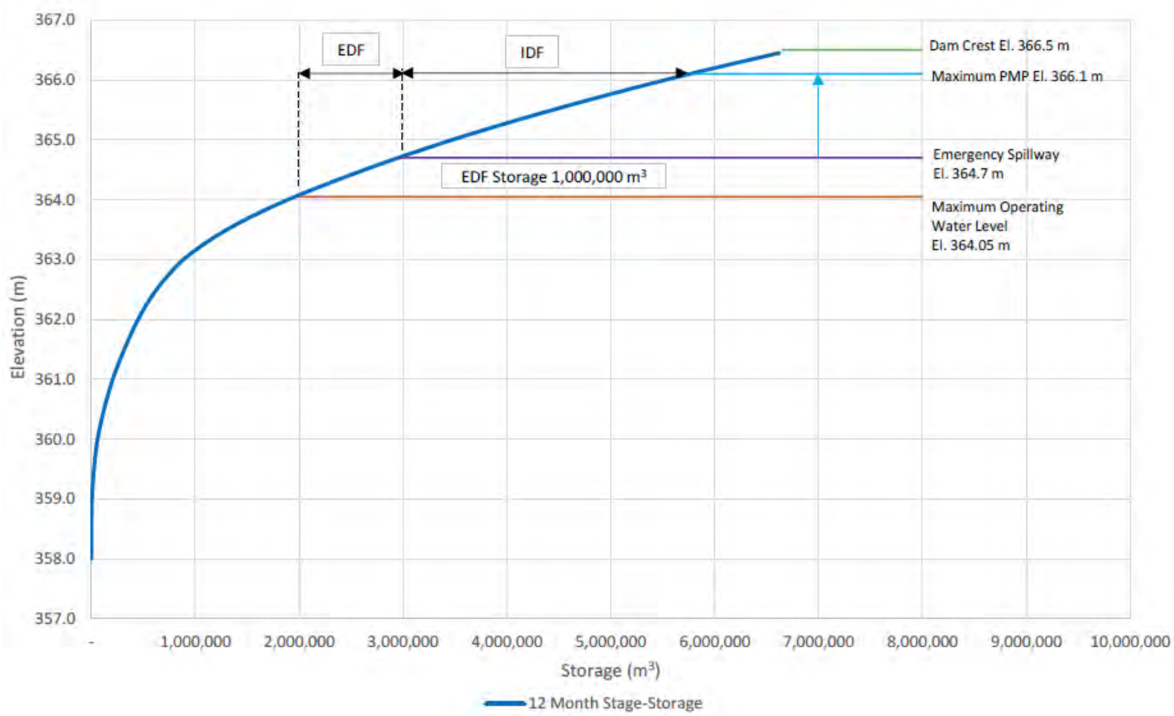
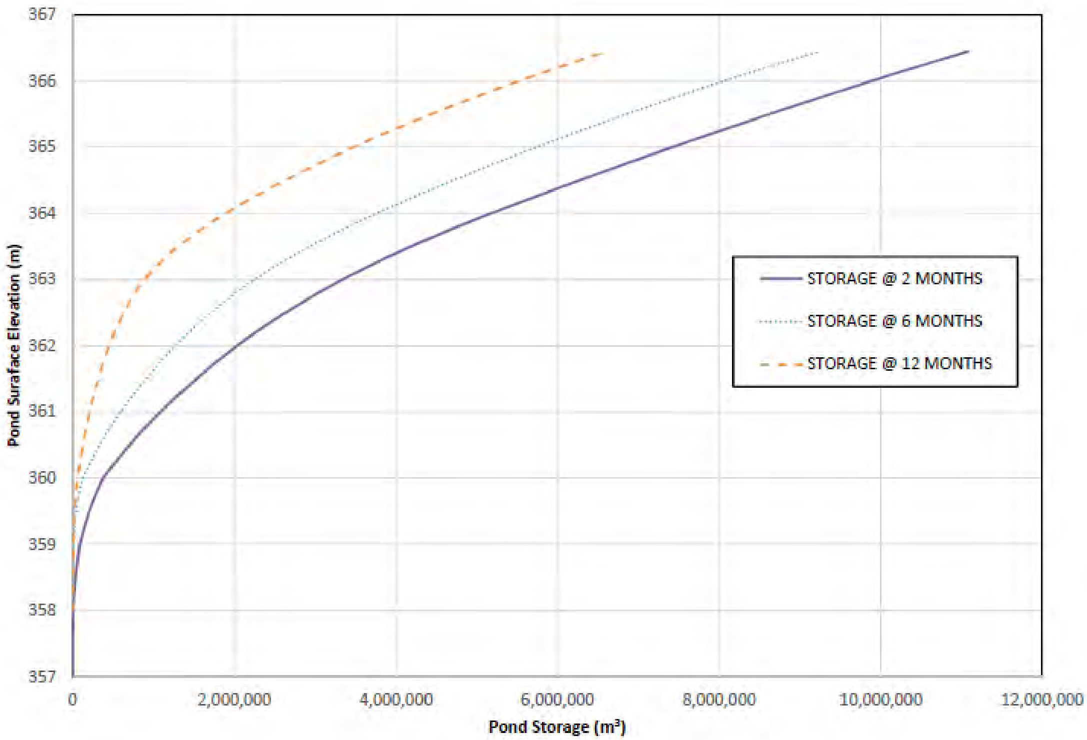

367.0
366.0
365.0
364.0
363.0
362.0
361.0
360.0
359.0
358.0
357.0
Elevation (m)
EDF
IDF
Dam Crest El. 366.5 m
Maximum PMP El. 366.1 m
Emergency Spillway
El. 364.7 m
EDF Storage 1,000,000 m³
Maximum Operating
Water Level
El. 364.05 m
-
1,000,000
2,000,000
3,000,000
4,000,000
5,000,000
6,000,000
7,000,000
8,000,000
9,000,000
10,000,000
Storage (m³)
12 Month Stage-Storage

Figure 5-4; Cell 2 TMA Pond Stage-Storage



5.1.3 Dam Raising

The dams will be raised to maintain discharge availability and sufficient pond storage capacity to contain the Environmental Design Flood (EDF).

5.2 Seepage Collection System

Seepage collection systems, as described in section 4, are in place and required for the WMP and TMA only. The design criteria of 1:25 yr 24h rainfall results in seepage systems (sumps, pumps and ditches) as described in section 4 (including MOWL) and summated here;

- Cell 1 seepage is not expected to exceed 29 m^3/day. Three sumps will be pumped back to Cell 1 with pumping capacity of 2,500, 1,000 and 1,500 m^3/day respectively. Sumps 1 and 2 pumping will cease once Loslo Creek is impounded by the TMA south dam (June 2018 approx);
- Cell 2 seepage is expected to not exceed 9.2 m^3/day and a sump of 8,000 m^3 will be pumped back to Cell 2 with pumping capacity of 1,600 m^3/day until Loslo Creek is impounded by the TMA south dam (June 2018 approx);
- Cell 3 seepage is intercepted and routed by ditch into the water discharge pond, and isn't expected to occur until June 2018 (approx.); and
- WMP includes 3 sumps, including a sump shared with the north starter dam and will be pumped back to the TMA, capacity of the sumps is 18,200, 11,800 and 20,000 m^3 for sumps 1, 2 and 3 respectively with pumping capacities of 4,000, 2,500 and 3,500 m^3/day respectively.

5.3 Process Water Management

The following detail design drawings will be referred to while reviewing the design details for the process water management: Additional design details for the process water dams and ponds are provided in section 4. A list of drawings are provided in Appendix A.

During the pre-production phase, process water management will involve filling the WMP and MRP, followed by pumping to the plant site during mill commissioning and start-up. The WMP will also supply the truck filling station, truck shop, truck wash facility, and fire water tank.

These processes are illustrated on the following Process Flow Diagrams:

- Water Reclaim Sheet No. 1 (100126-3200-DC00-PFD-0021.001); and
- Water Reclaim Sheet No. 2 (100126-3200-DC00-PFD-0021.001).

Additional details regarding pumping requirements, as well as pump and pipeline designs, are provided in Appendix B.

5.3.1 Water Management Pond

The WMP collects runoff from direct drainage area, pumping from the Pinewood River and receives transfer from TMA. Initially the WMP will be utilized to build an inventory of 3.8 Mm^3 of water required for mill start-up and process operations. The start-up inventory of water will be provided by pumping from the Pinewood River via the pinewood pipeline. However, additional water sources maybe utilised in filling the WMP including but not limited to:

- Pumping from Open Pit via a 6" pipeline;
- Pumping from Sump #4 (Open Pit) via 16" / 20" / 24" pipeline; and
- Direct drainage of natural runoff.

During late construction (starting April 27, 2017 from the Pinewood River), the WMP began filling and storing water prior to achieving the final dam crest elevation, as per approval from the MRNF. The start-up inventory of water will be primarily pumped from the Pinewood River, in addition to collecting natural runoff and dewater pumping from the Open Pit. Filling the WMP will occur in two stages:

- Intermediate stage: maximum water level 364.5 m providing 2.0 m of freeboard below the minimum dam crest elevation of 366.5 m
- Final stage: maximum operating water level 369.7 m

During the Intermediate Stage of filling the Interim Fill Plan (rev3 – March 2017) will be followed,

- all WMP dams were constructed to a minimum crest elevation of 366.5 m and width required to satisfy slope stability requirements. The maximum water level in the WMP shall not exceed 2.0 m below the lowest constructed dam crest elevation, i.e. 364.5 m.
- monitoring of water levels and instrumentation will occur daily, and water quality (TSS) will be sampled twice weekly, water quality will be sampled weekly and dam inspections will occur weekly
- Contingency will be maintained with an 8 inch pump ready to discharge to the approved location north of WMP Dam 4, and when water is above 364.0 a 12 inch pump will be mobilised

All the WMP dams were completed to their final crest elevation of 371.5 m in July 2017 and EOR confirmation of compliance was completed in on July 27, 2017. The requirements for the Final Stage of filling have been met and the maximum operating water level may be raised to 369.7 m, pending MNRF approval. Final filling of the WMP will be completed based on water takings from the Pinewood River and other approved water takings.

During the use of TMA Cell 1 and Cell 2, WMP filling will consider mill water needs the overall water balance and water quality discharge criteria based on the WMP water balance (Rainy River Project Development TMA Cell 2 and WMP Water Balance RRP-GEO-REP-026 R1).

- At the end of March 2018 WMP volume will be approx. 2.0 Mm^3, 50 % of which will be ice
- Water will be pumped during freshet (April – June 2018) from Cell 2 and the Pinewood River to increase the volume in the WMP
    - Pumping from the Pinewood is proposed if the total water volume in the WMP and TMA Cell 2 is below 4 Mm^3.
- The mill water use will maintain the WMP below the MOWL till June 2018 (approx.) and target a reduction of water levels to 1.0 Mm^3 stored volume i.e., dead storage
- After June 2018 (approx.) mill reclaim will switch to TMA cell 2 and excess water from Cell 2 will be pumped to Cell 3 (subject to TMA completion and regulatory approval) while the water treatment plant is constructed in the WMP adjacent to Dam 4.

Once the WTP is constructed and operational (prior to September 2018) the WMP will received treated (or blended untreated) supernatant from Cell 2 and subsequently the ultimate TMA. Operations will continue to meet MOECC requirements such that:

- Supernatant will be transferred from the TMA during June to August (or other times during the year to achieve overall water balance and water treatment objectives);
- Discharges effluent to environment: Preferentially bleed flow through constructed wetland with a 30-day retention time (design volume of 10,000 m^3/day) – estimated to commence in Spring 2019; and
- Decant to Pinewood River (through discharge pipeline);
- No discharge to occur between December 1 and the following spring melt (defined as a flow rate in the Pinewood River (upstream of Loslo Creek) of 10,000 m^3/day.

Bleed flow and decant to Pinewood River can only occur if there is sufficient flow in the Pinewood River to achieve a minimum mixing ratio of 1:1 with the two discharges combined. A pre-winter inventory of 2.8 Mm^3 will be targeted (to comply with environmental commitments to supply the bleed flow through constructed wetland in all climatic conditions). This is calculated from the sum of the outflows from the WMP between December and the following May;

- -0.04 Mm^3 seepage losses
- -0.10 Mm^3 evaporation losses
- -0.76 Mm^3 bleed to wetland
- -0.90 Mm^3 ice allowance

- 1.0 Mm^3 minimum inventory.

This volume is sufficient to maintain supply to the mill through dry winters and springs, up to the beginning of June, at which time the transfer from the TMA can replenish the WMP inventory. The mill make-up water demand is 22,605 m^3/day which will be supplied by the MRP and WMP. The make-up water will be preferentially taken from the MRP with the WMP supplying the difference. The Mill requires freshwater for reagent mixing at a rate of 1,729 m^3/day which will be supplied from the WMP.

Figure 5-5; Stage - Storage Curve for the WMP

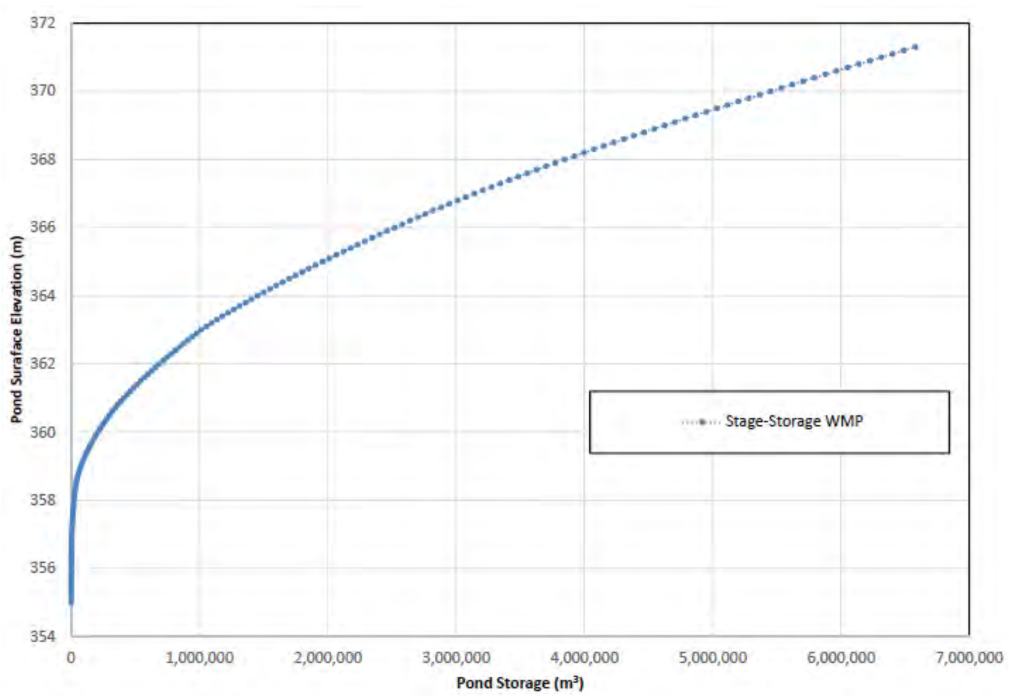


Table 5-2; Stage Storage Relationship For the WMP

Elevation (m)	Available Water Storage Volume (m^3)
355.00	0
355.50	169
356.00	1,016
356.50	2,384
357.00	4,803
357.50	11,417
358.00	21,533
358.50	38,013
359.00	75,235
359.50	132,541
360.00	207,591
360.50	299,155
361.00	409,425
361.50	541,181
362.00	687,276
362.50	845,119
363.00	1,012,352
363.50	1,223,489
364.00	1,452,674
364.50	1,698,321
365.00	1,958,559
365.50	2,233,087
366.00	2,520,422
366.50	2,821,561
367.00	3,142,089
367.50	3,486,292
368.00	3,846,892
368.50	4,229,229
369.00	4,625,413
369.50	5,033,241
370.00	5,451,690
370.50	5,879,025
371.00	6,314,382
371.30	6,579,245

5.3.1.1 Pinewood River Pump House

The Pinewood River pump house shall not exceed the maximum water intake of 20,000 litres/minute as per Permit to Take Water (PTTW) number 8776-9W2QN3 which expires November 30, 2018. Additional seasonal restrictions to the water taking as stipulated in PTTW number 8776-9W2QN3 include:

- March 1 through July 31: the water taking to an amount not more than 20% of the daily flow rate (as measured at the water intake location, and including allowance for site watershed capture) and that the calculated flow rate after pumping in the Pinewood River remains above 10,000 m^3/day;
- August 1 through November 30: the water taking is restricted to an amount not more than 15% of the daily flow rate (as measured at the water intake location, and including allowance for site watershed capture) and that the calculated flow rate after pumping in the Pinewood River remains above 5,000 m^3/day; and
- December 1 through February 28: no water taking in the Pinewood River shall occur.

This approval was amended till August 31, 2017 to allow for additional water takings;

- The total combined water taking (including all PTTW sources) from the Pinewood River can increase to not more than 30 % of the daily flow where 43,200 m3/day is the minimum flow threshold for this level of water taking
- The total combined water taking (including all PTTW sources) from the Pinewood River can increase to not more than 20 % of the daily flow where 10,000 m3/day is the minimum flow threshold for this level of water taking

The water taking for the day (24h period) is calculated based on a 24h period of flow in the previous 72h as measured consistent with the Pinewood hydrometric monitoring plan. This uses either the New Gold hydrometric station or the WSC hydrometric station at Hwy 617, consistent with MOECC approved plans. Monthly and annual reporting of takings is provided to MOECC.

5.3.2 Mine Rock Pond

The pond collects runoff and seepage from the East Mine Rock Stockpile (EMRS) and Low Grade Ore Stockpile (LGOS) and receives dewatering from the Open Pit and future underground mine.

Currently, the MRP Dam is not complete and the remnant Clark Creek drainage is required (by LRIA approvals) to be diverted through the construction diversion ditch to the remnant Clark Creek. Following completion of this dam, and approval from MNRF, the MRP will operate as described here based on RRP-GEO-REP-007 R1, September 15, 2016. A stage storage relationship is provided below.

- The MRP will be operated to minimize volume in the pond to reduce seepage and for increased dam safety, there is no seepage collection system for the MRP as it is the seepage collection system for the EMRS.
- The MOWL of the MRP is 356.8 m (525,000 m^3) and has been constructed with an 80 m spillway at an invert of 358.9 m (1.3 Mm^3) to store the EDF (775,000 m^3).
- The MRP will operated with a freeboard of 3.4 m to allow for the EDF (1:100 year 30 day event), a maximum wave height of 0.78 m with a required 0.31 of freeboard remaining.

Decanting from the pond is via fixed pumping station that supplies mill make-up water:

- 680 m^3/hr pump subject to pump availability and pond level controls, which is able to supply 59 % of the total mill make-up water demand;
- Supplies approximately 45 % of the mill make-up water annually; and
- Prior to the winter, the MRP will be drawn down to the minimum pond volume (5,000 m^3) to reduce ice losses.

If the MRP MOWL (356.8m) is exceeded, pumping into the MRP from the open pit / future underground mine will cease and pumps will pump water toward the plant site/WMP/TMA. The ECA approval requires that there will be no direct discharge from the pond to the environment.

Table 5-3; Mine Rock Pond Stage-Storage Relationship

Elevation (m)	Volume (m^3)	Notes
351.0	0.0	
352.0	3,104	
353.0	25,569	
354.0	82,650	
355.0	176,903	
356.0	332,548	
356.8	525,000	MOWL
357.0	579,383	
358.0	931,120	
358.9	1,300,000	Spillway elevation
359.0	1,382,836	
360.0	1,930,022	
360.2	2,048,496	Dam Crest
Source; RRP-GEO-REP-007 Sept 14, 2016		

5.4 Water Treatment

For this revision of the OMS the WDP and CW have yet to be constructed or approved for construction (LRIA and MMER Schedule 2), however information is included in this revision for completeness and will be updated prior to operation of the WMP/CW, or as specified in regulatory approvals. Ahead of any discharges this section will be updated and a contaminant release plan, consistent with MOECC requirements will be developed.

The TMA has been designed to optimize natural degradation processes to provide further water treatment, by ensuring there is sufficient retention time to allow these reactions to occur. The natural degradation processes are most effective during warm weather conditions when biophysical activity is optimal, and are also augmented by exposure to sunlight. Effluents that are planned for discharge to the environment will be held for a sufficient period of time under warm weather conditions, to maximize the effects of natural degradation. Such effluent aging will take place mainly in the summer months (June through mid-September) in both the TMA and WMP.

To optimize both water quality and river flow effects, final effluent is released to the Pinewood River at two separate locations:

- Through the constructed wetland to the Pinewood River at the Loslo Creek outflow (via lower Loslo Creek); and
- Directly to the Pinewood River just downstream of the McCallum Creek outflow, by pipeline.

The rationale for using two separate discharge locations derives from the need to achieve effective water quality treatment while minimizing adverse flow effects on the Pinewood River, under varying hydrologic operating conditions. The constructed wetland is located further upstream on the Pinewood River pumphouse, and will help to maintain flow in the Pinewood River, however has a lower assimilative capacity. All effluent from the water management pond which is not discharged through the constructed wetland will be discharged by pipeline to the Pinewood River downstream of McCallum to take advantage of increased river assimilative capacity at this point, since wetland polishing would not be available for this portion of the discharged effluent.

The transfer of water from the TMA to the WMP (for discharge to the environment) will normally occur during the months of June through August. To facilitate this process, the water in the WMP would be drawn down by the end of May in each year. The release of WMP effluent to Pinewood River downstream of McCallum Creek outflow would occur during the spring and fall, to take advantage of extended aging in the TMA and WMP, and higher receiver assimilative capacity. Water which is not discharged from the WMP in the fall would be held over, without any further inputs from the TMA pond, until the following spring for release.

Effluent from the WMP will be discharged to the constructed wetland (as bleed flow) during all months of the year, except February and March, with more limited discharge in December and January. The bleed flow through the wetland represents the larger quantity of water that is discharged throughout the year (except in a very wet year). In low runoff years, virtually all final effluent discharge would be through the constructed wetland.

In conjunction with effluent aging and wetland treatment, final effluent quality is expected to be consistent with water quality discharge limits. Each discharge has specific discharge criteria as specified in MOECC ECA #5178-9TUPD9 which must be met prior to discharge.

5.4.1 Water Discharge Pond and Constructed Wetlands

The WDP collects runoff from natural ground catchment south of the TMA dam, seepage from the seepage collection ditch and the bleed flow from the WMP (maximum rate of 10,000 m^3/day) for discharge to the constructed wetland. The Water Discharge Pond (Drawing 3098004-004410-A1-D70-0002) will also provide erosion and sediment control south of the TMA dam.

The Constructed Wetlands are designed to provide a target of 30 days of retention time of 10,000 m3/day following discharge from the WMP into the WDP. The Constructed Wetlands are comprised of five ponds (Pond A, B, C, D, E). The downstream pond (Pond A), will contain a control structure to stop discharge to the environment in the event that water quality does not meet discharge criteria (in this case water from Pond A could be pumped back to the TMA or WMP).

5.4.2 Sediment Ponds 1 and 2

Sediment ponds are designed to provide a 12-day hydraulic retention time for all events up to and including the 25-year return period, 24-hour storm.

Sediment Pond #1 (Drawing 3098004-004430-A1-D70-0002)

- Collects runoff from the overburden stockpile;
- Will also receive additional inflow from overflow from West Creek Diversion during storm events large than the 25 year 24-hour storm event;
- The low flow outlet is designed to achieve the required retention time for the 25-year 24-hour storm event; and

- To prevent dam overtopping emergency spillway is designed for the 100-year storm event discharging to the West Creek Diversion Channel.

Sediment Pond #2 (Drawing 3098004-004440-A1-D70-0002)

- Collects runoff from the west mine rock pile (Non-Potentially Acid Generating [NPAG]) and is closer to the Pinewood River;
- The low flow outlet is designed to achieve the required retention time for the 25-year 24-hour storm event; and
- To prevent dam overtopping the high flow spillway is designed for the Regional Storm Event (Timmins storm event), discharging directly to the Pinewood River.

5.5 Freshwater Diversions

The freshwater diversion structures (dams and diversion channels) are designed to be operated passively. Clark and Teeple Ponds are full and the diversions are flowing naturally. Stockpile pond is currently filling and will flow through the stockpile diversion once the water level is above the invert to the diversion. West Creek is being allowed to slowly fill, however a terminal plug remains in place and pumps are being used to dewater the diversion.

In summer/fall 2017, the plug will be removed and the plug area will stabilise prior to water flowing through location of the former plug.

Culverts at Georgeson Lane and Marr Creek are below the design specification of the West Creek Diversion below the hydraulic control. Pending Schedule 2 approval (anticipated January 2018) these two culverts will be removed prior to freshet 2018 and the channel stabilised consistent with the design outlined in section 4.

5.6 Progressive Reclamation and Closure

Some progressive reclamation with respect to the TMA is proposed as part of mine operations. By the end of the operations phase a low permeability overburden cover of approximately 150 m in width will be placed on the upstream side of the TMA dam. The overburden cover will cover approximately two thirds of the ultimate perimeter, with the remaining approximately one third of the length to be reclaimed at closure. This cover is intended to prevent the tailings permanent water cover from coming into contact with the TMA dams, and will also serve a secondary function of limiting oxygen diffusion into the uppermost portion of the tailings underneath. The overburden cover will be seeded or hydroseeded with a native seed mix or equivalent, and will be armoured with NPAG rock at the transition zone of the cover with the tailings to prevent suspension and oxidation of solids.

Closure of the RRM in respect to tailings, process water and freshwater management will include but is not limited to the following:

- Flooding of the TMA with a 2 m or deeper water cover;
- A perimeter zone of tailings beach will be maintained to keep the central pond away from the dams, this zone will be covered with a low permeability cover;
- NPAG rock will be placed at the TMA transition zone with the tailings to prevent erosion and suspension and oxidation of solids;
- Dam structures containing the TMA have been designed with adequate safety factors to provide overall long term safety and stability;

- The water management pond dams will be breached to prevent retention of water; upstream dam faces that become exposed will be revegetated;
- The water discharge pond dam will be breached once it no longer has a water management function;
- The constructed wetland will be left in place as this system is designed to operate passively, and will have stabilized as a wetland complex during operations;
- At closure the MRP will collect runoff and seepage from the EMRS which will then be directed to the Open Pit to help flooding;
- Clark Creek Pond, West Creek Pond, Teeple Pond, Stockpile Pond, West Creek Diversion Channel, Clark Creek Diversion Channel, Teeple Pond Diversion Channel and Stockpile Pond Diversion Channel support the creation of fish habitat for compensation purposes as such they will remain in place at closure; and
- Sediment Ponds #1 and #2 will be maintained until such time as the site (or if applicable individual site components) become a recognized closed mine such that monitoring associated with the Metal Mining Effluent Regulation is no longer required, at such a time, pond impoundment structures will be breached and the residual pond sites will be stabilized and restored.

5.7 Safety and Security

The site safety and security will be following the RRM Health and Safety Management System including but not limited to the following:

- The site will be gated with restricted access to authorized personnel only;
- The TMA will be fenced along portions of the old highway 600 and access will be restricted to authorized personnel only;
- No public access;
- Construction Management provided security measures; and
- Onsite health and safety policies for working around bodies of water, working alone or crossing ice.

5.8 Environmental Protection

The Environmental Department has oversight over the EMS which contains tailings operations related environmental aspects including:

- Fugitive and point source dust emissions;
- Hydrocarbon Spills and Leaks;
- Pipeline Rupture and Leaks;
- Surface and ground water quantity and quality; and
- Wildlife management (including species at risk).

An environmental aspect register is a comprehensive inventory of tailings operations activities, environment aspects, assessment of risk and identification of controls. Tailings personnel have responsibility to implement and maintain the controls including monitoring and inspection. Refer to the Environment Department for the environmental aspect register (in prep) and environmental related procedures.

As outlined in orientation training, it is every RRM employee's responsibility to report a suspected spill or uncontrolled release event to their supervisor. This includes suspicious flows of water out of the area, escaping tailings, etc. The sooner appropriate persons can begin to correct a situation, the less likely it is that severe impacts will follow.

Table 5-3 provides a summary of the MOECC effluent discharge limits that must be met to discharge from the WMP.

Table 5-4; MOECC Effluent Discharge Limits from the WMP

Constructed Wetland Final Discharge and Water Management Pond Pipeline Discharge (to the Pinewood River) as stated in MOECC ECA 5178-9TUPD9		
Effluent Parameter	**Daily Maximum Concentration (mg/l)**	**Monthly Average (mg/l)**
Cadmium	-	0.0010
Cobalt	-	0.0044
CBOD5	-	25.0
E.coli	-	100/100ml geometric mean density
Total Suspended Solids	30	15
Total Phosphorus	-	0.10
Cyanide (total)	0.1	0.05
Cyanide (free)	0.02	0.01
Total Arsenic	0.034	0.017
Total Copper*	0.028	0.014
Total Nickel	0.094	0.047
Total Lead*	0.030	0.015
Total Zinc*	0.348	0.174
Un-ionized Ammonia	0.08	0.04
Acute Toxicity (Rainbow Trout and Daphnia Magna)	Non-acutely lethal (not greater than 50% mortality in undiluted effluent)	
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

Notes:
1. *Proposed effluent criteria for Total Copper, Total Lead, and Total Zinc are based on a hardness of 200 mg/L CaCO3. In the event that water quality sampling indicates that 75th percentile hardness concentrations are less than 200 mg/L CaCO3, the effluent limits may be changed by the District Manager in writing, consistent with achieving no impairment for receiving waters.
2. Additional effluent limits for sediments 1&2 are stated in MOECC ECA 5178-9TUPD9
3. The effluent discharge rate from the Constructed Wetland Final Discharge and the Water Management Pond Pipeline Discharge such that at all times the ratio of the combined flow rate of these effluents to the flow rate of the receiving surface water (Pinewood River) is less than or equal to 1:1 (i.e. the cumulative flow rate of the effluent must be less than or equal to the flow rate of the receiving surface water).
4. Prior to commencing Operations Phase discharges (Constructed Wetland Final Discharge, Water Management Pond Pipeline Discharge, Sediment Pond #1, and Sediment Pond #2), the method for determining daily effluent to receiver flow mixing ratios shall be approved by the District Manager.
5. For sampling frequencies and full parameter list refer to MOECC ECA 5178-9TUPD9; sampling frequency varies from thrice weekly to quarterly depending on the parameter

5.9 Reporting Requirements

An Operations Report will be prepared by the Mill Manager or designate. The report will include metrics and information collected as part of normal operation. Examples of information contained in the Operations report include:

- Total monthly tailings deposition tonnage and slurry water volume;
- Total monthly reclaim volume;
- Pond level and freeboard;
- Updated water balance;
- Water quality results; and
- Intake / Discharge quantities.

Each of the regulatory approval requirements related to the construction, operation and eventual reclamation of the Site have specific compliance reporting requirements with defined deadlines or reporting periodicity. In general, the reporting includes:

- Operation, Maintenance and Surveillance Plan(s) for dams, water management (water quality) and air/noise emissions;
- Emergency Preparedness Plan(s);
- As-Built Drawings and related Construction Reports;
- Dam Safety Inspection and Review Reports
- Environmental Monitoring Plans; and
- Environmental Monitoring and Performance Reports.

The environmental approvals and permits received from the government that are maintained by the New Gold Environmental Department should be referred to for details of monitoring, inspection and reporting requirements.

In addition, the New Gold Environmental Department should be notified of any proposed major modification to RRM facilities, in order that they can liaise with the appropriate government ministries to determine if additional approvals or amendments to existing approvals are required.

6.0 MAINTENANCE

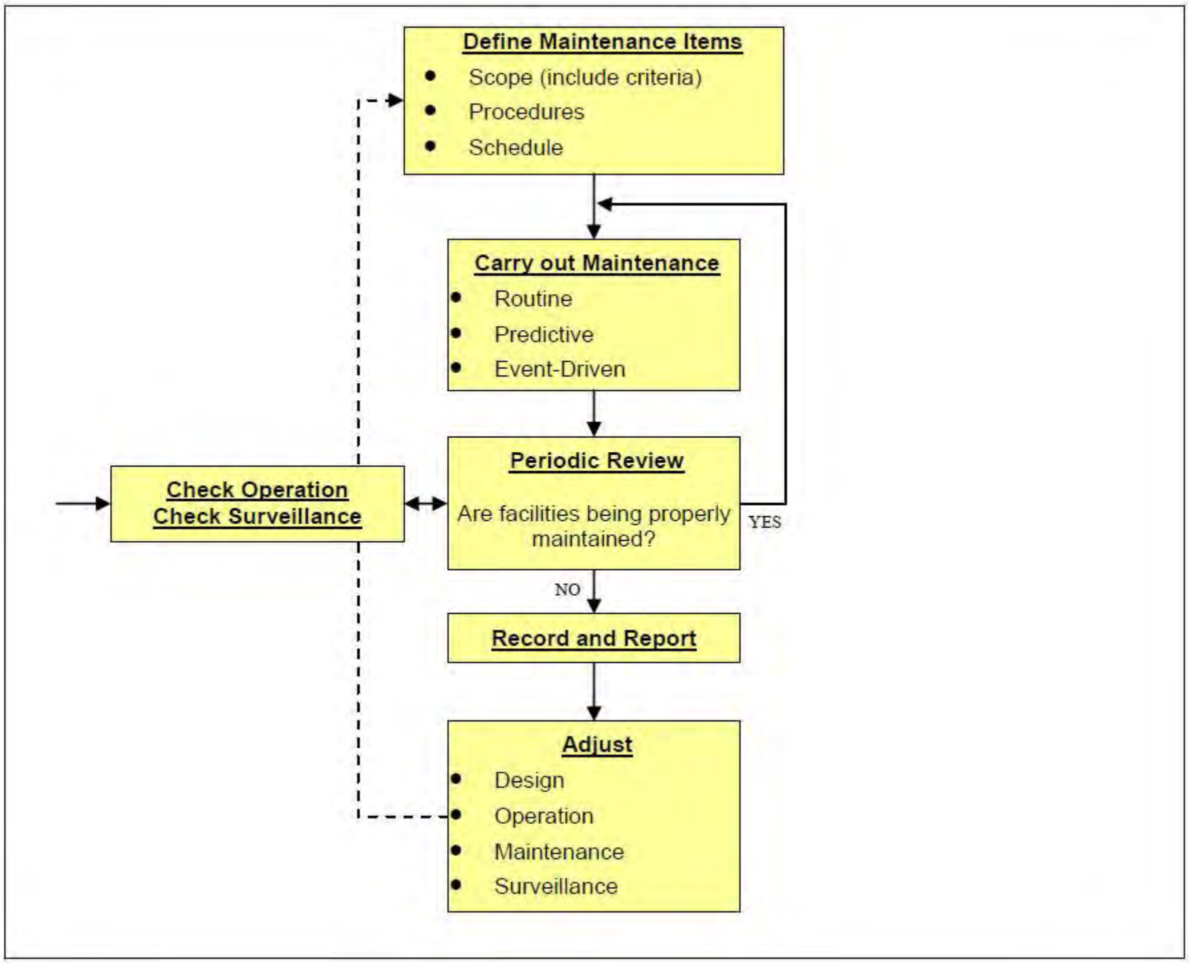
The following periodic maintenance is required:

1. Maintain the tailings and reclaim pumps and associated lines and containment;
2. Clear debris, snow and ice which may block flow from through the decant facility or emergency spillways;
3. Maintain water management structures including spillways, ditches and diversions;
4. Maintain equipment, power and water lines, and instrumentation;
5. Repair any deficiencies as noted in the Dam Safety Inspections (DSI); and
6. Reconstruct the support for tailings discharge pipelines wherever washouts occur.

Maintenance records are retained by maintenance personnel performing the work in accordance with the procedures described in this document. Timing of maintenance actions for unusual conditions should be based on specific recommendations from surveillance findings. Scope and time frames for routine maintenance activities are determined and scheduled by the Maintenance Department and based on manufacturer's recommendations and best practices.

The maintenance flowchart is illustrated in Figure 6-1.

Figure 6-1; Maintenance Flow Chart



6.1 Routine and Predictive Maintenance

Routine and predictive maintenance includes removal of vegetation, beaver dams, ice blockage or sediment accumulation that would otherwise affect the performance of a structure when required.

6.1.1 Dams

The following are examples of specific maintenance activities:

- Regularly check diversion ditches, spillways and culverts for accumulation of debris or sediment, or any other form of blockage including ice, and remove if required;
- Visually inspect diversions, spillways, seepage collection sumps, dams and all ditches for cracking, bulging, slumping, and any other indications of slope movement (note, any indications of slope movement shall be reported to a qualified geotechnical engineer);

- Re-grade the dam crest, as required, to prevent local ponding and direct surface runoff towards the pond;
- Repair erosion gullies, local slumps or slides in the dam face, diversion ditches or spillway channels; and
- Regularly check diversion ditches for accumulation of debris or sediment, or any other forms of blockage, and remove if required.
- If annual survey determines necessary, correct dam crest, overflow spill way and diversion channel invert irregularities to avoid concentrated runoff.

6.1.2 Ditches and spillways

Ditch maintenance includes replacement or enhancement of erosion protection to prevent sediment generation or sloughing of slopes, as required.

6.1.3 Diversions

There are approximately 10 km of diversions associated with the Clark and West Creek diversion. Maintenance activities required include;

- Repair erosion and bank stability particularly in areas of concentrated flow e.g., culverts;
- Remove debris, and where required and approved beaver dams, that aren't part of natural progression of channel development
- Repair/modify fish habitat features if monitoring determines they are not meeting the success criteria per Fisheries Act Authorization 15-HCAA-00039, including dam crest/slope

Specifically, for the Clark Creek diversion, as per the as built report, the following maintenance will be conducted;

- Repair riffles in the Teeple Road Diversion, directly downstream of the inlet in fall 2017.

6.1.4 Geotechnical and Water Monitoring Instrumentation

Instrumentation is calibrated by the manufacturer prior to shipment. Calibration certificates will be maintained by maintenance department. Following instrument installation, initial reading procedures will be followed. Subsequent calibration will follow manufacturers recommendations.

Malfunctioning or damaged instruments may require repair or replacement per manufacturer guidelines or approved procedure. In the event of replacement of dam instrumentation, several overlapping readings of the old and new instrument are required to ensure continuity of the data records.

6.1.5 Pumping Systems and Pipelines

Maintenance of the tailing delivery, water recirculation systems and seepage pumps will include:

- Perform regular performance tests of the Pinewood Pumphouse pumps and inspections of pump fish screens to remove any debris;
- Perform regular performance tests on seepage pond pumps
- Perform annual calibration and maintenance as required on flow meters;

- Perform regular non-destructive testing appropriate for components of the tailings delivery system, including for example, periodic measurement of pipeline thickness to identify areas of wear and to schedule pipeline replacement if necessary and repair liners as required;
- Replace pipe work, bends and fitting components as required;
- Remove accumulated debris from valves, reducers and off takes;
- Carry out maintenance as recommended by fitting and valve suppliers;
- Regularly inspect major wear components;
- Maintain emergency dump ponds in a dewatered/empty state; and
- Maintain and replace system instrumentation as required.

6.1.6 Mobile Equipment

Mobile equipment is maintained on the basis of a planned reliability program and as otherwise required. Equipment in question includes:

- Dozers;
- Excavators;
- Water truck;
- Pickup trucks;
- Mobile crane;
- Flatbed and picker truck; and
- Replacement of mobile equipment as required.

6.2 Event-Driven Maintenance

In the event of unusual conditions or incidents that require immediate maintenance actions but are not considered an emergency, repairs and replacement of facility components are made as required and activities are documented. RRM staff will provide a means to assess event driven maintenance needs through response action planning. Response planning is based on risk prioritization, maintenance crew mobilization or “call out” procedures, required repairs and replacement material availability. Event driven maintenance actions will follow applicable safety and performance procedures. Normal documentation and maintenance records will be maintained as a result of any event driven maintenance actions. Unusual conditions that require maintenance are also communicated to maintenance staff as they occur.

6.2.1 Pipeline Leaks or Breaks

In the event of a pipeline leak or break the system in question is de-energized and repaired as follows:

- Inspect entire pipeline;
- Repair or replace affected components;
- Perform opportune and scheduled maintenance;
- Repair any collateral damage caused by a leak or break;

- Collect any released tailings and place in the tailings impoundment;
- Reclaim any disturbed areas; and
- Follow any spill reporting that may be required pending type of spill and following documentation procedures.

6.2.2 Earthquake Occurrence

Following an earthquake, the following are undertaken:

- Inspect dam and beach areas for sign of distress due to deformation;
- Inspect dam for signs of liquefaction (e.g., local sand boils, etc.);
- Measure freeboard for compliance with design requirements;
- Inspect toe area of dam for signs of deformation or piping of fines;
- Inspect diversions, ditches and spillways for sign of slumping or changes in geometry;
- Inspect seepage collection areas; and
- Collect instrumentation data and submit to EOR for analysis.

6.2.3 Flood Event

Following extreme storms (as defined in section 7) the following are undertaken:

- Measure freeboard for compliance with design requirements;
- Inspect dam, diversions, ditches, spillways and diversions for signs of excessive erosion and repair if required;
- Inspect seepage return system for adequacy; and
- Implement appropriate response based on observations/measurements as defined in this manual.

6.3 Reporting Requirements

Maintenance information will be communicated internally through formal and informal meetings, interaction between various levels of the organization (department and/or crew meetings), through information posted at the site and through this OMS Manual.

Communications with applicable contractors involved in tailings management will be conducted daily and weekly during tailings activity meetings, as appropriate. All employees and contractors are encouraged to communicate openly with site management about operational conditions requiring maintenance and reporting any significant observations such as event-driven maintenance or any maintenance requirements that exceed expected norms.

Equipment logs and manuals will be maintained for reference and use by responsible staff.

Maintenance diaries and logs shall be maintained and accessible for review by other parties.

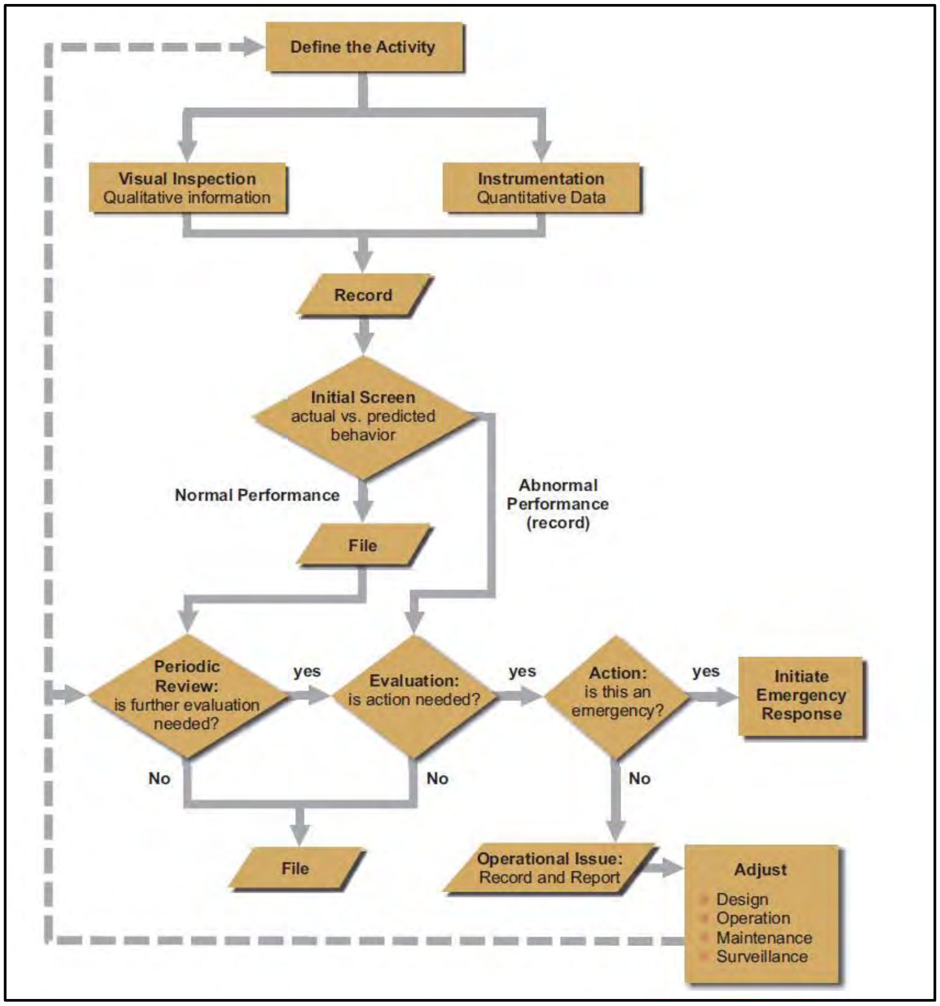
7.0 DAM SAFETY AND SURVEILLANCE

The RRM tailings and water management surveillance activities involve inspection and monitoring of the operation, structural integrity and safety of a facility. Regular review of surveillance information can provide an early indication of performance trends that, although within specifications, warrant further evaluation or action. The objectives of our surveillance program are as follows:

- Monitoring the operation, safety and environmental performance of tailings and water management facilities;
- Promptly identifying and evaluating deviations from expected behavior that affect operational safety, structural integrity and environmental performance of the facility; and
- Reporting significant observations for response.

The flow chat for surveillance is shown in Figure 7-1. Surveillance is undertaken in two primary methods – visual inspection and reading of instruments. Results of these qualitative and quantitative observations are compared to the expected performance of the TMA and water management facilities. If observations are within the expected range or performance, the results of the surveillance are simply recorded. If observations are outside the expected range, further evaluation is completed to determine if remedial action is necessary. If necessary, this action is taken and may range from a minor adjustment to operational procedures to initiation of emergency response, depending on the severity and nature of the deviation from expected performance.

Figure 7-1; Surveillance Flow Chart



7.1 Surveillance and Inspections by Mine, Mill and Environment Operations Staff

The purpose of the surveillance program is to identify and classify problems and/or unsafe conditions that are visually evident. Visual inspections are an integral part of proper maintenance and performance of monitoring programs for the TMA and water management facilities. Failure to correct identified maintenance and repair items, or potential adverse behaviour, could result in unsafe conditions or lead to a failure of operating systems or cause an adverse environmental effect.

The surveillance program will consist of making regular observations relating to:

- The conditions and performance of the dams including indications of cracking, bulging, depressions, sinkholes, vegetation, surface erosion and seepage;
- Water levels and pump intake zones;
- Function of ancillary hydraulic structures (diversions, spillways, pipelines etc.);
- Discharge pipeline operations and tailings beach development; and

- Total facility performance.

During inspections, observations will be made at the upstream slope, crest and downstream slope with respect to signs of erosion, scouring, cracking, settlement, deformation, and any instability and abnormality. Seepage rates will be visually estimated and recorded on the inspection forms. Changes in the seepage rate or clarity (i.e., turbidity) require immediate reporting to the Engineer-of-Record.

7.1.1 Daily Inspections

During first filling of all dams except the TMA dams Surveillance records will be maintained in logs at site and submitted to the EOR for review daily and on a monthly basis thereafter, or more frequently as warranted. Any abnormal behaviour including slope slumping, erosion of crest settlement will be reported immediately to the Engineer-of-Record.

Routine daily visual inspections of critical dams (TMA, WMP and MRP), spillways, pipelines, pipeline containment and pumping infrastructure will be carried out on an on-going basis to confirm normal operations and identify unusual or anomalous conditions such as pipeline leaks, pump intake blockages, etc. All active pipelines will be inspected twice per 12 h shift, consistent with EA conditions.

Daily inspection sheets and provided in Appendix F.

7.1.2 Weekly Inspections

Physical inspections of the TMA, process water, water treatment and diversion dams will be conducted on a weekly basis. The weekly inspections will include those discussed in Section 7.1.1 and the following tasks:

- Photographic record of key features;
- Physical inspection of dams, dykes, diversion, ditches and spillways:
    - Indicating and reporting any seepage and erosion.
- Pond levels and freeboard:
    - Additional monitoring maybe required during spring freshet of the dams.

Weekly inspection sheets and SOPs are provided in Appendix F. All weekly inspections will be documented in a report and will be compiled as part of the annual DSI (Section 7.4).

7.1.3 Other Inspections

7.1.3.1 Diversions

The Clark and West Creek diversions, while designed to operate passively, have specific surveillance requirements as part of the approved Fisheries Act authorizations. Further, impediments to water flow in diversions have the potential to alter water levels in the ponds. For the diversions, in addition to requirements specified above, and following the as built report for the Clark Creek Diversion these surveillance requirements will be conducted;

- Inspection of fish habitat features, as per Fisheries Act Authorization 15-HCAA-00039;
- Complete a survey of the Clark and Teeple dam crests and diversion channel inverts annually, observations of crest irregularity will require correction to avoid concentrated runoff in the overflow spillway;

- Monitoring pond levels include Teeple and Stockpile ponds (by staff gauge, transducer or other suitable means) daily. The frequency will be re-evaluated after one year of operation (May 2018).

7.1.3.2 Water Treatment

The water treatment facilities, WDP, CW and sediment ponds 1 and 2 will be inspected consistent with LRIA approvals (pending) and the MOECC ECA approval. This section will be updated in future revisions, to describe surveillance requirements in addition to those outlined above which may include;

- Discharge pipeline and mixing structure;
- Up to thrice weekly water quality sampling from discharge points; and
- Inspections to confirm the absence of oil/sheen.

7.2 Inspection Required After an Unusual Event

Several potential failure modes exist for the various tailings and water management and water diversion storage facilities. These potential failure modes, along with likely triggers, observable visual and instrumentation indicators of the failure mode are presented in Table 9-1. Special inspections will be carried out immediately if any of the following events occur:

- Events such as an earthquake, large rainfall (greater than 1:2 year rainfall (51mm)) or large snowfall/snowpack;
- Operating events such as rupture of a pipeline, particularly if on the slope or crest of the dam, sudden loss of pond water, sudden rapid rise of pond water;
- Observations such as cracks, excessive settlements, sinkholes, large slope or foundation deformations, increased seepage, turbidity of seepage water; and
- Instrument readings that deviate from historical trends, or are within “alert” action levels (e.g., trigger levels).

Special inspections after unusual events are necessary as summarized in Tables 7-1 to evaluate whether there has been any damage requiring correction, any safety measures or special operating procedures that need to be implemented, or if there is a need to initiate emergency procedures as described in Section 9.0.

Table 7-1; Maintenance Requirements following an Unusual Event

Unusual Event	Post – Event Inspection/Surveillance
Earthquakes	Carry out a detailed walkover of all dam structures, including crests, downstream and upstream (visible) slopes and dam toes, and all spillways, looking for signs of cracks, bulging, settlement and/or other deformations. Look for and note any changes in seepage, particularly with respect to the rate of seepage flows at dam slopes and seepage clarity. Read all piezometers. Inspect downstream toes of dams for sand boils and dam slopes for sinkholes. Inspect ponds upstream of the dams looking for 'whirlpools'. Inspect all pump stations and pipelines. Discuss findings with the Dam Safety Inspector.
Rapid snowmelt and/or heavy rainstorms exceeding a 1:2 year rainfall (51 mm)	Inspect the (visible) slopes and the crests of all the tailings dams looking for areas of concentrated runoff and erosion. Make note of saturated ground/soft ground conditions at dam slopes and toes. Examine dam slopes for indications of localized slumping/instability. Inspect all pump stations and pipelines. Check the water levels in all ponds/reservoirs against the critical levels, and keep checking these levels until the pond/reservoir inflows subside. Discuss findings with the Dam Safety Inspector. Check piezometric levels at dam sites if instructed to do so.
Unusually high winds (exceeding 60 kph i.e., 75 % of maximum likely used in design)	Check the condition of erosion protection on the upstream slopes of the dams.
Extreme snow pack (170cm cumulative snowfall) (i.e., 120% or greater than normal snowfall at Barwick)	Check the water levels in all ponds/reservoirs against the critical levels, and keep checking these levels until the spring freshet is over. Evaluate the situation in terms of possible snowmelt scenarios. Make predictions as to the expected storage capacity available in ponds/reservoirs. If deemed necessary, mobilize pumping and mobile treatment equipment to site.
Significant, relatively rapid erosion (any cause) of dam slope of 'sudden' seepage break at dam slope or downstream of dam in form of continuous seepage or boils	Inspect clarity of seepage, rate of seepage and amount of material sloughed. Notify tailings coordinator – site engineering and EOR. Consider initiating Emergency Response Plan
Pond level close to, or approaching a critical level	Notify Manager. Consider initiating Emergency Response Plan
Significant change in an instrumentation reading – see table below for definition of significant change	Check the historical readings paying special attention to seasonal changes and check the measurement again. Carry out visual inspection of all areas in the vicinity of the instrument of interest. Contact the Engineer of Record.

7.3 Dam Instrumentation and Monitoring

The instrumentation data is reviewed regularly to identify anomalous readings that could indicate a change in the conditions of the tailings and water management facilities. Dam instrumentation lists are provided in section 4.6. Instrumentation reading and reporting frequencies are outlined in Table 7.2. Responsible parties' record notes and takes pictures of any potential anomalies to provide further information to the EOR. Instrument trigger and alert levels are provided in Table

7.3. Additional details on instrument reading frequencies can be found in the *Geotechnical Monitoring Plan* (Amec Foster Wheeler, 2016b).

Piezometers:

- Vibrating Wire Piezometers shall have a reading frequency every hour and recorded by a data logger, with data collected daily during construction. Post-construction after the readings have stabilized, the reading frequency will be reduced to every 12 hours, as defined in the table below;
- Standpipe piezometers shall be measured weekly during construction and monthly following construction;
- The following are considered anomalous:
    - Sudden increases or decreases that do not correlate with seasonal variations (e.g., groundwater recharge during snowmelt affecting foundation piezometers);
    - Trend of piezometric increase that approaches or exceeds the rate of rise of the tailings pond; and
    - Pattern of sudden and large increases followed by rapid declines.

Inclinometers:

- Inclinometers shall be monitored semi-weekly during construction and monthly following construction;
- Anomalous data includes:
    - Sudden increases in cumulative displacement/rate of movement of the inclinometers;
    - Zones of concentrated or discrete displacement; and
    - Blockages of the inclinometer casing.

Settlement Plates and Survey Pins/Monuments:

- Settlement Plates and Survey Pins/Monuments shall have a reading frequency of semi-weekly during construction and monthly following construction;
- Anomalous data includes:
    - Sudden displacements of the settlement monuments (x, y, z directions); and
    - Accelerating displacement trends (over two or more readings).

If anomalous readings are observed, the following actions should be taken:

- Check data, reductions and calculations for accuracy and correctness;
- If no errors are found in the calculations, notify the EOR, Geotechnical Engineer and Environmental Manager that an anomalous reading has been observed and that further assessment is going to be conducted;
- Check readout equipment to verify that it is functioning correctly; verify calibration;
- Re-read all instrumentation of the type for which the anomalous reading was observed, in order to check the reading and reading in adjacent instruments;

- If it is observed that an instrument or piece of readout equipment has stopped functioning, notify the Mill Manager and/or Superintendent, and the EOR immediately. If considered critical, a replacement instrument should be installed;
- If the anomalous reading is confirmed, notify the Superintendent and EOR immediately; and
- A detailed review of the effects of the reading should be carried out and the monitoring frequency of the instruments in the area of the anomaly increased to assess the progression of the anomaly. Design or remedial actions should be implemented if determined necessary.

All results are downloaded and provided to the EOR. Any anomalies are noted and a request for an additional reading may occur. The EOR will review the data in quarterly monitoring reports, and make any recommendations, such as increased reading frequencies, pertaining to anomalous readings. The EOR, will also assess the trigger and alert levels and update them as necessary, once per year, as part of the DSI.

Table 7-2; Dam Instrumentation Surveillance Requirements

Type	Frequency
Routine Inspection:	
Dam	Weekly
Diversions	Weekly
Ditches	Weekly
Seepage collection system	Weekly
Spillways	Weekly
Pipelines	Twice per 12 h shift – per EA commitments
Tailings Pond Monitoring:	Weekly
Pump intake	Weekly
Staff gauges	Weekly (initially every ~12h) in Cell 1 borrow
Inflows, Outflows, Condition	Monthly
Dam Instrumentation:	Monthly
TMA, WMP and MRP Comprehensive (and water diversions during initial filling)	• Daily during construction and initial filling • Weekly, during initial operations depending on trend • Monthly during routine operation
Annual Dam Inspection	Annually, with no snow cover
Event Driven Inspection	Following unusual events (defined in table 7.1)
Comprehensive Review (DSR):	
Low and Moderate HPC dams	Every 10 years and prior to decommissioning
Very High HPC dams	Every 5 years and prior to decommissioning

Notes:

1. Dam Hazard Potential Classification (HPC) requires review when changes are made or downstream conditions change.
2. Monthly facility inspections should be carried out by the same staff or small group of staff such that subtle changes in the conditions can be detected.

Table 7-3; Instrument Trigger and Alert Levels

Instrument	Parameter	Trigger Level	Alert Level	Remarks
VWP/STP	Pore Pressure Ratio	r_u = 0.4	r_u = 0.5	Pore pressure data to be evaluated with corresponding fill elevation, and monitored movements at SPs and INs
Survey Pin	Lateral Movement Rate	Uniform (but less than max 75 mm magnitude)	Accelerating	To be evaluated with IN data to define zones of movement
Slope Inclinometer	Lateral Movement Rate	Uniform	Accelerating	Deformation rates will be associated with rate of construction and post construction movements
	Share Strain Magnitude	2%	5%	If specific plane(s) of shearing is observed within the foundation, the construction shall be limited, progressed with caution or ceased depending on the observed phenomena

Notes:
1. r_u of 0.4 corresponds to a piezometric head at 80% of the dam height. r_u 0.5 is at pietometric head at the crest of the dam.
2. r_u of 0.5 is a design criteria to meet dam stability requirements.

Source; Geotechnical Monitoring Plan (AMECFW, August 2016)

7.4 Dam Safety Inspections (DSIs) and Dam Safety Reviews (DSRs)

Consistent with MOECC ECA approvals, with the regulatory exception of the Clark and West Creek Diversions, engineering inspections will be conduct following best management practices as per the Canadian Dam Association's (CDA) Dam Safety Guidelines (2007, revised 2013, as amended from time to time), and the 2014 CDA Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams (as amended from time to time).

7.4.1 Dam Safety Inspections

Annual inspections are intended to be part of a more thorough review of the condition of the facility, and are carried out by the EOR. The inspections will include the following key items:

- Visual inspection of the facility by the engineer, including taking appropriate photographs of the observed conditions;
- Review of routine inspection records prepared by operating personnel in the past year;
- Review whether or not recommendations from previous year’s inspection(s) have been addressed, and any incidents or actions arising from those previous recommendations;
- Review of instrumentation and monitoring data;
- Review of tailings deposition and water management operations of the facility including reconciliation of the annual water and mass balance. Review of pond levels (and depth) and freeboard, and reports of any incidents (and remedial measures) that may have occurred;

- An evaluation and interpretation of the structural performance of the dam and related components, and identify any potential safety deficiencies or recommended items that need to be addressed in the coming year;
- Review construction records, QA/QC data and as-built information on dam construction and beaching; and
- Evaluation of the OMS Manual to assess the need for updating.

The results of the inspection and review will be documented in a report.

7.4.2 Dam Safety Review

The Canadian Dam Association (CDA) Dam Safety Guidelines (CDA, 2007) recommend a comprehensive dam safety review be carried out every 5 years during operations, prior to decommissioning and following closure, by a qualified 3rd party consultant.

The comprehensive review provides independent verification of:

- Safety and environmental performance of the facility;
- Adequacy of the surveillance program;
- Adequacy of delivery of OMS Manual requirements;
- Design basis with respect to current standards and possible failure modes; and
- Compliance with new engineering standards (including analysis to confirm if necessary).

7.5 Documentation

Documentation of surveillance and monitoring activities shall be maintained by the Mill Manger, or as designated, as described in the preceding sections and will include recording of:

- Routine visual observations (departures from normal conditions);
- Photographs;
- Instrumentation monitoring and testing;
- Analyses and evaluations; and
- Reviews.

Documentation will include, as a minimum, the following:

- Weekly routine inspection log;
- Monthly tailings facility and process water pond monitoring report;
- Quarterly instrumentation reports;
- Annual Dam Safety Inspection reports; and
- Comprehensive Dam Safety Review report every 5 years.

Documentation will include a hard copy (paper) and electronic filing system for inspection reports, photographic and video records, incident reports, instrumentation readings, instrumentation plots, annual inspections and third-party reviews, so that they can be quickly retrieved for review and in case of an emergency.

7.6 Reporting

The Mill Manager, or designated responsible party, and Geotechnical Engineer will review collected data records from facility monitoring and assess the need for maintenance activities or response. Corrective actions will be identified and tracked to closure. The Environmental Manager is responsible for overseeing sample and data collection and analysis. Reporting will meet MOECC requirements and the annual DSI report will also be submitted to the MRNF. Reporting includes;

- As built reports of the dams, excluding the Clark and West Creek diversions, will be submitted to MOECC within 90 days of completion;
- An annual report based on the DSI including ECA approval requirements;
- Monthly water quality monitoring report; and
- Annual report including any operating problems and corrective actions, a summary of calibration and maintenance works, use of contingency plans, surface water and groundwater monitoring reports including water balance, ML/ARD updates, discharge volumes and quality.

Additional reporting requirements may be developed as the RRM progresses.

8.0 CLOSURE PLAN

This section summarizes the objectives of the Closure Plan. The *Rainy River Project – Closure Plan* (Amec Foster Wheeler, 2015c) provides the closure plan and includes temporary closure options for short and medium-term shut-down of site facilities.

8.1 Tailings Management Area

Closure of the TMA will include, but is not limited to, the following:

- Flooding of the TMA with a 2 m or deeper water cover;
- A perimeter zone of tailings beach will be maintained to keep the central pond away from the dams, this zone will be covered with a low permeability cover;
- NPAG rock will be placed at the TMA transition zone with the tailings to prevent erosion and suspension and oxidation of solids; and
- Dam structures containing the TMA have been designed with adequate safety factors to provide overall long term safety and stability.

8.2 Embankments

Closure of the embankments will typically involve, but is not limited to reaching of embankments to prevent ponding of water and revegetating slopes to reclaim the area. Some embankment structures will still have a role during the closure phase and these will not be breached. The following structures will continue to be operated during the closure phase:

- MRP will collect runoff and seepage from EMRS, which will be directed to the Open Pit to help flooding;
- Sediment Ponds #1 and #2 will be maintained until site is recognized as a closed mine and monitoring associated with the Metal Mining Effluent Regulation is no longer required

Freshwater diversion and constructed wetland structures are designed to operate passively and will remain in place at closure.

8.3 Monitoring

Monitoring requirements are described in the *Rainy River Project – Closure Plan* (Amec Foster Wheeler, 2017c).

9.0 EMERGENCY PREPAREDNESS

The objectives of this section is to describe procedures to prevent the occurrence of emergencies and reduce the impact, should they arise. This manual covers only those emergency situations that could potentially pose a threat to the structural integrity of the dams or result in the release of tailings and/or supernatant pond water into the surrounding environment. This document was developed to work in conjunction with the Emergency Preparedness and Response Plan (EPRP) (as reviewed annually and maintained by New Gold H&S team – latest revision February 2017).

The ultimate goal is to protect human life and health, the social well-being of the local community and employees, public infrastructure and company facilities; and environmental conditions and habitats.

9.1 Definition and Classification of Emergencies

An emergency is defined as:

> *"A situation or a set of circumstances which, if not promptly eliminated, controlled or contained, results or could result in a significant injury to people (including the community) and/or damage to the tailings facility, property and/or the environment."*

9.2 Potential Dam Failure Modes

The containment dams at the RRM are predominately zoned embankments with clay cores and rock fill shells. The primary method of dam construction uses the centreline method which is considered to be a stable form of construction. Adherence to design drawings and specifications is critical to minimize the risk of failure.

Several potential failure modes exist for the various tailings storage and water management facilities. These potential failure modes, along with likely triggers, observable visual and instrumentation indicators of the failure mode are presented in Table 9-1. A preliminary dam break inundation map is provided in Figure 9-1.

External hazards originate outside the boundary of the dam and reservoir system and are beyond the control of the dam owner. External hazards include the following:

- Meteorological events, such as floods, intense rainstorms (causing local erosion or landslides), temperature extremes, ice, lightning strikes, and windstorms;
- Seismic events, either natural, cause by economic activity such as mining, or even reservoir induced;
- The reservoir environment, including rim features, such as upstream dams and slopes around the reservoir that pose a threat; and
- Vandalism and security threats.

Internal hazards may arise from the ageing process or from errors and omissions in the design, construction, operation, and maintenance of the dam and water conveyance structures. Internal hazards can be subdivided by source:

- Components that retain or interfere with the body of water;
- Water conveyance structures required to direct water around or through the dam in a controlled way;
- Mechanical, electrical, and control subsystems;

- Infrastructure and plans, including instruments, operating orders, maintenance strategies and procedures, surveillance procedures, and emergency plans, as well as inflow forecasts.

A failure mode describes how a component failure occurs to cause loss of the system function. Failure modes may be interdependent and change in nature and significance at different stages of a dam's life. In any analysis, the failure characteristics, including extent and rate of development, should be determined to an appropriate level of detail. At a general level, there are three dam failure modes:

- Overtopping – water flows over the crest of the dam, contrary to design intent;
- Collapse – internal resistance to the applied forces is inadequate; and
- Contaminated seepage – contaminated fluid escapes to the natural environment.

Dam safety risk management is directed to (1) prevention of the initiation of a failure sequence; (2) control of a deteriorating situation, and (3) mitigation of situations where the failure sequence cannot be stopped.

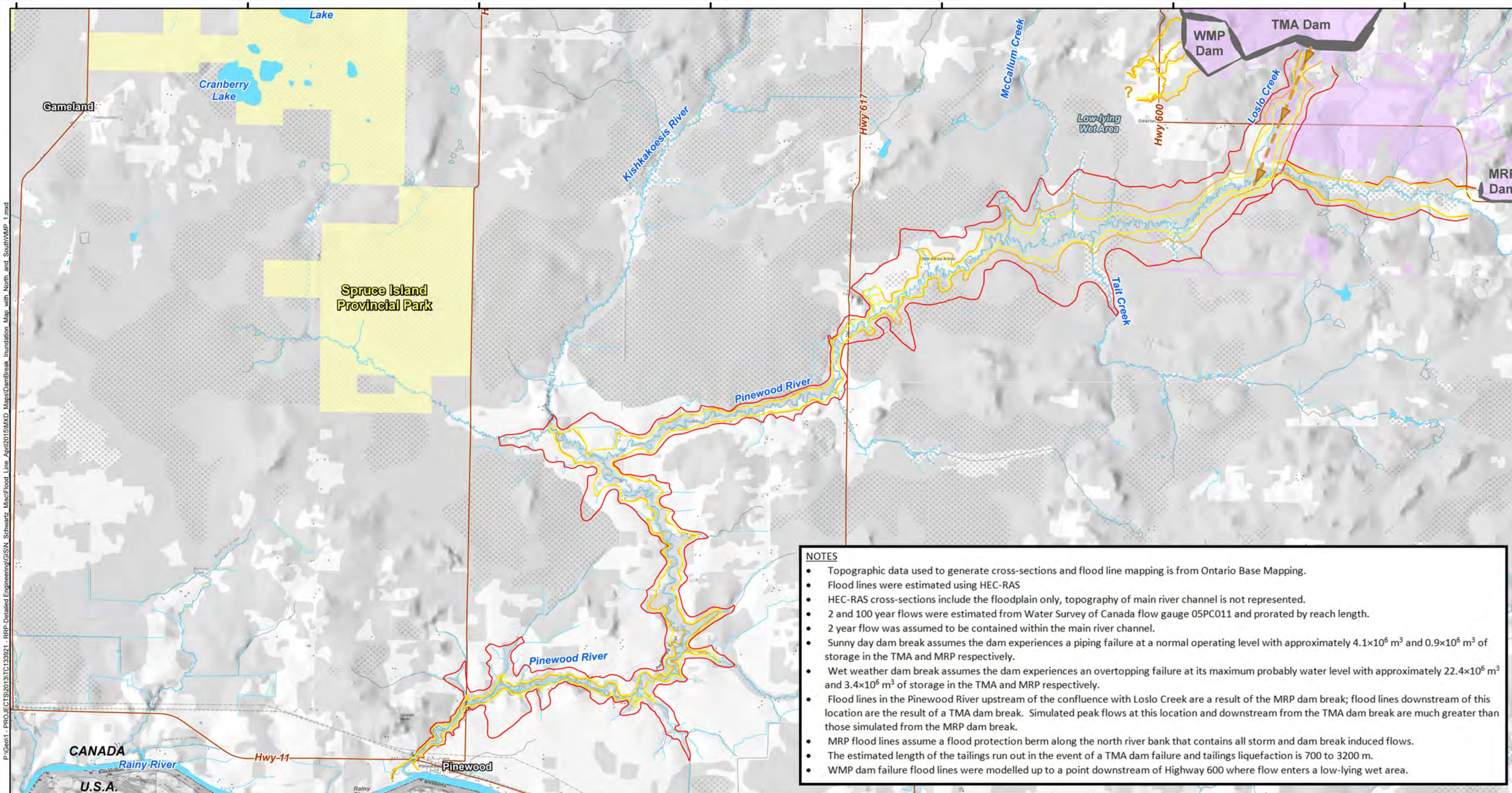
Table 9-1; Potential Failure Modes, Triggers and Observable Effects

Potential Failure Modes	Possible Causes	Visual Indications	Instrumentation Effects
Break down of pump stations	Blockages, lack of maintenance	No flows	Test on pumps and other related components
Pipeline damage, cracking, blocking, or freezing	Flows blocked by excessively turbid water, debris or ice blockages, extreme weather	No or partial flows; pipeline leaking, cracking or bulging	Pipeline thickness; line pressures; pipeline flow rates
Overtopping	Excessive foundation movements, high wind and wave erosion of beach landslide generated wave, erosion of freeboard, settlement of crest, gully growth towards upstream crest due to seepage, surface runoff or pipe ruptures	Instability in reservoir slopes – slumping, sliding, etc. Damage to upstream face of dam, breach of crest	None
Slope Failure	Changes to porewater pressure within the dam (filters becoming non-functional, earthquake included)	Bulging, slumping, sliding or cracking of dam, increase in volume of seepage	Increase in porewater pressures measured within dam
Foundation Failure	Changes to pore water pressure in the foundation or increases to load applied to foundation (Increase in dam height or pond elevation)	Bulging, slumping, sliding or cracking of dam, or natural ground surrounding the dam	Increase in porewater pressures measured within dam and/or foundation, increase in rate of movement observed in inclinometers and/or survey prisms

Potential Failure Modes	Possible Causes	Visual Indications	Instrumentation Effects
Surface Erosion	Waves, wind or precipitation	Slumping or raveling of upstream or downstream faces of dam	None
Internal Erosion	Erosion of core, creating a pipe/conduit for water flow through dam, growth of a gully behind the crest of dam, turbid seepage water	Rapid increase or unexplained cloudy appearance of seepage through the tailings dams and/or their foundations; appearance of seepage in new locations; formation of sinkholes in dam or on tailings beach	Rapid change if the in porewater pressures measured within dam and/or foundation
Cracking	Differential settlement of dam, earthquake induced	Cracks on dam crest or faces; bulging or slumping of dam	Increase to rate of movement observed in inclinometers or survey monuments or prisms

Other failure modes might also include the following:

- Slumping, sliding, cracking or bulging of the tailings dam
- Rapid increase or unexplained cloudy appearance of seepage through the tailings dam and/or its foundation
- Formation of sinkholes on the tailings beach or dam
- Breakage of tailings pipelines, which may result in dam erosion and/or release of tailings slurry
- Earthquakes
- Major storm events or flood
- Sabotage and other criminal activities



NOTES

- Topographic data used to generate cross-sections and flood line mapping is from Ontario Base Mapping.
- Flood lines were estimated using HEC-RAS
- HEC-RAS cross-sections include the floodplain only, topography of main river channel is not represented.
- 2 and 100 year flows were estimated from Water Survey of Canada flow gauge 05PC011 and prorated by reach length.
- 2 year flow was assumed to be contained within the main river channel.
- Sunny day dam break assumes the dam experiences a piping failure at a normal operating level with approximately 4.1×10^6 m^3 and 0.9×10^6 m^3 of storage in the TMA and MRP respectively.
- Wet weather dam break assumes the dam experiences an overtopping failure at its maximum probably water level with approximately 22.4×10^6 m^3 and 3.4×10^6 m^3 of storage in the TMA and MRP respectively.
- Flood lines in the Pinewood River upstream of the confluence with Loslo Creek are a result of the MRP dam break; flood lines downstream of this location are the result of a TMA dam break. Simulated peak flows at this location and downstream from the TMA dam break are much greater than those simulated from the MRP dam break.
- MRP flood lines assume a flood protection berm along the north river bank that contains all storm and dam break induced flows.
- The estimated length of the tailings run out in the event of a TMA dam failure and tailings liquefaction is 700 to 3200 m.
- WMP dam failure flood lines were modelled up to a point downstream of Highway 600 where flow enters a low-lying wet area.

LEGEND

- Principal RRP Facilities
- Regional Road / Highway
- Permanent Watercourse
- Intermittent Watercourse

TMA and MRP Flood Scenarios

- Approximate Flood Line for 100 Year Flow
- Approximate Flood Line for 2 Year Flow + Sunny Day Dam Break
- Approximate Flood Line for 100 Year Flow + Wet Weather Dam Break
- Possible Tailings Run Out (estimate extent shown: 3,200 m)

WMP Flood Scenarios

- Approximate Flood Line for Piping Failure (north and south dam scenarios shown)
- Approximate Flood Line for Overtopping Failure (north and south dam scenarios shown)

PRELIMINARY

NOTES:

Datum: NAD83
Projection: UTM Zone 15N

0 2 4 8 12 16 20 Kilometres

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RAINY RIVER PROJECT

Dam Break Inundation Map

DRAFT

PROJECT N°: TC133921

FIGURE: 9-1

SCALE: 1:80,000

DATE: May 2015

9.3 Warning Signs and Threshold Criteria

The warning signs for an emergency are defined below:

- Level I: Conditions that do not yet represent a potential emergency but that do require investigation and resolution on a prompt basis, along with intensified surveillance.
- Level II: Conditions that represent a potential emergency if allowed to continue to progress, but no such emergency is imminent.
- Level III: An obvious emergency has occurred or is imminent.

Table 9-2 discusses potential warning signs, consequences and actions to be taken.

Table 9-2; Warning Signs, Level of Emergency and Responses

Level	Warning Sign/Situation	Actual or Potential Consequences	Action(s) to be Taken
1	Unusually high, one-time reading from a single piezometer.	Possible early warning sign of worsening piezometric/seepage conditions.	• Check piezometer reading, and check for infilling of piezometer. • If reading confirmed, check all other piezometers, and examine downstream area of dam for changed seepage conditions. • Intensify piezometer readings.
	Decreased seepage discharge accompanied by gradually increasing piezometer levels.	Possible sign of clogging of internal drainage system of dam.	• Check chemistry of seepage discharge for any changes relative to normal. • Request tailings dam engineer to re-evaluate slope stability at this location.
	Increase in size of erosion gullies.	Possible erosion resulting from seepage and/overland runoff. May lead to accelerated erosion and result in dam failure.	• Backfill gullies with filter material and fine rockfill.
2	Increase in seepage discharge, accompanied by discharge of tailings within seepage (dirty water).	Possible indication of a developing internal erosion (piping), that could eventually lead to dam breach/pond release, or excessively high levels of saturation that could result in slope instability.	• Initiate chain of communication (Figure 9-2) and monitor the situation. • Discontinue tailings discharge in the seepage area. • Intensify monitoring of seepage at this location. • Note if the seepage discharge and/or turbidity continue to increase. • Read piezometers. • Be prepared to place filter material in area of discharge from emergency stockpiles.

Level	Warning Sign/Situation	Actual or Potential Consequences	Action(s) to be Taken
	Seepage on dam abutments, causing localized erosion and slumping of dam slope.	Could lead to progressive slope failure on abutment, resulting in dam failure and breach of pond.	• Discontinue tailings discharge in the seepage area. • Place filter material over seepage area using emergency stockpiles. • Continue to monitor area on an intensified basis. • Initiate chain of communications if situation does not improve.
	Extended period of unusually heavy rainfall, or unusually large snowmelt.	Could lead to raised levels of saturation within the dam slope, which could in turn lead to slope instability.	• Increase frequency of piezometer readings to weekly. • Intensify inspections of downstream dam slope, looking for signs of localized instability/concentrated gully erosion, and for soft ground (saturated slope) conditions.
	Relatively high, unexplained, and ongoing increase in piezometer levels within the dam and/or foundation – threshold limits being approached.	Probable sign of progressive deterioration of toe drainage provided by starter dams. Could, if left unattended eventually lead to failure of the dam.	• Assess rate of rise and determine if it is steady or accelerating. • If piezometer level increase was sudden, check the reading (repeat it) to eliminate the possibility of a reading error. • Sound bottoms of piezometers to check for infilling. • Send piezometer readings to the tailings dam engineer. • Inspect downstream area for increased seepage and/or turbidity of seepage discharge.
	Long term or sudden increase in rate of inclinometer movements.	Possible sign of impending slope instability.	• Check reading, and contact the Geotechnical Engineer and EOR if confirmed. • Inspect area for any visible signs of instability, bulging on outer slope or at toe, or tension cracks on dam crest. • If tailings discharge is occurring near the inclinometer that indicates unexplained movement, relocate discharge point further away. • Increase frequency of inclinometer readings. • Read nearby piezometers.
	Ongoing cracking and evidence of dam and/or foundation movement.	Possible sign of impending failure of dam, especially if the rate of movement/cracking is accelerating.	• Check inclinometer readings. • If rate of deformation is accelerating, initiate chain of communication. • Read piezometers. • Check for water inflow into tension cracks. • Regrade to channel runoff away from tension cracks, as water inflow can result in accelerated movement.

Level	Warning Sign/Situation	Actual or Potential Consequences	Action(s) to be Taken
	Highly turbidity discharge from decant outlet.	Possible sign of collapse of a portion of the decant, allowing tailings into outlet. Can, if left unattended, lead to internal erosion failure and eventual dam breach.	• Check decant inlet to see if water turbidity matches that in discharge. • If water at inlet is clear, then close off decant inlet to prevent further discharge. • Notify tailings dam engineer and develop alternate decant arrangements. • Inform Mill.
	Rupture of tailings and/or water pipelines on crest of dam, resulting in erosion of downstream dam slope	Could lead to erosive failure of dam, and pond breach, if allowed to continue.	• Contact Mill and have discharge of tailings stopped. • Repair the rupture. • Inspect and repair the washed-out portion of the dam slope. • Do not discharge tailings into the area of the washout. • Notify tailings dam engineer to design slope re-construction.
	Seepage daylighting from tailings slope at a significantly higher elevation than had previously been observed at that particular location.	Could lead to erosion, and progressive slope failure, resulting in dam failure and breach of pond.	• Read piezometers. • Assess rate of seepage and whether or not internal erosion is occurring. • If piezometers confirm high phreatic levels, initiate chain of communication. • Carry out weekly monitoring of the seepage discharge area of concern. • Avoid discharge of tailings into the impoundment adjacent to the area.
	Severe flood/intense rainstorm or rapid snowmelt.	Overtopping and washout of dam, and release of pond. Concentrated erosion of tailings slopes, resulting in localized gullying, over-steepening, and potential slope failure. Raising of phreatic surface as a result of infiltration possible.	• Initiate chain of communications (Figure 9-2). • Check the minimum width of tailings beaches. • Inspect spillway for flow and condition. • Stop tailings discharge and slowly lower tailings pond by removing stop logs. • Carry out detailed inspection of dam and pond. • Inspect dam slopes for areas of concentrated erosion, and repair. • Read all piezometers. • Mobilize emergency pumps if needed.
3	Failure or suspected imminent failure of a dam.	Catastrophic breach and release of pond.	• Initiate chain of communications (Figure 9-3). • Stop tailings discharge and lower tailings pond by removing stop logs.

Level	Warning Sign/Situation	Actual or Potential Consequences	Action(s) to be Taken
	Slumping, sliding, or bulging of a dam slope or adjacent ground.	Catastrophic breach and release of pond.	• Initiate chain of communications (Figure 9-3). • Lower pond by removing stop logs. • Do not attempt construction (e.g., construction of a stabilizing berm) until the EOR is on the site (earthmoving equipment should be mobilized).
	Water vortex (whirlpool) within the tailings pond.	Indicates an internal erosion failure in progress, with potential breach of the tailings dam.	• Initiate chain of communications (Figure 9-3). • Stop tailings discharge and lower tailings pond by removing stop logs. • Check downstream area of dam for areas of increased and/or turbid seepage discharge. • Place granular filter buttress against any such areas, using emergency stockpiles. • Go directly to decant outlets if vortex is on a decant line; plug decant outlet with granular material if tailings are discharging through decant.
	Sinkhole observed on tailings beach or on a downstream dam slope.	Indicative of internal erosion, which could progress to the point where dam breach results.	• Initiate chain of communications (Figure 9-3). • Stop tailings discharge and lower tailings pond by removing stop logs. • Immediately check dam toe areas/decant outlets for heavy seepage that is transporting tailings solids. • Place granular filter buttress against any such areas, using emergency stockpiles.
	Large earthquake.	Dam failure, breach and release of pond.	• Initiate chain of communications (Figure 9-3). • Carry out detailed post-earthquake inspection of the dam. • Read all instrumentation (piezometers and inclinometers).
	Rapid, unexplained, orders of magnitude increase in seepage rate and turbidity (dirty water indicating transport of tailings) at a dam slope seepage location and/or foundation.	Internal erosion (piping) failure leading to dam breach and release of pond. Elevation of pore pressure conditions that could initiate a slope failure.	• Initiate chain of communications (Figure 9-2). • Place stockpiled filter materials over seepage discharge area to prevent further erosion of material. • Read piezometers in area of seepage discharge.

9.4 Incident Notifications Procedures

Roles and responsibilities:

- Any individual who observes an incident shall initiate the appropriate notification procedure.
- All members listed on the notification procedures shall be familiar with established protocol and familiar with the OMS Manual (as per training Section 2.5).
- If a member of the team on the notification procedures is not contactable then the Incident Commander shall be notified and proceed with the notification procedure.

Notification procedures have been developed for Level I, II and III emergencies provided below to ensure quick onsite responses in the event of an identified emergency. The Mill Manager will be in charge of initiating the site wide EPRP (NG, 2017) in the event of a Level III emergency.

The notification procedures for a Level I and Level II emergency are illustrated on Figure 9-2. The notification procedure and initiation of the EPRP in the event of a Level III emergency is shown on Figure 9-3. Rapid response to Level III emergencies is critical to ensuring that staff, contractors and site visitors safely reach a muster station and that timely notification is made to appropriate local and provincial authorities as well as external stakeholders.

Figure 9-2; Levels I and II Emergency Notification Procedure Flowchart

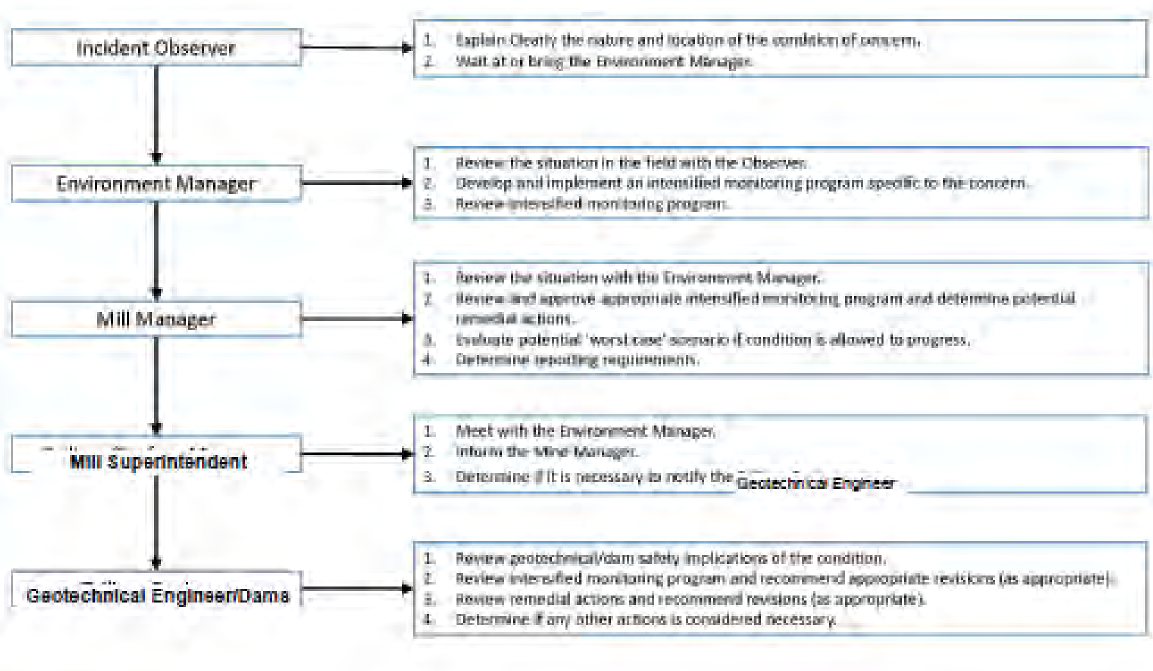
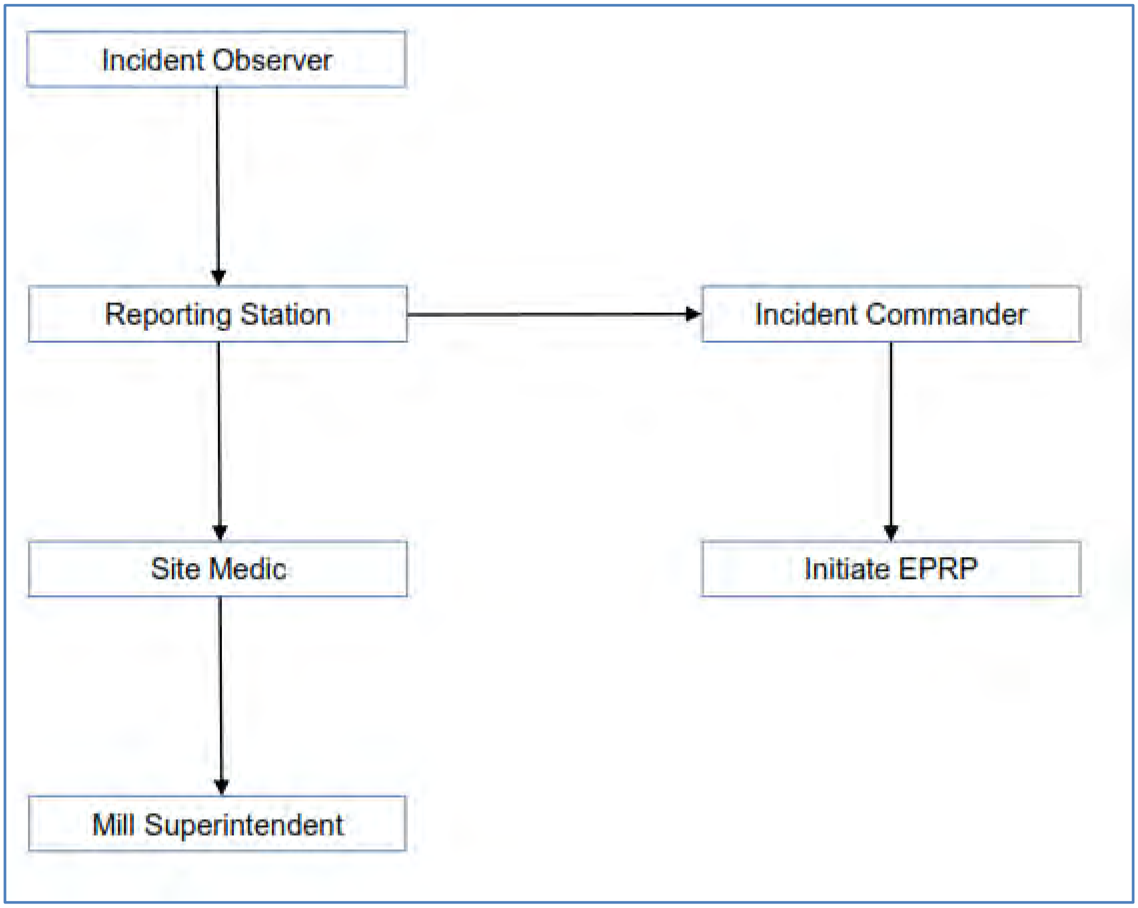


Figure 9-3; Level III Emergency Notification Procedure Flowchart



9.5 Emergency Contacts

Internal emergency contact information is provided RRM EPRP. An emergency response can be initiated through;

- RRM radio channel 4 – state 'Emergency, Emergency, Emergency' and describe the type and location of the emergency
- RRM internal phone system – dial 8888
- RRM security direct line – 1-807-708-0646
-

9.6 Emergency Preparedness Procedures

All employees, including contractors working at the RRM must be familiar with the procedures outlined in the EPRP for the site and TMA to the extent required to perform their functional role. All supervisors and contact persons for contractors must ensure their employees understand those procedures relevant to their work area and ensure that their employees are familiar with, and recognize the proper course of action in the event of an emergency. The supervisor must also ensure that all employees are made aware of any revisions to the EPRP for the site and TMA.

The EPRP is the site and TMA's guidance document relating to emergency responses and protocols to be followed during upset conditions, unusual events or incidents. A preliminary dam break inundation map is provided in figure 9-3.

Emergency preparedness measures with regard to dam safety include: maintenance of access to dam locations; availability of fill materials and equipment required in the event that remedial works are required; and the ability to access and traffic control measures to ensure safety of workers and public.

10.0 CONTINGENCIES

The operations are sensitive to water balance and water quality in discharges. The following are contingencies based on water management and functioning of the diversions.

10.1 TMA

10.1.1 Cell 1 contingency

- Maintain or add additional pumping capacity to the WMP to drain the cell if required due to the MOWL being exceeded;
- Manage filling of the WMP to consider additional storage capacity of the EDF from cell 1; and
- Accelerate construction of cell 2, where permitted.

10.1.2 Cell 2/3 Contingency

- The TMA has been designed to operate with a pond volume of 4-6 Mm^3, with additional capacity for up to 8 Mm^3. In a wet year pumping to the WMP can be extended longer than planned and discharged from the WMP, pending receptor capacity (Pinewood River flow)
- Any additional precipitation events after the EDF, prior to dewatering, could cause an uncontrolled release of untreated water to the environment, and alternative contingency measures would be required to reduce the water level at a faster rate (i.e. such as pumping excess water to the open pit or transferring TMA Cell 2 water into the WMP with no treatment).
- Pumping will be considered directly from the WMP to TMA Cell 3 to reduce WMP volumesto 1.0 Mm^3 prior to discharge from Cell 2 through the WTP into the WMP.
- Water treatment plant to be completed in September 2018 to allow pumping from cell 2, if required
- TMA raises to be sequenced to avoid a water deficit, however, reduction in discharges to the CW and additional takings from the Pinewood River, West Creek and Clark Diversions will be considered, subject to maintaining minimum flows

10.2 Process Water

10.2.1 Water Management Pond

- Accelerate, where permitted, completion of TMA to enable draining of WMP;
- Additional pumping capacity to cell 2/3; and
- Implement contingencies for Water Quality as outlined below (Water Treatment).

10.2.2 Mine Rock Pond

- If the MRP MOWL (356.8m) is exceeded, then pumping into the MRP from the open pit will cease and pumps will pump water toward the plant site/WMP/TMA at 680 m^3.
- Overtopping of the Clark Creek Dam was considered in the design of the MRP. The Clark Creek Dam and Pond are designed for a 1:100 year 24h event, if this is exceeded

then water will spill from the dam and flow toward the EMRS. Water on the eastern side of the EMRS reports to a sump and flows through NAG rock under the EMRS to the MRP. Given this flow path the contribution of this flow is not significant on the peak inflows to the MRP.

10.3 Water Treatment

Two contingency plans have been developed as part of MOECC approvals for water treatment;

- Pinewood River Quality Contingency Plan, Version 1 August 2016; and
- Groundwater and Surface Water Contingency Plan, Version 2 October 2015.

Contingency options are to limit discharges, acceleration of TMA dam raises, add water quality treatment, additional monitoring, provision of water to affect areas and increased mixing ratios/improved mixing. The trigger for implementation of contingency in surface water is if protection of aquatic life criteria are not achieved 90 % of the time. The trigger for contingencies in groundwater is if water quality parameters exceed background metals concentrations in groundwater at the mining lease boundary or groundwater wells outside of the zone of influence are affected.

10.4 Freshwater Diversions

There are specific contingencies required, based on the Fisheries Act authorization (application Table 6) for the freshwater diversion that relate to the OMS i.e., not biological. These are provided in the following table.

Table 10-1; Contingencies for Freshwater Diversions

Attribute	Mode of Failure	Contingency
Physical construction of offset measures	• Dam not constructed as per plans • Channel not constructed as per plan. • Water area, depths and or habitat structures not in place or present as per the plans.	• Engineer to assess failure and recommend corrective actions. • Proponent to take required corrective action.
Physical function of offset measures	• Conditions do not provide for fish passage	• Engineer / biologist to assess cause of failure and recommend corrective actions. • Take required corrective action
	• Water level not consistent with those specified in plans.	• Adjust grades of structures to alter • water levels • Excavate pools to specified depths.
Stability of structures	• Constructed habitat features (log and boulder structures) missing or not functional	• Repair or replace structures
	• Shorelines and graded offset features not stable (less than 80% of features are considered stable)	• Assess cause and areas of instability • Add permanent erosion control (rock, vegetation) in areas of erosion • Grade channel or shore to decrease velocity
	• Riparian vegetation cover and plantings are less than 80% coverage of area, and or survival of planted stock	• Apply seed and replacement plantings where required • Substitute species, and/or use soil amendments if conditions require.

11.0 REFERENCES

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New Gold, 2017c. Rainy River Project – Emergency Preparedness & Response Plan, prepared by New Gold Inc., February, 2017.

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APPENDIX A

DRAWING LIST
(List of Current Revisions)

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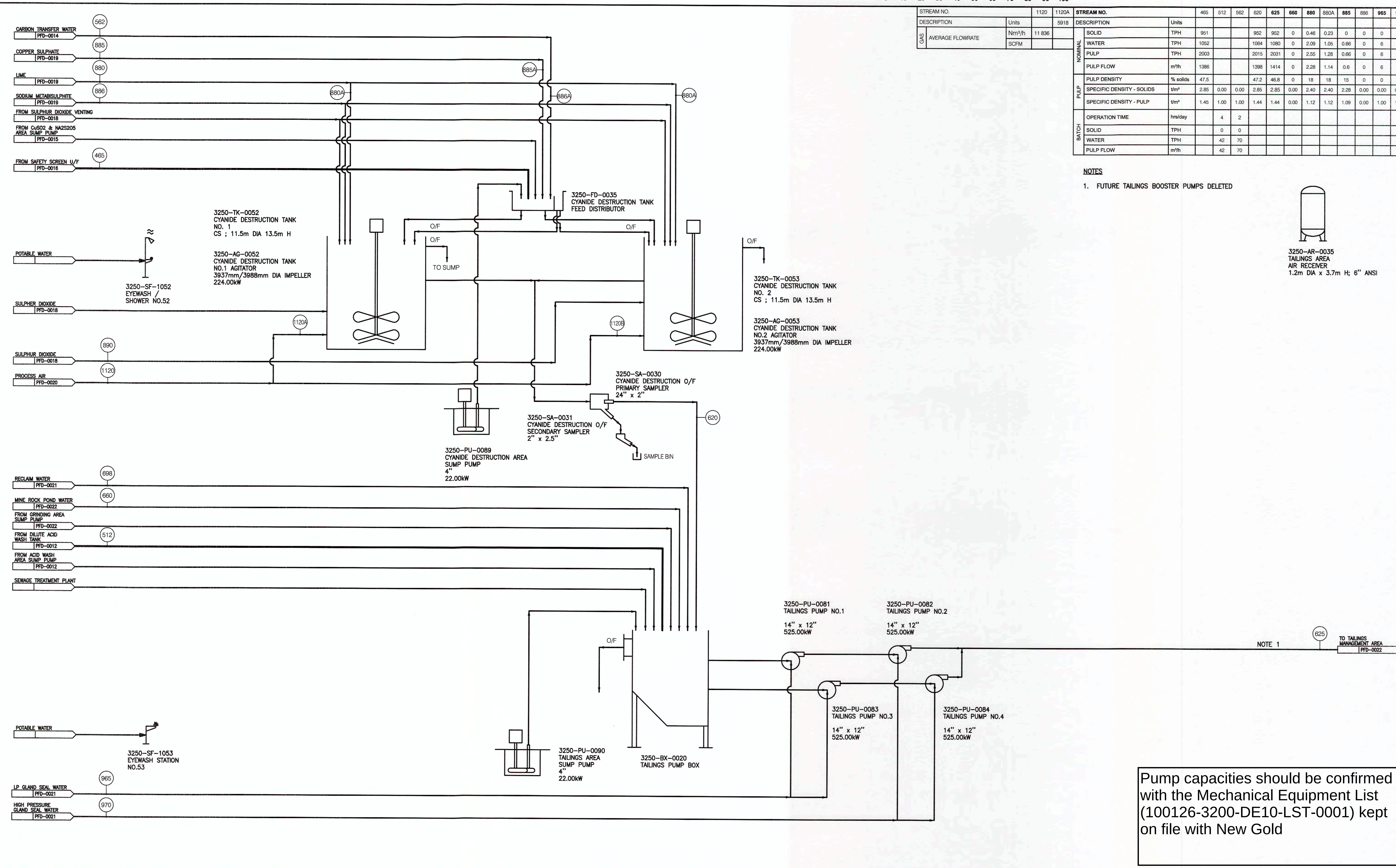
No.	Drawing Number	Drawing Title	Rev.
100 Series			
101	3098004-004000-A1-D20-0003	Title Sheet	1
102	3098004-000000-A1-D20-0003	General Arrangement Plan at Start Up	C-01
103	3098004-000000-A1-D20-0005	Watershed Map	00
104	3098004-000000-A1-D20-0004	Site Investigations & Surficial Geology Plan	00
105	3098004-004000-A1-D20-0004	TMA & WMP - General Arrangement Plan - Start Up Conditions	C-05
106	3098004-004000-A1-D50-0001-1	TMA Dam - Layout and Foundation Preparation Plan & Details (Sheet 1 of 3)	C-02
107	3098004-004000-A1-D50-0001-2	TMA Dam - Layout and Foundation Preparation Plan & Details (Sheet 2 of 3)	C-01
108	3098004-004000-A1-D50-0001-3	TMA Dam - Layout and Foundation Preparation Plan & Details (Sheet 3 of 3)	C-04
109	3098004-004000-A1-D60-0006-1	TMA Dam - Profile (Sheet 1 of 2)	C-02
110	3098004-004000-A1-D60-0006-2	TMA Dam - Profile (Sheet 2 of 2)	C-01
111-1	3098004-004000-A1-D60-0007-1	TMA Dam - Typical Cross Sections	C-05
111-2	3098004-004000-A1-D60-0007-2	TMA West Dam - Typical Cross Sections	C-01
112	3098004-004000-A1-D70-0003	TMA Dam - Emergency Spillway - Plan and Sections	C-01
113	3098004-004000-A1-D70-0004	TMA Dam - Construction Diversion - Plan, Profile and Section	C-01
114	3098004-004300-A1-D50-0001	WMP Dam - Layout and Foundation Preparation Plan & Details	01
115	3098004-004300-A1-D60-0003	WMP Dam - Profile	00
116	3098004-004300-A1-D60-0004	WMP Dam - Typical Cross Section	C-02
119	3098004-004300-A1-D70-0004	WMP Dam - Emergency Spillway - Plan and Sections	00
120	3098004-004410-A1-D70-0002	Water Discharge Pond Dam - Plan and Typical Cross Sections	00
121	3098004-004420-A1-D70-0002	Constructed Wetland - Plan, Profiles & Section	00
121A	3098004-004420-A1-D70-0003	Constructed Wetland - Level Control Structure	AA
122	3098004-002510-A1-D70-0002	West Creek Pond Dam - Plan, Typical Section and Profile	C-03
122A	3098004-002510-A1-D70-0013	Temporary Open Pit Protection Berm - Plan, Profile & Cross Section	00
122B	3098004-002510-A1-D70-0014	West Creek Pond Dam - Temporary Overflow Spillway - Typical Section, Profile and Details	C-00
123	3098004-002510-A1-D50-0001	West Creek Pond Dam - Layout and Foundation Preparation - Plan & Details	C-00
123A	3098004-002510-A1-D70-0004	West Creek Dam Spillway - Plan, Profile and Sections	C-01
124	3098004-002510-A1-D70-0003	West Creek Diversion Channel - Plan and Profile	C-02
124A	3098004-002510-A1-D70-0005	West Creek Diversion Channel - Overflow Diversion Structure - Section and Details	C-01
124B	3098004-002510-A1-D70-0006	West Creek Diversion Channel - Culvert C11 - Plan, Section and Profile	00
124C	3098004-002510-A1-D70-0007	West Creek Diversion Channel - Culvert C12 - Plan, Section and Profile	00
124D	3098004-002510-A1-D70-0008	West Creek Diversion Channel - Culvert C13 - Plan, Section and Profile	00
124E	3098004-002510-A1-D70-0009	West Creek Diversion Channel - Culvert C14 - Plan, Section and Profile	01
124F	3098004-002510-A1-D70-0010	West Creek Diversion Channel - Culvert C15 - Plan, Section and Profile	00
124G	3098004-002510-A1-D70-0011	West Creek Diversion Channel - Culvert C16 - Plan, Section and Profile	00
124H	3098004-002510-A1-D70-0012	West Creek Diversion Channel Temporary Side Spillway Plan, Profile and Sections	AA
125	3098004-002590-A1-D70-0002	Mine Rock Pond Dam - General Arrangement Plan	C-01
126	3098004-002590-A1-D50-0001	Mine Rock Pond Dam - Layout and Foundation Preparation - Plan & Details	C-01
127	3098004-002590-A1-D70-0003	Mine Rock Pond Dam - Profile	C-01
128	3098004-002590-A1-D70-0004	Mine Rock Pond Dam - Typical Cross Section	C-02
129	3098004-002590-A1-D70-0005	Mine Rock Pond Dam - Emergency Spillway - Plan and Sections	C-01
130	3098004-002580-A1-D70-0002	Stockpile Pond Dam - Plan, Typical Section and Profile	C-02
131	3098004-002580-A1-D70-0003	Stockpile Pond Dam - Layout and Foundation Preparation - Plan & Details	C-00
132	3098004-002580-A1-D70-0004	Stockpile Pond Diversion Channel - Plan and Profile	C-00
133	3098004-004400-A1-D70-0001	Clark Creek Pond Dam - Plan, Typical Section and Profile	C-03
134	3098004-004400-A1-D70-0002	Clark Creek Pond Diversion Channel - Plan and Profile	C-01
135	3098004-004400-A1-D70-0003	Teeple Road Dam - Plan, Typical Section and Profile	C-01
135A	3098004-004400-A1-D70-0005	Teeple Road Dam - Overflow Section - Permanent Repairs	C-00
135B	3098004-004400-A1-D70-0006	Teeple Road Dam - Overflow Section - Permanent Repairs	C-00
135C	3098004-004400-A1-D70-0007	Teeple Road Dam - Non-Overflow Section - Permanent Repairs	C-00
136	3098004-004400-A1-D70-0004	Teeple Road Pond Diversion Channel - Plan and Profile	C-00
137	3098004-004000-A1-D02-0001	TMA & WMP Dam Instrumentation Locations	AA
137-1	3098004-004000-A1-D02-0001-1	TMA & WMP Dam Instrumentation Locations	C-00
137-2	3098004-004000-A1-D02-0001-2	TMA & WMP Dam Instrumentation Locations	C-00
138	3098004-004000-A1-D02-0002	Mine Rock & West Creek Dam Instrumentation Locations	C-00
139	3098004-004000-A1-D02-0003	Typical Instrumentation Sections	C-00
140	3098004-004000-A1-D02-0004	Typical Instrumentation Details	C-00
141	3098004-004300-A1-D70-0005	Water Treatment Plant - Settling Pond - Plan	00
142	3098004-004300-A1-D70-0006	Water Treatment Plant - Settling Pond - Typical Cross Section and Profiles	00
143	3098004-004000-A1-D20-0012-1	TMA Divider Dyke - At Start Up	AB
144-1	3098004-004000-A1-D02-0005-1	TMA South Dam Vibrating Wire Instrumentation Locations in Dam Foundation	C-00
144-2	3098004-004000-A1-D02-0005-2	TMA West Dam Vibrating Wire Instrumentation Locations in Dam Foundation	C-00
144-3	3098004-004000-A1-D02-0005-3	TMA North Dam Vibrating Wire Instrumentation Locations in Dam Foundation	C-00
144-4	3098004-004000-A1-D02-0005-4	TMA Start-Up Dam Vibrating Wire Instrumentation Locations in Dam Foundation	C-00
144-5	3098004-004000-A1-D02-0005-5	TMA Start-Up Dam Vibrating Wire Instrumentation Locations in Dam Foundation	00
145	3098004-004000-A1-D02-0006	TMA South Dam Prefabricated Vertical Drains Plan, Profile and Details	AA
200 Series - Fisheries Drawings			
200	3098004-004400-A1-D50-0001	Typical Details for Fish Habitat Structures	02
201	3098004-002510-A1-D50-0002	West Creek Pond - Plan View	03
202	3098004-002510-A1-D50-0003	West Creek Pond - Cross Sections	01
203	3098004-002510-A1-D50-0004	West Creek Diversion Channel - 3m Bottom Width Typical Cross Sections	01
204	3098004-002510-A1-D50-0005	West Creek Diversion - 3m Bottom Width Typical Plan and Profile	02
205	3098004-002510-A1-D50-0006	West Creek Diversion - 5m & 8m Bottom Width Typical Cross Sections	01
205A	3098004-002510-A1-D50-0008	West Creek Diversion - 8m Bottom Width Typical Cross Sections	00
206	3098004-002510-A1-D50-0007	West Creek Diversion - 5m & 8m Bottom Width Typical Plan and Profile	02
207	3098004-004400-A1-D50-0002	Clark Creek Pond - Plan View	01
208	3098004-004400-A1-D50-0003	Clark Creek Pond - Cross Sections	01

No.	Drawing Number	Drawing Title	Rev.
200 Series			
209	3098004-004400-A1-D50-0004	Clark Creek Diversion - Typical Cross Sections	02
210	3098004-004400-A1-D50-0005	Clark Creek Diversion - Typical Plan and Profile	01
211	3098004-004400-A1-D50-0006	Teeple Road Pond - Plan View	01
212	3098004-004400-A1-D50-0007	Teeple Road Pond - Cross Sections	01
213	3098004-004400-A1-D50-0008	Teeple Road Pond Outlet Channel - Typical Cross Sections	01
214	3098004-004400-A1-D50-0009	Teeple Road Pond Outlet Channel - Typical Plan and Profile	01
215	3098004-002580-A1-D50-0001	Stockpile Pond - Plan View	02
216	3098004-002580-A1-D50-0002	Stockpile Pond - Cross Sections	02
217	3098004-002580-A1-D50-0003	Stockpile Diversion Typical Cross Sections in Overburden	02
218	3098004-002580-A1-D50-0004	Stockpile Diversion Plan and Profile in Overburden	02
219	3098004-002580-A1-D50-0005	Stockpile Diversion Typical Cross Sections in Rock	03
220	3098004-002580-A1-D50-0006	Stockpile Diversion Plan and Profile in Rock	02
221	3098004-002580-A1-D50-0007	West Creek Tributary 2 Confluence with Stockpile Diversion	02
300 Series			
301	3098004-001120-A1-D20-0001	West Stockpile Arrangement Plan	AC
302	3098004-001120-A1-D50-0001	West Mine Rock Stockpile - Typical Section & Details	AC
303	3098004-001130-A1-D20-0001	East Stockpile Arrangement Plan	AC
304	3098004-001130-A1-D50-0001	East Mine Rock Stockpile - Typical Section & Details	AC
305	3098004-002590-A1-D50-0006	Interim Mine Rock Pond - Plan, Cross Sections and Details	00
306	3098004-004430-A1-D70-0001	Early Works - Temporary Sedimentation Sump Details	AC
307	3098004-004440-A1-D70-0001	Temporary Sedimentation Pond - Plan & Details	00
308	3098004-004430-A1-D70-0002	Sediment Pond #1 - Sections & Details	01
309	3098004-004440-A1-D70-0002	Sediment Pond 2 - Plan, Cross Sections and Details	00
310	3098004-004450-A1-D50-0001	Protection Berm Plan & Section	01
311	3098004-004000-A1-D70-0005	TMA Seepage Collection System - Plan & Details	C-02
311A	3098004-004000-A1-D70-0006	Water Management Pond - Seepage Collection Pond #1 - Plan & Typical Cross Section & Details	C-01
311B	3098004-004000-A1-D70-0007	Water Management Pond - Seepage Collection Pond #2 - Plan & Typical Cross Section & Details	C-01
311C	3098004-004000-A1-D70-0008	Tailings Management Area - Seepage Collection Pond #3 - Plan & Typical Cross Section & Details	C-02
312	3098004-004520-A1-D70-0001	Reclaim Wet Well Concept	AB
313	3098004-006200-A1-D20-0002	Pinewood Water Intake / Discharge Earthworks General Arrangement	00
314	3098004-006200-A1-D70-0002	Pinewood Water Intake / Discharge Earthworks - Pump Station	00
315	3098004-006200-A1-D70-0003	Pinewood Water Intake / Discharge Earthworks - Channel	00
316	3098004-002100-A1-D20-0001	Plant Site Construction Water Management - General Arrangement	00
317	3098004-002100-A1-D70-0002	Plant Site Construction Water Management - Plant Site Sedimentation Pond - Plan & Sections	00
318	3098004-002100-A1-D70-0003	Plant Site Construction Water Management - Overburden Stockpile Pond - Plan & Sections	00
319	3098004-002100-A1-D70-0004	Plant Site Construction Water Management - Details	00
320	3098004-001210-A1-D70-0001	West Mine Rock Stockpile - Perimeter Ditch - Plan, Profile and Typical Cross Section	01
321	3098004-001210-A1-D70-0001	West Mine Rock Stockpile - Temporary Sump #1 and #2 - Plan & Typical Cross Section	00
322	3098004-001210-A1-D70-0001	Open Pit Layout - At Start-Up	00
323	3098004-001210-A1-D70-0001	Open Pit Temporary Sump #3 and #4 - Plan & Typical Section	00
324	3098004-004430-A1-D70-0007	Open Pit Temporary Sump #5 and #6 - Plan & Typical Section	AA
325	3098004-001210-A1-D70-0003	West Mine Rock Stockpile - Internal Seepage Plan Section	00
326-1	3098004-001210-A1-D70-000-1	West Mine Rock Stockpile - Internal Collection System - Sump A1 Ditching and Details	01
326-2	3098004-001210-A1-D70-000-2	West Mine Rock Stockpile - Internal Collection System - Sump A2 Ditching and Details	01
326-3	3098004-001210-A1-D70-000-3	West Mine Rock Stockpile - Internal Collection System - Sump A3 Ditching and Details	01
327	3098004-001210-A1-D70-0005	West Mine Rock Stockpile - Internal Collection System - Sump B1 Ditching and Details	01
328	3098004-001210-A1-D70-0006	West Mine Rock Stockpile - Internal Collection System - Sump C1 Ditching and Details	
329-1	3098004-001130-A1-D70-0001-1	East Mine Rock Stockpile - Internal Collection System - Plan, Profiel and Typical Cross Section	AB
329 -2	3098004-001130-A1-D70-0001-2	East Mine Rock Stockpile - Internal Collection System - Plan, Profiel and Typical Cross Section	AB
400 Series			
401	3098004-004900-A1-D20-0001	TMA Start-Up Cell - Title Sheet	C-00
402	3098004-004900-A1-D20-0002	General Arrangement Plan - TMA Start-Up Cell	C-00
403	3098004-004900-A1-D50-0001	TMA Start-Upp Cell - Layout and Foundation Preparation	C-01
404	3098004-004900-A1-D60-0001	TMA Start-Up Cell - Profile	C-00
405	3098004-004900-A1-D60-0002	TMA Start-Up Cell - Typical Cross Sections	C-01
406	3098004-004900-A1-D60-0003	TMA West & South Dam - Typical Cross Sections	C-01
407	3098004-004900-A1-D70-0001	TMA Start-Up Cell - Emergency Spillway - Plan & Sections	C-00
408	3098004-004900-A1-D70-0002	WMP Dam - Emergency Spillway - Plan and Sections	C-00
409	3098004-004900-A1-D70-0003	TMA Start Up Cell Temporary Seepage Collection Pond SU #1	C-00
410	3098004-004900-A1-D70-0004	TMA Start Up Cell Temporary Seepage Collection Pond SU #2	C-00
500 Series			
501	3098004-004910-A1-D20-0001	TMA Cell 2 - Title Sheet	AB
502	3098004-004910-A1-D20-0002	Detailed Design TMA Cell 2 Dam General Arrangement Plan	00
503	3098004-004910-A1-D50-0001	Detailed Design TMA Cell 2 Dam Layout Foundation Preparation and Profile	00
504	3098004-004910-A1-D60-0001	Detailed Design TMA Cell 2 Dam Typical Cross Sections	00
505	3098004-004910-A1-D70-0001	TMA Cell 2 Dam Construction Diversion System	00
506	3098004-004910-A1-D70-0002	TMA Cell 2 Dam Temporary Seepage Collection Plan, Profile and Sections	00
507	3098004-004910-A1-D70-0003	TMA Cell 2 - Emergency Spillway - Plan & Sections	00
508	3098004-004910-A1-D70-0004	TMA Cell 3 - Overflow Spillway - Plan, Profiles and Section	00
509	3098004-004910-A1-D70-0005	TMA Reclaimed Dyke	00
510	3098004-004910-A1-D70-0006	TMA Cell 2 Dam Details For Optional Sheet Pile Configuration	00
Pinewood Intake			
	3098004-006200-A1-D20-0003	Pinewood Water Intake - Structural - General Arrangement	00
	3098004-006200-A1-D20-0004	Pinewood Water Intake/Discharge - Mechanical - General Arrangement	00
	3098004-006200-A1-D30-0001	Pinewood Water Intake/Discharge - Mechanical - Details	00
	3098004-006200-A1-D30-0002	Pinewood Water Intake - Mechanical - Specifications	00
	3098004-006200-A1-D70-0004	Pinewood Water Intake - Structural - Details	00

APPENDIX B

WATER PUMPING DATA
(Simple List of Pumps, Capacity, PFDs, Other)



STREAM NO.			1120	1120A
DESCRIPTION		Units		5918
GAS	AVERAGE FLOWRATE	Nm³/h	11 836	
		SCFM		

STREAM NO.			465	512	562	620	625	660	880	880A	885	886	965	970
DESCRIPTION		Units												
NOMINAL	SOLID	TPH	951			952	952	0	0.46	0.23	0	0	0	0
	WATER	TPH	1052			1064	1080	0	2.09	1.05	0.66	0	6	6
	PULP	TPH	2003			2015	2031	0	2.55	1.28	0.66	0	6	6
	PULP FLOW	m³/h	1386			1398	1414	0	2.28	1.14	0.6	0	6	6
PULP	PULP DENSITY	% solids	47.5			47.2	46.8	0	18	18	15	0	0	0
	SPECIFIC DENSITY - SOLIDS	t/m³	2.85	0.00	0.00	2.85	2.85	0.00	2.40	2.40	2.28	0.00	0.00	0.00
	SPECIFIC DENSITY - PULP	t/m³	1.45	1.00	1.00	1.44	1.44	0.00	1.12	1.12	1.09	0.00	1.00	1.00
BATCH	OPERATION TIME	hrs/day		4	2									
	SOLID	TPH		0	0									
	WATER	TPH		42	70									
	PULP FLOW	m³/h		42	70									

NOTES

1. FUTURE TAILINGS BOOSTER PUMPS DELETED

Pump capacities should be confirmed with the Mechanical Equipment List (100126-3200-DE10-LST-0001) kept on file with New Gold

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
0	22JUN2015	ISSUED FOR USE	SBW	CL	KC	GC		
F	01MAY2015	RE-ISSUED FOR DESIGN	SBW	CL	KC	GC		
E	12DEC2014	RE-ISSUED FOR DESIGN	SBW	CL	KC	GC		
D	15AUG2014	ISSUED FOR DESIGN	SBW	JR	KC	GC		
C	17JUL2014	RE-ISSUED FOR APPROVAL	SBW	JR	KC	GC		
B	04JUL2014	ISSUED FOR APPROVAL	SBW	JR	KC	GC		
A	20MAY2014	ISSUED FOR CLIENT REVIEW/SQUAD CHECK	SBW	JR	KC	GC		

REF	NUMBER	TITLE
	REFERENCES	

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STAMP/SEAL

NOT TO BE USED FOR CONSTRUCTION

APPROVED FOR ____________

CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE: RAINY RIVER GOLD PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
100126	7000	DES	J.RUST	22MAY14
		DRN	SBW	22MAY14
SCALE: NTS	PACKAGE CODE	CHK		
		APP		

newgold™
Rainy River Project

amec

SUBJECT: PROCESS
PROCESS FLOW DIAGRAM
TAILING & CYANIDE DESTRUCTION
SHEET NO.2 21,000 TPD

AREA

CLIENT DWG. NO.

DRAWING NO. 100126-3200-DC00-PFD-0017.001 REV. 0

SAVED: 22-Jun-15 3:28 PM PLOTTED: 26-Jun-15 4:32 PM USER: BATCHPLOT, GI

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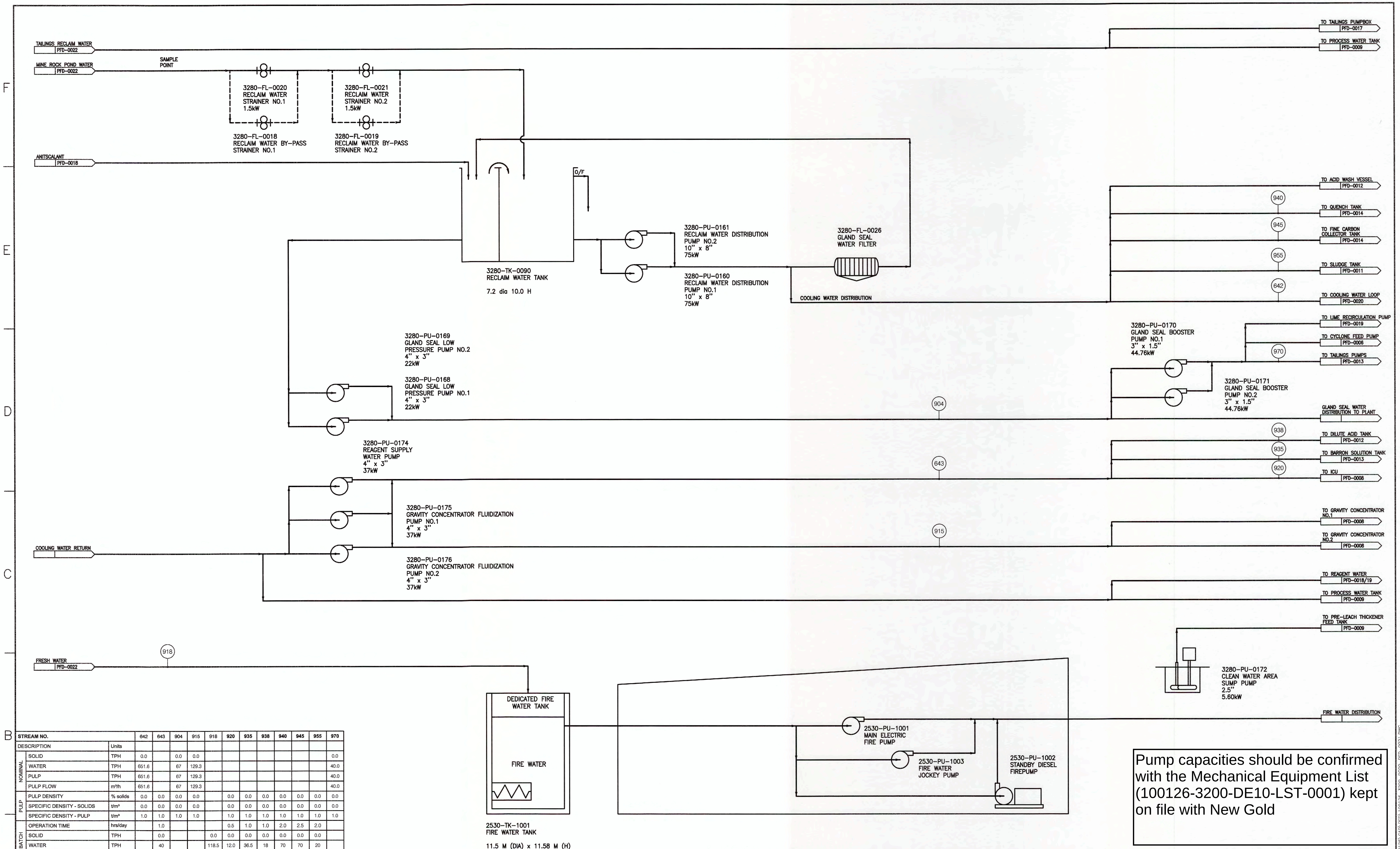

STREAM NO.			642	643	904	915	918	920	935	938	940	945	955	970
DESCRIPTION		Units												
NOMINAL	SOLID	TPH	0.0		0.0	0.0								0.0
	WATER	TPH	651.6		67	129.3								40.0
	PULP	TPH	651.6		67	129.3								40.0
	PULP FLOW	m³/h	651.6		67	129.3								40.0
PULP	PULP DENSITY	% solids	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SPECIFIC DENSITY - SOLIDS	t/m³	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SPECIFIC DENSITY - PULP	t/m³	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
BATCH	OPERATION TIME	hrs/day		1.0				0.5	1.0	1.0	2.0	2.5	2.0	
	SOLID	TPH		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	WATER	TPH		40			118.5	12.0	36.5	18	70	70	20	
	PULP FLOW	m³/h		67			118.5	12.0	36.5	18	70	70	20	

Pump capacities should be confirmed with the Mechanical Equipment List (100126-3200-DE10-LST-0001) kept on file with New Gold

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
0	22JUN2015	ISSUED FOR USE	SBW	CL	KC	GC		
F	01MAY2015	RE-ISSUED FOR DESIGN	SBW	CL	KC	GC		
E	12DEC2014	RE-ISSUED FOR DESIGN	SBW	CL	KC	GC		
D	15AUG2014	ISSUED FOR DESIGN	SBW	JR	KC	GC		
C	17JUL2014	RE-ISSUED FOR APPROVAL	SBW	JR	KC	GC		
B	04JUL2014	ISSUED FOR APPROVAL	SBW	JR	KC	GC		
A	20MAY2014	ISSUED FOR CLIENT REVIEW/SQUAD CHECK	SBW	JR	KC	GC		

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

NOT TO BE USED FOR CONSTRUCTION

APPROVED FOR

CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE: RAINY RIVER GOLD PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
100126	7000	DES	J.RUST	22MAY14
		DRN	SBW	22MAY14
SCALE	PACKAGE CODE	CHK		
NTS		APP		

newgold™ Rainy River Project

SUBJECT: PROCESS
PROCESS FLOW DIAGRAM
WATER RECLAIM SHEET NO.1
21,000 TPD

amec

AREA

CLIENT DWG. NO.

DRAWING NO. 100126-3200-DC00-PFD-0021.001 REV. 0

SAVED: 26-Jun-15 3:28 PM PLOTTED: 26-Jun-15 4:35 PM USER: BATCHPLOT, GI

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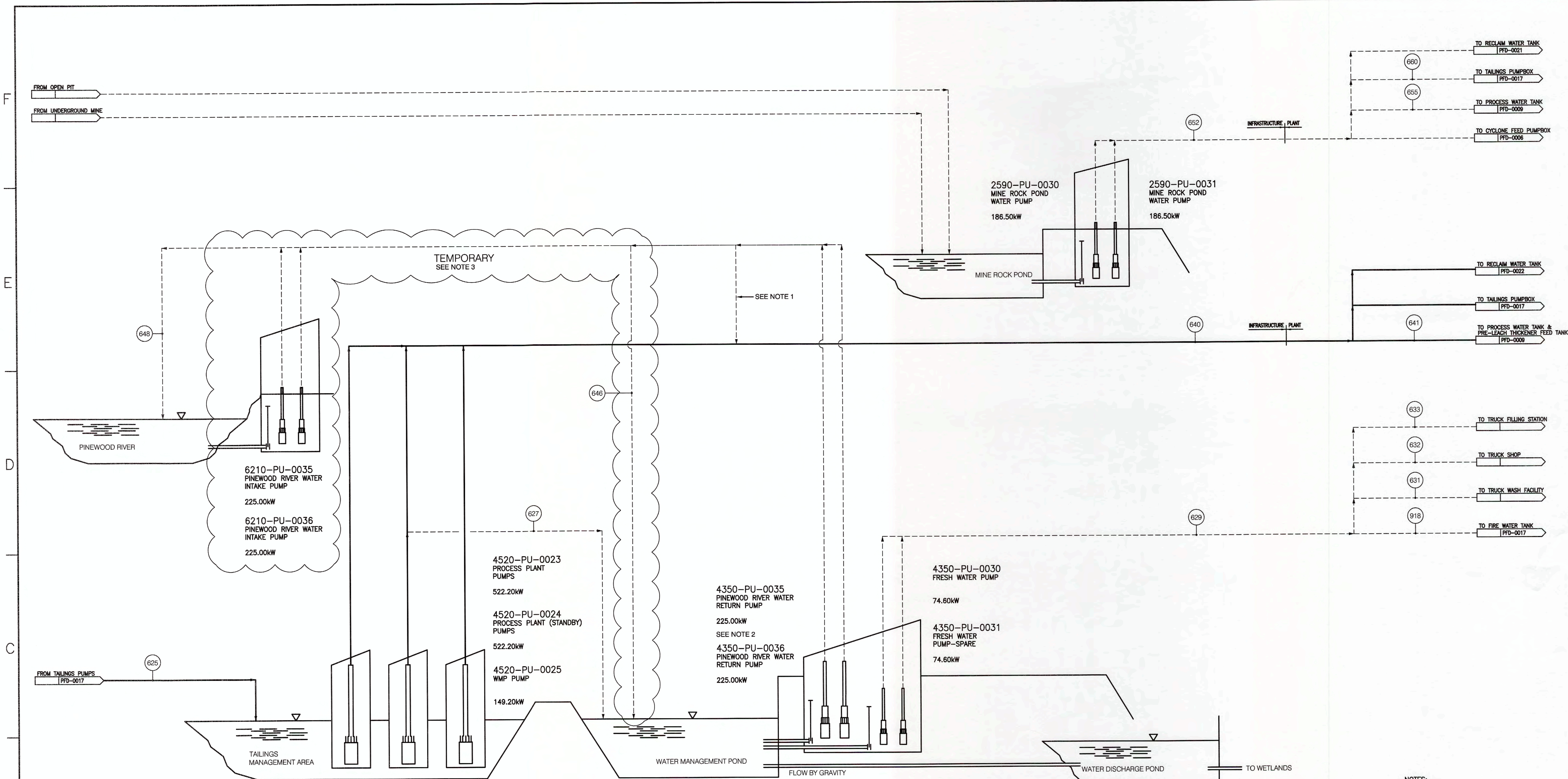


NOTES:

1. FOR START-UP INSTALL PUMP 4520-PU-0023 AT THE DESIGNATED LOCATION OF PUMP 4350-PU-0035 OR 4350-PU-0036.
2. PUMP 4350-PU-0035 AND 4350-PU-0036 ARE RETROFITTED FROM PUMP 6210-PU-0035 AND 6210-PU-0036 PRIOR TO PLANT START-UP.
3. PINEWOOD RIVER WATER PIPELINE TO REMAIN UNCHANGED AFTER TEMPORARY SERVICE.

STREAM NO.			625	627	629	631	632	633	640	641	646	648	652	665	660	918
DESCRIPTION		Units														
NOMINAL	SOLID	TPH	952		0	0	0		0	0			0	0		
	WATER	TPH	1080		160	25	8		1080	0			535	535		
	PULP	TPH	2031		160	25	8		1080	0			535	535		
	PULP FLOW	m³/h	1414		160	25	8		1080	0			535	535		
PULP	PULP DENSITY	% solids	46.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SPECIFIC DENSITY - SOLIDS	t/m³	2.85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SPECIFIC DENSITY - PULP	t/m³	1.44	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
BATCH	OPERATION TIME	hrs/day														
	SOLID	TPH		0.0	0.0	0.0	0.0	0.0			0.0	0.0				0.0
	WATER	TPH		3190	200	31	10	152			1041.7	1458.3			535	119
	PULP FLOW	m³/h		3190	200	31	10	152			1041.7	1458.3			535	119

Pump capacities should be confirmed with the Mechanical Equipment List (100126-3200-DE10-LST-0001) kept on file with New Gold

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
0	22JUN2015	ISSUED FOR USE	SBW	CL	KC	GC		
G	01MAY2015	RE-ISSUED FOR DESIGN	SBW	CL	KC	GC		
F	23MAR2015	RE-ISSED FOR DESIGN	SBW	CL	KC	GC		
E	12DEC2014	RE-ISSUED FOR DESIGN	SBW	CL	KC	GC		
D	15AUG2014	ISSUED FOR DESIGN	SBW	JR	KC	GC		
C	17JUL2014	RE-ISSUED FOR APPROVAL	SBW	JR	KC	GC		
B	04JUL2014	ISSUED FOR APPROVAL	SBW	JR	KC	GC		
A	20MAY2014	ISSUED FOR CLIENT REVIEW/SQUAD CHECK	SBW	JR	KC	GC		

REF	NUMBER	TITLE
REFERENCES		

STAMP/SEAL

NOT TO BE USED FOR CONSTRUCTION

APPROVED FOR

G pp NTA

CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE: RAINY RIVER GOLD PROJECT

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
100126	7000	DES	J.RUST	22MAY14
SCALE	PACKAGE CODE	DRN	SBW	22MAY14
NTS		CHK		
		APP		

newgold
Rainy River Project

amec

SUBJECT: PROCESS
PROCESS FLOW DIAGRAM
WATER RECLAIM SHEET NO.2
21,000 TPD

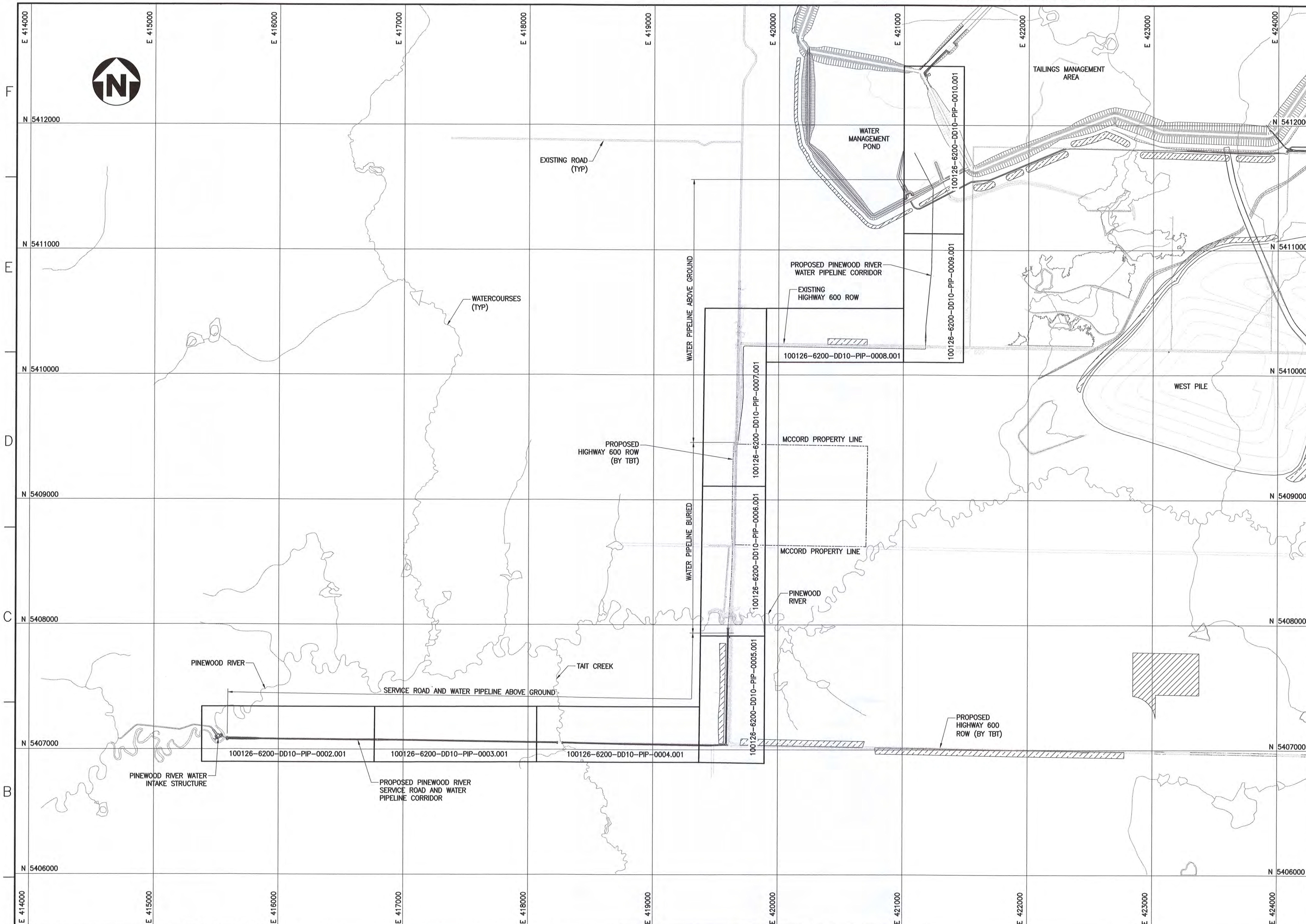
AREA

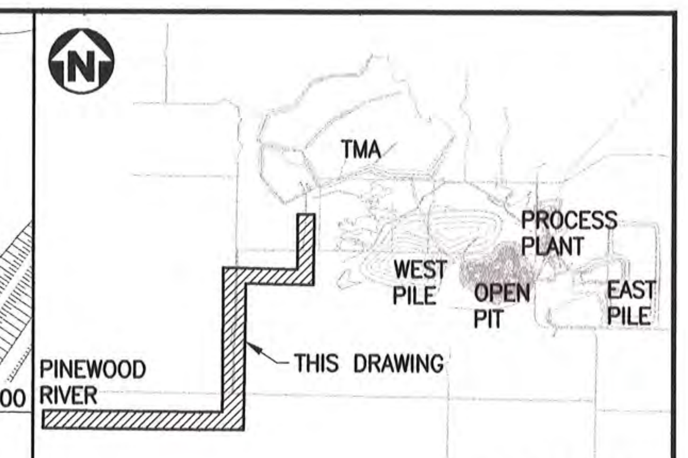
CLIENT DWG. NO.

DRAWING NO. 100126-3200-DC00-PFD-0022.001 REV. 0

SAVED: 23-Jun-15 9:59 AM PLOTTED: 26-Jun-15 4:36 PM USER: BATCHPLOT, GI

CAD FILE: \\EDC01PROJECTS.AMEC.COM\SITES\P00100126\CAD\PFD\100126-3200-DC00-PFD-0022.DWG





KEY PLAN

GENERAL NOTES:

1. GEOGRAPHIC COORDINATE SYSTEM SHOWN IS IN UTM NAD83, ZONE 15.
2. ALL COORDINATES, DIMENSIONS, AND ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
3. TOPOGRAPHIC DATA (LIDAR SURVEY) ARE FROM AERIAL DIGITAL PICTURES AND LASER SURVEY (LIDAR) PROVIDED BY LIDAR SERVICES INTERNATIONAL INC. OCTOBER, 2009. GROUND SURVEY FOR PINEWOOD RIVER WATER PIPELINE & SERVICE ROAD CORRIDOR PROVIDED BY TBT ENGINEERING.
4. CONTOURS ARE AT 1m INTERVALS.
5. TAILINGS, WATERCOURSE DIVERSIONS AND DAMS DRAWINGS PROVIDED BY AMEC E & I.
6. HIGHWAY 600 RELOCATION DRAWINGS PROVIDED BY TBT ENGINEERING.
7. INSTALL 4"ø KNIFE GATE DRAIN VALVES AT LOW POINTS, AND 4"ø CLASS 150 AIR RELEASE/ VACUUM BREAK VALVES AT HIGH POINTS.
8. INSTALL CULVERT-EQUALIZERS OVER SWAMPY TYPE 3 AND TYPE 4 ROAD SECTIONS. CULVERT-EQUALIZERS TO BE SPACED AT 150m (MAX), 2 X 300mmø HDPE AT EACH CROSSING.

LEGEND:

374 LIDAR SURVEY CONTOUR

CULVERT

ABBREVIATIONS:

N	–	NORTHING
E	–	EASTING
m	–	METRE
H	–	HORIZONTAL
V	–	VERTICAL
ø	–	DIAMETER
℄	–	CENTERLINE
"	–	INCH
EL	–	ELEVATION
OD	–	OUTSIDE DIAMETER
HDPE	–	HIGH-DENSITY POLYETHYLENE

0m 150 300 450 600 750

1:15000

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
2	30APR15	PIPELINE CORRIDOR ALIGNMENT REVISED	SW	EM	AV	JJ	MO	
1	20NOV14	RE-ISSUED FOR CONSTRUCTION	SW	JJ	AV	JJ	MO	
0	24SEP14	ISSUED FOR CONSTRUCTION	KT	AB	AV	JJ	MO	
B	28AUG14	ISSUED FOR APPROVAL	AR	AB	AV	JJ	MO	
A	30JUL14	ISSUED FOR SQUAD CHECK/CLIENT REVIEW	AR	AB	AV	JJ	MO	

REFERENCES

REF	NUMBER	TITLE
10	6200-DD10-PIP-0010.001	ROAD PLAN AND PROFILE STA 9+300 TO 10+300
9	6200-DD10-PIP-0009.001	ROAD PLAN AND PROFILE STA 8+460 TO 9+300
8	6200-DD10-PIP-0008.001	ROAD PLAN AND PROFILE STA 7+180 TO 8+460
7	6200-DD10-PIP-0007.001	ROAD PLAN AND PROFILE STA 6+400 TO 7+180
6	6200-DD10-PIP-0006.001	ROAD PLAN AND PROFILE STA 5+120 TO 6+400
5	6200-DD10-PIP-0005.001	ROAD PLAN AND PROFILE STA 3+840 TO 5+120
4	6200-DD10-PIP-0004.001	ROAD PLAN AND PROFILE STA 2+560 TO 3+840
3	6200-DD10-PIP-0003.001	ROAD PLAN AND PROFILE STA 1+280 TO 2+560
2	6200-DD10-PIP-0002.001	ROAD PLAN AND PROFILE STA 0+000 TO 1+280
1	2000-DD10-PLN-0001.001	GENERAL SITE PLAN

STAMP/SEAL

LICENSED PROFESSIONAL ENGINEER J. E. J. JACKSON PROVINCE OF ONTARIO

APPROVED FOR CONSTRUCTION

CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE: EPCM

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
100126		DES	AV	30JUL14
		DRN	AR	30JUL14
SCALE	PACKAGE CODE	CHK	AB	30JUL14
1:15000		APP	JJ	30JUL14

newgold™ Rainy River Project

SUBJECT: RAINY RIVER PROJECT PINEWOOD RIVER WATER INTAKE PIPELINE KEY PLAN

amec

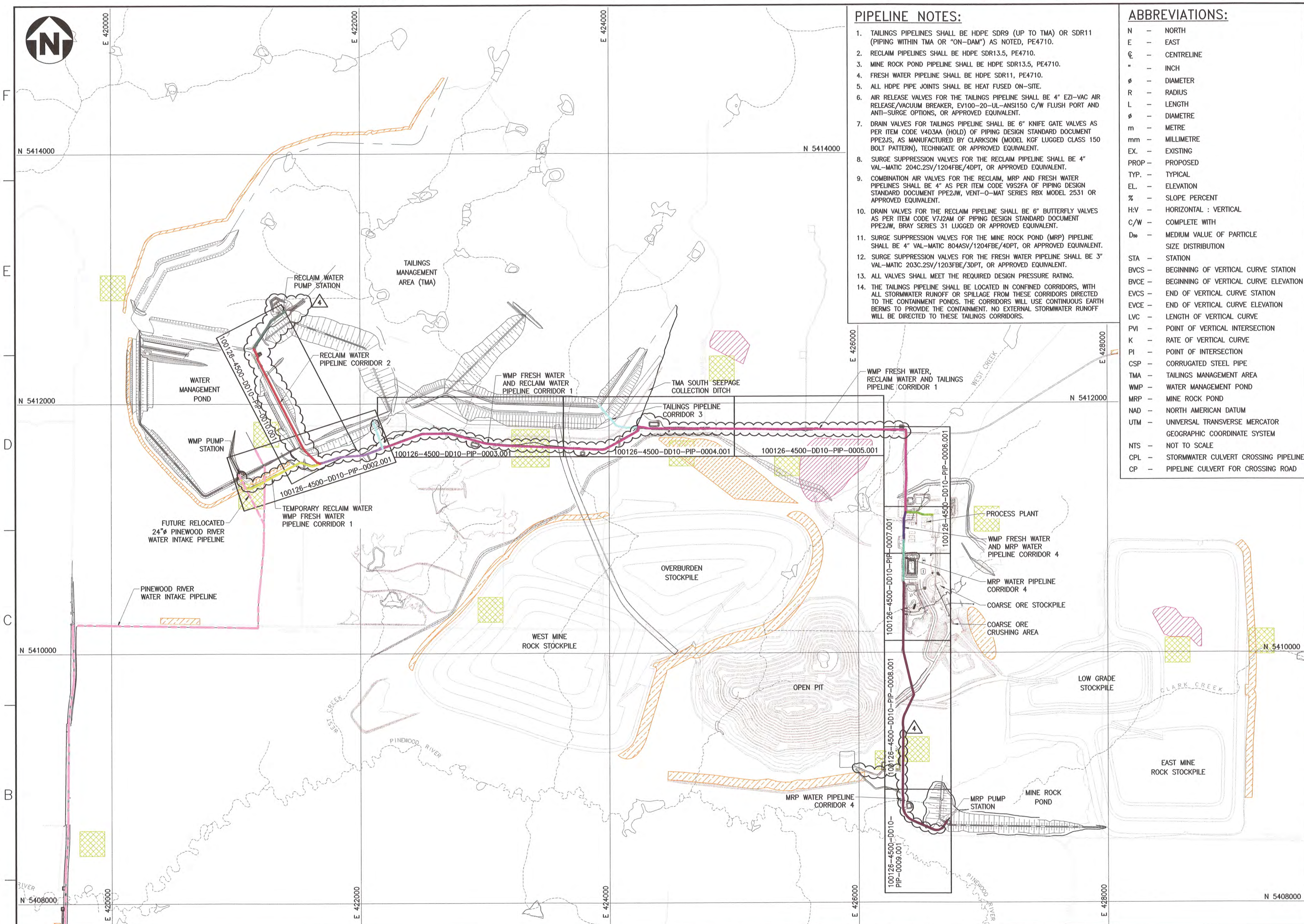
AREA: 6200

CLIENT DWG. NO.

DRAWING NO.: 100126-6200-DD10-PIP-0001.001 REV. 2

CAD FILE: P:\CAD\CIVIL\DWG\100126-6200-DD10-PIP-0001.001.DWG

SAVED: 29-Apr-15 4:31 PM PLOTTED: 29-Apr-15 5:13 PM USER: WENG, SOPHIA

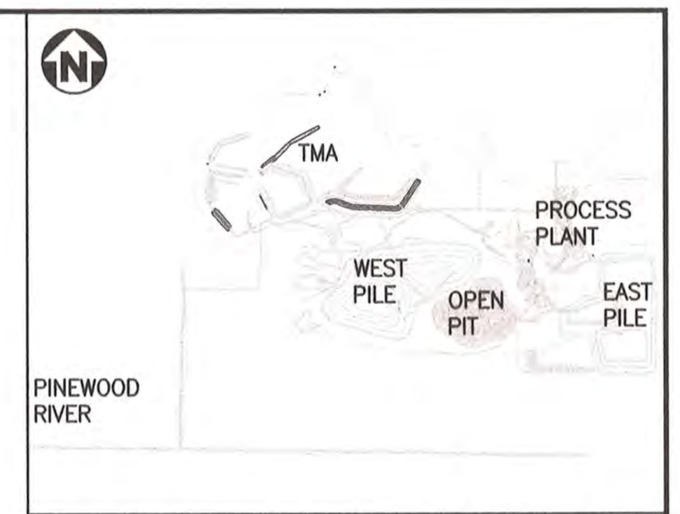


PIPELINE NOTES:

1. TAILINGS PIPELINES SHALL BE HDPE SDR9 (UP TO TMA) OR SDR11 (PIPING WITHIN TMA OR "ON-DAM") AS NOTED, PE4710.
2. RECLAIM PIPELINES SHALL BE HDPE SDR13.5, PE4710.
3. MINE ROCK POND PIPELINE SHALL BE HDPE SDR13.5, PE4710.
4. FRESH WATER PIPELINE SHALL BE HDPE SDR11, PE4710.
5. ALL HDPE PIPE JOINTS SHALL BE HEAT FUSED ON-SITE.
6. AIR RELEASE VALVES FOR THE TAILINGS PIPELINE SHALL BE 4" EZI-VAC AIR RELEASE/VACUUM BREAKER, EV100-20-UL-ANSI150 C/W FLUSH PORT AND ANTI-SURGE OPTIONS, OR APPROVED EQUIVALENT.
7. DRAIN VALVES FOR TAILINGS PIPELINE SHALL BE 6" KNIFE GATE VALVES AS PER ITEM CODE V4D3AA (HOLD) OF PIPING DESIGN STANDARD DOCUMENT PPE2JS, AS MANUFACTURED BY CLARKSON (MODEL KGF LUGGED CLASS 150 BOLT PATTERN), TECHNIGATE OR APPROVED EQUIVALENT.
8. SURGE SUPPRESSION VALVES FOR THE RECLAIM PIPELINE SHALL BE 4" VAL-MATIC 204C.2SV/1204FBE/4DPT, OR APPROVED EQUIVALENT.
9. COMBINATION AIR VALVES FOR THE RECLAIM, MRP AND FRESH WATER PIPELINES SHALL BE 4" AS PER ITEM CODE V9S2FA OF PIPING DESIGN STANDARD DOCUMENT PPE2JW, VENT-O-MAT SERIES RBX MODEL 2531 OR APPROVED EQUIVALENT.
10. DRAIN VALVES FOR THE RECLAIM PIPELINE SHALL BE 6" BUTTERFLY VALVES AS PER ITEM CODE V7J2AM OF PIPING DESIGN STANDARD DOCUMENT PPE2JW, BRAY SERIES 31 LUGGED OR APPROVED EQUIVALENT.
11. SURGE SUPPRESSION VALVES FOR THE MINE ROCK POND (MRP) PIPELINE SHALL BE 4" VAL-MATIC 804ASV/1204FBE/4DPT, OR APPROVED EQUIVALENT.
12. SURGE SUPPRESSION VALVES FOR THE FRESH WATER PIPELINE SHALL BE 3" VAL-MATIC 203C.2SV/1203FBE/3DPT, OR APPROVED EQUIVALENT.
13. ALL VALVES SHALL MEET THE REQUIRED DESIGN PRESSURE RATING.
14. THE TAILINGS PIPELINE SHALL BE LOCATED IN CONFINED CORRIDORS, WITH ALL STORMWATER RUNOFF OR SPILLAGE FROM THESE CORRIDORS DIRECTED TO THE CONTAINMENT PONDS. THE CORRIDORS WILL USE CONTINUOUS EARTH BERMS TO PROVIDE THE CONTAINMENT. NO EXTERNAL STORMWATER RUNOFF WILL BE DIRECTED TO THESE TAILINGS CORRIDORS.

ABBREVIATIONS:

N	–	NORTH
E	–	EAST
℄	–	CENTRELINE
"	–	INCH
ø	–	DIAMETER
R	–	RADIUS
L	–	LENGTH
ø	–	DIAMETE
m	–	METRE
mm	–	MILLIMETRE
EX.	–	EXISTING
PROP	–	PROPOSED
TYP.	–	TYPICAL
EL.	–	ELEVATION
%	–	SLOPE PERCENT
H:V	–	HORIZONTAL : VERTICAL
C/W	–	COMPLETE WITH
D_{50}	–	MEDIUM VALUE OF PARTICLE SIZE DISTRIBUTION
STA	–	STATION
BVCS	–	BEGINNING OF VERTICAL CURVE STATION
BVCE	–	BEGINNING OF VERTICAL CURVE ELEVATION
EVCS	–	END OF VERTICAL CURVE STATION
EVCE	–	END OF VERTICAL CURVE ELEVATION
LVC	–	LENGTH OF VERTICAL CURVE
PVI	–	POINT OF VERTICAL INTERSECTION
K	–	RATE OF VERTICAL CURVE
PI	–	POINT OF INTERSECTION
CSP	–	CORRUGATED STEEL PIPE
TMA	–	TAILINGS MANAGEMENT AREA
WMP	–	WATER MANAGEMENT POND
MRP	–	MINE ROCK POND
NAD	–	NORTH AMERICAN DATUM
UTM	–	UNIVERSAL TRANSVERSE MERCATOR GEOGRAPHIC COORDINATE SYSTEM
NTS	–	NOT TO SCALE
CPL	–	STORMWATER CULVERT CROSSING PIPELINE
CP	–	PIPELINE CULVERT FOR CROSSING ROAD



KEY PLAN SCALE: NTS

GENERAL NOTES:

1. GEOGRAPHIC COORDINATE SYSTEM SHOWN IS IN UTM NAD83, ZONE 15.
2. ALL COORDINATES, DIMENSIONS, AND ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
3. TOPOGRAPHIC DATA (GROUND SURVEY) ARE FROM TBT ENGINEERING CONSULTING GROUP, REF. DWG. PLANT SITE TOPO 13251-1-0001, DATED DEC. 9, 2013.
4. TOPOGRAPHIC DATA (LIDAR SURVEY) ARE FROM AERIAL DIGITAL PICTURES AND LASER SURVEY (LIDAR) PROVIDED BY LIDAR SERVICES INTERNATIONAL INC. OCTOBER, 2009.
5. FOR GEOTECHNICAL INFORMATION REFER TO: GEOTECHNICAL DESIGN RECOMMENDATIONS REPORT 3098004-003000-A1-ETR-0001-00 BY AMEC ENVIRONMENT AND INFRASTRUCTURE, DATED JULY 2014.

LEGEND:

- QUARRIES
- TOPSOIL STOCKPILES
- LAYDOWN AREAS
- 24"ø TEMPORARY RECLAIM WATER PIPELINE (ABOVE GROUND) 10"ø WMP FRESH WATER PIPELINE (UNDERGROUND)
- 24"ø RECLAIM WATER PIPELINE (ABOVE GROUND) 10"ø WMP FRESH WATER PIPELINE (UNDERGROUND)
- 24"ø RECLAIM WATER PIPELINE (ABOVE GROUND) 24"ø TAILINGS PIPELINE (ABOVE GROUND) 10"ø WMP FRESH WATER PIPELINE (UNDERGROUND)
- 24"ø RECLAIM WATER PIPELINE (ABOVE GROUND) 24"ø TAILINGS PIPELINE (ABOVE GROUND) 20"ø MRP WATER PIPELINE (ABOVE GROUND)
- 24"ø RECLAIM WATER PIPELINE (ABOVE GROUND)
- 24"ø TAILINGS PIPELINE (ABOVE GROUND)
- 10"ø WMP FRESH WATER PIPELINE (UNDERGROUND) 20"ø MRP WATER PIPELINE (UNDERGROUND)
- 20"ø MRP WATER PIPELINE (UNDERGROUND)
- 20"ø MRP WATER PIPELINE (ABOVE GROUND)
- 2 x 24"ø RECLAIM WATER PIPELINE (ABOVE GROUND) 30" TMA-WMP RECLAIM WATER PIPELINE (ABOVE GROUND)
- 24"ø PINEWOOD RIVER WATER INTAKE PIPELINE

0m 150 300 450 600 750
1:15000

REV	DDMMMYY	REVISION / ISSUE DESCRIPTION	DRN	CHK	APP	APP	APP	APP
4	15MAY17	RE-ISSUED FOR CONSTRUCTION	AR	JJ	KK			
3	29APR16	PIPELINE CORRIDOR 1 RE-ALIGNMENT	AR	JJ	GC			
2	22OCT15	SOUTH RUNOFF POND REVISED	AR	JJ	GC			
1	05JUN15	RE-ISSUED FOR CONSTRUCTION	AR	SW	JJ	GC		
0	13FEB15	ISSUED FOR CONSTRUCTION	SW	LA	AV	JJ	MO	
A	19NOV14	ISSUED FOR SQUAD CHECK/CLIENT REVIEW	AR	JJ	AV	JJ	MO	

REF	NUMBER	TITLE
11	6200-DD10-PIP-0001.001	PINEWOOD RIVER WATER INTAKE PIPELINE
10	4500-DD10-PIP-0010.001	PLAN & PROFILE
9	4500-DD10-PIP-0009.001	PLAN & PROFILE
8	4500-DD10-PIP-0008.001	PLAN & PROFILE
7	4500-DD10-PIP-0007.001	PLAN & PROFILE
6	4500-DD10-PIP-0006.001	PLAN & PROFILE
5	4500-DD10-PIP-0005.001	PLAN & PROFILE
4	4500-DD10-PIP-0004.001	PLAN & PROFILE
3	4500-DD10-PIP-0003.001	PLAN & PROFILE
2	4500-DD10-PIP-0002.001	PLAN & PROFILE
1	2000-DD10-PLN-0001.001	GENERAL SITE PLAN

STAMP/SEAL

LICENSED PROFESSIONAL ENGINEER J. K. J. JACKSON 5/17/17 PROVINCE OF ONTARIO

APPROVED FOR CONSTRUCTION

CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.

PROJECT PHASE: EPCM

PROJECT NO.	ACTIVITY NO.		BY	DDMMMYY
100126		DES	AV	19NOV14
		DRN	AR	19NOV14
SCALE	PACKAGE CODE	CHK	JJ	19NOV14
1:15000		APP	JJ	19NOV14

newgold
Rainy River Project

SUBJECT: RAINY RIVER PROJECT TAILINGS & RECLAIM WATER PIPELINES KEY PLAN

amec

AREA: 4500
CLIENT DWG. NO.
DRAWING NO. 100126-4500-DD10-PIP-0001.001 REV. 4

SAVED: 15-May-17 10:37 AM PLOTTED: 15-May-17 10:48 AM USER: RODRIGUEZ, ACHILLES

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newgold™

APPENDIX C

NEW GOLD TAILINGS, HEAP LEACH AND WASTE ROCK FACILITIES MANAGEMENT POLICY

newgold

Tailings, Heap Leach and Waste Rock Facilities Management Policy

New Gold Inc. and its subsidiaries (together "**New Gold**") are committed to excellence in the management of tailings, heap leach and waste rock storage facilities. We will accomplish this by adopting internationally recognized standards including the Mining Association of Canada's *Towards Sustainable Mining* Tailings Management protocol wherever applicable.

New Gold makes the following commitments at all of its operations and projects:

- Identifying, assessing and controlling risks associated with tailings, heap leach and waste rock storage facilities.
- Ensuring that all aspects of our tailings, heap leach and waste rock storage facilities comply with regulatory requirements, sound engineering practice and company standards through regular inspection, program review and external audit.
- Locating, designing, constructing, operating, decommissioning and closing our tailings, heap leach and waste rock storage facilities so that all structures are stable and that all solids and water within the designated areas are managed to minimize or prevent possible pollution.
- Training our employees to enable them to carry out their responsibilities with regard to tailings, heap leach and waste rock storage facilities management.
- Communicating with Communities of Interest in order to take into account their concerns and considerations with regard to tailings, heap leach and waste rock storage.

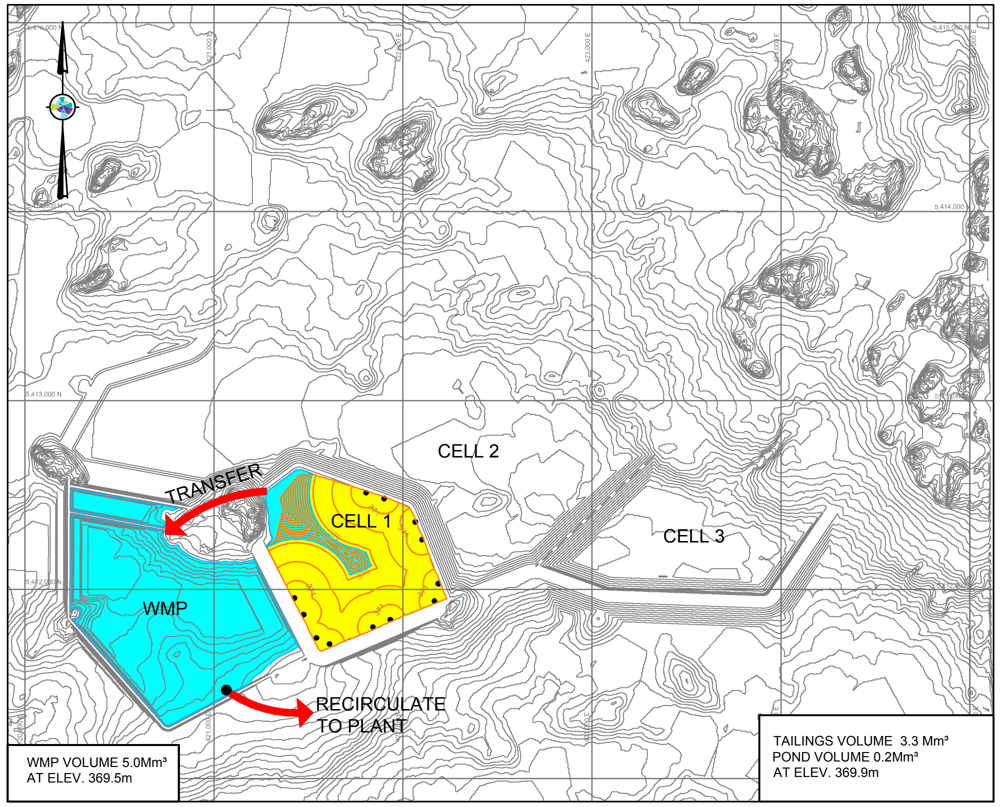
New Gold believes that by adopting these commitments, the safe storage of tailings, ore and waste rock will be achieved and future Communities of Interest will not be adversely impacted by their existence.

Hannes Portmann
President and CEO

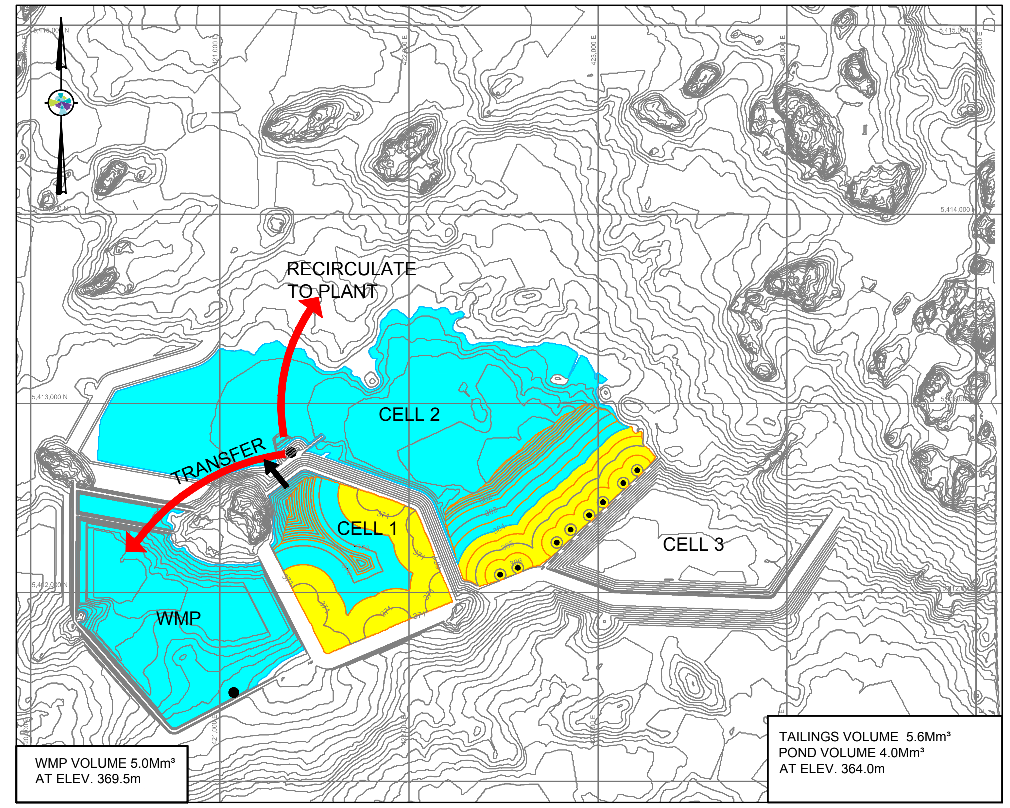
newgold™

APPENDIX D

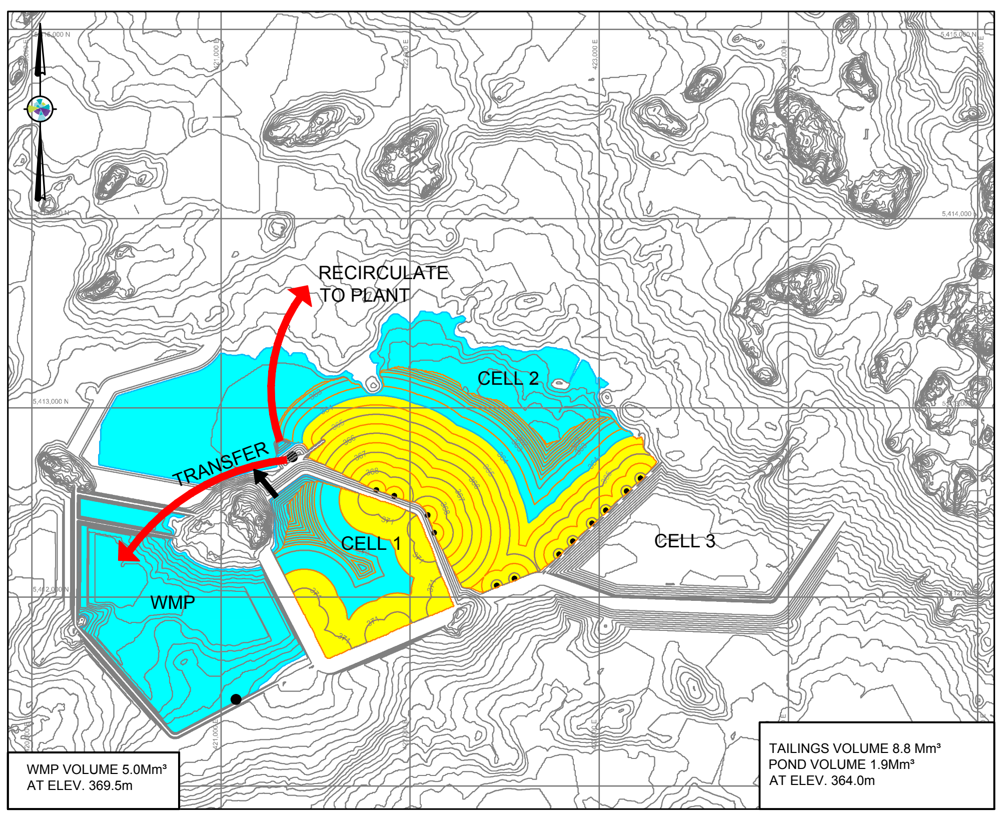
TAILINGS DEPOSITION PLAN



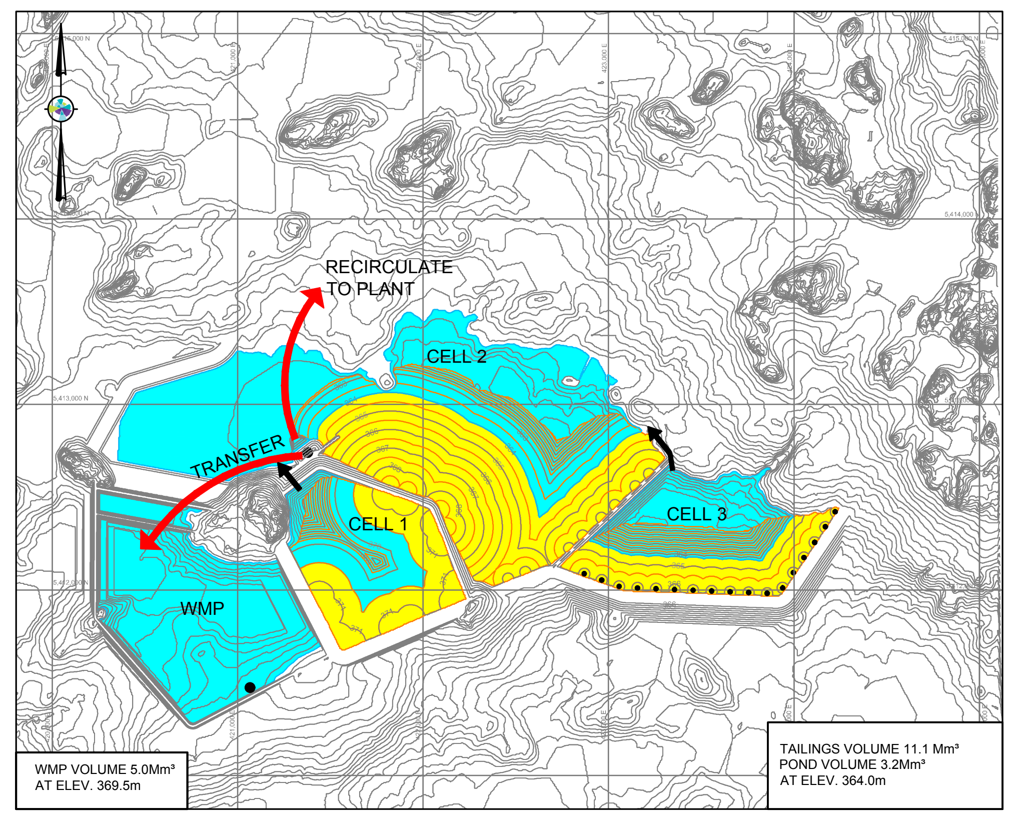
A) TAILINGS DEPOSITION PLAN CELL 1 - 6 MONTHS



B) TAILINGS DEPOSITION PLAN CELL 2 - 11 MONTHS



C) TAILINGS DEPOSITION PLAN CELL 2 - 18 MONTHS



D) TAILINGS DEPOSITION PLAN CELL 3 - 23 MONTHS

NOTES:

1. RECIRCULATION TO THE PROCESSING PLANT VIA FIXED PUMPING STATION.
2. EXCESS WATER WILL BE TRANSFERRED TO THE WATER MANAGEMENT POND ANNUALLY BY PUMPING.
3. THE NORMAL POND VOLUME WILL FLUCTUATE SEASONALLY.

ASSUMED TAILINGS DEPOSITION PERAMETERS

- CELL 1:
- BEACH SLOPE ABOVE POND - 0.5%
- SLOPE BELOW POND - 4%
- TAILINGS DRY DENSITY - 1.1 t/m³

- CELL 2 AND CELL 3:
- BEACH SLOPE ABOVE POND - 1%
- SLOPE BELOW POND - 4%
- TAILINGS DRY DENSITY - 1.41 t/m³

- TAILINGS PRODUCTION: 21,000 t/day

LEGEND:

- DEPOSITED TAILINGS
- POND
- PUMPING STATION (WET WELLS)
- TAILING SPIGOTS
- OVERFLOW SPILLWAY

0 0.5 1 2Km
SCALE

CLIENT LOGO: newgold Rainy River Project	CLIENT: NEW GOLD INC.	DWN BY: SC	COMPANY LOGO: amec foster wheeler	PROJECT: RAINY RIVER PROJECT DETAILED DESIGN	DATE: APRIL 2017
		CHK'D BY: DR			PROJECT NO: TC150321
	Amec Foster Wheeler Environment & Infrastructure 160 Traders Boulevard East Mississauga, Ontario, Canada L4Z 3K7	DATUM: NAD 83		TITLE: TAILINGS DEPOSITION PLAN	REV. NO.: A
		PROJECTION: UTM			FIGURE No. 3
		SCALE: AS SHOWN			

P:\2015\Projects\TC150321_New Gold_ Dam&Site_Eng\11_CAD\03_FIGURES\05-TMA TAILINGD DEPO CELL 1,2,3\TMA TAILINGS DEPO PLAN.dwg - Layout1 - Apr. 27, 2017 10:51am - svetlana.cronkhite

APPENDIX E

PROCESS WATER BALANCE OVERVIEW

Memorandum

Date: April 28, 2017

To: Design Brief – Appendix A

From: Norman Schwartz

Ref: TC150321.10000B

Re: **Rainy River Project Development**
TMA Cell 2 and WMP Water Balance
RRP-GEO-REP-026 R1

ISSUED FOR USE

1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, a Division of Amec Foster Wheeler Americas Limited (Amec Foster Wheeler) was retained by New Gold Inc. (New Gold) to provide engineering services to prepare the detailed design of an internal tailings depositional cell (TMA Cell 2) located within the footprint on the ultimate Tailings Management Area (TMA) at the Rainy River Project near Fort Frances, Ontario. This includes preparing a water balance for TMA Cell 2 to evaluate water availability, water storage capacity and requirements for tailings deposition in TMA Cell 2. This memorandum presents the input data, calculations, operational and design considerations and results for the water balance.

2.0 DESIGN BASIS

• Commissioning Begins	September 14, 2017
• Commercial Production	October 31, 2017
• Assumed Production	October 1, 2017 (for water balance analysis)

Mine Production

• Start Date	October 2017 (into TMA Cell 1)
• Production Rate	21,000 t/day

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited
160 Traders Blvd. E., Suite 110
Mississauga, Ontario, L4Z 3K7
Tel: (905) 568-2929
Fax: (905) 568-1686
amecfw.com

Tailings Properties

• Solids content of slurry	46.9 % solids by mass
• Specific gravity of solid tailings particles	2.82
• Void ratio of deposited tailings	1.0
• Tailings water content at saturation	35.5%
• Dry density of settled tailings	1.41 t/m^3

TMA Cell 2

• Design capacity	12 months
• Dam crest elevation	366.5 m
• Spillway invert elevation	364.7 m
• Minimum operational pond volume	500,000 m^3 (for settling of solids)
• Slope of tailings beach and pond	1.0% and 4%
• Tailings slurry inflow rate	23,776 m^3/day
• Reclaim rate to mill	23,556 m^3/day
• Tailings pore water losses	7,447 m^3/day
• TMA Cell 2 begins impounding runoff	April 2018
• Initial TMA Cell 2 water level	357.00 m (0 m^3 of storage)
• Tailings deposition begins	April 2018
• Reclaim from TMA Cell 2 begins	After WMP volume is less than 1.0 Mm^3
• TMA Cell 2 to WMP transfer rate (treat)	40,000 m^3/day
• TMA Cell 2 to TMA Cell 3 transfer rate	40,000 m^3/day

TMA Cell 3

• Cell 3 begins impounding runoff	June 2018
• Cell 3 is available for pumping from Cell 2	July 2018
• Cell 3 Dam attains full storage capacity	September 2018

WMP

• Dam crest elevation	371.5 m
• Spillway invert elevation	370.5 m
• Maximum allowable water level	369.5 m (5.0 Mm^3 of storage)
• Initial WMP water level	365.10 m (2.0 Mm^3 of storage)
• Reclaim rate to mill	23,556 m^3/day (starting April 1, 2018)
• Reclaim from WMP	Until WMP volume < 1.0 Mm^3

Note: All dates provided in design basis are the first of the month

3.0 DESIGN CRITERIA

This water balance evaluation was completed to determine operating rules for TMA Cell 2 and the WMP during the operating life of TMA Cell 2 (April 2018 – April 2019). The water balance was used to evaluate and determine the necessary conditions so that sufficient water inventory will be available for processing plant operation in the winter of 2018, and so that adequate storage will be provided below the spillway invert to contain the Environmental Design Flood (EDF). The water balance evaluation was carried out for average, 1:20 wet and 1:20 dry climatic and streamflow conditions.

Water contained in the WMP needs to be of a suitable quality for discharge to the environment. During the initial 6 months of operation, the WMP will receive tailings-contact water from TMA Cell 1 (operating months: 1 October 2017 to 31 March 2018), with a projected water inventory of 2 Mm^3 (1.0 Mm^3 of free water and 1.0 Mm^3 as ice) at the end of this period. At the start of TMA Cell 2 operation (April 2018), TMA Cell 2 is expected to fill quickly due to the typically high runoff in April, May and June. To manage the increase in TMA Cell 2 water volume, it is proposed to transfer water from TMA Cell 2 to the WMP in this period, which will increase the WMP volume. In addition, it is planned to pump from the Pinewood River (to the extent permitted) to increase the WMP inventory as a contingency against possible dry conditions in summer or fall. The WMP will be maintained below its maximum operating water level (MOWL) by reclaiming water from it to the processing plant during the first few months of TMA Cell 2 operation. During the drawdown of the WMP, storage in TMA Cell 3 will become available to transfer TMA Cell 2 excess water. Once the Water Treatment Plant (WTP) becomes available it will be used to treat and transfer excess water from TMA Cell 2 to the WMP. From that point on, there will be blending of untreated residual effluent (minimized to the extent possible) with treated TMA Cell 2 effluent in the WMP.

In order to provide the system with sufficient flexibility to discharge to the environment in the spring of 2019, the WTP should be available in September 2018 to treat water entering the WMP from TMA Cell 2. Delaying startup of the WTP could result in filling both TMA Cell 2 and the WMP with untreated water, which is not recommended due to the project risk of discharging out of compliance water if high runoff events occur with both ponds nearly full. A flow schematic for site water management is provided in Figure 1.

4.0 AVAILABLE STORAGE

Capacity for water storage in the TMA Cell 2 will reduce during the 12-month period with progressive tailings deposition. Stage-storage curves for end of month 2, month 6, and month 12 were developed based on tailings deposition modelling. For intermediate months, stage-storage curves were interpolated for use in the water balance. The stage-storage relationships for the TMA Cell 2 and WMP are provided in Figures 2 and 3, respectively.

New Gold has indicated that TMA Cell 3 will be completed and available to impound water on June 1, 2018. For the purposes of this water balance analysis, it has been assumed that TMA Cell 3 storage will become available progressively between June 1 and September 1, 2018.

5.0 METEOROLOGICAL DATA

Site runoff is represented in the water balance based on mean annual precipitation of 694.8 mm. Annual precipitation was re-distributed using the monthly distribution of streamflow from the Pinewood River to account for snowmelt (distribution based on WSC gauge 05PC023). Return period estimates for the 1:20 wet and dry years were generated using the Gumbel double exponential distribution for annual extremes. Mean annual pond evaporation is 538 mm. The meteorological data used for the water balance are listed in Table 1.

Table 1: Mean Annual Meteorological Data

Month	Average Year Available Precipitation (mm)[1]	1:20 Wet Year Available Precipitation (mm)[2]	1:20 Dry Year Available Precipitation (mm)[2]	Pond Evaporation (mm)[1]
Jan	4.51	6.20	2.66	0
Feb	2.72	3.75	1.60	0
Mar	61.12	84.01	35.99	0
Apr	221.10	303.92	130.20	0
May	117.31	161.25	69.08	109
Jun	118.97	163.54	70.06	110
Jul	59.29	81.49	34.91	129
Aug	8.16	11.22	4.81	104
Sep	20.41	28.05	12.02	63
Oct	34.89	47.96	20.55	23
Nov	38.37	52.75	22.60	0
Dec	7.95	10.93	4.68	0
Year	694.8	955.1	409.2	538

Notes:

1. Reference: Precipitation was distributed according to average streamflow at Pinewood River WSC gauge 05PC023 in order to simulate runoff
2. 1:20 wet year and 1:20 dry year estimates are based on Barwick, Ontario climate data from Environment Canada and were derived using the Gumbel double exponential distribution for annual extremes.

6.0 HYDROLOGY

Runoff was calculated as the product of monthly precipitation, catchment area, and runoff coefficient. The catchment areas and runoff coefficients used are provided in Table 2. Runoff from the open pit and Mine Rock Pond (MRP) areas were assumed to be pumped to TMA Cell 2. Runoff from the Start-Up Cell (TMA Cell 1) will passively overflow to TMA Cell 2.

Table 2: Hydrologic Parameters for Water Balance

Parameter	TMA Cell 1	TMA Cell 2	TMA Cell 3	WMP	Open Pit	Mine Rock Pond
Area (km^2)	0.68	8.22	2.11	1.11	3.17	5.34
Runoff Coefficient	99.2%	54.0%	53.5%	83.6%	44.5%	45.8%

Runoff coefficients for the water balance are the same as those utilized in the detailed design water balance (AMEC, 2014). The MRP drainage area has a pond area of approximately 0.66 km^2, and the remaining area was assumed to be 75% natural ground cover and 25% waste rock. The open pit area (including upstream catchment area) of 3.17 km^2 consists of 0.54 km^2 is open pit (Phase 1 open pit area) and the remainder natural ground cover. A constant seepage inflow of 3,000 m^3/day has been assumed as groundwater inflow into the open pit (ultimately pumped to TMA Cell 2).

7.0 INITIAL CONDITIONS

TMA Cell 2 is assumed to be empty April 1, 2018 and to begin impounding water immediately. The WMP is expected to have approximately 2.0 Mm^3 of water on April 1, 2018 based on the pre-winter inventory calculation from the TMA Cell 1 water balance (Amec Foster Wheeler, 2016b). The pre-winter inventory was the minimum amount of water required to run the mill through the winter of 2017/2018. TMA Cell 3 is assumed to be empty June 1, 2018 and to begin impounding runoff immediately.

8.0 PUMPING FROM PINEWOOD RIVER

Depending on the volume stored in the WMP on April 1, 2018, it may be advisable to pump water from the Pinewood River to the WMP to build inventory for processing needs to offset a possible shortfall in the event of dry conditions later in the year. This water balance assessment indicates that pumping from the Pinewood River is recommended if the total water volume in the WMP and TMA Cell 2 is below 4 Mm^3. The pumped volume was estimated based on the following rules which reflect PTTW water taking restrictions and the Pinewood River pumphouse capacity (Amec Foster Wheeler, 2016a):

- Water taking from the Pinewood River is restricted to not more than 20% of the river flow from the period of March 1 through July 31, and to not more than 15% of the river flow for the period from August 1 through November 30, as measured at the Pinewood River pumphouse location;

- Pinewood River water takings must take into consideration watershed capture at the Mine site (i.e., water captured at the Mine site is to be considered as part of the 20%/15% Pinewood River water taking);

- Additional to the 20%/15% water taking restrictions, direct water taking from the Pinewood River is not to reduce downstream flows in the river to a value of <10,000 m^3/d during the spring period, or to less than 5,000 m^3/d during the summer/fall period;

- No water is to be directly taken from the Pinewood River during the winter period (December 1 to February 28); and

- The Pinewood River pumphouse capacity is restricted (by the equipment) to approximately 25,000 m^3/d.

The simulated pumped flows from the Pinewood River are provided in Table 3.

Table 3: Available Water Takings from Pinewood River to WMP

Month	Average Year (1984)	Wet Year (1992)	Dry Year (1987)
	m^3/month	m^3/month	m^3/month
Apr-2018	750,000	750,000	107,932
May-2018	0	0	317,708
Jun-2018	0	0	190,393
Jul-2018	0	0	-
Aug-2018	0	0	-
Sep-2018	0	0	17,683
Oct-2018	483,386	0	15,652
Total	1,233,386	750,000	633,716

Notes:
- Volume of water pumped from the Pinewood River may vary depending on wet or dry conditions for precipitation
- Pumping from Pinewood River only occurs if volume in TMA Cell 2 and WMP is less than 4.0 Mm^3

9.0 MILL RECLAIM

During the initial months of TMA Cell 2 tailings deposition starting on April 1, 2018, mill reclaim will be taken from the WMP (similar to during TMA Cell 1 deposition, where all reclaim was taken from the WMP). Reclaiming from the WMP will continue until the WMP volume is reduced to below 1.0 Mm^3 in order to help build an initial pond inventory in TMA Cell 2, and will also help extract tailings-contact water from WMP to the extent possible. After the WMP volume is reduced to below 1.0 Mm^3, mill reclaim will be shifted to TMA Cell 2 to limit the TMA Cell 2 tailings pond volume as tailings deposition continues to reduce available storage.

10.0 WATER TREATMENT

During the initial stages of tailings deposition in TMA Cell 2 there will be no discharge from the WMP since water quality is not anticipated to be acceptable for release to the environment (note that during tailings deposition in TMA Cell 1, all reclaim was taken from the WMP for this reason). Once reclaim is shifted to TMA Cell 2, the WMP should have a relatively small volume; however water quality will still not be suitable for discharge to the environment, and water treatment will be necessary prior to discharge (either through bleed flow to the wetland, or through the effluent pipeline to the Pinewood River).

The proposed Water Treatment Plant (WTP) will be located within the WMP and will provide treatment as water is transferred from TMA Cell 2 to the WMP (for ultimate discharge to the environment). The proposed WTP is designed to operate at 40,000 m^3/day for 6 months of the year (AMEC, 2014). The timing on the need for water treatment will vary depending on the climactic conditions of 2018, however it is expected to be required by November 1, 2018 if precipitation is above average. As a contingency to deal with the possibility of significant wet conditions, it is recommended that the WTP be operational by September 1, 2018. This accounts for the use of storage in TMA Cell 3 which will delay the need for the treatment plant from the early summer of 2018 to the fall of 2018. The treatment plant is needed due to TMA Cell 2 having a relatively limited storage volume combined with its large catchment area (almost as large as the ultimate TMA). Once the treatment plant is operational, the water management strategy for the TMA would be similar to the original design (TMA transfer to WMP in the summer, and WMP discharge to the environment in the spring and fall).

11.0 EFFLUENT DISCHARGE

Following the commissioning of the WTP, water in the WMP will be suitable for discharge to the environment, provided that no discharge occur until the WMP fills to a volume of approximately 5.0 Mm^3 to provide sufficient dilution of its remaining 1Mm^3 of tailings contact water with treated water. During a wet year it would be necessary to pump water from the WMP to the Pinewood River in the spring of 2019 (following the duration of this simulation). The timing of the commissioning of the WTP in the fall of 2018 is critical to ensuring that the water in the WMP is of sufficient quality for discharge to the Pinewood River.

12.0 RESULTS

The following results of the water balance evaluation are based on TMA Cell 3 being available for water storage by June 1, 2018, and the WTP being available by September 1, 2018. In this evaluation, all pumped withdrawals from TMA Cell 2 (whether to the WMP, to the WTP, or to TMA Cell 3) are assumed to be at a rate of 40,000 m^3/day. The timing of these withdrawals should be determined based on the storage available in TMA Cell 2, TMA Cell 3 and the WMP (further details are provided in Section 14 below).

Table 4 provides a summary of the cumulative water inputs to the TMA during TMA Cell 2 operation. This is the net inflow (i.e. inflow minus outflow) on a cumulative basis, representing the total water in the system that requires storage (or discharge).

Table 4: Cumulative Net Water Inputs to TMA during TMA Cell 2 Operation

End of Month	Cumulative Inputs - Average Year	Cumulative Inputs - 1:20 Wet	Cumulative Inputs - 1:20 Dry
April 2018	2,000,000	2,000,000	2,000,000
May 2018	4,737,729	5,535,560	3,220,060
June 2018	5,374,749	6,595,891	3,710,215

End of Month	Cumulative Inputs - Average Year	Cumulative Inputs - 1:20 Wet	Cumulative Inputs - 1:20 Dry
July 2018	6,086,384	7,787,172	4,085,840
August 2018	6,078,090	8,017,892	3,866,379
September 2018	5,650,139	7,589,852	3,490,708
October 2018	5,484,569	7,506,546	3,283,697
November 2018	6,109,474	7,788,731	3,286,492
December 2018	6,380,357	8,214,318	3,387,591
January 2019	6,319,059	8,185,064	3,291,125
February 2019	6,220,785	8,104,984	3,172,884
March 2019	6,117,479	8,012,662	3,057,522
April 2019	6,847,735	8,973,362	3,301,749
	Cumulative net water inputs to the TMA consist of inputs minus outputs. Inputs consist of runoff (TMA Cell 1, TMA Cell 2, TMA Cell 3, MRP, open pit), open pit groundwater, and water in tailings slurry Outputs consist of pond evaporation (TMA Cell 1, TMA Cell 2, TMA Cell 3, MRP), reclaim to mill, and tailings pore water losses		

Figure 4 is a summary chart which shows the cumulative net inflow as shown in Table 4 versus total available storage in TMA Cell 2, TMA Cell 3 and the WMP. Note that the total storage available is below the MOWL providing an allowance for storage of the EDF event. The total storage in the WMP will be reduced from around 5.0 Mm^3 to 1.0 Mm^3 in the fall of 2018 to ensure acceptable water quality in the WMP once treated effluent is available for 4:1 dilution of tailings contact water. Figure 4 indicates that the cumulative net inflow volume can be managed below the MOWL by sharing the storage volume available in TMA Cell 2, TMA Cell 3 and the WMP, provided that treatment is available September 1, 2018. Under the average and 1:20 wet year scenario, water will need to be stored in TMA Cell 3 prior to the WTP coming online in September 2018. The timing of TMA Cell 3 storage becoming available and the WTP are critical items. Sufficient pumping infrastructure between TMA Cell 2, TMA Cell 3 and the WMP will be required to ensure the storage volumes can be fully utilized (especially in the 1:20 wet scenario).

13.0 CONCLUSIONS

The results of the analysis indicate that TMA Cell 2 and the WMP can be operated under a variety of climatic conditions. The analysis assumes an initial inventory of 2.0 Mm^3 of storage in the WMP, however should there be more water in the WMP on April 1, 2018 the WTP may be required earlier than September 2018. In such a case of a higher initial inventory in the WMP, no water from the Pinewood River should be taken in the spring of 2018. TMA Cell 3 must become available for water storage over the period of June 1 - September 1, 2018 prior to the commissioning of the WTP in September 2018.

14.0 RECOMMENDATIONS FOR TMA CELL 2 OPERATION

During the operating life of TMA Cell 2, reclaim water will be sourced from the WMP and TMA Cell 2. The Water Treatment Plant should be available in September 2018 to limit the volume of water in TMA Cell 2 in the event of above average precipitation conditions in 2018. Without the WTP, the ongoing tailings deposition would reduce the available water storage such that the Environmental Design Flood event may not be contained. Discharge from the WMP to the Pinewood River is not expected to be required until the spring of 2019.

The following water management strategy has been developed to maintain the pond volume in TMA Cell 2 below its maximum operating level by maximizing the use of available storage in other areas:

1. In the early months of TMA Cell 2 operations (up to July) excess water collected in TMA Cell 2 should be transferred to the WMP (Continuing this transfer longer is not suggested as this could increase the WMP volume close to its maximum operating level in the event of wet conditions).

2. Starting in July or August as required, excess water collected in TMA Cell 2 should be transferred to TMA Cell 3. For average conditions, this transfer would continue until about October, after which reclaim will control the TMA Cell 2 volume. For wet conditions, the transfer to TMA Cell 3 can continue until the available storage in TMA Cell 3 has been filled, expected around September.

3. Starting as early as September 2018 (in the event of wet conditions) or later (March for average conditions) excess water collected in TMA Cell 2 should be pumped to the WTP for water treatment, and the treated effluent transferred to the WMP for discharge once the water quality is acceptable (total WMP volume is above 5.0 Mm^3).

To implement this strategy, the following operating guidelines are suggested for TMA Cell 2 and the WMP during the operating life of TMA Cell 2:

- Water for mill reclaim should be taken from the WMP until the WMP volume is reduced to below 1.0 Mm^3, then shifted to TMA Cell 2. Sufficient pumping infrastructure should be installed to allow mill reclaim from either WMP or TMA Cell 2 for the duration of TMA Cell 2 operation.

- Pumping from the Pinewood River to the WMP should occur if the total combined storage in TMA Cell 2 and the WMP is less than 4 Mm^3, so ensure there is sufficient water for mill processing for the winter of 2018/2019.

- All pumped discharges from TMA Cell 2 (to the WMP, to the WTP, and to TMA Cell 3) to reduce the water level in TMA Cell 2 should be regulated and planned to start once the TMA Cell 2 pond volume increases to within approximately 800,000 m^3 of the MOWL. The discharges should continue until TMA Cell 2 pond volume is lowered by about 400,000 m^3 (1,200,000 m^3 below the MOWL).

- Pumping infrastructure should be installed to allow for pumping at a rate of approximately 40,000 m^3/day between TMA Cell 2, 3 and the WMP even at low water levels. This will allow full utilization of the available storage volumes in TMA Cells 2, 3 and the WMP. In a wet year scenario it may also be necessary to pump directly from the WMP to TMA Cell 3, to reduce WMP volumes to below 1.0 Mm^3, prior to the implementation of the WTP.

- Effluent discharge of treated water from the WMP to the Pinewood River or treatment wetlands should only occur if the total storage in the WMP is above 5.0 Mm^3 (not anticipated during the life of TMA Cell 2). This effluent discharge strategy only applies to the first batch of discharge, as the 1.0 Mm^3 of residual contact water in the WMP requires dilution prior to discharge.

15.0 LIMITATIONS OF RESULTS

The applicability of the results of this assessment depend on the following conditions and assumptions:

- TMA Cell 2 will start impounding water on April 1, 2018;
- TMA Cell 3 will start impounding water on June 1, 2108, will be able to receive pumped inflows from TMA Cell 2 on July 1, 2108, and will reach its full storage capacity on September 1, 2018.
- Drainage areas collected and sent to TMA Cell 2 will be as described in this memo;
- The WMP will have 2.0 Mm^3 of water on April 1, 2018;
- Mill production will be at 100% for the 12-month life of TMA Cell 2; and
- Tailings properties in terms of the water storage volume available above tailings, and pore water losses, will be as described.

16.0 CLOSING REMARKS

This memorandum was prepared by Norman Schwartz, P.Eng., and reviewed by Mark Sullivan, P.Eng. Please do not hesitate to contact either individual should you have any questions regarding the information contained in this memorandum.

17.0 REFERENCES

AMEC, 2014. Rainy River Project – Feasibility Level Treatment Plant Design. 3098004-000000-A1-ETR-0003 Rev. 00. January, 2014.

AMEC, 2014. Rainy River Project – Detailed Design – Tailings Management Design Brief. 3098004-004000-A1-ETR-0006-AB. May 2014.

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Amec Foster Wheeler, 2016a. Memo April 4, 2016 Draft for Discussion. Rainy River Project – Processing Plant Start-up Water Source Options following delayed Operation of the Water Management Pond.

Amec Foster Wheeler, 2016b. Design Brief – Tailings Management Area Start-Up Cell. Rainy River Project. New Gold Inc. August, 2016.

Figures:

Attachment 1:

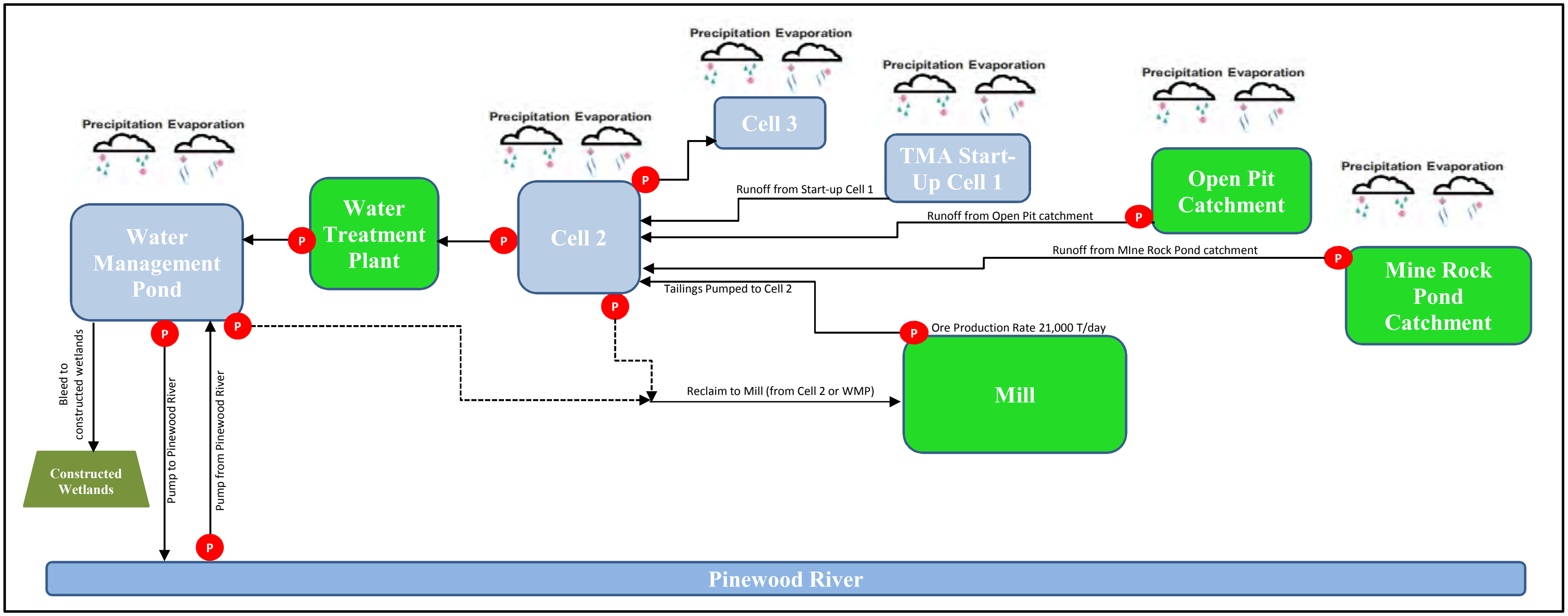
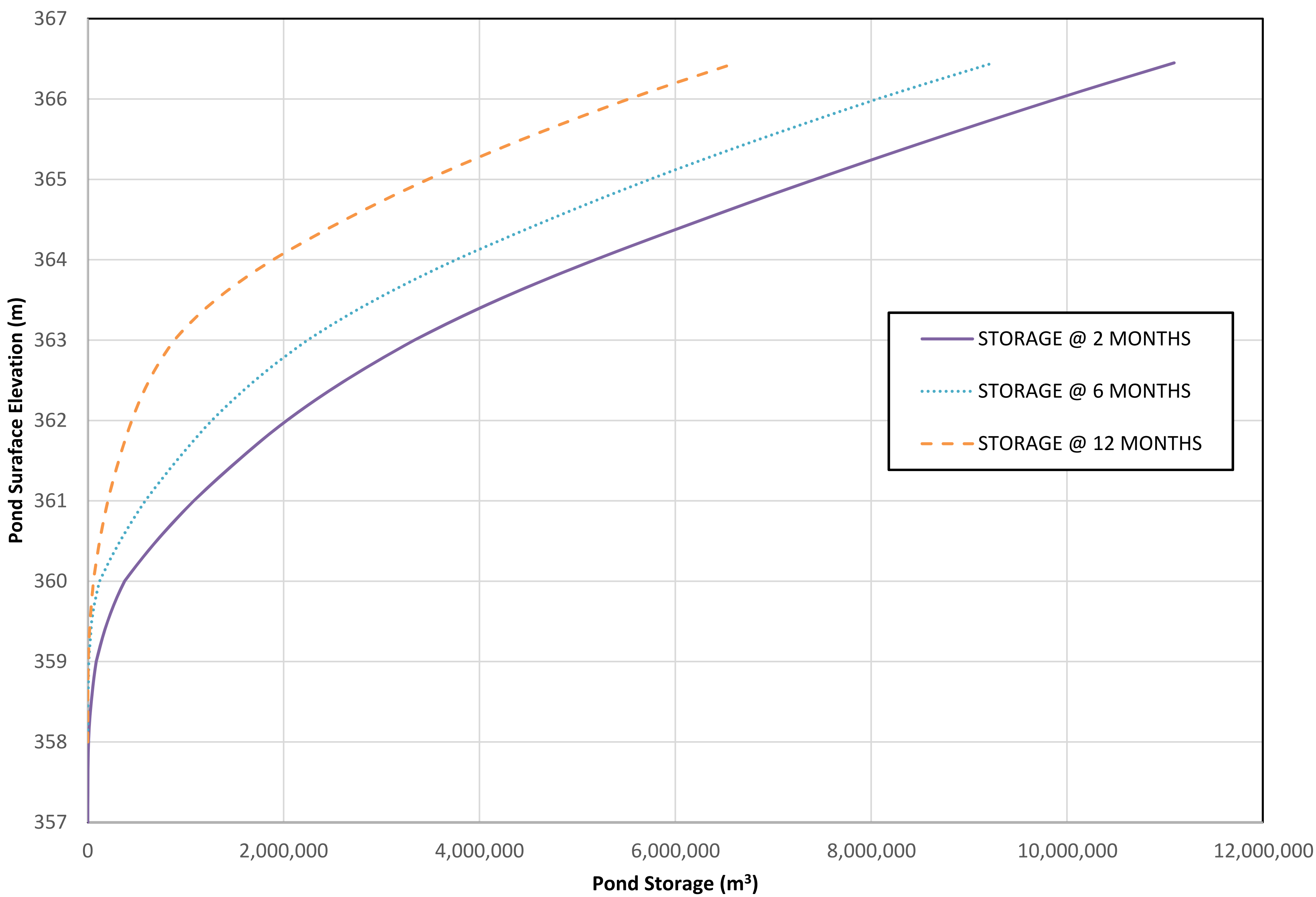


Figure 1: Water Balance Schematic for TMA Cell 2, Cell 3 and WMP

Figure 2: Cell 2 TMA Pond Stage-Storage



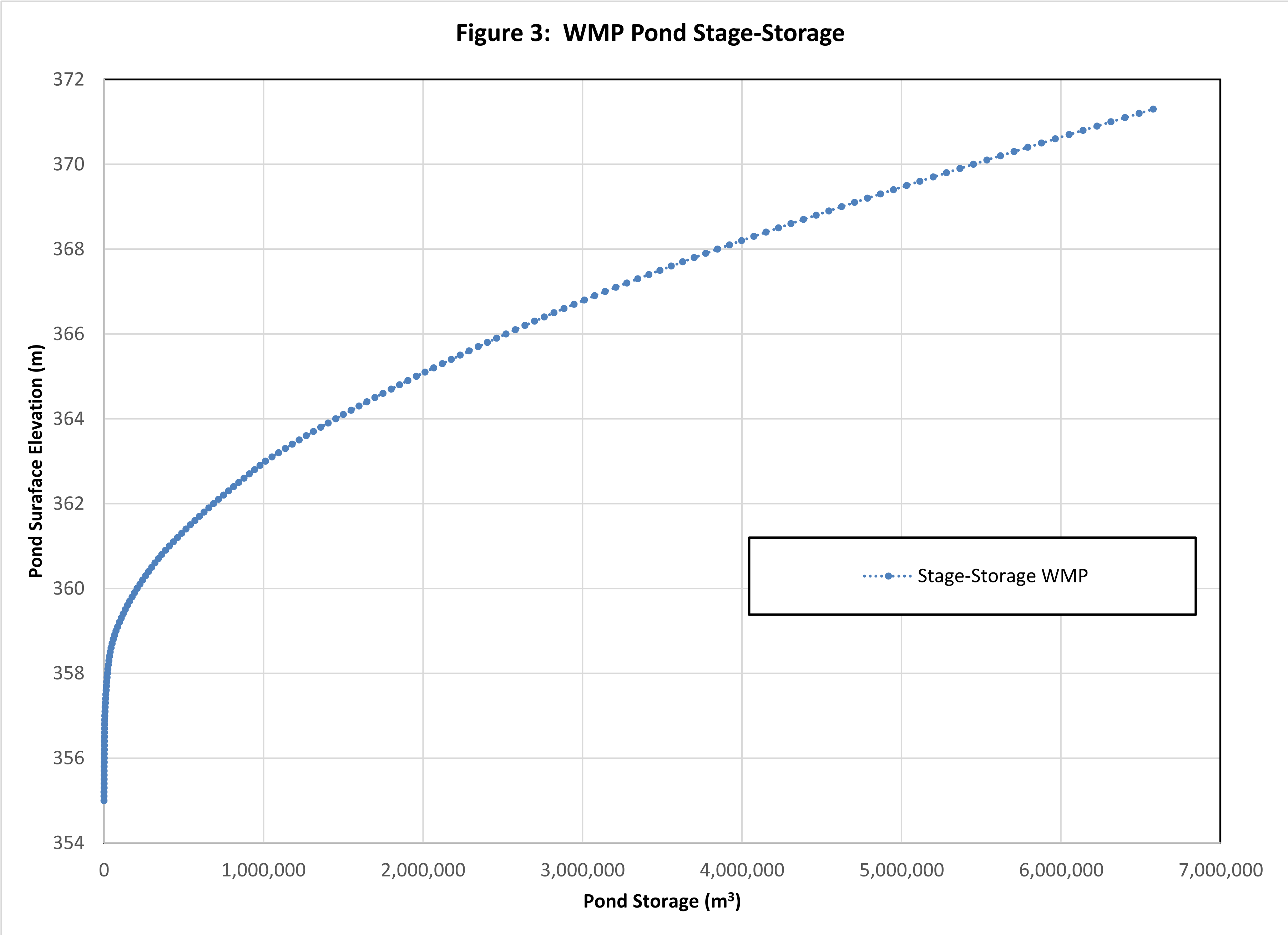
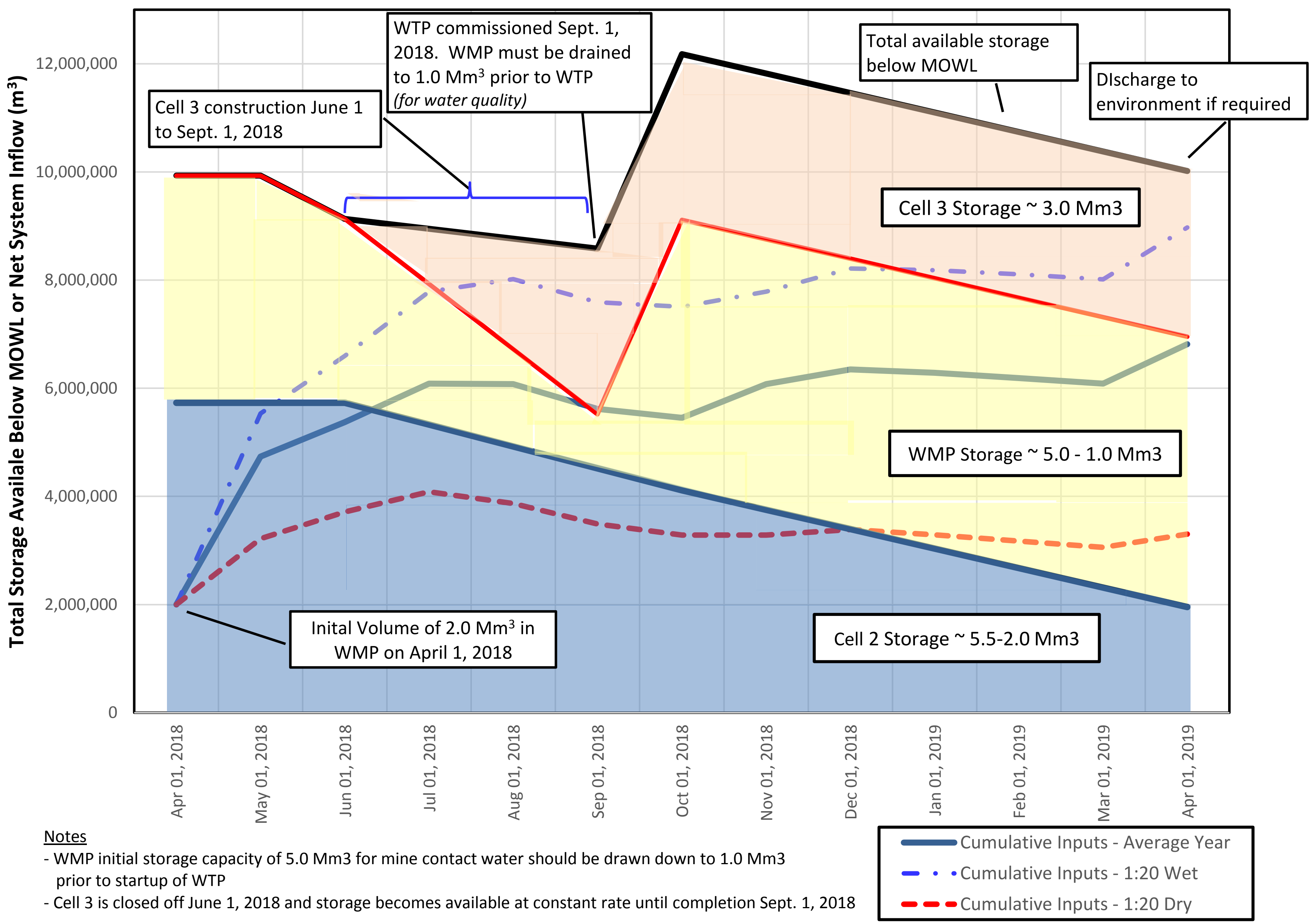


Figure 3: WMP Pond Stage-Storage
Pond Surface Elevation (m)
372
370
368
366
364
362
360
358
356
354
0
1,000,000
2,000,000
3,000,000
4,000,000
5,000,000
6,000,000
7,000,000
Pond Storage (m³)
Stage-Storage WMP

Figure 4: Total Available Storage versus Net System Inflow for TMA Cell 2, 3 and WMP



<u>Notes</u>

- WMP initial storage capacity of 5.0 Mm3 for mine contact water should be drawn down to 1.0 Mm3 prior to startup of WTP
- Cell 3 is closed off June 1, 2018 and storage becomes available at constant rate until completion Sept. 1, 2018

ATTACHMENT 1

Attachment 1 provides a more detailed discussion of the results of the water balance modelling and the water management schemes which were developed for average, 1:20 wet year, and 1:20 dry year conditions. Detailed graphs of water levels, pond volumes and pumping transfers for TMA Cell 2 and the WMP for average, wet and dry year conditions are provided as Figures 1.1 through 1.12.

- During an average year, it will be required to transfer water from TMA Cell 2 to the WMP in June 2018 to manage the volume increase in TMA Cell 2. In July and August 2018 this transfer should switch to TMA Cell 3 in order to limit the volume increase in the WMP. Reclaim can be taken from the WMP until the end of July, at which point the WMP is expected to be reduced below 1.0 Mm^3. At this point reclaim would switch to TMA Cell 2. Although it is assumed that the WTP will be available in September, it is expected that taking reclaim from TMA Cell 2 can control the TMA Cell 2 volume in an average year until spring 2019 when ongoing tailings deposition will reduce the available water storage capacity in TMA Cell 2, and discharge to the WTP will be required. The WMP volume will be reduced further, possibly as low as 0.5 Mm^3 due to ice formation, prior to the discharge of treated effluent from the WTP to the WMP. No discharge to the environment is required in the average year.

- During a 1:20 wet year, it will be required to transfer water from TMA Cell 2 to the WMP earlier, starting in May and continuing to June 2018, to manage the volume increase in TMA Cell 2. June should be the latest month to transfer to WMP in order to limit the volume increase in the WMP. July 2018 is when transfer to TMA Cell 3 should start. The latter should continue until September 2018, when TMA Cell 3 would be filled to its capacity. Once the WTP comes on line starting in September 2018, the TMA Cell 2 volume can be controlled by pumping TMA Cell 2 to the WTP. The availability of the WTP (and the supplemental storage in TMA Cell 3), is required for TMA Cell 2 to provide the required storage for the Environmental Design Flood (EDF) below the spillway invert. Reclaim for the 1:20 wet year is always taken from the WMP as the water volume in the WMP would remain above 1.0 Mm^3 (minimum volume of approximately 1.3 Mm^3 reached in the WMP prior to WTP commissioning, however additional storage is still available in TMA Cell 2 to allow WMP to be pumped down to approximately 1.0 Mm^3 storage. Sufficient pumping infrastructure should be available to readily pump between the WMP, TMA Cell 2 and TMA Cell 3 to fully utilize all available storage. At the end of March 2019, the water level in TMA Cell 2 should be below the MOWL, so the EDF event could be fully contained. No discharge to the environment is required in the 1:20 wet year, however discharge in the spring of 2019 (May) would be necessary.

- During a 1:20 dry year the WTP would not be required for the duration of TMA Cell 2 operation, since reclaim will switch from the WMP to TMA Cell 2 after June. This would will keep the water level in TMA Cell 2 significantly below the MOWL until March 2019. At that time the effect of ongoing tailings deposition will reduce the available water storage capacity significantly, however TMA Cell 3 will have sufficient capacity for storage of any excess volume. The results indicate that there is enough water to operate the mill through the winter of 2018/2019 in the 1:20 dry year, however the WMP may freeze solid, as there is less than 0.5 Mm^3, prior to the winter. All reclaim during the winter would be taken from

TMA Cell 2. The minimum volume of free water in TMA Cell 2 is approximately 0.5 Mm^3 in February of 2018, which is expected to be adequate to operate pumps and limit suspended solids. A transfer to TMA Cell 3 is shown in March 2019 (reducing the TMA Cell 2 volume to 0.25 Mm^3), however this water would likely be sent to the WTP for treatment to reduce the TMA Cell 2 volume.

The following Tables 1.1 and 1.2 provide annual summaries of input volumes, output volumes, and volumes of water transferred between the ponds for the three precipitation scenarios.

Table 1.1: Water Balance Summary for TMA Cell 2

		Average Year	1:20 Wet Year	1:20 Dry Year
SYSTEM INPUTS (m^3)				
	TMA Runoff	3,097,557	4,257,896	1,824,112
	MRP Runoff	1,596,192	2,194,122	939,977
	Open Pit Runoff	885,870	1,217,715	521,678
	Groundwater pumped from Open Pit	912,500	912,500	912,500
	TMA Cell 1 Runoff	468,684	644,252	276,002
	TMA Ice Melting	819,756	819,756	819,756
	Water in Tailings Slurry	8,678,284	8,678,284	8,678,284
SYSTEM OUTPUTS (m^3)				
	TMA Pond Evap	521,771	521,771	521,771
	MRP Pond Evap	355,080	355,080	355,080
	TMA Cell 1 Pond Evap	365,840	365,840	365,840
	Reclaim Pumping from TMA to Mill	5,726,567	-	6,457,117
	TMA Ice Formation (1 m)	819,756	819,756	819,756
	Tailings Pore Water Losses	2,718,085	2,718,085	2,718,085
	Pump Out TMA Cell 2 (Transfer) to WMP	900,000	1,830,000	-
	Pump Out TMA Cell 2 (Transfer) to WTP	620,000	7,300,000	-
	Pump Out TMA Cell 2 (Transfer) to TMA Cell 3	3,095,996	3,031,574	2,480,000
STORAGE (m^3)				
	Initial TMA Cell 2	-	-	-
	Final TMA Cell 2	1,335,747	1,782,418	254,659
	Increase In Storage	1,335,747	1,782,418	254,659
SUM INPUTS		16,458,843	16,458,843	18,724,525
SUM OUTPUTS		16,458,843	16,458,843	18,724,525
BALANCE		-	-	-

Table 1.2: Water Balance Summary for WMP

		Average Year	1:20 Wet Year	1:20 Dry Year
SYSTEM INPUTS (m^3)				
	WMP Runoff	644,747	886,267	379,683
	Treated Effluent from WTP	620,000	7,300,000	-
	Pump In Water Transferred from TMA Cell 2	900,000	1,830,000	-
	WMP Ice Melting	850,000	850,000	850,000
	Pump From Pinewood	1,452,724	953,386	706,089
SYSTEM OUTPUTS (m^3)				
	WMP Pond Evap	457,300	457,300	457,300
	WMP Ice Formation (1 m)	850,000	850,000	850,000
	Reclaim Pumping from WMP to Mill	2,875,067	8,601,634	2,144,517
	WMP "bleed" to wetland	-	-	-
	WMP Pumped to Pinewood River	-	-	-
STORAGE (m^3)				
	Initial WMP	2,000,000	2,000,000	2,000,000
	Final WMP	2,285,104	3,910,720	895,419
	Increase In Storage	285,104	1,910,720	-1,104,581
SUM INPUTS		6,627,470	4,467,470	11,819,654
SUM OUTPUTS		6,627,470	4,467,470	11,819,654
BALANCE		-	-	-

Figures 1.1 to 1.12

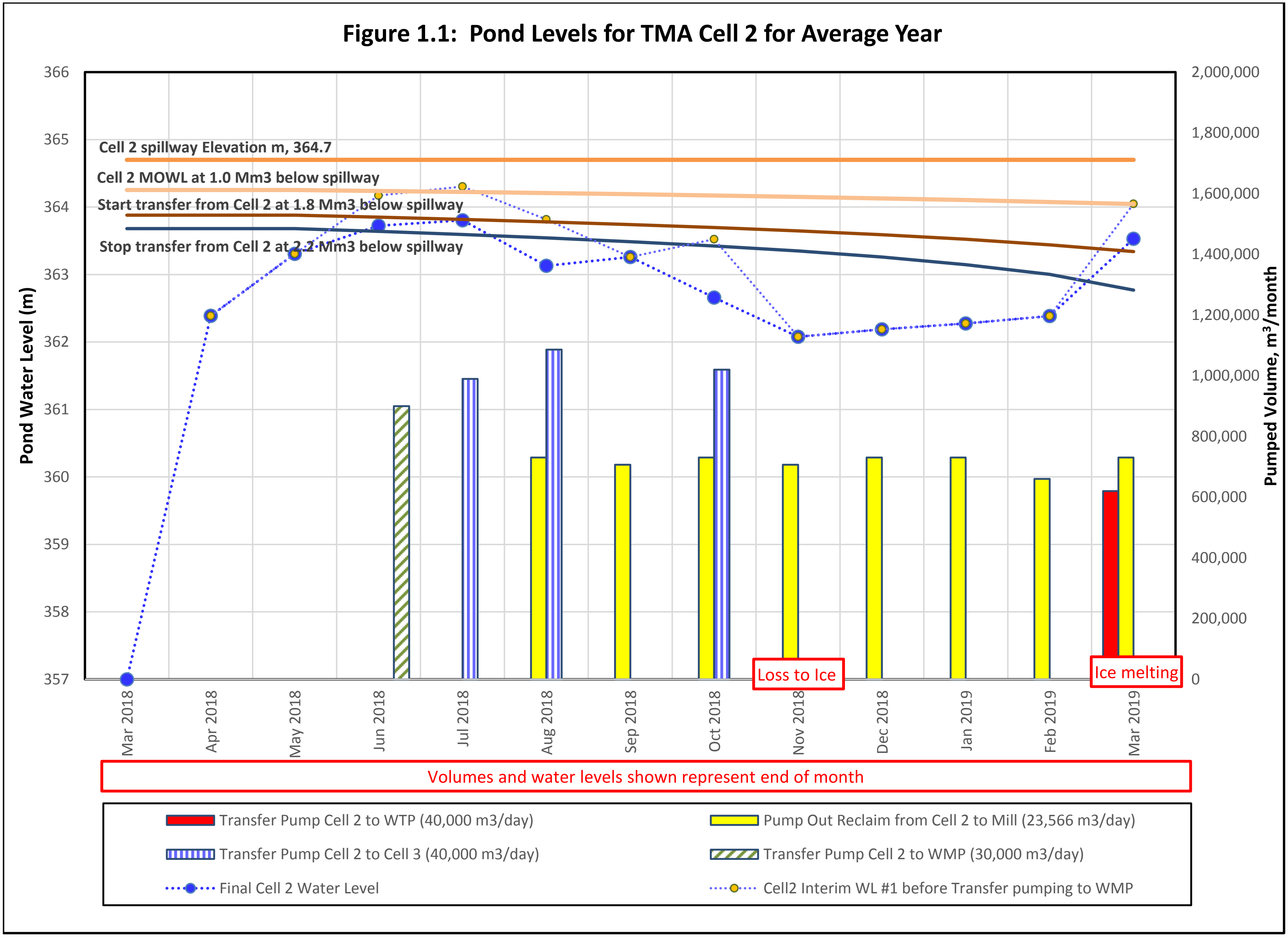


Figure 1.1: Pond Levels for TMA Cell 2 for Average Year
Pond Water Level (m)
Pumped Volume, m³/month
366
365
364
363
362
361
360
359
358
357
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Cell 2 spillway Elevation m, 364.7
Cell 2 MOWL at 1.0 Mm3 below spillway
Start transfer from Cell 2 at 1.8 Mm3 below spillway
Stop transfer from Cell 2 at 2.2 Mm3 below spillway
Loss to Ice
Ice melting
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Volumes and water levels shown represent end of month
Transfer Pump Cell 2 to WTP (40,000 m3/day)
Pump Out Reclaim from Cell 2 to Mill (23,566 m3/day)
Transfer Pump Cell 2 to Cell 3 (40,000 m3/day)
Transfer Pump Cell 2 to WMP (30,000 m3/day)
Final Cell 2 Water Level
Cell2 Interim WL #1 before Transfer pumping to WMP

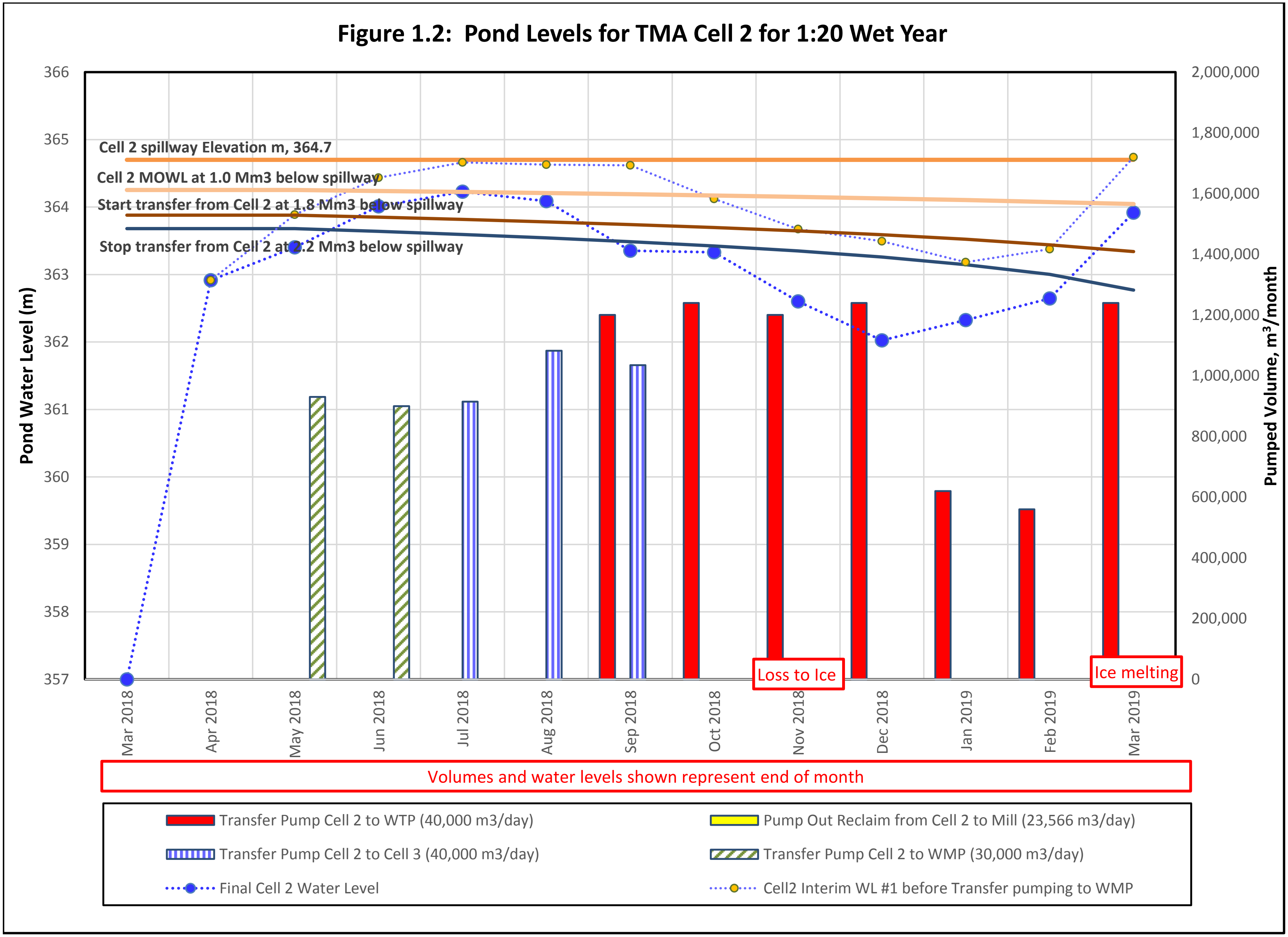


Figure 1.2: Pond Levels for TMA Cell 2 for 1:20 Wet Year
Pond Water Level (m)
Pumped Volume, m³/month
366
365
364
363
362
361
360
359
358
357
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Cell 2 spillway Elevation m, 364.7
Cell 2 MOWL at 1.0 Mm3 below spillway
Start transfer from Cell 2 at 1.8 Mm3 below spillway
Stop transfer from Cell 2 at 2.2 Mm3 below spillway
Loss to Ice
Ice melting
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
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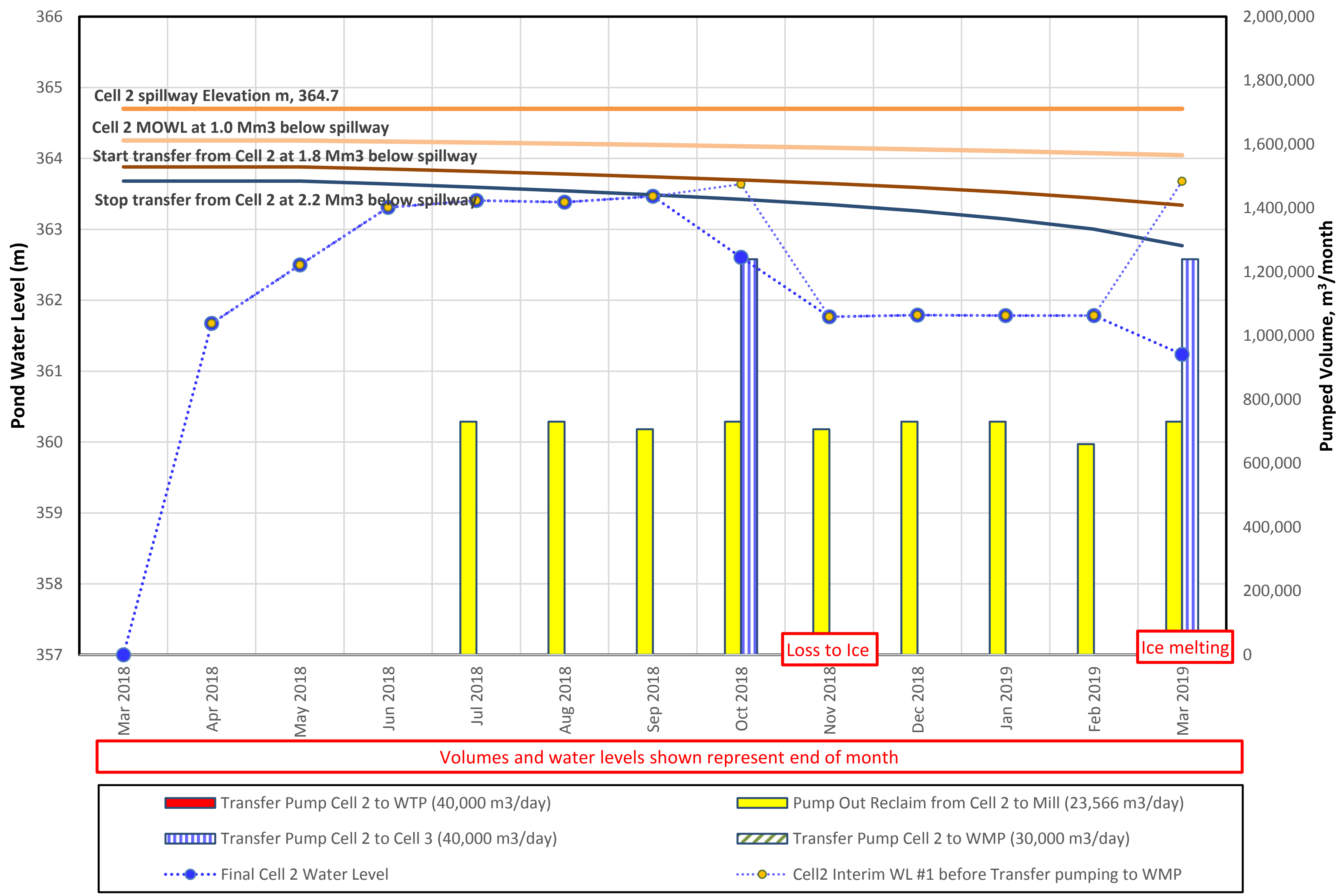
Pump Out Reclaim from Cell 2 to Mill (23,566 m3/day)
Transfer Pump Cell 2 to Cell 3 (40,000 m3/day)
Transfer Pump Cell 2 to WMP (30,000 m3/day)
Final Cell 2 Water Level
Cell2 Interim WL #1 before Transfer pumping to WMP

Figure 1.3: Pond Levels for TMA Cell 2 for 1:20 Dry Year



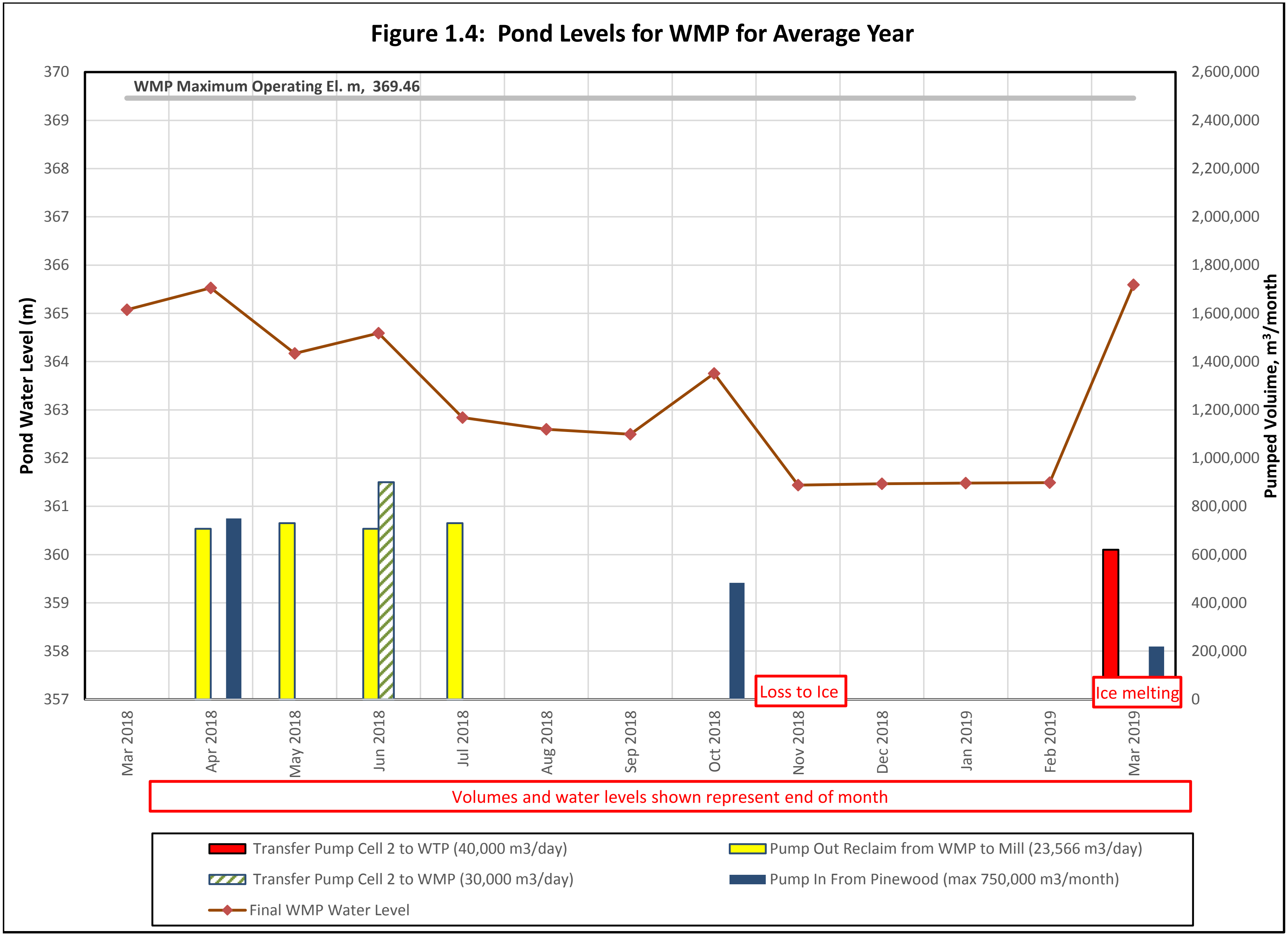


Figure 1.4: Pond Levels for WMP for Average Year
WMP Maximum Operating El. m, 369.46
Pond Water Level (m)
Pumped Voluime, m3/month
370
369
368
367
366
365
364
363
362
361
360
359
358
357
2,600,000
2,400,000
2,200,000
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Loss to Ice
Ice melting
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Volumes and water levels shown represent end of month
Transfer Pump Cell 2 to WTP (40,000 m3/day)
Pump Out Reclaim from WMP to Mill (23,566 m3/day)
Transfer Pump Cell 2 to WMP (30,000 m3/day)
Pump In From Pinewood (max 750,000 m3/month)
Final WMP Water Level

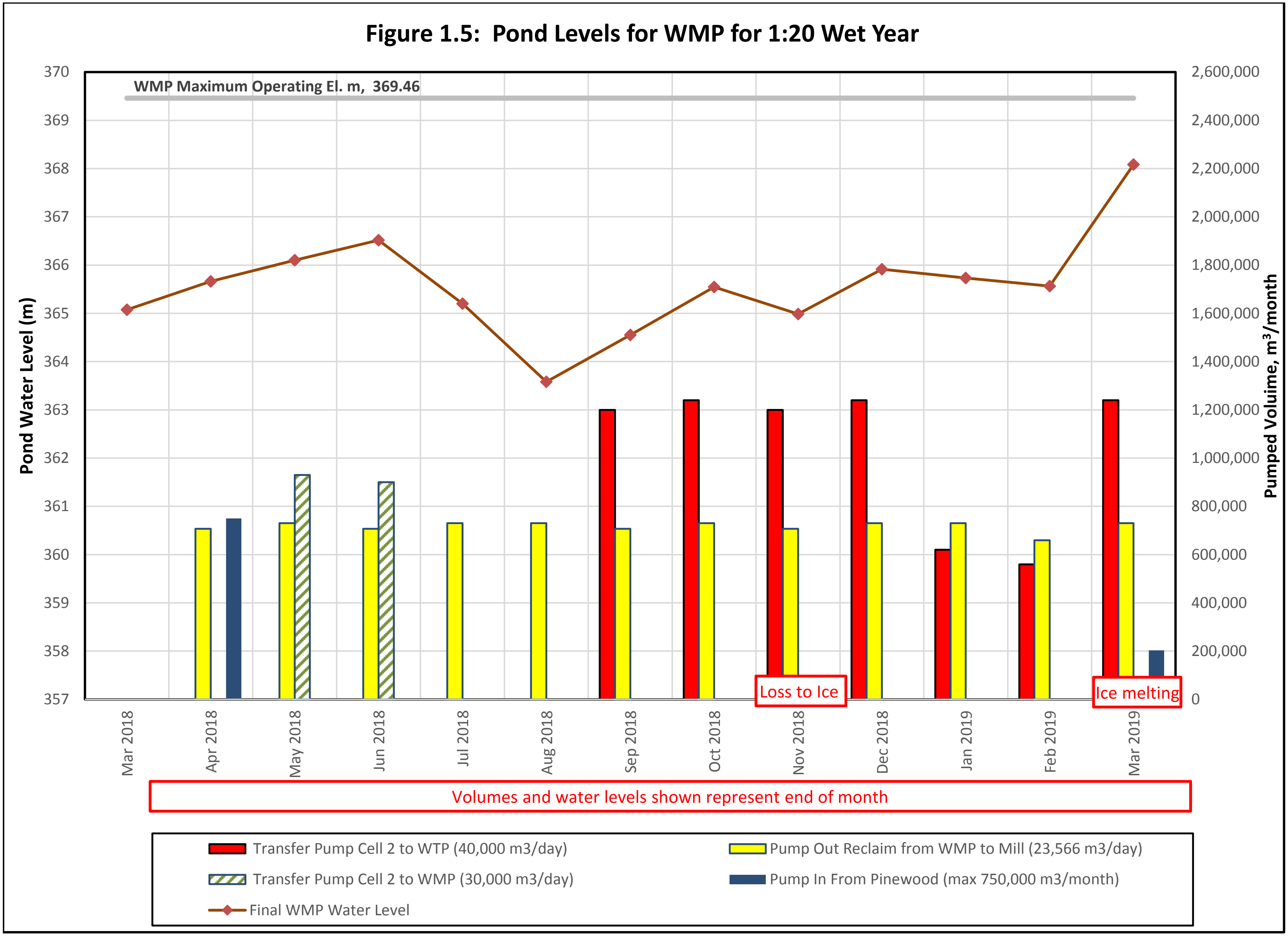
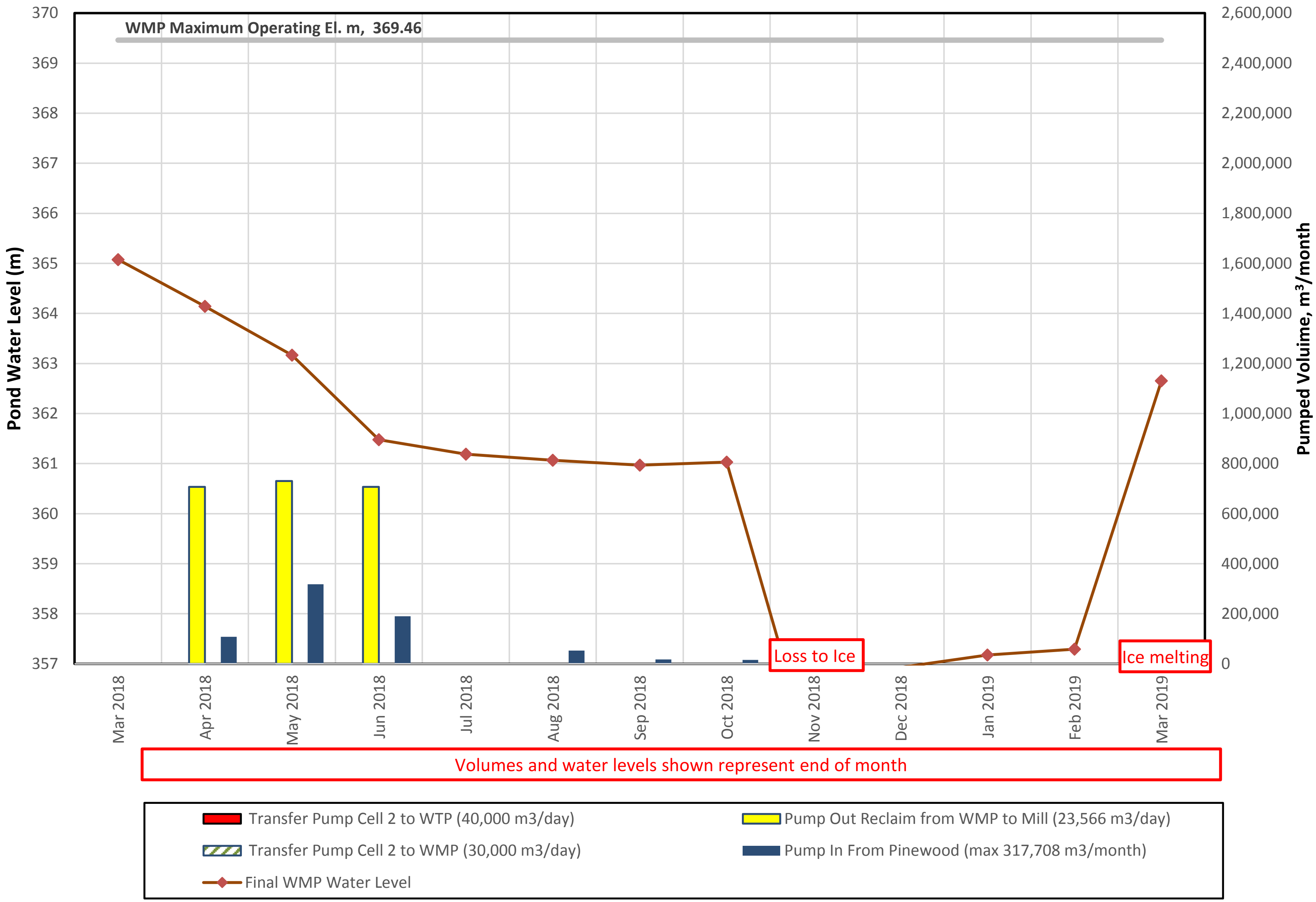


Figure 1.5: Pond Levels for WMP for 1:20 Wet Year
WMP Maximum Operating El. m, 369.46
Pond Water Level (m)
Pumped Voluime, m³/month
370
369
368
367
366
365
364
363
362
361
360
359
358
357
2,600,000
2,400,000
2,200,000
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Loss to Ice
Ice melting
Volumes and water levels shown represent end of month
Transfer Pump Cell 2 to WTP (40,000 m3/day)
Pump Out Reclaim from WMP to Mill (23,566 m3/day)
Transfer Pump Cell 2 to WMP (30,000 m3/day)
Pump In From Pinewood (max 750,000 m3/month)
Final WMP Water Level

Figure 1.6: Pond Levels for WMP for 1:20 Dry Year



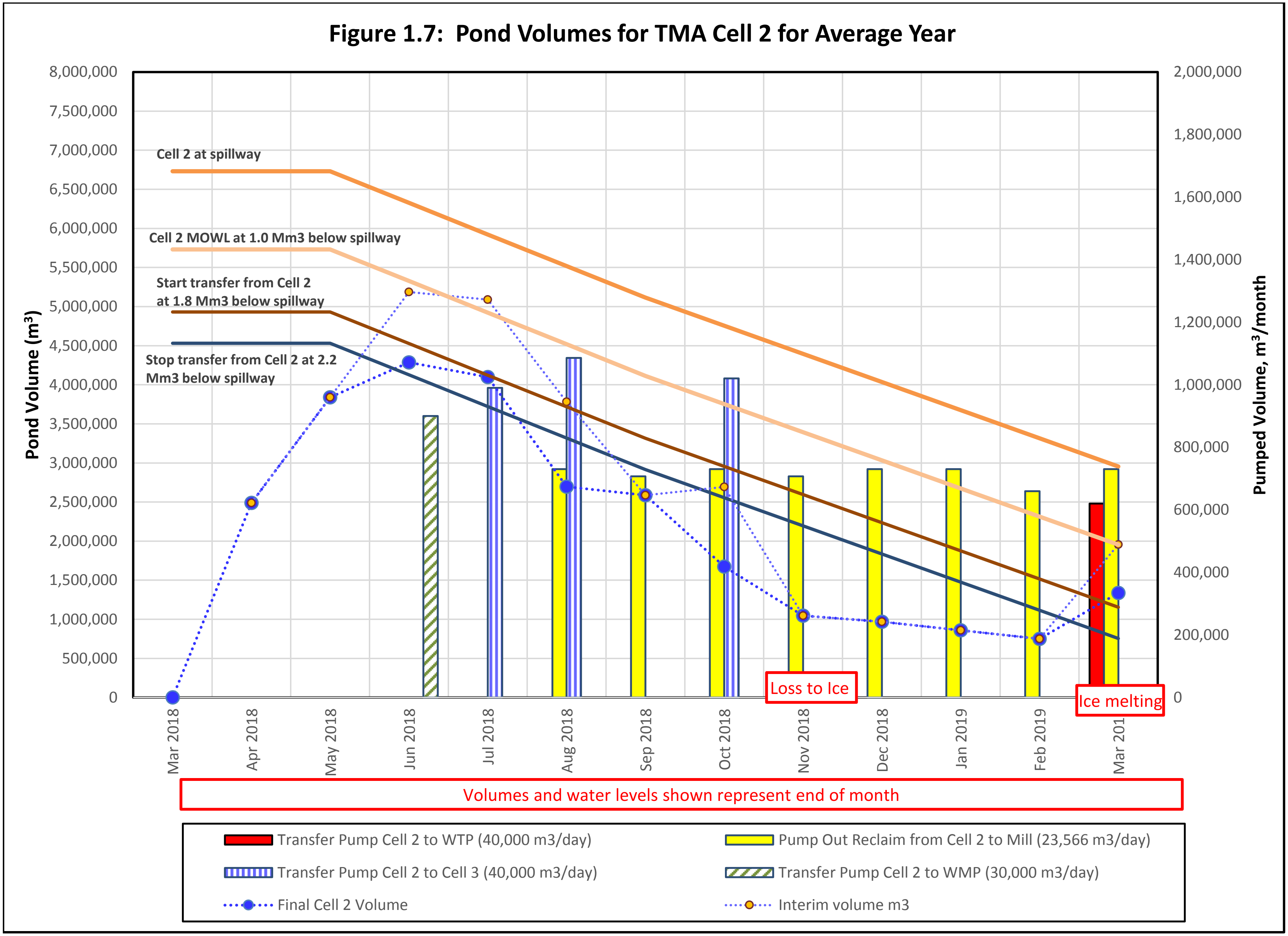
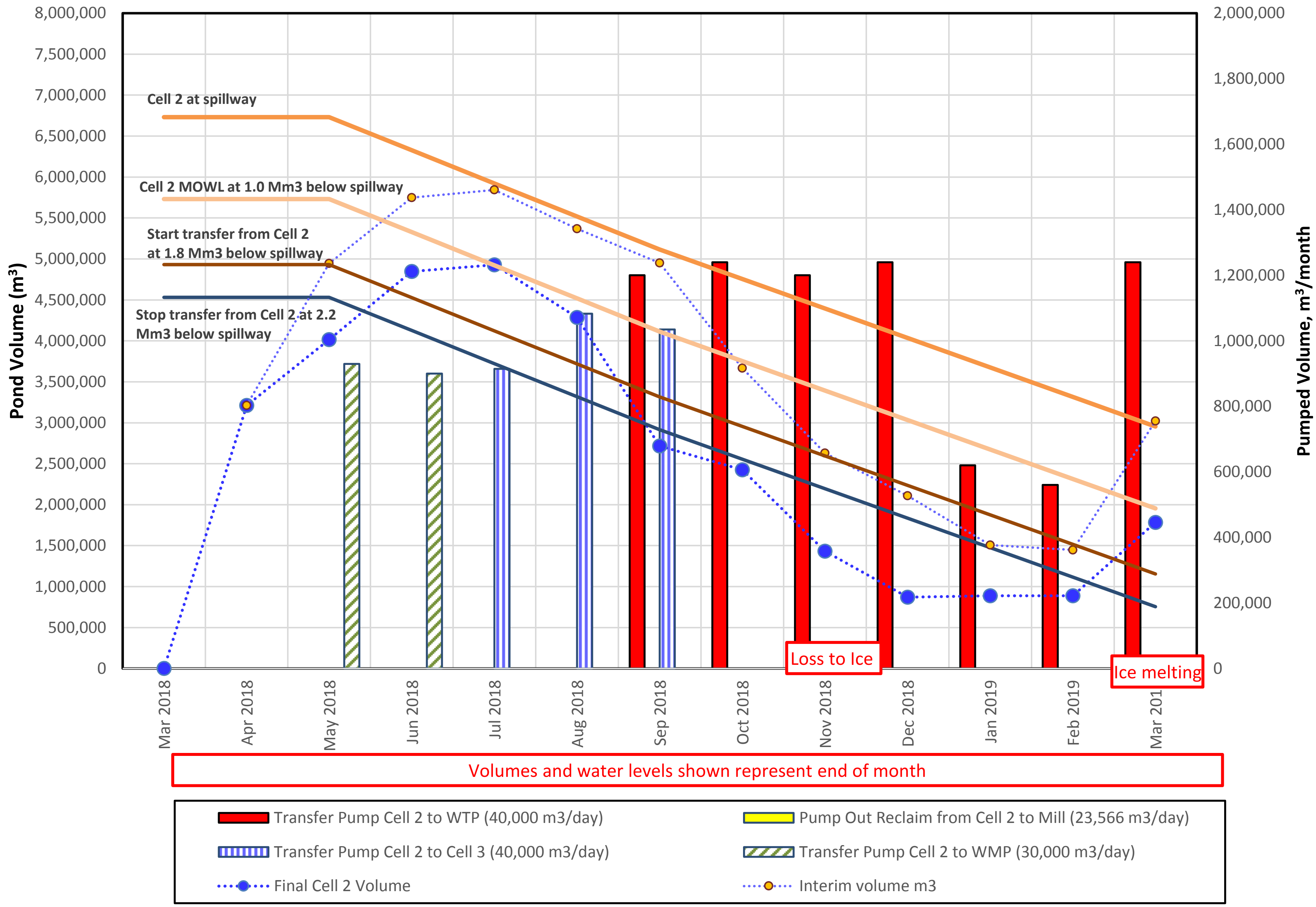


Figure 1.7: Pond Volumes for TMA Cell 2 for Average Year
Pond Volume (m³)
Pumped Volume, m³/month
8,000,000
7,500,000
7,000,000
6,500,000
6,000,000
5,500,000
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Cell 2 at spillway
Cell 2 MOWL at 1.0 Mm3 below spillway
Start transfer from Cell 2 at 1.8 Mm3 below spillway
Stop transfer from Cell 2 at 2.2 Mm3 below spillway
Loss to Ice
Ice melting
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 201
Volumes and water levels shown represent end of month
Transfer Pump Cell 2 to WTP (40,000 m3/day)
Pump Out Reclaim from Cell 2 to Mill (23,566 m3/day)
Transfer Pump Cell 2 to Cell 3 (40,000 m3/day)
Transfer Pump Cell 2 to WMP (30,000 m3/day)
Final Cell 2 Volume
Interim volume m3

Figure 1.8: Pond Volumes for TMA Cell 2 for 1:20 Wet Year



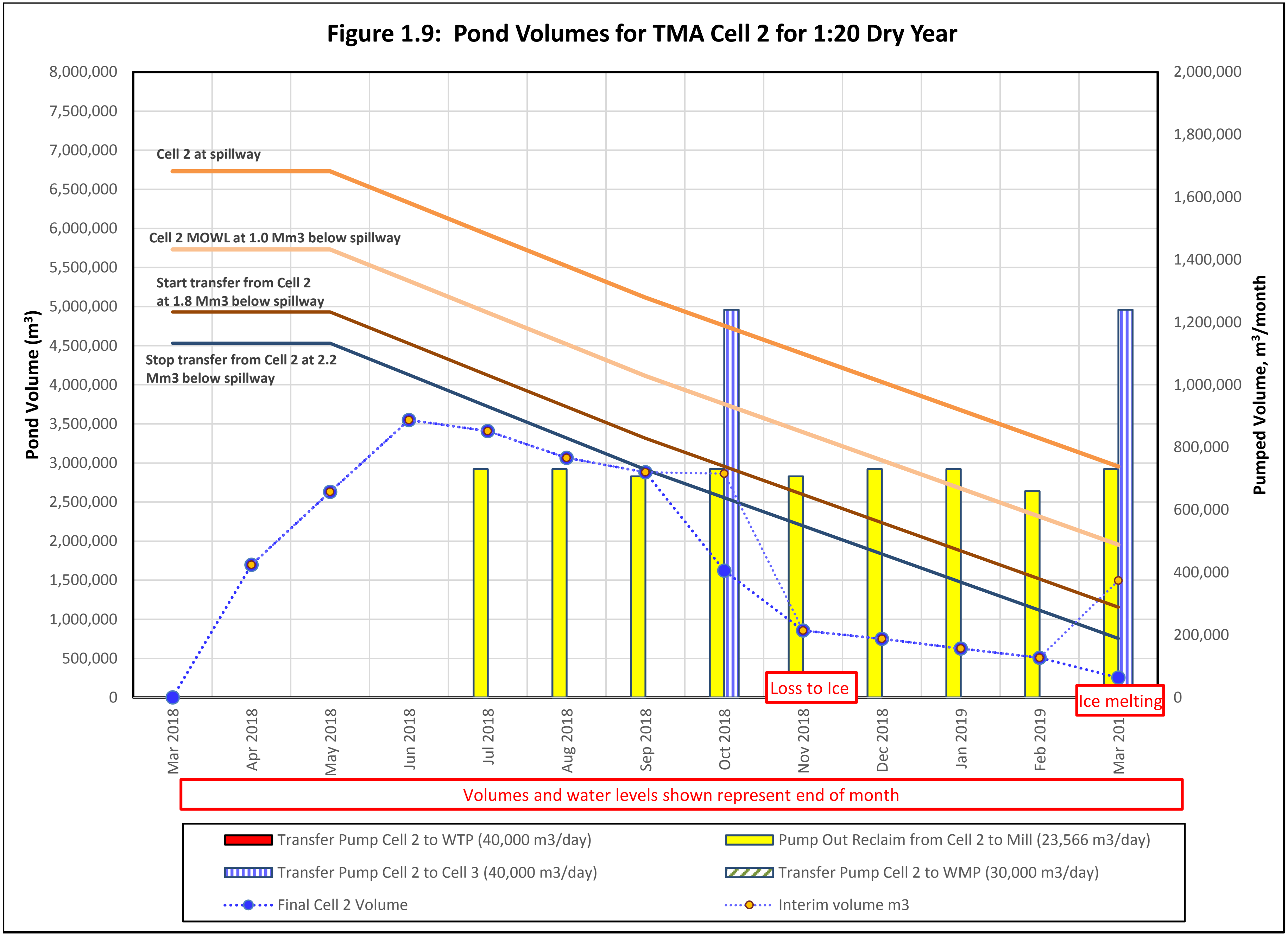


Figure 1.9: Pond Volumes for TMA Cell 2 for 1:20 Dry Year
Pond Volume (m³)
Pumped Volume, m³/month
8,000,000
7,500,000
7,000,000
6,500,000
6,000,000
5,500,000
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Cell 2 at spillway
Cell 2 MOWL at 1.0 Mm3 below spillway
Start transfer from Cell 2 at 1.8 Mm3 below spillway
Stop transfer from Cell 2 at 2.2 Mm3 below spillway
Loss to Ice
Ice melting
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 201
Volumes and water levels shown represent end of month
Transfer Pump Cell 2 to WTP (40,000 m3/day)
Pump Out Reclaim from Cell 2 to Mill (23,566 m3/day)
Transfer Pump Cell 2 to Cell 3 (40,000 m3/day)
Transfer Pump Cell 2 to WMP (30,000 m3/day)
Final Cell 2 Volume
Interim volume m3

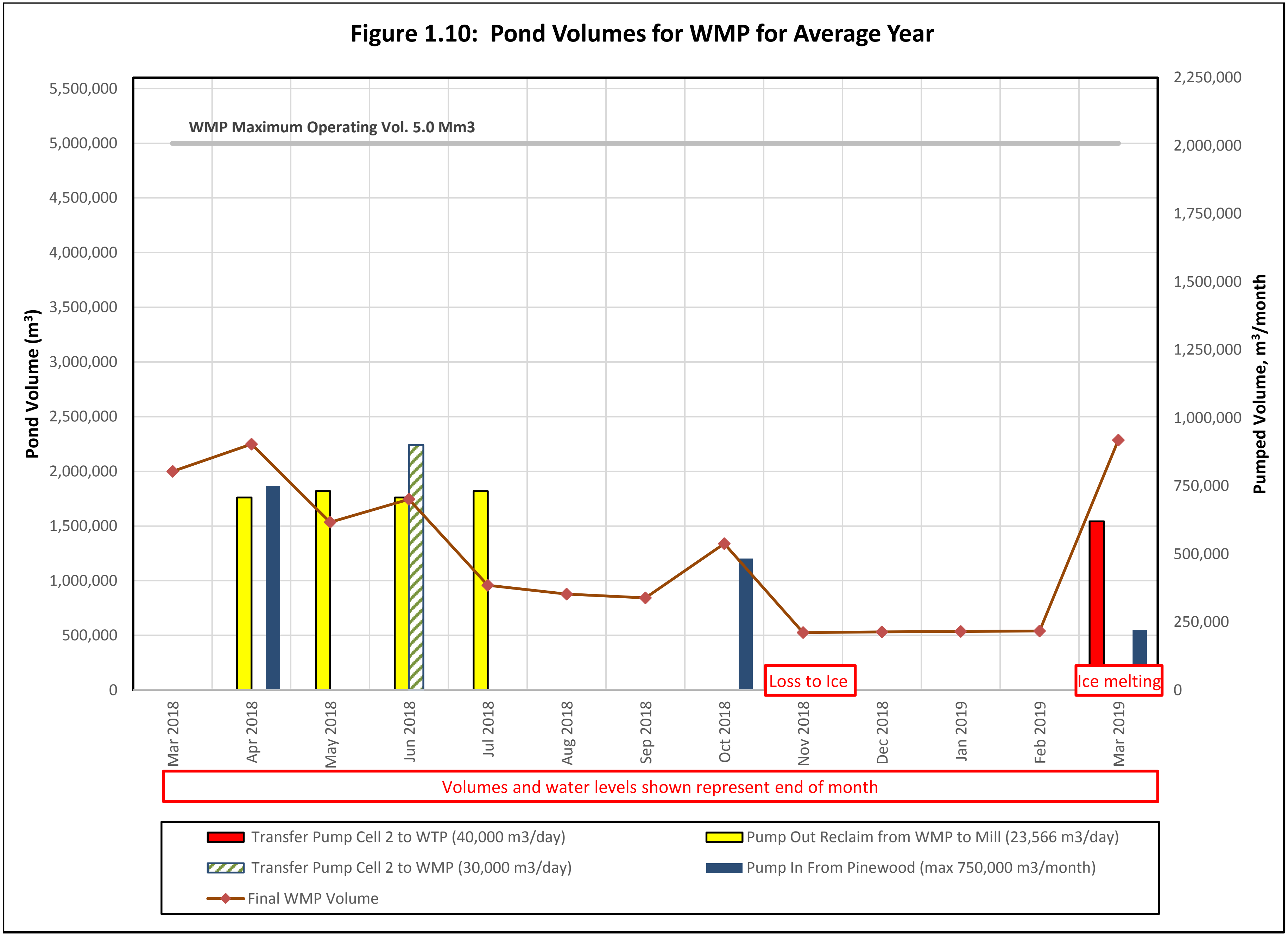


Figure 1.10: Pond Volumes for WMP for Average Year
WMP Maximum Operating Vol. 5.0 Mm3
Pond Volume (m³)
Pumped Volume, m³/month
5,500,000
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
2,250,000
2,000,000
1,750,000
1,500,000
1,250,000
1,000,000
750,000
500,000
250,000
0
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Loss to Ice
Ice melting
Volumes and water levels shown represent end of month
Transfer Pump Cell 2 to WTP (40,000 m3/day)
Pump Out Reclaim from WMP to Mill (23,566 m3/day)
Transfer Pump Cell 2 to WMP (30,000 m3/day)
Pump In From Pinewood (max 750,000 m3/month)
Final WMP Volume

Figure 1.11: Pond Volumes for WMP for 1:20 Wet Year

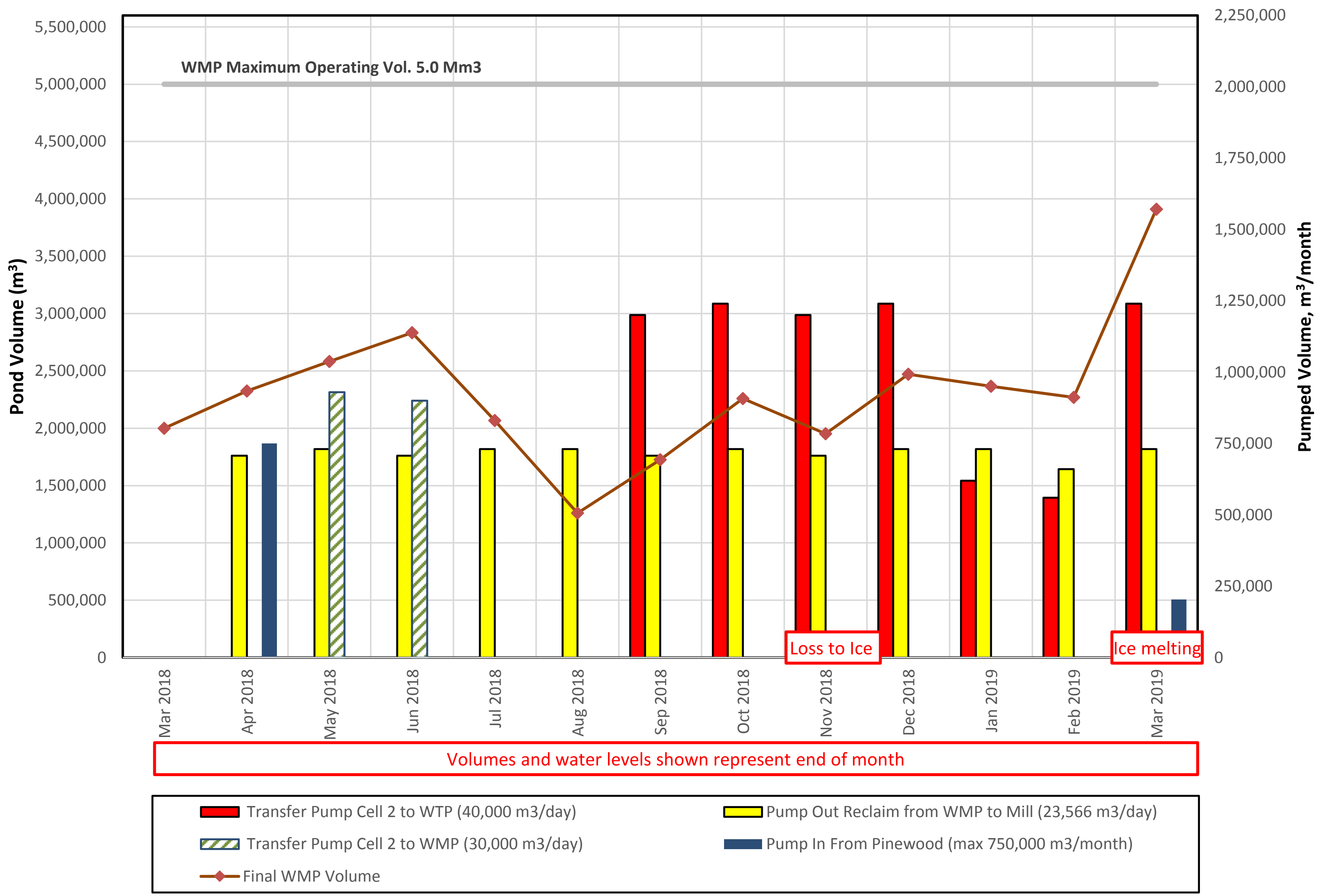
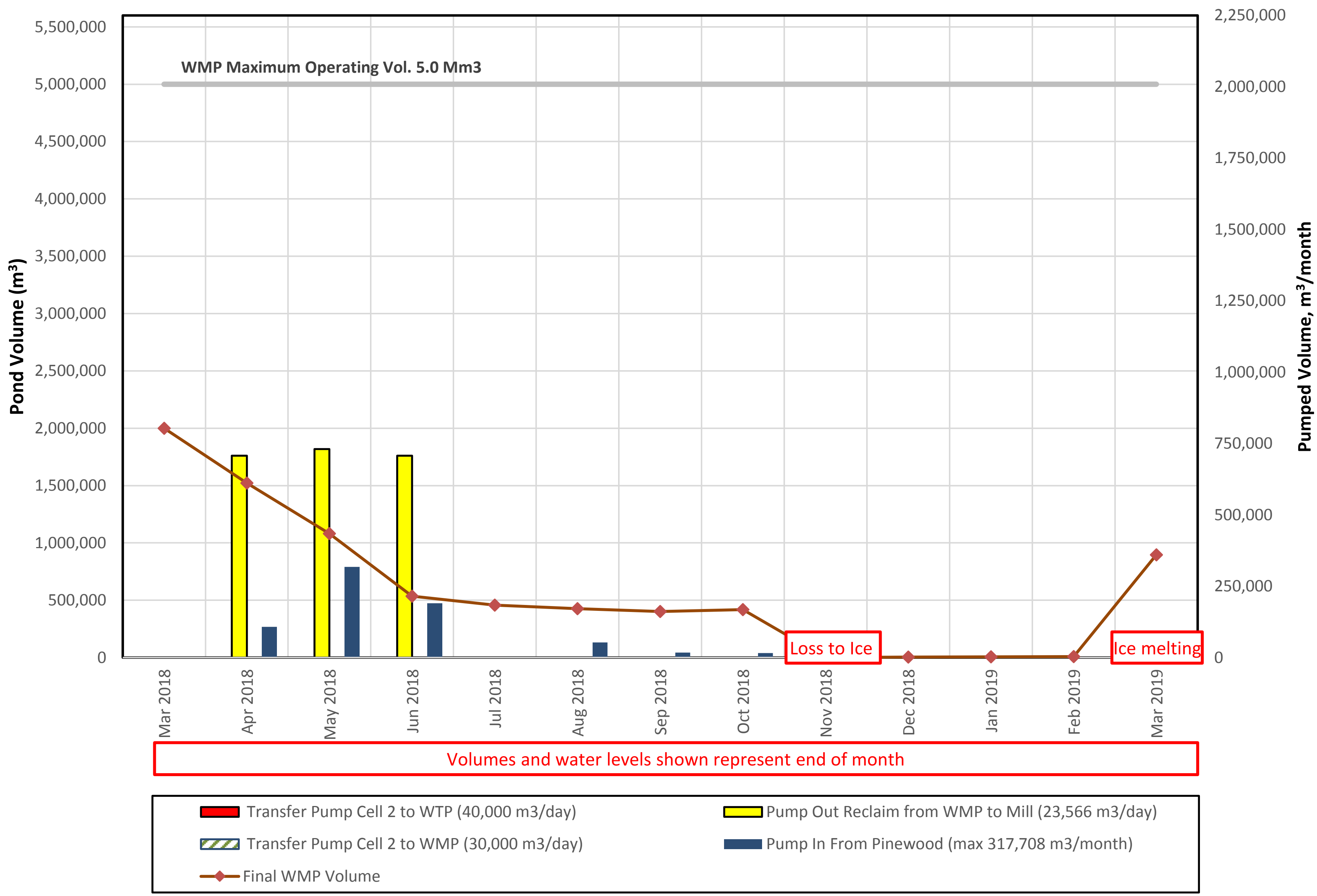


Figure 1.12: Pond Volumes for WMP for 1:20 Dry Year



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APPENDIX F

INSPECTION SHEETS

Daily Inspection Form (Dam)
Weekly Inspection Sheets (Dam)
Diversion Channel Inspection Form
Inspection Sheets for Unusual Events

Daily Inspection Form (Dam)			
Dam:			
Name:			
Date and Time:			
Weather Conditions:			
Visual Inspection of dams:		Notes:	
Seepage Collection Visual Inspection:		Notes:	
Pipeline Visual Inspection:		Notes:	
General Notes:			

Weekly Inspection Sheets (Dam)				
Dam:				
Name:				
Date and Time:				
Weather Conditions:				
Pond Level (m):				
Freeboard (m):				
Pond Water Characteristics:	Clear:		Turbid:	Snow/Ice Covered:
Pond Inflow Characteristics	Clear:		Turbid:	Comments:
Estimated Inflow:	Minor:		Moderate:	Significant:
Pond Level Rising/Falling:				
No. Pumps running				
Physical Inspection of dams:		Notes:		
Water Quality Sample:	Yes:		No:	
Seepage Collection Visual Inspection:		Notes:		
Pipeline Visual Inspection:		Notes:		
Exterior Dams:	Weeping/Slumping Y/N and Location	Underdrain Flow Y/N	Sample Collected Y/N	Comments
Locations pending construction				
Instrumentation:	To be developed further following construction and insulation of instrumentation			
Number of Photos:				
General Notes:				

Diversion Channel Inspection Form					
Dam:					
Name:					
Date and Time:					
Weather Conditions:					
Estimated flow:	None::	Minor:	Moderate:	Significant:	
Physical Inspection of diversion channel:		Notes:			
Number of Photos:					
General Notes:					

Inspection Sheets for Unusual Events				
Dam:				
Name:				
Date and Time:				
Unusual Event:				
Pond Level (m):				
Freeboard (m):				
Pond Water Characteristics:	Clear:	Turbid:	Snow/Ice Covered:	
Pond Inflow Characteristics	Clear:	Turbid:	Comments:	
Estimated Inflow:	Minor:	Moderate:	Significant:	
Pond Level Rising/Falling:				
No. Pumps running				
Physical Inspection of dams:		Notes:		
Water Quality Sample:	Yes:		No:	
Seepage Collection Visual Inspection:		Notes:		
Pipeline Visual Inspection:		Notes:		
Spillway Visual Inspection:		Notes:		
Exterior Dams:	Weeping/Slumping Y/N and Location	Underdrain Flow Y/N	Sample Collected Y/N	Comments
Locations pending construction				
Instrumentation:	To be developed further following construction and insulation of instrumentation			
General Notes:				

APPENDIX G

MNRF Comments on the Pre-Production OMS Manual and New Gold Responses on revision AG (October 2016)
&
ITRB Review Comments on Pre-Production Version (July 2017)

October 6, 2016
TC150321

Delivered by e-mail

Mr. Paul Hosford, Project Director
New Gold Inc.
Two Bentall Centre
Suite 1800 – 555 Burrard Street, Vancouver
British Columbia, Canada, V7X 1M9

Dear Mr. Hosford:

Re: Rainy River Project Development,
Operation, Maintenance and Surveillance Manual – Tailings and Water Management Structures
3098004-000000-A1-EMA-0001-00
Comments and Responses

Below please find the responses to comments received for the OMS / EPP from the MNRF:

1. *General*

    a. *Appendix C; tailings, heap leach and waste rock. Confirm the term heap leach.*

    Response:
    Appendix C is a New Gold's corporate policy document. Even though the policy applies to tailings, heap leach and waste rock facilities, heap leaching does not apply to this project. The text in section 1.6 describes that Heap Leaching is not applicable to the project.

    b. *Table 1-1 and 2-1 are specific to MNRF. NGD should ensure the OMS/EPP is circulated to the appropriate agencies*.

    Response:
    New Gold has no objections in sharing the OMS with other agencies and contacts at the MNDM will be added to Table 2-1.

    c. *Page 42 – Contingency. Section is incomplete.*

    Response:
    Relevant contingency measures have been added to Section 7.7.

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a Division of Amec Foster Wheeler Americas Limited
160 Traders Blvd. East, Suite 110
Mississauga, Ontario
Canada L4Z 3K7
Tel (905) 568-2929
Fax (905) 568-1686
www.amec.com

d. *Operations: Please confirm whether a stand-alone Operating Plan has been developed for the WMP. The operations plan should provide complete, clear and step by step instructions for operation of the pond. The current OMS is currently missing the following information with regard to operations:*

- *Instructions on routine and general operation of the pond, including maximum water levels permitted at each time of year.*

  Response:
  This is included in the WMP Fill Plan which is incorporated as an Appendix D in the OMS.

- *Max. and min. storage in the pond (in terms of volume AND elevation).*

  Response:
  This is included in the WMP Fill Plan which is incorporated as an Appendix D in the OMS.

- *Max/min inflows and outflows/discharge (Water quality objectives, reference MOECC's C of A),*

  Response:
  Information about inflows and discharge quantities are included in the WMP Fill Plan which is incorporated as an Appendix in the OMS. Any discharge will meet the limits as described in the ECA # 5781-9VJQ2J.

- *Stage-storage curves.*

  Response:
  This is included in the WMP Fill Plan which is incorporated as an Appendix D in the OMS.

- *Other pond constraints.*

  Response:
  This is included in the WMP Fill Plan which is incorporated as Appendix D in the OMS.

- *Upstream and downstream constraints (in terms of spillway releases).*

  Response:
  WMP see Table 3-3 of the OMS.

- *Operation of structure in emergency situations/flood operating procedures*

  Response:
  See section 7.0 of the OMS.

- *Ice and debris handling.*

  Response:
  Not applicable during pre-production phase for the WMP is filling. For other channels debris will be removed.

- *Information on flood forecasting.*

  Response:
  Information on managing flood scenarios is provided in Section 3.0.

2. *Maintenance*:

   Provide more details on roles and responsibilities for emergency, major and minor maintenance.

   Response:
   Section 5.0 of the OMS describes the overall maintenance however, the details on responsibilities for maintenance and other tasks are discussed in section 2.0 Roles and Responsibilities of the OMS.

3. Section 1.4

   Provide more detail on the annual review of the OMS manual, including:

   Describe the process by which necessary changes will be evaluated.

   Response:
   This manual will be updated to the production version prior to the annual review process and this will be evaluated at that time.

   Who will be designated to evaluate and update the OMS?

   Response:
   Dave Hall, Mill Manager will be responsible for evaluating and updating the OMS.
   Note that working draft manuals must be made available in advance of commissioning any new system.
   Copies of the OMS will be made available at the site and to MNRF.

4. Section 2.4

   Complete the contact list in table 2-1 with all known information.

   Response:
   Table 2-1 has been updated.

5. Section 2.6

   Add that changes, modifications, alterations or improvements to the design and operations of the systems shall be screened by the MNRF.

   Response:
   Requested text has been added to section 2.6.

   Working draft manuals must be made available ***in advance of*** *any changes or start of operations, not just "within 90 days"*

   Response:
   Text revised accordingly.

   Provide clarity to define what "important events" trigger an update to the OMS manual (i.e. the important events listed in table 6-2).

   Response:
   Text revised accordingly.

6. Section 3.0

   Provide most up-to-date site layout and not conceptual plan.

   Response:
   The site plan/general arrangement is now current.

7. Section 3.3

   Add "Subject to ***MNRF*** *approvals…" in discussion of WMP filling during the pre-production phase.*

   Response:
   Text added as requested.

8. Section 6 (page 32)

   States that the surveillance plan is "conceptual".

   Response:
   The word conceptual has been removed.

   Cover letter recommends that Standard Operating procedures should be developed for dam inspections for daily, weekly and monthly inspections. These procedures should be developed PRIOR to any operation of the WMP.

   Response:
   SOPs will be developed and implemented prior to production.

9. Section 6.1.2

   Clarify frequency of inspections. Section 6.1.2 sets bi-weekly standard which conflicts with table 6-1 which indicates "at least once a week"

   Response:
   Text revised.

10. Section 7.0 – Emergency Response

    It is unclear which section in the EPRP relates directly to dam failure as outlined in this section.

    Response:
    A new section 12.0 - Environmental Risks and Responses has been created in the updated EPRP manual.

Comments on EPRP:

11. General

    a) *Provide detail on environmental concerns and response associated with:*

       - *Open Pit Failure*
       - *Stockpile Slope Failure*
       - *Tailings Dam Failure*
       - *Pond Dam Failure*
       - *Watercourse Diversion Failure*
       - *Tailings Pipeline failures*

       Response:
       A new section 12.0 has been added to the EPRP that addresses environmental concerns and responses with the facilities as requested above.

    b) *Please provide detail relating to the management of wildlife related emergencies (i.e. wolf, bear) or provide reference to plans already in place.*

       Response:
       Included reference to wildlife attack in EPRP Manual, Part 2 Section 1.0 Serious Injuries & Fatalities

1. PART I

   Section 3.2 – Include LRIA in the list of Legislation and Industry Standards

   Response:
   Updated Section 3.2 of the EPRP to include LRIA

Section 5.4 – Provide detail on the process that ensures the regular review of the EPRP manual.

- *Describe the process by which necessary changes will be evaluated*
- *Who will be designated to evaluate and update the EPRP?*

Response:
Revised and updated section 5.4

2. PART II

Section 5.1.2 – Provide more detail (i.e. actions, trigger levels) to do with Winter Wind Chill

Response:
Wind Chill calculation table and Wind Chill Hazard tables from Environment Canada are now included in EPRP

Section 9.6 – Update table 14 – reporting guidelines to include tailings and other contaminated water

Response:
Table 14 in Section 9.6 has been updated as follows:

a) Tailings – Report all unplanned releases that escape secondary containment.
b) Contaminated Water - Report all unplanned releases that escape secondary containment.

We trust this letter provides sufficient detail for your present needs. Do not hesitate to contact us if you need any further clarifications.

Yours sincerely,
Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited

Stephan Theben, M.Eng.
Associate Project Manager

H. Lindsay

Heather Lindsay, M.Sc., P.Eng
Geoenvironmental Engineer

Independent Technical Review Board
Rainy River Project

Mr. Darrel Martindale
Environmental Manager
Rainy River Project
New Gold Inc.
5967 Highway 11/71, P.O. Box 5
Emo, Ontario
P0W 1E0

August 2, 2017

Re: <u>Review of the Operations, Maintenance and Surveillance Manual for Rainy River Project</u>

Dear Sir:

The ITRB was asked by Ms Andrea St-Pierre in an email dated July 27, 2017 to comment on the OMS manual for the site tailings and surface water control structures. This is an interim document meant to describe primarily the operation, maintenance, and surveillance of the surface water control dams and ditches that are complete or near complete. The starter dams for the tailings operation are not yet complete so the OMS procedures cannot be described. Preparation of an OMS manual at the construction stage of a mining project is a difficult undertaking as the structures themselves evolve at during writing of the document. We commend the Rainy River project(RRP) for this difficult undertaking.

The RRP recognizes that the OMS manual will have to be updated as the structures are completed and come into operation. Some of the report sections in the OMS can be kept while others will have to be completely rewritten for the next update. In the current document, the date of submission of the document, July 2017, is well after the status description of some structures. This should be clarified in the document by stating that "this document describes the status of the project at the end of May, 2017 (for instance)" in the Introduction.

The ITRB considers that the OMS document needs to be updated before submission to the MNRF.

- For example, the Emergency Response Contact list requires updating to reflect changes in personnel, and a commitment to the environment is signed by a president long departed;
- The manual contains a description of the geology that omits the presence of high plastic clay tills (that is described a silt) , with low residual strength and high pore pressure response. The ITRB considers this to be misleading and recommends updating;
- The OMS plan provides a general outline of procedures to be followed but note the absence of trigger levels and details. The OMS plan currently provides rough guidelines such as 'when there is a big rainfall… check the dam.' or 'When is a significant change in the readings of a

piezometer, check the instrument then report to EOR' etc but there is no clarity on what constitutes significant or big.

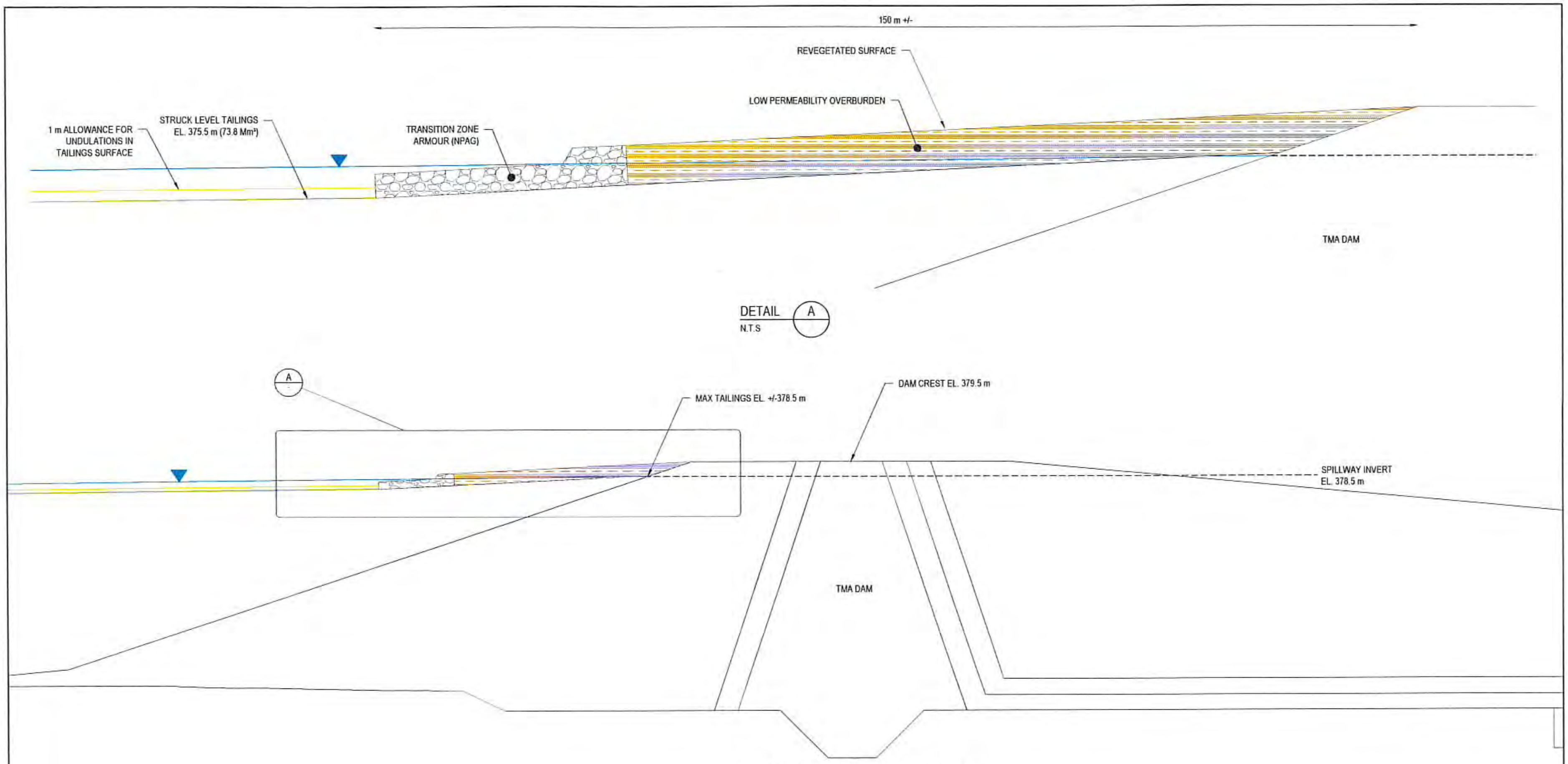
- Section 2 does not state who updates and checks the OMS. Clearly, the Mill Manager is responsible for this but would not normally do this personally. Normally, the site geotechnical engineer would do this work.
- Section 2.5 , bottom of Page 8, states that the OMS will be "screened" by the MNRF. This is unusual. Normally regulatory agencies receive submissions for comment, not screening.

The ITRB would like to be appraised of the changes made and be provided with a summary of instrument readings versus pond level with time at the next ITRB meeting in the fall.
With the above proposed changes included, The ITRB can support the OMS plan.

Yours truly,
On behalf of the ITRB

Bryan Watts, M.Sc., P.Eng (BC), P.Geo (BC)

Iain Bruce, Ph.D., P.Eng.



TYPICAL TMA CLOSURE CONFIGURATION
N.T.S

NOTES:

Figure reproduced by O'Kane Consultants using base schematic from 2015 closure document.

newgold
Rainy River Project

PROJECT:	RAINY RIVER PROJECT
TITLE:	TMA Closure Configuration Schematic
DRAWN BY / CARTOGRAPHY:	Hal Cooper
FIGURE:	FIGURE: 6-2
SCALE: N.T.S	DATE: 10/05/2017

RAINY RIVER PROJECT
WHITE-TAILED DEER
2016 TISSUE SAMPLING REPORT

VERSION 2

Prepared by:

Amec Foster Wheeler Environment & Infrastructure
a Division of Amec Foster Wheeler Americas Limited
160 Traders Blvd. E., Suite 110
Mississauga, Ontario
L4Z 3K7

May 2017
TC111504

Principal Contact: Darrell Martindale, Environmental Manager
Rainy River Project
5967 Highway 11/71
P.O. Box 5
Emo, Ontario, Canada, P0W IE0
Telephone: (807) 707-3497
E-mail: Darrell.Martindale@newgold.com

EXECUTIVE SUMMARY

New Gold Inc. (New Gold) is currently constructing, and plan to operate and eventually reclaim a new open pit and underground gold mine in Chapple Township, Ontario. As part of commitments made during the environmental approvals process, New Gold conducted a White-tailed Deer tissue and organ sampling program in 2016 to determine baseline concentration levels of various contaminants such as metals (e.g., cadmium, copper and zinc) and cyanide within deer located near the Rainy River Project (RRP). Future sampling conducted once the RRP has commenced operations will aid in determining exposure and ecological risk to wildlife if any, from RRP related contaminants. The study will also assist in determining if there are risks to humans that consume local wildlife.

Sampling kits were distributed by New Gold RRP to collect deer tissue and liver samples from hunters on a voluntary basis. Tissues were also sampled from two deer that died from vehicle collisions (not related to the RRP), and one which was hunted without permission on the RRP property. There was no harvesting of deer solely for the purpose of this program to the knowledge of RRP. Samples from 37 deer were analyzed for several metals as well as cyanide and the results were plotted relative to the distance of the harvest location from the RRP boundary.

Many of the contaminants measured were considered to be at negligible or low levels within most of the 37 deer samples analyzed, although a few had quite high variance with anomalous concentrations higher than the majority of the values (e.g., aluminum, cesium, iron and lead). These higher values could be due to illness or high levels of some contaminants naturally occurring in the environment. Samples collected closer to the RRP boundary did not show elevated concentrations in any of the contaminants measured.

There are few similar studies in Canada or in North America, which provide contaminant information from healthy White-tailed Deer populations that can be used as a baseline comparison for this study. It is also difficult to make comparisons at large geographic scales (e.g., outside Ontario or outside of Canada) as different ecological factors and human activities can result in different contaminant concentrations between populations. Accordingly, New Gold RRP will use the 2016 data as baseline data for comparison of concentration levels in deer tissue in future years (e.g., after operations have commenced and post-closure), rather than relying on comparisons to contaminant concentration levels in other studies.

newgold Rainy River Project

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1.0 INTRODUCTION

1.1 Project Background

New Gold Inc. (New Gold) is currently constructing and plan to operate and eventually reclaim a new open pit and underground gold mine, the Rainy River Project (RRP) to produce doré bars (gold with silver) for sale (Figure 1-1).

Physical works related to the RRP will consist primarily of:

- Open pit;
- Underground mine;
- Overburden, mine rock and low grade ore stockpiles;
- Primary crusher and process plant;
- Tailings management area;
- 230 kilovolt transmission line;
- Relocation of a portion of gravel-surfaced Highway 600; and
- Associated buildings, facilities and infrastructure.

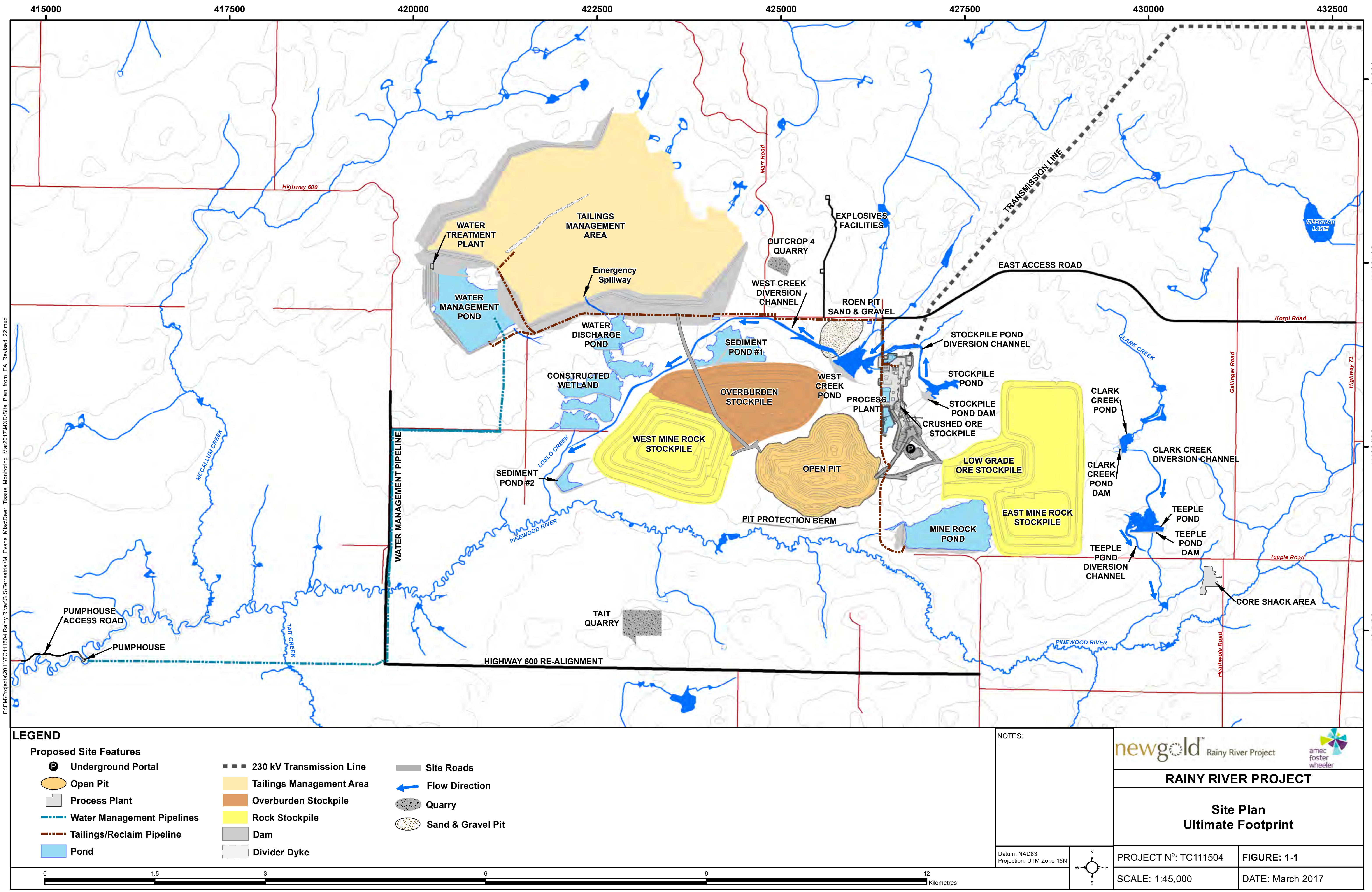
Development of the RRP was initiated in 2015 following completion of the Environmental Assessment process and receipt of applicable environmental approvals. In accordance with the *Canadian Environmental Assessment Act, 2012 (CEAA, 2012)* a follow-up monitoring plan was developed to verify the accuracy of the predictions made in the Environmental Assessment about the impacts of the RRP on wildlife and wildlife habitat, and to monitor the effectiveness of rehabilitation efforts for wildlife habitat and terrestrial environments.

As part of the overall follow-up monitoring plan, and to address concerns that dust from the project will settle on the vegetation deer will be eating (and thus carry the contaminants up the food chain) New Gold RRP committed to a White-tailed Deer tissue and organ sampling program. This program will determine exposure and ecological risk to wildlife from mine-related contaminants and confirming the low risks to humans that consume local wildlife.

1.2 Objective and Scope

Metals such as cadmium, copper and zinc are naturally-occurring in the environment, but may also be released to the environment in an enhanced manner through anthropogenic activities. Plant-eating animals, such as deer, are susceptible to ingesting unnaturally high levels of contaminants by feeding on toxic plants in polluted areas. Plants can absorb metals from soil, or become coated by microscopic airborne contaminants from dust and industrial emissions. Airborne contaminants can be carried long distances by winds before they are deposited at ground level, while dust generated along roads tends to remain more localized. This dust may have a more concentrated effect on nearby plants, and subsequently, on the animals that consume these plants. Both of these sources of contaminants have the potential to harm the health of the animals that consume affected plants, as well as potentially the health of humans who consume these animals.

This report sets out to present preliminary data to quantify pre-existing levels of contaminants present in the White-tailed Deer population located close to the RRP. The results of this study will set the baseline for determining exposure and ecological risk to local wildlife from mine-related contaminants and assessing the risks to humans that consume local wildlife if any.



415000
417500
420000
422500
425000
427500
430000
432500
5415000
5412500
5410000
5407500
Highway 600
Marr Road
TAILINGS MANAGEMENT AREA
WATER TREATMENT PLANT
WATER MANAGEMENT POND
Emergency Spillway
WATER DISCHARGE POND
OUTCROP 4 QUARRY
EXPLOSIVES FACILITIES
TRANSMISSION LINE
MUSKRAT LAKE
EAST ACCESS ROAD
Korpi Road
WEST CREEK DIVERSION CHANNEL
ROEN PIT SAND & GRAVEL
SEDIMENT POND #1
STOCKPILE POND DIVERSION CHANNEL
CLARK CREEK
CONSTRUCTED WETLAND
OVERBURDEN STOCKPILE
WEST CREEK POND
PROCESS PLANT
STOCKPILE POND
STOCKPILE POND DAM
CRUSHED ORE STOCKPILE
CLARK CREEK POND
Gallinger Road
Highway 71
MCCALLUM CREEK
LOSLO CREEK
WEST MINE ROCK STOCKPILE
OPEN PIT
LOW GRADE ORE STOCKPILE
CLARK CREEK POND DAM
CLARK CREEK DIVERSION CHANNEL
SEDIMENT POND #2
WATER MANAGEMENT PIPELINE
PINEWOOD RIVER
PIT PROTECTION BERM
MINE ROCK POND
EAST MINE ROCK STOCKPILE
TEEPLE POND
TEEPLE POND DAM
TEEPLE POND DIVERSION CHANNEL
Teeple Road
CORE SHACK AREA
TAIT QUARRY
PUMPHOUSE ACCESS ROAD
PUMPHOUSE
TAIT CREEK
HIGHWAY 600 RE-ALIGNMENT
PINEWOOD RIVER
Heathwole Road
P:\EM\Projects\2011\TC111504 Rainy River\GIS\Terrestrial\M_Evans_Misc\Deer_Tissue_Monitoring_Mar2017\MXD\Site_Plan_from_EA_Revised_22.mxd
LEGEND
Proposed Site Features
Underground Portal
Open Pit
Process Plant
Water Management Pipelines
Tailings/Reclaim Pipeline
Pond
230 kV Transmission Line
Tailings Management Area
Overburden Stockpile
Rock Stockpile
Dam
Divider Dyke
Site Roads
Flow Direction
Quarry
Sand & Gravel Pit
NOTES:
-
newgold Rainy River Project
amec foster wheeler
RAINY RIVER PROJECT
Site Plan
Ultimate Footprint
Datum: NAD83
Projection: UTM Zone 15N
PROJECT N°: TC111504
FIGURE: 1-1
SCALE: 1:45,000
DATE: March 2017
0
1.5
3
6
9
12
Kilometres

2.0 METHODOLOGY

2.1 Sample Collection

A tissue collection program was developed by Nathan Baird, New Gold to test for metal and cyanide concentrations in White-tailed Deer. Sampling kits were distributed to interested parties during the 2016 deer hunting season to collect liver and muscle tissue samples from hunters on a voluntary basis (some heart samples were also supplied). Tissues were also sampled from two deer that died in vehicle collisions (D011 and D025) and one which was hunted without approval on the RRP property (D005). There was no harvesting of deer solely for the purpose of this program to the knowledge of New Gold RRP. Tissue and organ samples were collected from 37 deer at harvest locations shown in Figure 2-1.

Detailed information about each animal the samples were collected from was collected, including:

- Date harvested;
- Weather;
- Name and contact details of sample provider;
- Location of harvest;
- Tag number;
- Deer sex, age and physical condition;
- Time of harvest and time of sample collection;
- Type of harvest (firearm or crossbow);
- Location of shot (injury); and
- Any additional comments.

Table 2-1 provides the sample identification number with the relevant sex, age and type of harvest for the specimens described in this report.

The 2016 data presented in this report will serve as baseline data for the local deer population since construction of the RRP only began in the winter of 2015. It is anticipated that there will have been little to no metal contamination in tissues to date, and no cyanide contamination as there has been no use or storage of cyanide at the site to date. Tissue and organ sample collection will be conducted again in 2017, and then every three years through the operations phase until the closure of the RRP. If contaminant levels are found to increase problematically, the frequency of the program will be changed to annual sampling. The results of these future sampling periods will be compared to the 2016 baseline data presented herein.

2.2 Chemical Analysis

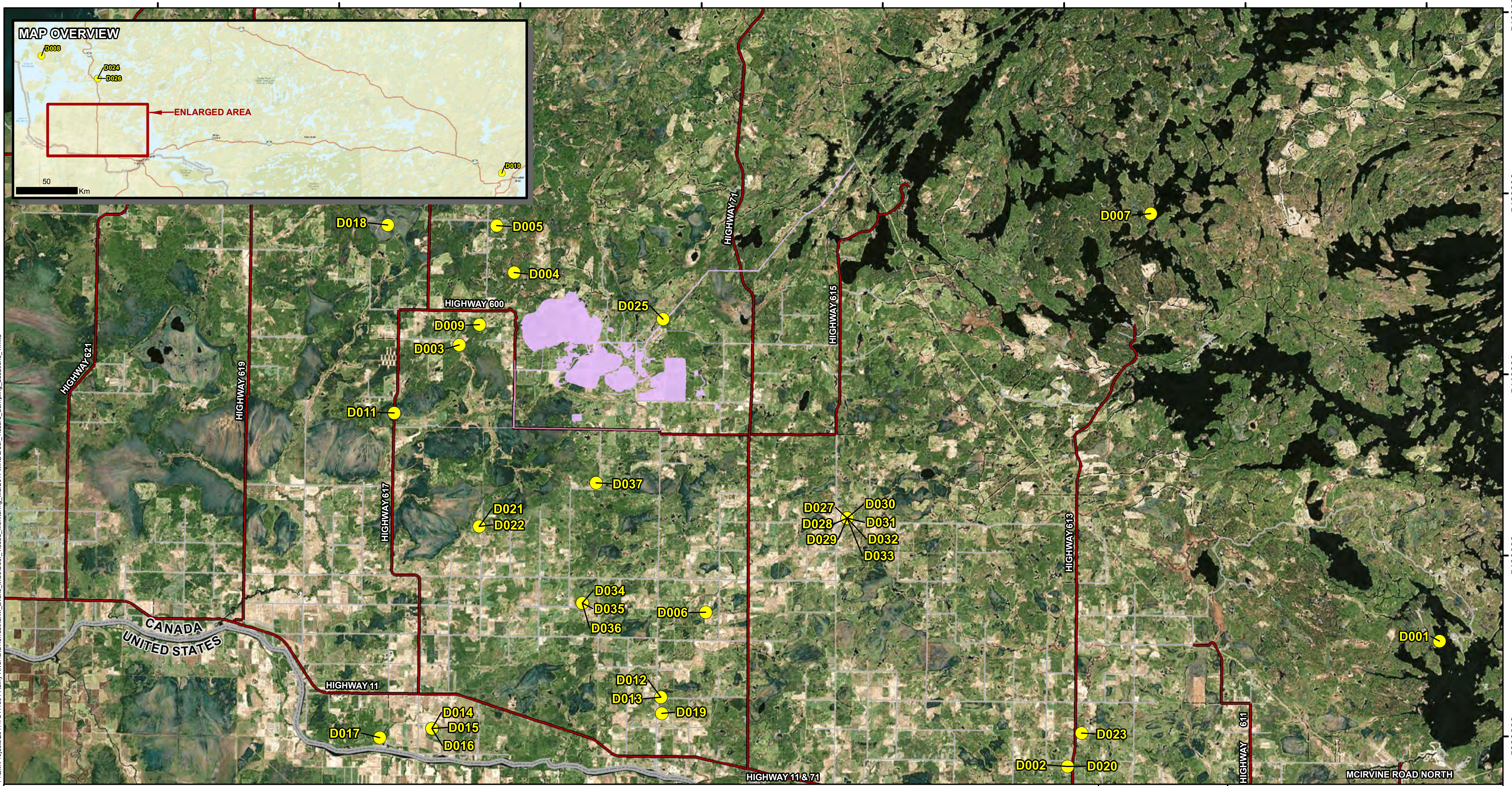
All deer tissue and organ samples were sent to ALS Environmental Labs in Mississauga, Ontario for metal and cyanide analysis. Liver samples were sampled for a suite of metals and muscle tissue was analyzed for cyanide. All metals other than mercury were tested for using an Inductively Coupled Plasma Mass Spectrometry (ICPMS) test (wet). Mercury was tested for using a Cold Vapour Atomic Fluorescence Spectroscopy (CVAFS) test (wet). The tests for metals were conducted following the British Columbia Lab Manual method described in *Metals in Animal Tissue and Vegetation (Biota) – Prescriptive*. Tissues samples were homogenized and sub-sampled prior to hotblock digestion with nitric acid, hydrochloric acids and hydrogen peroxide. For the ICPMS, analysis was by collision cell inductively coupled plasma – mass spectrometry, modified from United States Environmental Protection Agency (US EPA) Method 6020A. The CVAFS analysis uses atomic fluorescence spectrophotometry or atomic absorption spectrophotometry, adapted from US EPA Method 245.7.

2.3 Analytical Methods

Small concentrations of contaminants cannot always be precisely measured. Concentrations that are too low to be measured are said to be below the Lowest Detection Limit (LDL) and as such range from 0 to the LDL value itself. In statistical analyses these values are often substituted with a constant value such as the LDL, half of the LDL, or 0. Mean, maximum, minimum and median values were calculated for each metal analyzed in this study. Many of the mean values were calculated as a range with the lower value calculated by substituting 0 for any value below the LDL and the higher value using the LDL value itself, resulting in a minimum and maximum possible value for the mean.

Table 2-1: White-tailed Deer Tissue Collection Data

Sample ID	Sex	Age	Type of Harvest
D001	Male	Adult	Firearm
D002	Male	Adult	Firearm
D003	Male	Yearling	Firearm
D004	Male	Adult	Firearm
D005	Male	Adult	Firearm
D006	Male	Adult	Firearm
D007	Male	Adult	Firearm
D008	Male	Adult	Firearm
D009	Male	Yearling	Firearm
D010	Female	Adult	Crossbow
D011	Female	Yearling	Vehicle
D012	Male	Adult	Firearm
D013	Female	Adult	Firearm
D014	Female	Adult	Firearm
D015	Male	Adult	Firearm
D016	Male	Adult	Firearm
D017	Female	Adult	Firearm
D018	Male	Adult	Firearm
D019	Male	Yearling	Firearm
D020	Male	Adult	Firearm
D021	Female	Adult	Firearm
D022	Male	-	Firearm
D023	Male	Fawn	Firearm
D024	Male	Adult	Firearm
D025	Female	Adult	Vehicle
D026	Male	Adult	Firearm
D027	Female	Adult	Firearm
D028	Male	Adult	Firearm
D029	Female	Adult	Firearm
D030	Male	Adult	Firearm
D031	Male	Adult	Firearm
D032	Female	Adult	Firearm
D033	Female	Fawn	Crossbow
D034	Male	Yearling	Firearm
D035	Female	Yearling	Firearm
D036	Female	Adult	Firearm
D037	Male	Adult	Firearm



LEGEND

- Deer Tissue Sampling Locations
- Approximate Principal RRP Facilities
- Highway
- Local Road
- Resource / Recreation Road
- Provincial Border

0 2.5 5 10 15 20 25 30 Kilometres

NOTES:
- Imagery extracted from ESRI.
- Road data extracted from Land Information Ontario, Ontario Road Network, MNRF

Datum: NAD83
Projection: UTM Zone 15N

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amec foster wheeler

RAINY RIVER PROJECT

Deer Tissue Sampling Locations

PROJECT Nº: TC111504	FIGURE: 2-1
SCALE: 1:200,000	DATE: March 2017

3.0 RESULTS

Raw data for each contaminant and each sample as analyzed by ALS Environmental Labs are presented in Appendix A.

3.1 Concentrations of Contaminants

Wildlife exposure to contaminants such as metals may come from ingestion of effected plants, soil or water that have been exposed to the contaminants. Metal contaminants arise from many sources, including some which occur naturally in the environment, but may also formed from industry discharges (Oladunjoye et al. 2015). Some of these metals are natural and necessary nutritional requirements by wildlife in small (trace) amounts, but become toxic at high concentrations. Conversely, deficiencies in some of these metals can also cause health problems.

Table 3-1 presents a statistical summary with the range (minimum and maximum), average and median values for each contaminant. The results for each contaminant are discussed briefly below for ease of future comparison. As stated in Section 2.3, the average and median values are sometimes a range of values due to the uncertainty around concentrations lower than the LDL.

Figure 3-1 contains multiple graphs which show the concentrations found in the 37 deer samples from the RRP analyses for most of the contaminants analyzed. Beryllium, tellurium and zirconium were not graphed as these three metals were never detected over their respective LDL. The samples have been plotted relative to the distance between the deer tissue harvest location (Figure 2-1) and the boundary of the RRP. The distance / concentration relationship is discussed in Section 3.2.

Many of the contaminants were considered to be at negligible or low levels within most of the 37 deer samples tested, although a few had quite high variance with anomalous concentrations elevated over the majority of the values (e.g., aluminum, cesium, iron and lead).

All of the contaminants which were tested for can be produced by mining operations, but can all also occur naturally in the environment and can be introduced by other anthropogenic means.

Aluminum

Aluminum has a LDL of 0.40 milligrams per kilogram wet weight (mg/kg ww). The majority of the values for this metal in deer tissues for the RRP study hover around this mark, with 50% of the samples having non-detectable levels (the value is less than the LDL). Another 16 samples have concentrations less than 2.0 mg/kg ww. There were three samples that had concentrations of aluminum that are significantly higher than the rest: results of 6.12, 9.96 and 10.2 mg/kg ww from samples D027, D028 and D009, respectively.

Aluminum is the most abundant metal in the earth's crust and is found commonly in bedrock and unconsolidated surficial sediments / soil as well as groundwater. Aluminum can also be introduced into the environment by burning coal (United States Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017).

Antimony

Antimony has a LDL of 0.0020 mg/kg ww and the majority of the samples had values for this element around this concentration (73.7% less than the LDL). Of the remainder of the samples, 21% of the samples had concentrations less than 0.01 mg/kg ww. Two samples had concentrations of antimony are higher than the rest: 0.0797 and 0.281 mg/kg ww (samples D005 and D035).

Antimony is naturally present in the earth's crust in bedrock, soil and waterbodies (lakes and rivers) although it is generally found in low concentrations (Agency for Toxic Substances and Disease Registry 2017; United States Department of the Interior 2016). Antimony can also enter the environment through various human activities including: coal-fired power plants, copper smelters and inorganic chemical plants (CCREM nd).

Arsenic

The LDL for Arsenic is 0.0040 mg/kg ww; 13% of the samples in this study had concentrations less than the LDL and the remainder of the concentrations in samples ranged from 0.0044 to 0.0491 mg/kg ww which are considered to be low (close to the LDL).

Arsenic is a widely distributed element found naturally in the earth's crust in soil and minerals and the largest natural source of arsenic entering surface waters is that from weathered rocks and soils (Nriagu 1989 in CCME 2017). Arsenic is used in metallurgical applications, wood preservatives, herbicides, pharmaceutical and glass manufacturing (Government of Canada 1993). As arsenic was historically widely used in pesticides, agricultural areas where it was used can have high levels in soils (United States Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017).

Barium

All of the deer tissue samples had detectable levels of barium (LDL of 0.010 mg/kg ww), ranging from 0.012 to 0.155 mg/kg ww.

Barium is found naturally in some rocks and soils, and can be introduced to air and water by natural weathering processes. Some vegetation types are known to accumulate barium. Barium minerals and compounds are widely used in industry. Barium is used as a filler in such anthropogenic substances such as: paint, bricks, glass, rubber and insect / rodent poisons, and could enter the environment from the manufacturing or disposal of these products (United States Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017).

Beryllium

There were no samples with beryllium concentrations above the respective LDL of 0.0020 mg/kg ww.

Beryllium occurs naturally in some rocks including coal and soil, although generally in low levels in Canada (CCREM nd). Natural weathering of soil and rocks causes it to enter water sources and it can accumulate in some plants. It is also released into the environment when coal or oil are burned or improperly disposed of (United States Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017).

Bismuth

The LDL for bismuth is 0.0020 mg/kg ww. The majority of RRP deer tissue concentrations for this element were around this mark with 73.7% of the samples having non-detectable levels and the remaining values ranging between 0.0022 and 0.0067 mg/kg ww.

Bismuth is a naturally occurring metal in the earth’s crust. Bismuth can be released into soil and water by natural weathering processes (Salminen et al. 2005).

Boron

Boron has a LDL of 0.20 mg/kg ww; 36% of the tissue samples had non-detectable concentration levels of boron; the remaining values ranged from 0.20 to 0.52 mg/kg ww.

Boron is a widely occurring metal in the earth’s crust. Due to the extensive occurrence of boron in clay-rich sediments and sedimentary rocks, the majority of boron found in surface soils and waters from weathering of natural sources. Boron can accumulate in some plants. Boron is also widely used in fertilizers and pesticides so agricultural areas can have high levels in the soils. (Agency for Toxic Substances and Disease Registry 2017).

Cadmium

All of the samples in this study had detectable levels of cadmium, ranging from 0.0094 to 1.98 mg/kg ww.

Cadmium occurs naturally in rocks including coal and petroleum, and can enter water or soil when it is broken down by acidic water such as acid precipitation. Some areas naturally contain elevated concentrations of cadmium in underlying rock, with the spatial variation related to both rock composition and other natural processes. As cadmium is used in such items as batteries, plastics and pesticides (CCME 2017), it can also enter the environment from anthropogenic means including from landfills or incineration. Cadmium is known to accumulate in plants, including agricultural crops although the uptake rates will depend on the plant species (United States

Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017; CCME 2015).

Calcium

All of the deer tissue samples from the RRP had detectable levels of calcium, ranging from 29.2 to 106 mg/kg ww.

Calcium is the third most abundant metal in the earth’s crust and can be found naturally in rocks, minerals, and in all plants and animals. It is readily soluble in water and as a result, enters the environment through the weathering of rocks, especially limestone (CCREM nd).

Cesium

Cesium has a LDL of 0.0010 mg/kg ww. All of the samples had detectable levels of cesium, ranging from 0.0044 to 0.293 mg/kg ww.

Cesium occurs naturally in rocks, soil and mineral and can enter water and air by natural erosion and weathering processes. Anthropogenic sources of cesium include nuclear power plants and other nuclear operations (Agency for Toxic Substances and Disease Registry 2017).

Chromium

The majority (71%) of the deer tissue sample had detectable levels of chromium (LDL of 0.010 mg/kg ww) with values ranging from 0.010 to 3.2 mg/kg ww.

Chromium us a naturally occurring element in rocks, soil, water, air, plants and animals. In rocks and soil it is generally found as an insoluble oxide (CCME 2017). Anthropogenic sources of chromium in the environment include fossil fuel combustion, cement manufacturing, incineration and from industries such as ferrochromium production and electroplating (United States Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017; CCME 2017).

Cobalt

All of the deer tissue samples but one had detectable levels of cobalt (LDL of 0.0040 mg/kg ww). Concentrations of cobalt in the deer tissue samples ranged from 0.0185 to 0.108 mg/kg ww.

Cobalt occurs naturally in a number of rock types, and accordingly, is present in soil, water, plants and animals. Anthropogenic sources of cobalt in the environment including coal burning, other industries, fertilizers, and vehicle exhaust (CCREM nd; Agency for Toxic Substances and Disease Registry 2017).

Copper

All of the tissue samples had detectable levels of copper, ranging from 0.6 to 191 mg/kg ww (LDL of 0.020 mg/kg ww).

Copper is a common, naturally occurring metal in rocks and minerals of the earth's crust and is found in surface soil, water, sediments, air, plants and animals. Major industrial sources include copper mining, smelting and refining industries, wire mills, coal-burning industries, and iron- and steel-producing industries (CCREM nd). As well as from industrial discharges and emissions, copper also enters the environment naturally from decaying plants and forest fires (United States Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017).

Iron

All of the deer tissue samples from the RRP had detectable levels of iron, ranging from 79.8 to 901 mg/kg ww. The maximum concentration reported (901 mg/kg ww, sample D019) was significantly higher than the next highest value of 294 mg/kg ww. It is worth noting that this sample (D019) also had the lowest magnesium and phosphorus concentrations, and the liver was noted to be dark in colour, so it is likely that this animal has some health issues such as disease or some form of nutritional stress.

Iron is a naturally occurring metal found in minerals and is the fourth most abundant element in the earth's crust. It is released into soil and water by the natural weathering of rocks and is commonly present. Iron can also be introduced into the environment from human activities, including from burning of coal, acid mine drainage, mineral processing, landfill leachates, ieron-related industries, and the corrosion of iron and steel (CCREM nd).

Lead

The LDL for lead is 0.0040 mg/kg ww and 21% of the samples had non-detectable levels of lead. The remainder of the results range from 0.0042 to 39.9 mg/kg ww. The maximum value of 39.9 mg/kg ww (D035) was significantly higher than the next highest value of 2.52 (which was itself quite a bit higher than the third highest concentration of 0.267). It is hard to speculate the reason for this high concentration, but one possible reason could be from lead bullet contamination (Hunt et al. 2009).

Lead is a naturally occurring metal in the earth's crust. Most of the lead in the environment however, comes from human activities rather than the weathering of lead-containing rock (CCREM nd). The historic use of gasoline and pesticides containing lead caused large amounts to enter the environment. Lead binds to soil and will stay in an area for many years. Other sources of lead in the environment are burning fossil fuels, incineration, leaching from plumbing and weathering of paint (Agency for Toxic Substances and Disease Registry 2017).

Lithium

The LDL for lithium has a LDL of 0.010 mg/kg ww; 21% of the samples had non-detectable levels of lithium. The rest of the values range from 0.11 to 0.68 mg/kg ww.

Lithium naturally occurs in rocks and can be introduced to water and soils by natural weathering processes. Human activities also introduce lithium into the environment such as through the disposal of batteries, as well as coal combustion and aluminum product production (Salminen 2005; Yalamanchali 2012; CCREM nd). Lithium compounds are readily soluble; and is easily taken up and accumulated in plants. (CCREM nd; Yalamanchali 2012; Lenntech 2017).

Magnesium

All of the samples had detectable levels of magnesium ranging from 57.6 to 202 mg/kg ww. The minimum value of 57.6 (D019) is quite a bit lower than the next lowest which is 125 mg/kg ww. The sample (D019) with this low minimum value is also the sample that had an elevated iron concentration and decreased phosphorus concentration, and the liver was noted to be dark in colour.

Magnesium is a common naturally occurring element in the earth's crust and is found in many different rock types, including dolomite which is commonly quarried and used as an aggregate. It is used in a variety of industry applications, including: textiles, paper, refractories, ceramics and fertilizers. Magnesium is considered to be an essential element for all organisms and may be accumulated in in calcareous tissues (CCREM nd).

Manganese

All of the samples had detectable levels of manganese, ranging from 0.14 to 4.14 with an average value of 2.29 mg/kg ww.

Manganese occurs naturally in mineral form from sediments and rocks, and is taken up and accumulated by some plants. As it is used in the steel and chemical industries, manganese can also be released from emissions and waste disposal (United States Department of the Interior 2016; Agency for Toxic Substances and Disease Registry 2017; CCREM nd).

Mercury

Mercury has a LDL of 0.0010 mg/kg ww. One sample had a non-detectable concentration and the rest of the samples had concentrations ranging from 0.0016 to 0.111 mg/kg ww. The maximum value of 0.111 mg/kg ww (D024) was significantly higher than the next highest value of 0.0151 mg/kg ww.

Mercury occurs naturally and enters soil, water and air by the weathering of minerals in rocks and soils (Agency for Toxic Substances and Disease Registry 2017). Mercury is also introduced into the environment from anthropogenic usage, including: the pulp and paper manufacture, combustion of coal, and disposal of medical and electrical equipment (Agency for Toxic Substances and Disease Registry 2017; United States Department of the Interior 2016; CCME 2017).

Molybdenum

All of the samples in this study had detectable levels of molybdenum. The concentrations ranged from 0.0269 to 0.9530 mg/kg ww.

Molybdenum occurs naturally in rocks, and the weathering of igneous and sedimentary rocks (especially shales) introduces molybdenum to the environment naturally. Molybdenum can also be released into the environment by combustion of fossil fuels and through waste products of industries using molybdenum (CCME 2017).

Nickel

The majority (68.4%) of the tissue samples that nickel concentrations below the LDL of 0.040 mg/kg ww. The remainder of the samples had nickel concentrations of 0.056 to 1.5 mg/kg ww. The maximum value of 1.5 mg/kg ww (D028) was significantly higher than the next highest value of 0.259 mg/kg ww.

Nickel is mined commercially in Canada including in Ontario. Nickel is found naturally in soils and water through the weathering of bedrock and can accumulate in plants. Human activities such as such as burning fossil fuels can also cause nickel to be introduced into the environment, as well as waste from nickel industries such as electroplating, stainless steel and alloy production (Agency for Toxic Substances and Disease Registry 2017; United States Department of the Interior 2016).

Phosphorus

All of the tissue samples had detectable levels of phosphorus: 853 to 4n430 mg/kg ww. The minimum value of 853 mg/kg ww (D019) is significantly lower than the next lowest value of 2,640 mg/kg ww. The sample with this lowest value for phosphorus (D019: 853 mg/kg ww) is also the sample that had low magnesium concentration and a high iron concentration, and the liver was noted to be dark in colour.

Phosphorus can be released into soil and water by natural weathering process of native bedrock, and is actively taken up by plants. Decomposition of these plants is another source of phosphorus to the environment, as well as such anthropogenic sources as fertilizers, pesticides and detergents (Lenntech 2017).

Potassium

All of the deer tissue samples had detectable levels of potassium, from 1310 to 3650 mg/kg ww.

Potassium is found in nature as a mineral and is released into the environment by natural weathering processes although it is resistant to weather processes. Potassium is used widely in fertilizers and detergents that can also introduce this element into the environment (Lenntech 2017). Potassium is needed for all life so is found in all plants and animals, and is readily accumulated (CCREM nd).

Rubidium

All of the samples had detectable levels of rubidium that ranged from 6.7 to 32.5 mg/kg ww.

Rubidium exists naturally in minerals and rocks and enters soil and water by natural weathering processes. Rubidium can also be introduced into the environment due to human activities, such as glass dust; however, natural sources are considered more abundant (Salminen et al. 2005).

Selenium

Selenium was detected in all of the samples: 0.198 to 1.880 mg/kg ww.

Selenium occurs naturally in rocks and soils, is easily taken up by plants, and can be introduced to the water and air by natural weathering processes and volcanic activity (CCREM nd). Selenium can also be released into the environment by the burning of coal and oil (Agency for Toxic Substances and Disease Registry 2017).

Sodium

Sodium has a LDL of 4.0 mg/kg ww. All of the samples had detectable levels of sodium which ranged from 413 to 1440 mg/kg ww.

Sodium exists naturally exists in the earth’s crust, including as sodium chloride (salt) deposits. It is released into soils and waterbodies by weathering and leaching. Anthropogenic products and use in snow and ice control (sodium chloride) can also introduce sodium into the environment (United States Department of the Interior 2016; CCREM nd).

Strontium

Strontium has a LDL of 0.010 mg/kg ww. All but three samples had detectable levels of strontium, with concentrations up to 0.089 mg/kg ww measured.

Strontium is found in nature through the weathering of native rocks, and can accumulate in many plants. Strontium can be introduced into the environment by burning coal and oil (Agency for Toxic Substances and Disease Registry 2017).

Tellurium

Tellurium has a LDL of 0.0040 mg/kg ww and all of the samples in this study were below this concentration level.

Tellurium exist naturally in coal and minerals though is quite rare (Lenntech 2017). Natural weathering processes introduce tellurium into soils (Salminen et al. 2005) from where it is taken up readily by plants (Lenntech 2017). Tellurium can be introduced into the environment as a by-product of copper and lead refining (P S Analytical 2015).

Thallium

Thallium has a LDL of 0.00040 mg/kg ww; 42% of the samples had non-detectable thallium concentration levels and the rest of the samples ranged from 0.00041 to 0.00193 mg/kg ww.

Thallium is found naturally in soils, air and water as a result of weathering of native rocks, and is readily taken up by plants (Agency for Toxic Substances and Disease Registry 2017).

Tin

Tin has a LDL of 0.020 mg/kg ww; 39.5% of the samples had non-detectable tin concentration levels. The concentrations is the remaining samples ranged from 0.021 to 0.086 mg/kg ww.

Tin also is found naturally in soil, air and water, and can be released to the environment from industrial discharges, steel manufacturing and municipal sewage as well as other anthropogenic sources (CCREM nd).

Uranium

Uranium has a LDL of 0.00040 mg/kg ww. Only two samples had detectable uranium concentration levels (0.00058 and 0.00108 mg/kg ww).

Uranium naturally occurs in rocks and can be readily mobilized by weathering and natural erosion (CCME 2017). Uranium accumulates in plants, especially in the roots.

Vanadium

Vanadium has a LDL of 0.020 mg/kg ww; 44.7% of the samples had non-detectable vanadium concentration levels and the rest ranged from 0.024 to 0.135 mg/kg ww.

Vanadium is naturally occurring element present in the earth's crust in abundance, particularly with basic igneous rocks. It is released to soils, water and air by weathering processes. Anthropogenic sources of vanadium include air borne particles from oil and coal combustion, and steel production (CCREM nd).

Zinc

All of the deer tissue samples had detectable levels of zinc that ranged from 10.4 to 61 mg/kg ww.

Zinc is a common element in the earth's crust. It is mined and refined in Canada and has a large number of industrial uses. Anthropogenic sources of zinc release to the environment include burning of coal, fertilizer use and steel production (Agency for Toxic Substances and Disease Registry 2017). Zinc is an essential element, and is easily taken up by plants.

Zirconium

All of the samples had non-detectable concentration levels of zirconium, below the LDL of 0.040 mg/kg ww.

Zirconium is present naturally in minerals and rocks, although the most common form is resistant to weathering so it is not often introduced into soils and therefore not often taken up by plants (Lenntech 2017). Zirconium can also be introduced into the environment due to human activities; however, natural sources are considered more abundant (Salminen et al. 2005).

Cyanide

Cyanide has a LDL of 0.10 mg/kg ww and 16.7% of all the samples had non-detectable concentration levels. The concentration of cyanide in the remainder of the samples ranged from 0.10 to 0.41 mg/kg ww. The cyanide concentration values were dispersed well, with none of the values particularly higher or lower than the rest.

Cyanide is group of organic compounds that can be found naturally in the environment or introduced through anthropogenic means. Some micro-organisms (bacteria, fungi and algae) produce cyanide and it is also found naturally in some plants such as soy and released to the environment during decomposition. Cyanide can also be introduced into the environment from industrial processes and effluent, including from gold processing plants; as well as from landfills, public wastewater treatment plants, and some pesticides (Agency for Toxic Substances and Disease Registry 2017; United States Department of the Interior 2016).

3.2 Comparison of Results to Distance of Harvest from the Project Boundary

Figure 3-1 contains multiple graphs that present each contaminant plotted relative to the distance between the deer tissue harvest location (shown in Figure 2-1) and the boundary of the RRP.

These graphs were developed to identify if there are any early patterns between contamination levels in deer tissue and proximity to the RRP.

As seen in in the various graphs in Figure 3-1, none of the contaminants exhibited a statistically significant relationship between concentration levels and proximity to the RRP boundary (note the flat or nearly flat trend lines in each graph). The slight increase / decrease of the trend lines is generally due to a random distribution of the data with anomalous higher concentrations than the bulk of the data located towards the one end of the axis or the other.

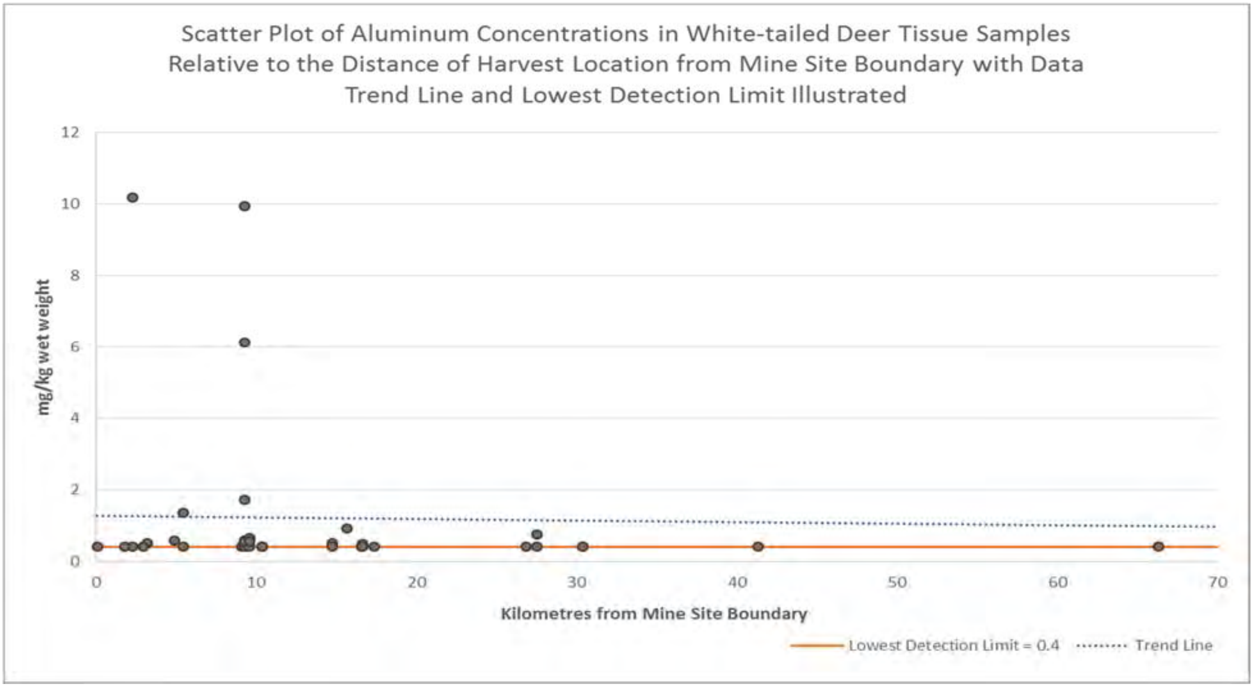
Due to the nature of the study (e.g., samples were provided voluntarily by hunters) there was no control over the locations, or the distribution of locations, from which the 37 deer samples were collected. Many of the animals were harvested within 20 km of the RRP boundary and are distributed in a useful pattern for analysing distances from the RRP boundary:

- 19% of the samples were collected within 5 km of the boundary;
- 54% were collected within 10 km; and
- 78% were collected within 20 km of the boundary.

More distant samples was taken approximately 41 km, 66 km and 333 km from the Project boundary.

Table 3-1: Measured Contaminants in White-tailed Deer Samples in 2016

Contaminant	Lowest Detection Limit (mg/kg ww)	Minimum (mg/kg ww)	Maximum (mg/kg ww)	Mean (mg/kg ww)	Median (mg/kg ww)
Aluminum	0.40	<0.40	10.2	0.978 – 1.178	0.205 – 0.405
Antimony	0.0020	<0.0020	0.2810	0.0104 – 0.0119	0.0 – 0.0020
Arsenic	0.0040	<0.0040	0.0491	0.0118 – 0.0123	0.0091
Barium	0.010	0.012	0.155	0.044	0.033
Beryllium	0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth	0.0020	<0.0020	0.0067	0.0010 – 0.0025	0.0 – 0.0020
Boron	0.20	<0.20	0.52	0.19 – 0.27	0.24
Cadmium	0.0010	0.009	1.980	0.539	0.414
Calcium	4.0	29.2	106.0	50.6	47.8
Cesium	0.0010	0.0044	0.2930	0.0479	0.0281
Chromium	0.010	<0.010	3.2	0.139 – 0.142	0.025
Cobalt	0.0040	<0.0040	0.1080	0.0505 – 0.0506	0.0494
Copper	0.020	0.6	191.0	80.8	71.3
Iron	0.60	79.8	901.0	160.4	136.0
Lead	0.0040	<0.0040	39.9 [1]	1.1385 – 1.1393	0.0072
Lithium	0.10	<0.10	0.68	0.25 – 0.27	0.26
Magnesium	0.40	57.6	202.0	161.2	162.0
Manganese	0.010	0.14	4.14	2.29	2.45
Mercury	0.0010	<0.0010	0.1110	0.0085 – 0.0086	0.0052
Molybdenum	0.0040	0.0269	0.9530	0.3488	0.3205
Nickel	0.040	<0.040	1.5	0.071 – 0.098	0.00 – 0.040
Phosphorus	2.0	853.0	4430.0	3488.8	3630.0
Potassium	4.0	1310.0	3650.0	2737.1	2800.0
Rubidium	0.010	6.7	32.5	18.0	18.5
Selenium	0.010	0.198	1.880	0.876	0.828
Sodium	4.0	413.0	1440.0	814.3	795.0
Strontium	0.010	<0.010	0.089	0.033 – 0.034	0.028
Tellurium	0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium	0.00040	<0.00040	0.00193	0.00045 – 0.00062	0.00048
Tin	0.020	<0.020	0.086	0.024 – 0.032	0.025
Uranium	0.00040	<0.00040	0.00108	0.00004 – 0.00042	0.0000 – 0.00040
Vanadium	0.020	<0.020	0.135	0.035 – 0.043	0.031
Zinc	0.10	10.4	61.0	32.2	32,4
Zirconium	0.040	<0.040	<0.040	<0.040	<0.040
Cyanide	0.10	<0.10	0.41	0.177 – 0.193	0.18



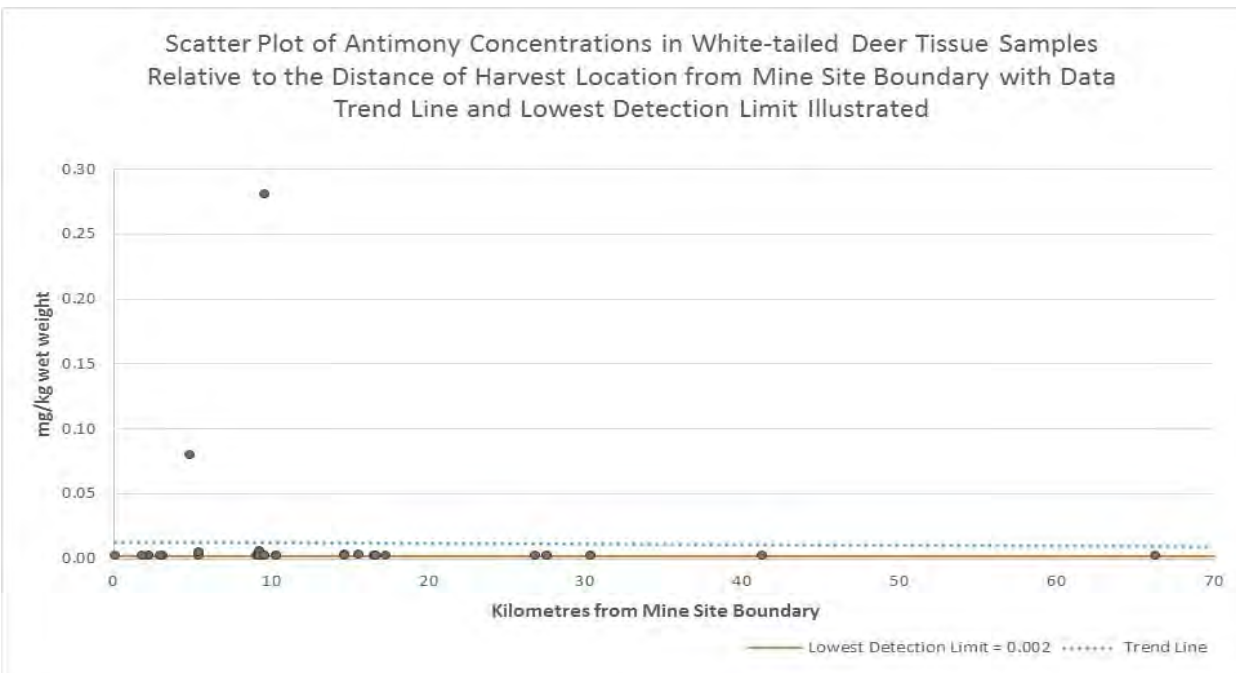
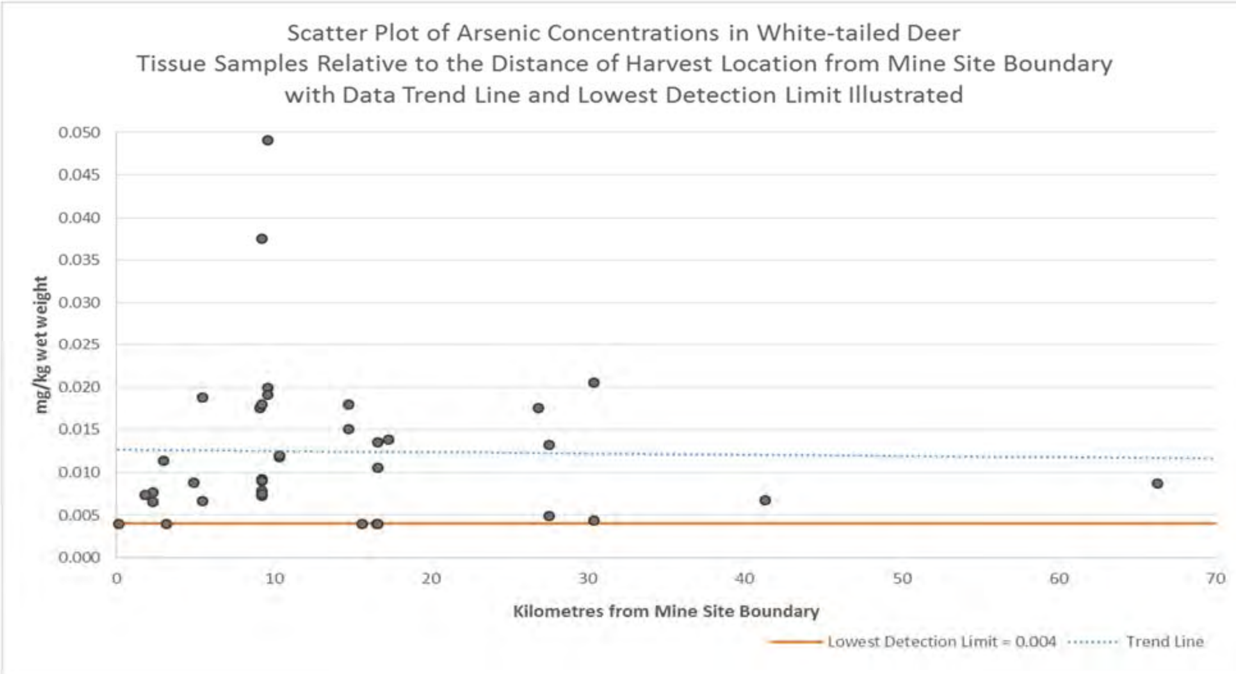


Figure 3-1: Scatter Plots showing Contaminant Concentrations for White-tailed Deer Tissue Samples relative to the distance of the Harvest Location from the Mine Site Boundary with a Linear Trend Line and the Lowest Detection Limit



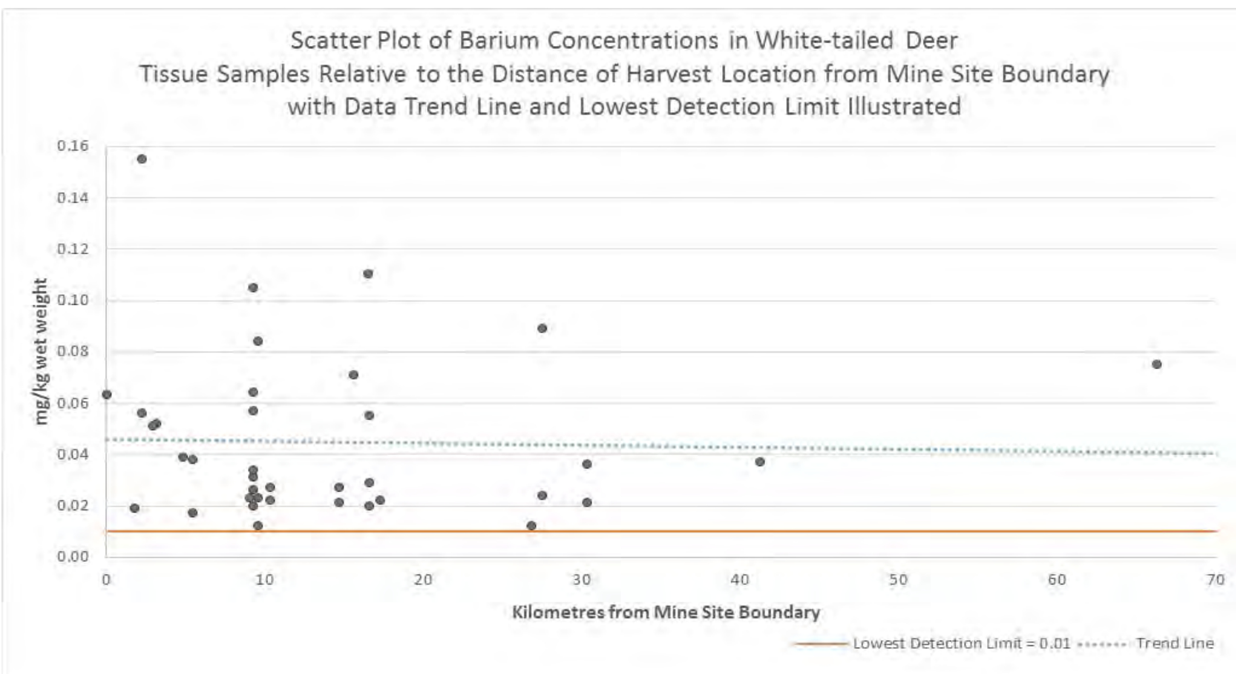
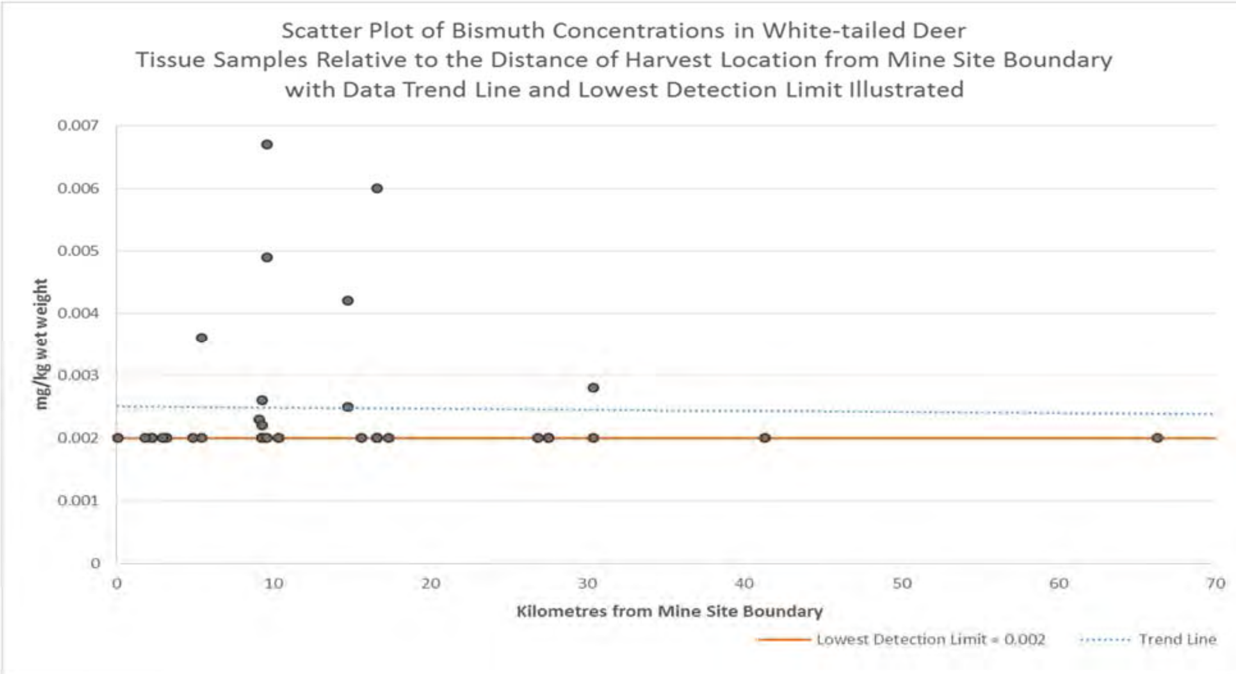
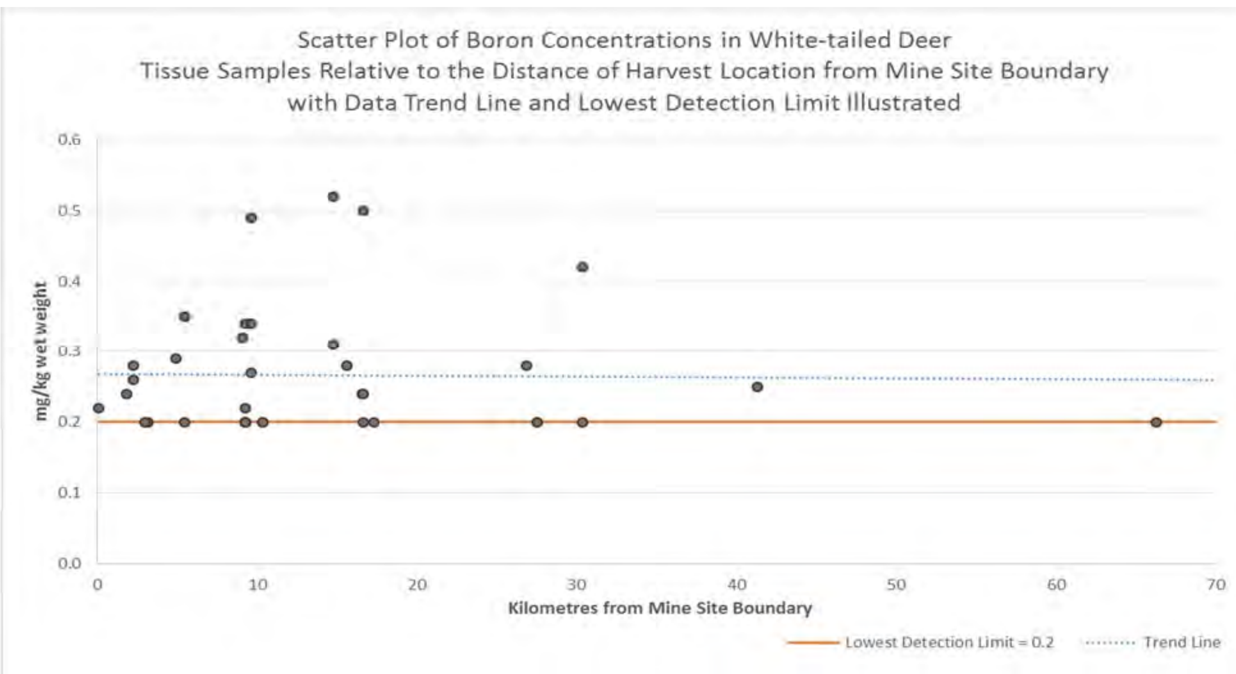


Figure 3-1 (cont'd): Scatter Plots showing Contaminant Concentrations for White-tailed Deer Tissue Samples relative to the distance of the Harvest Location from the Mine Site Boundary with a Linear Trend Line and the Lowest Detection Limit





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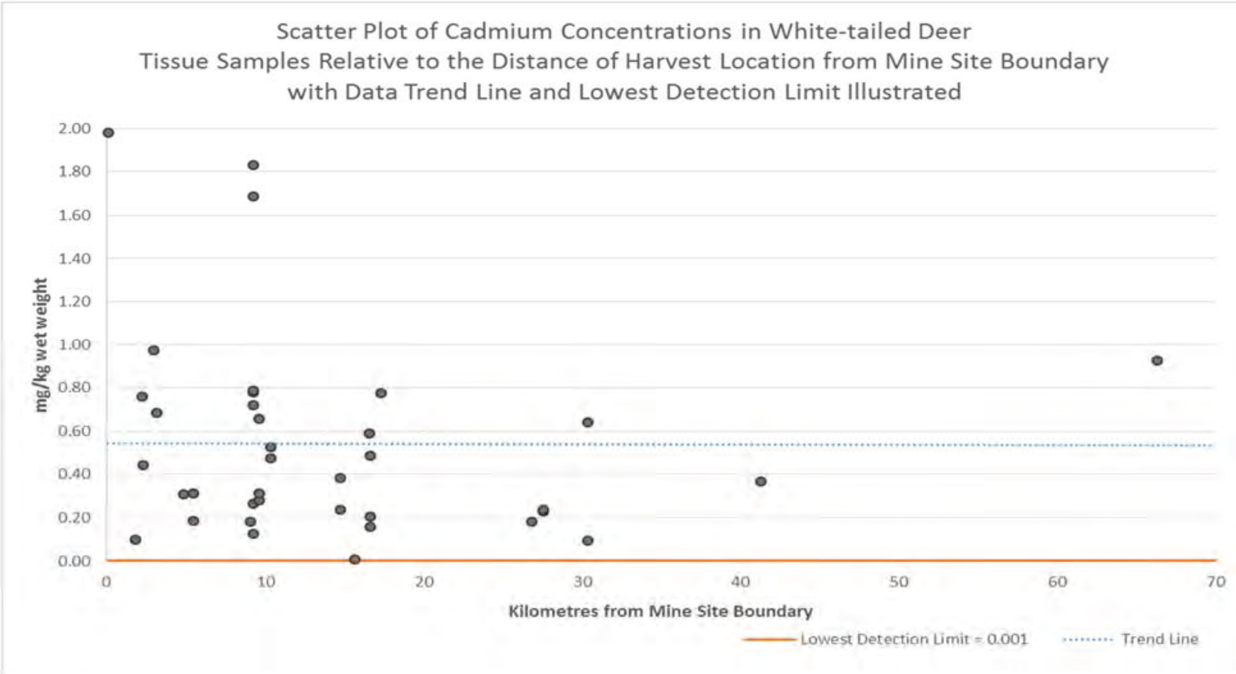

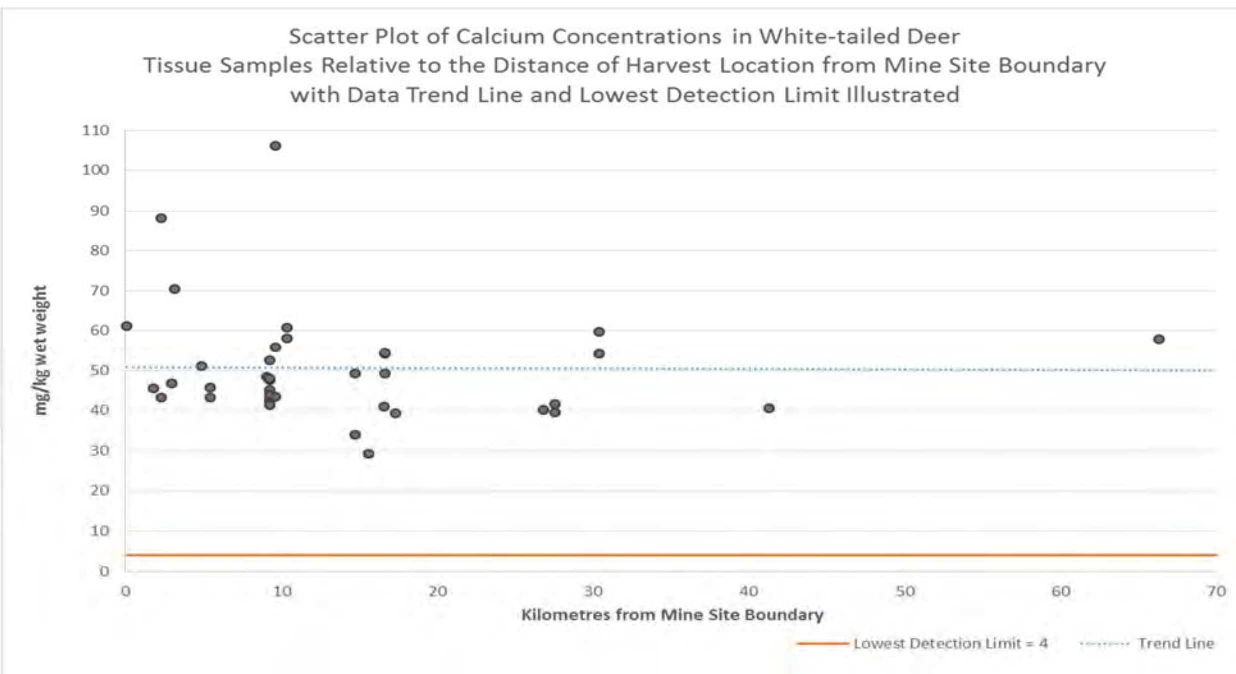

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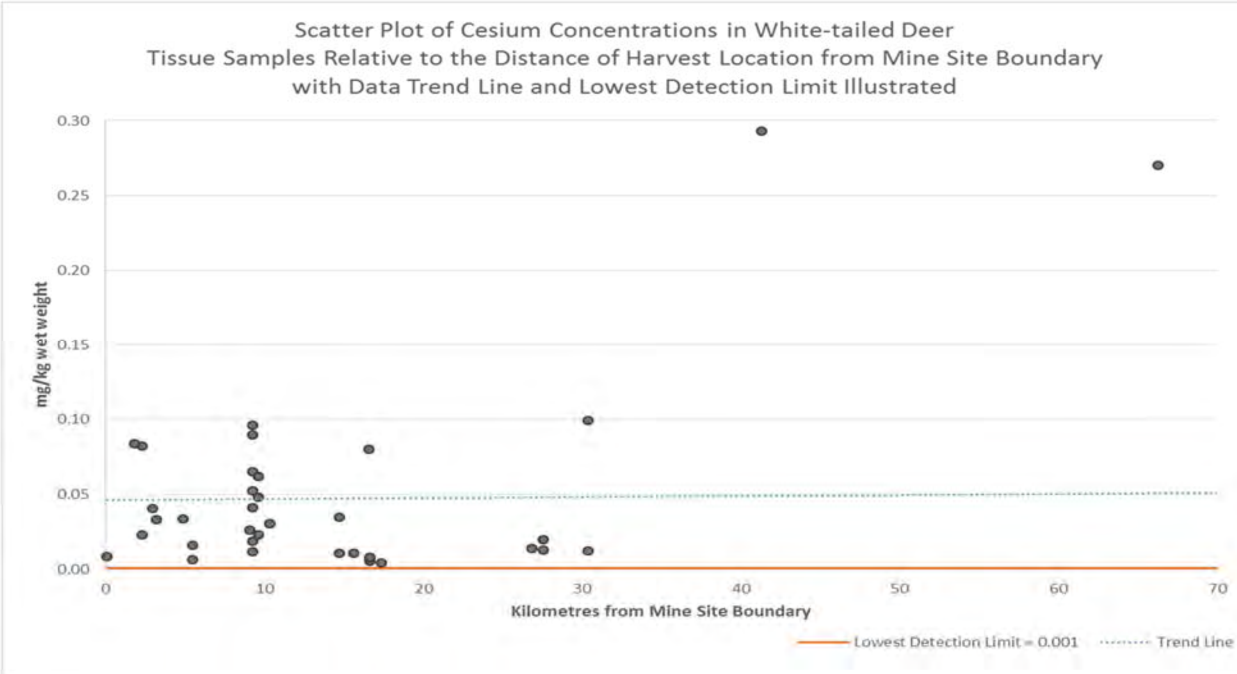

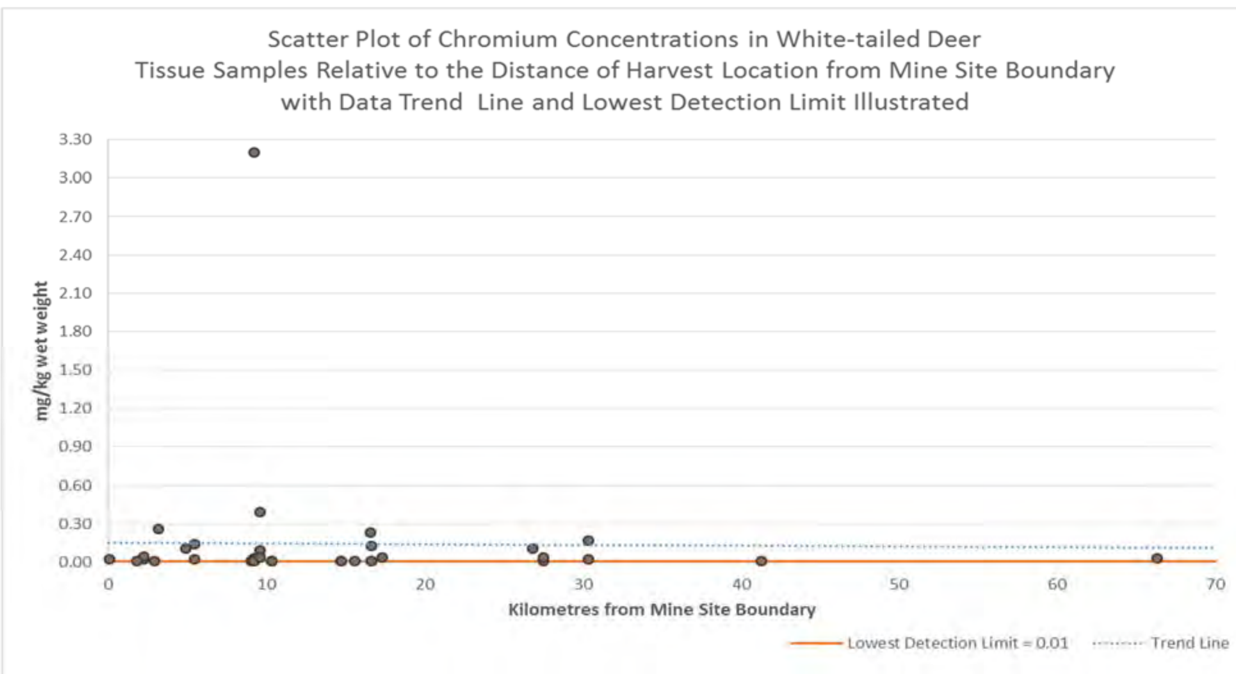

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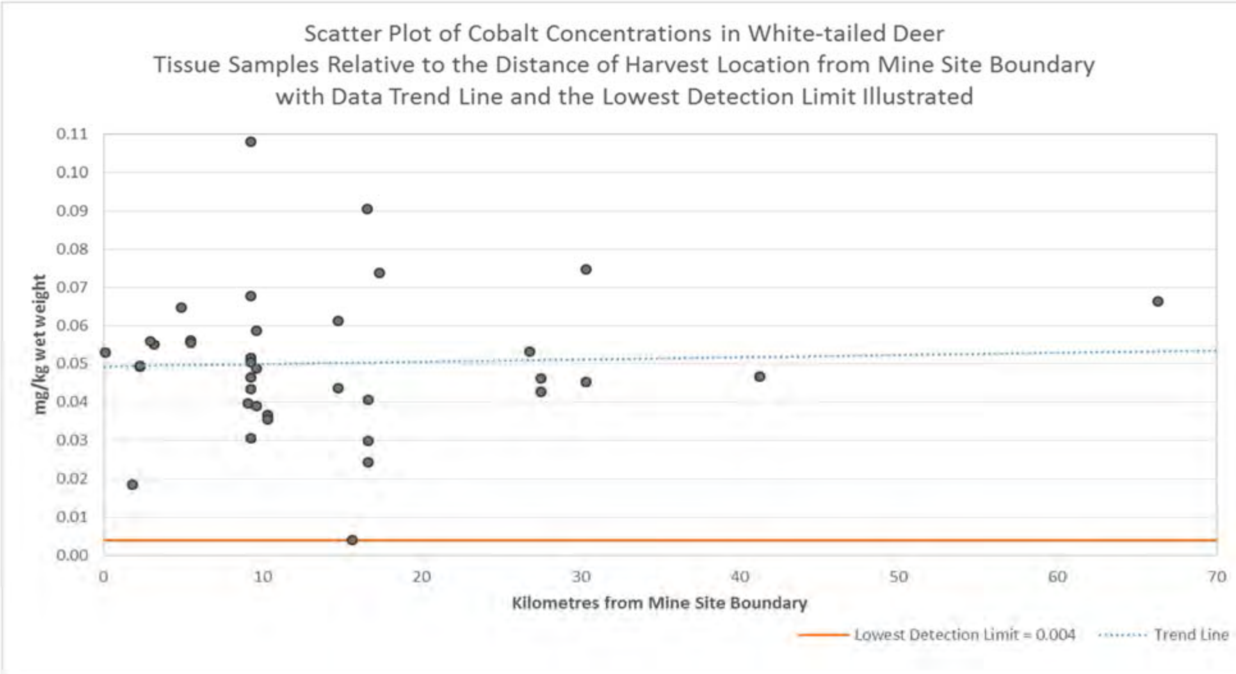

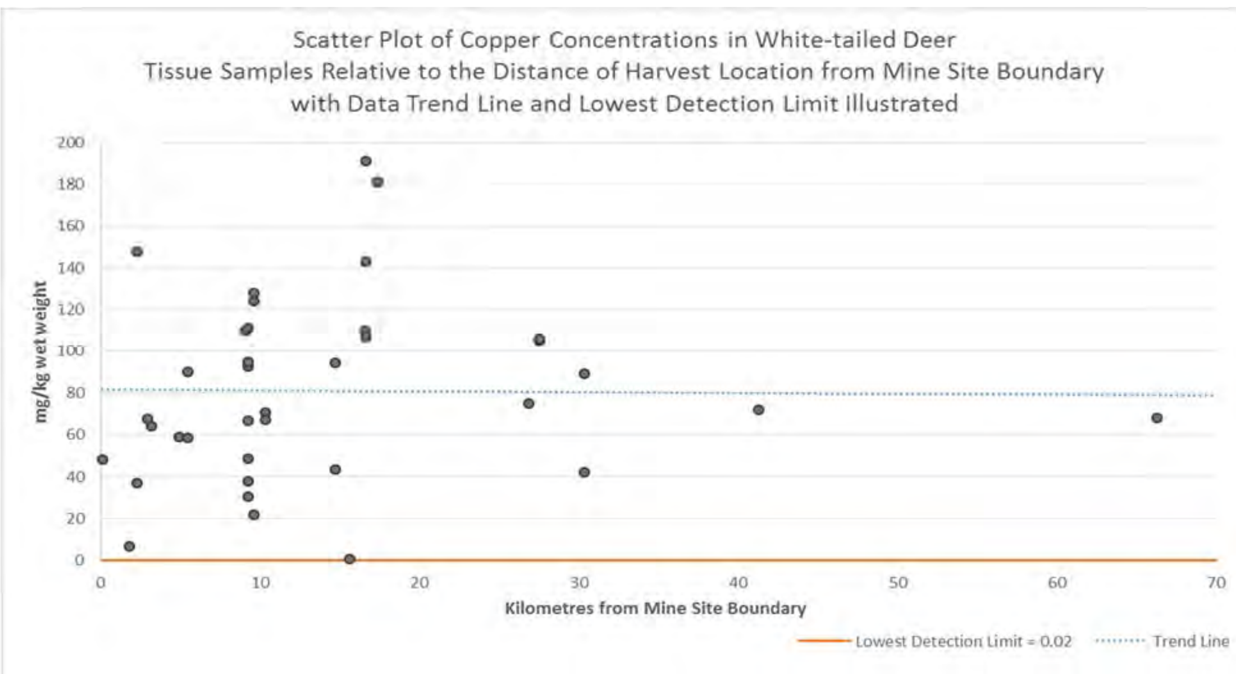

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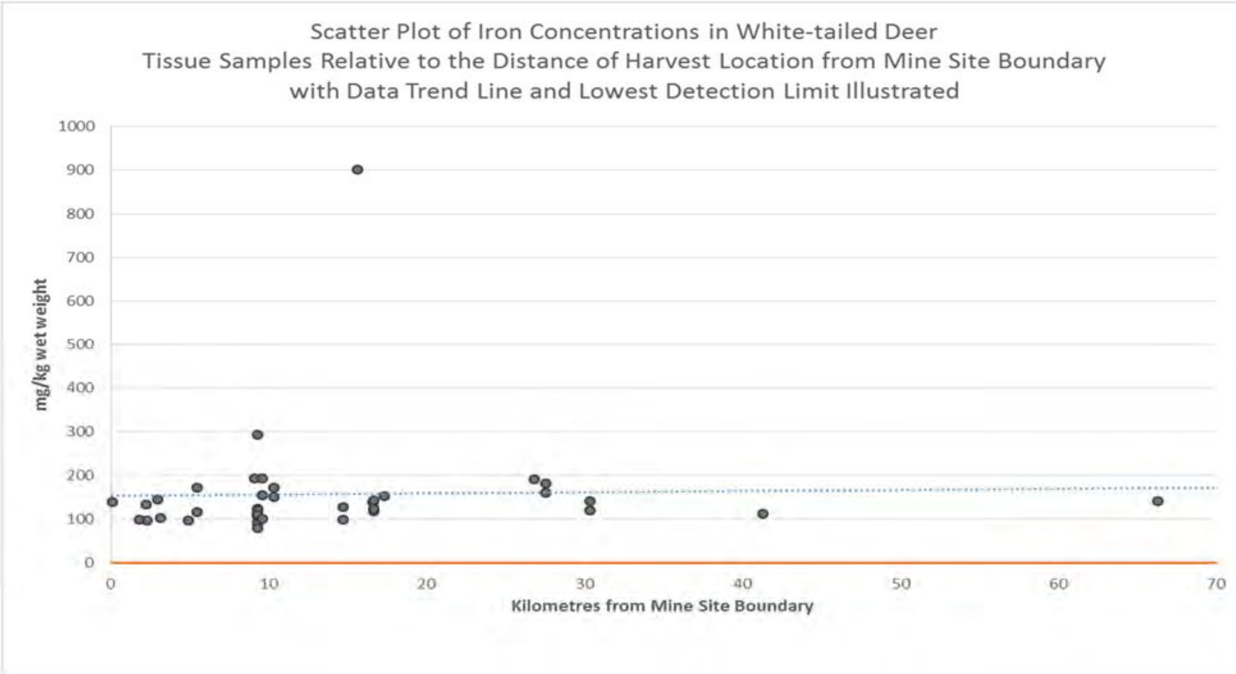

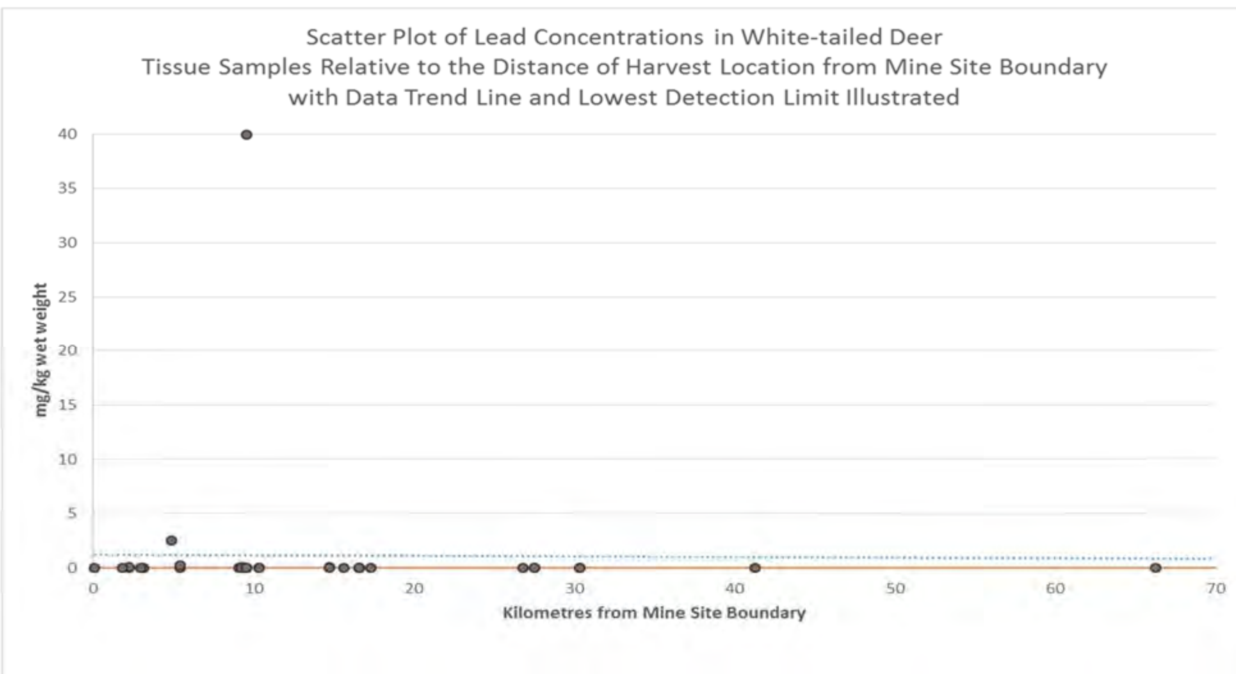

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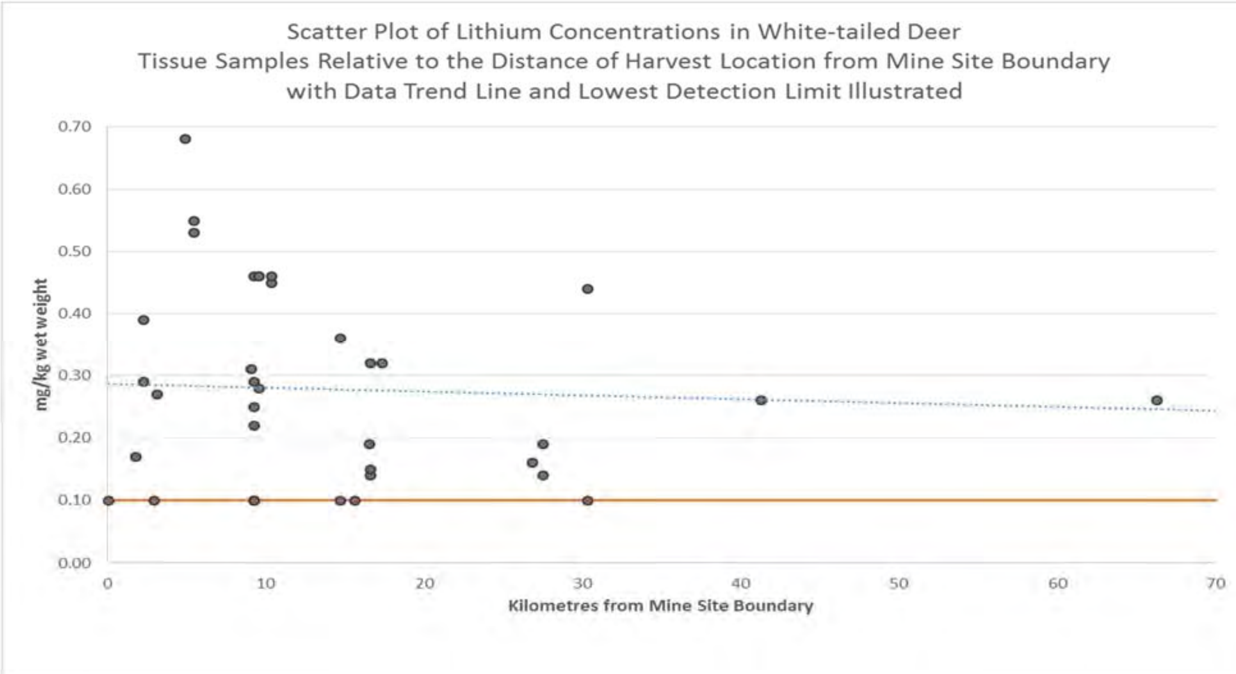

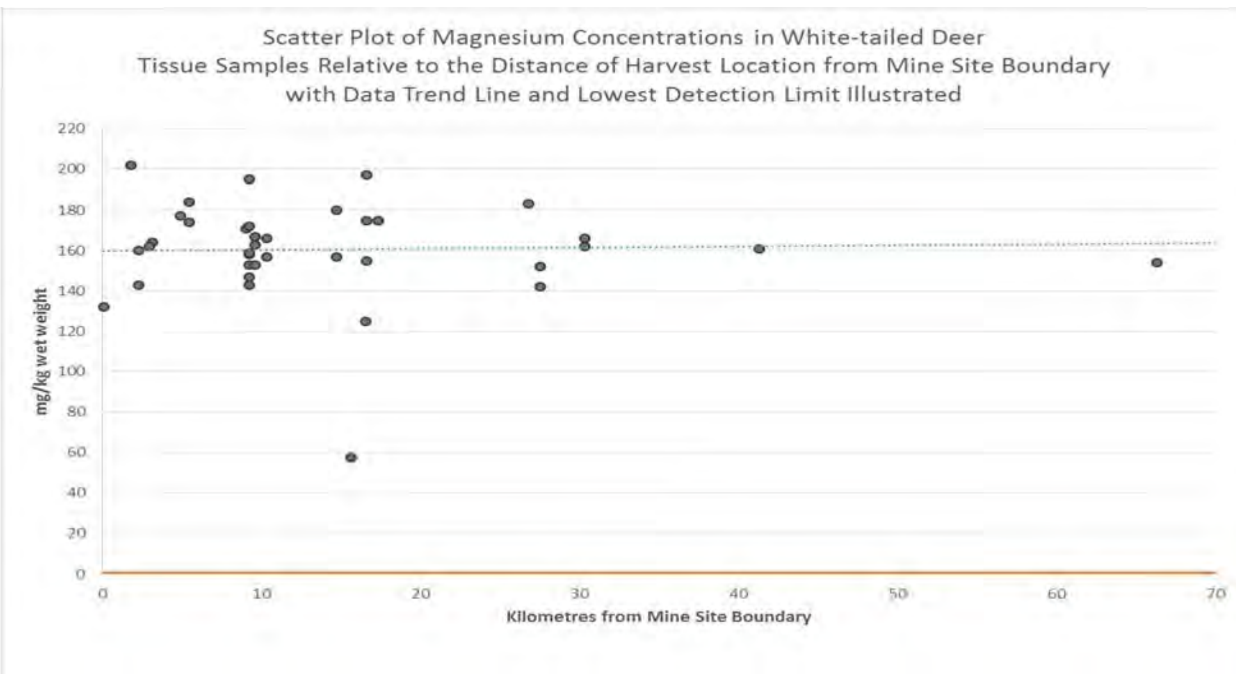

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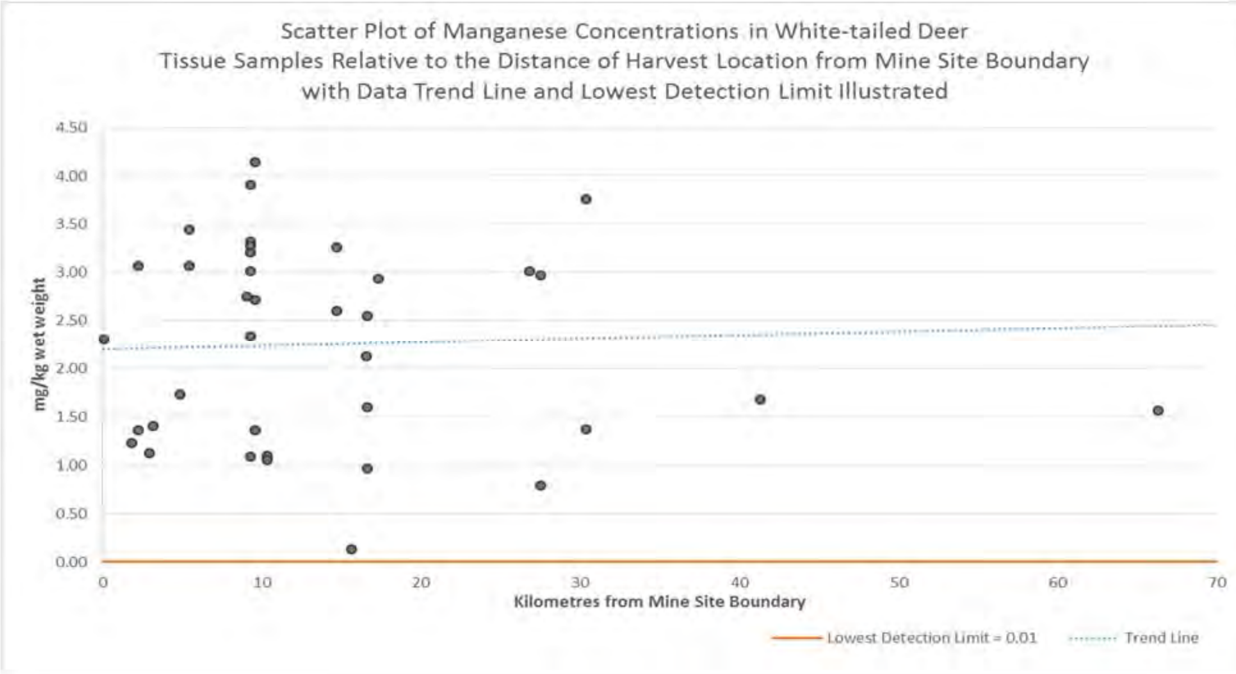

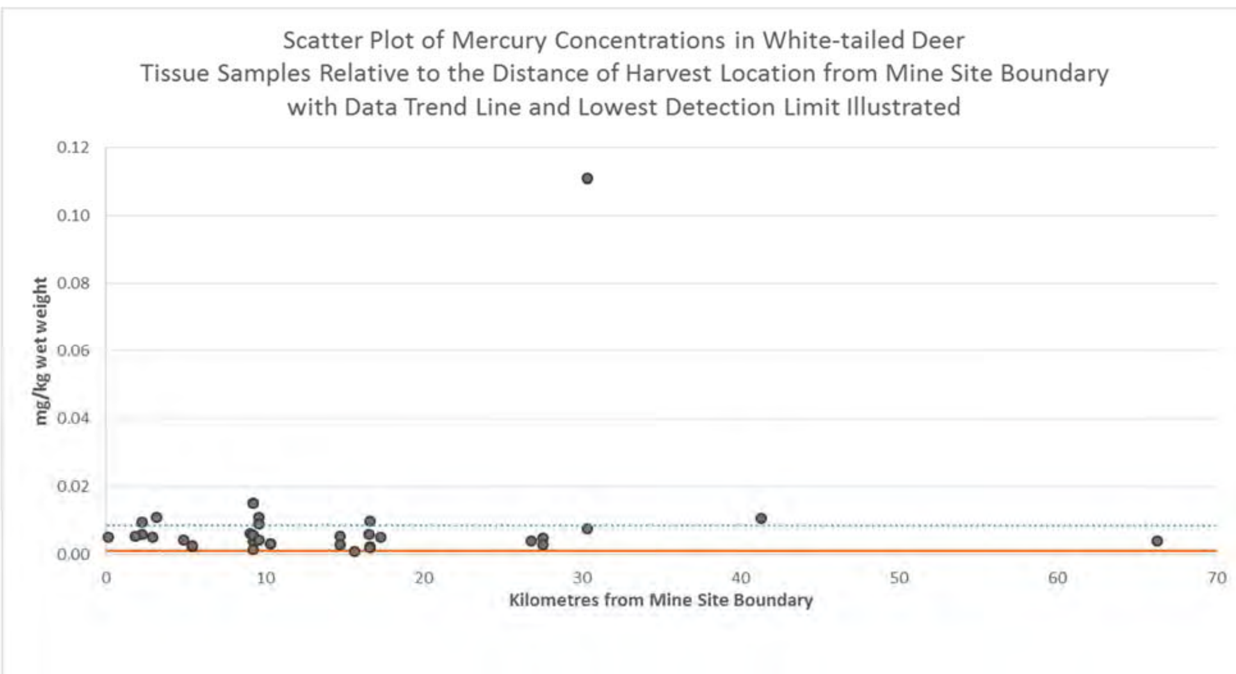

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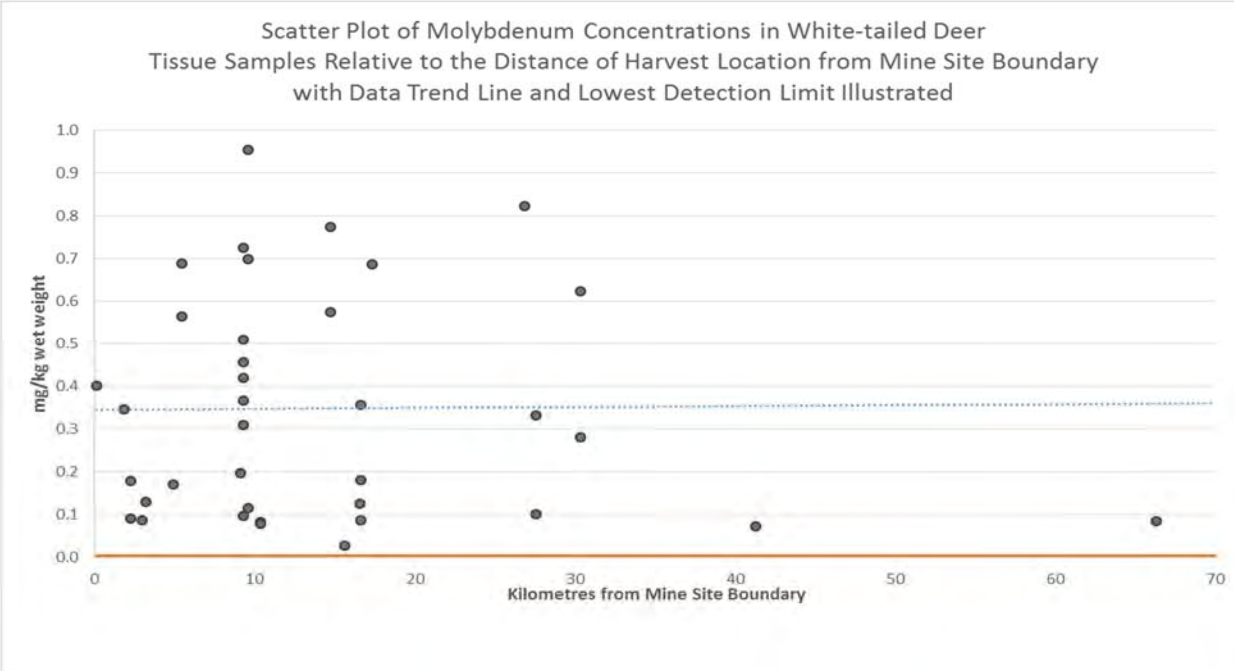

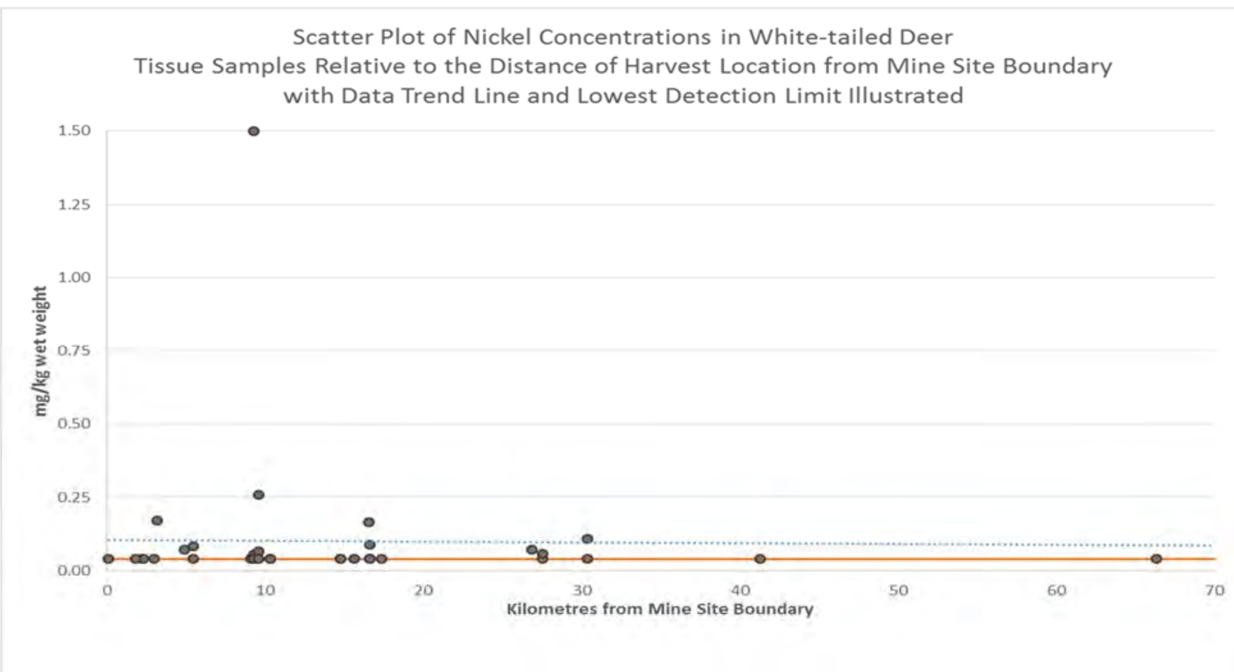

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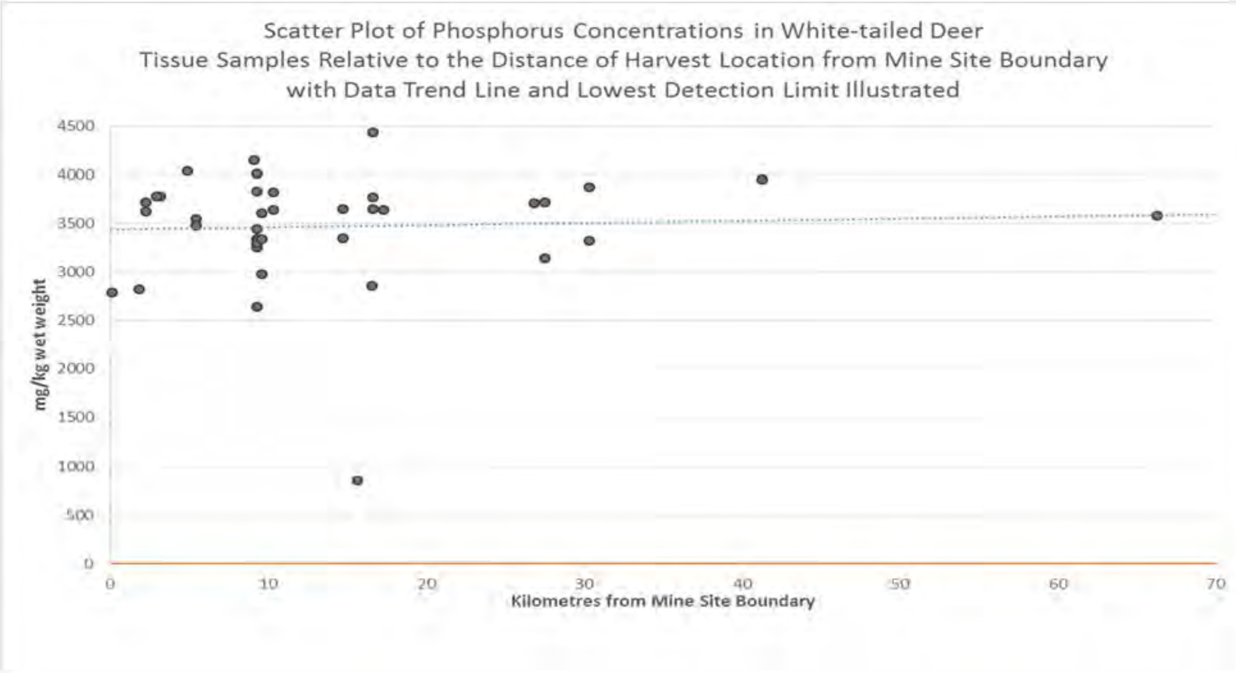

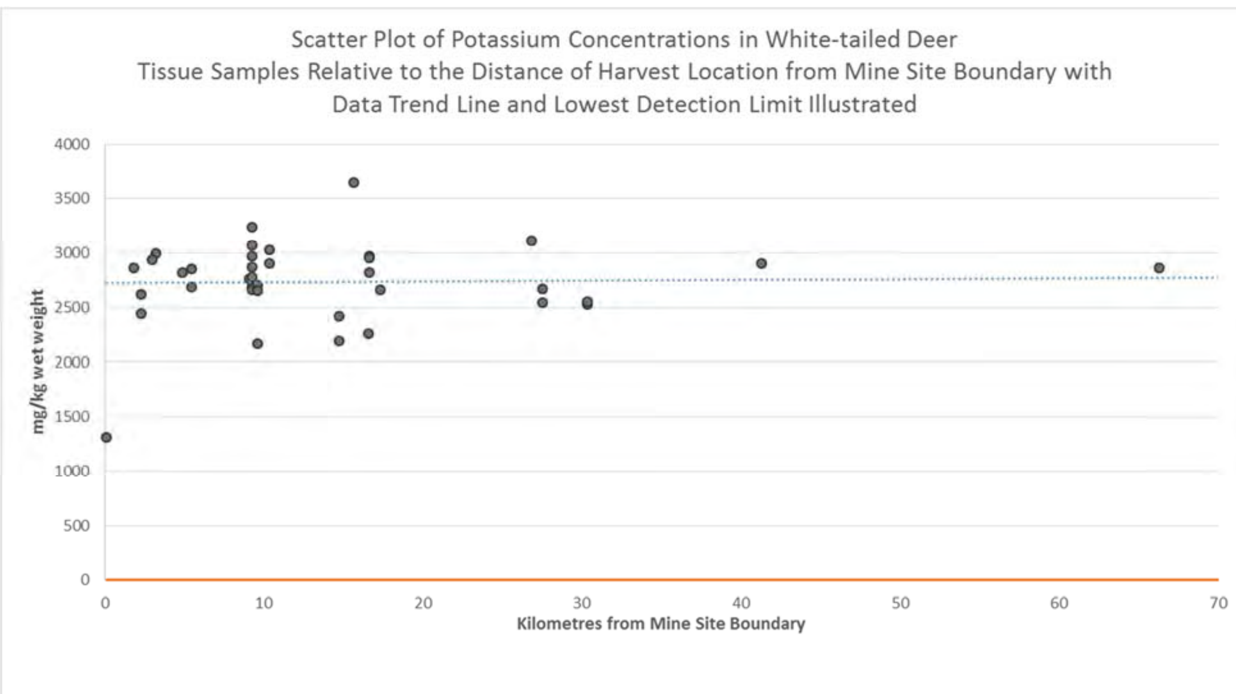

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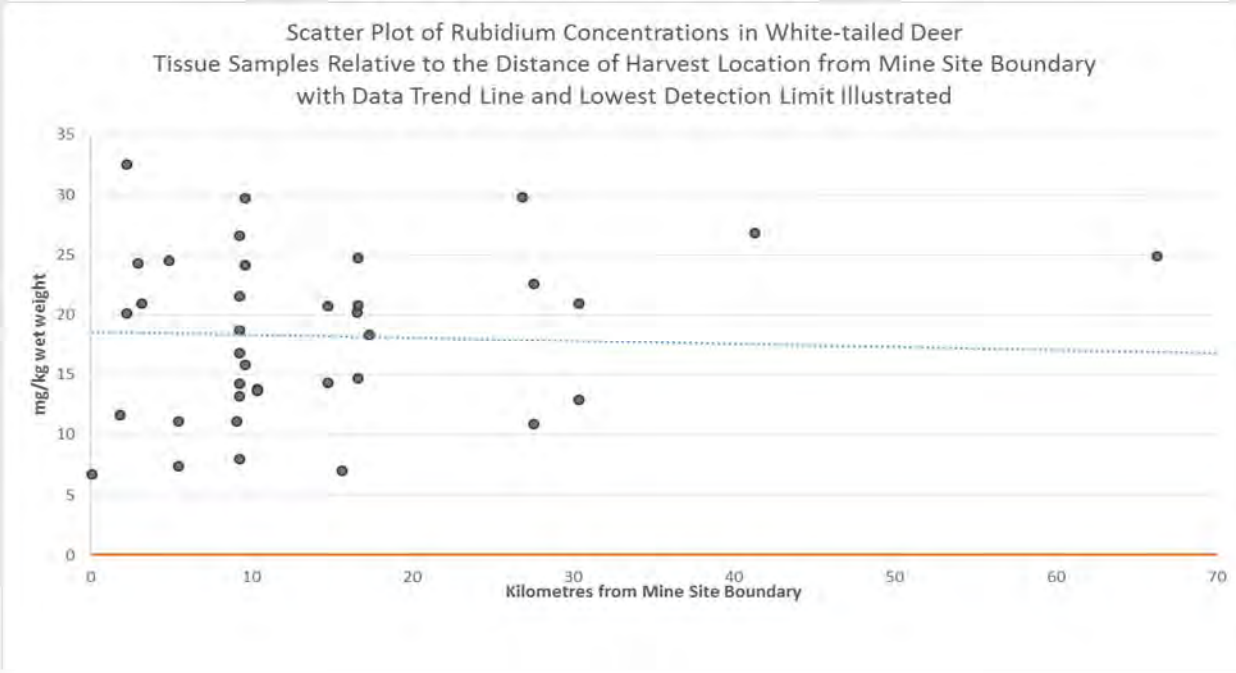

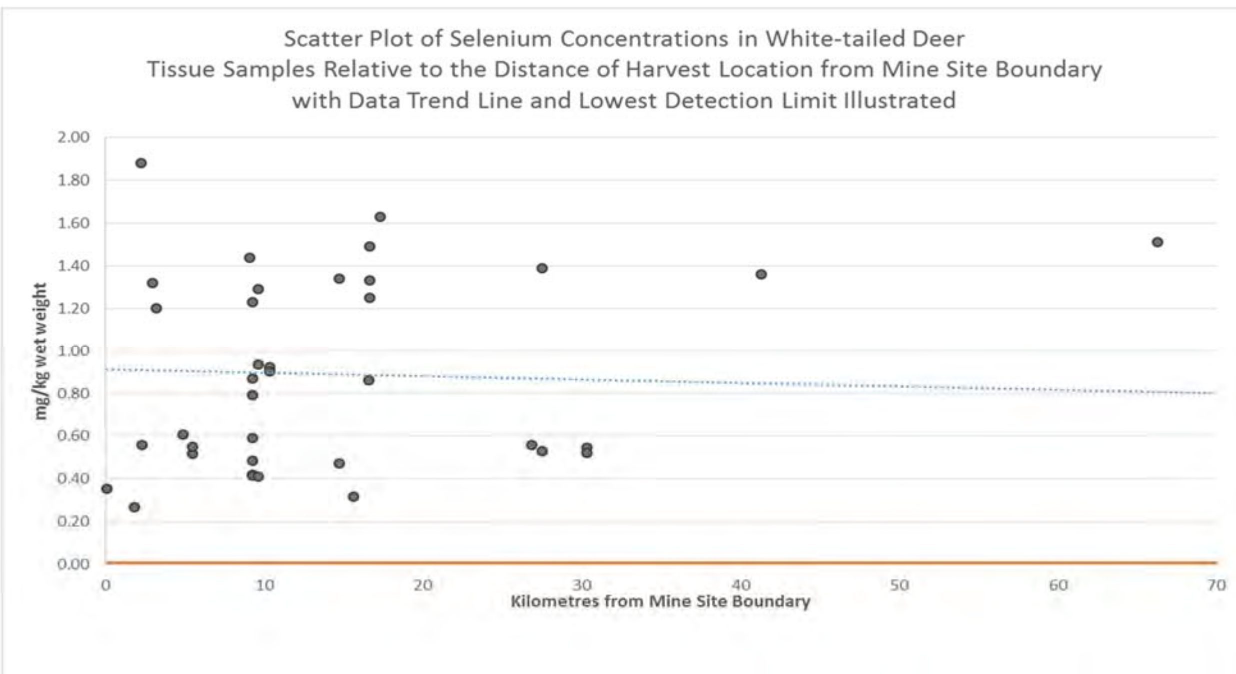

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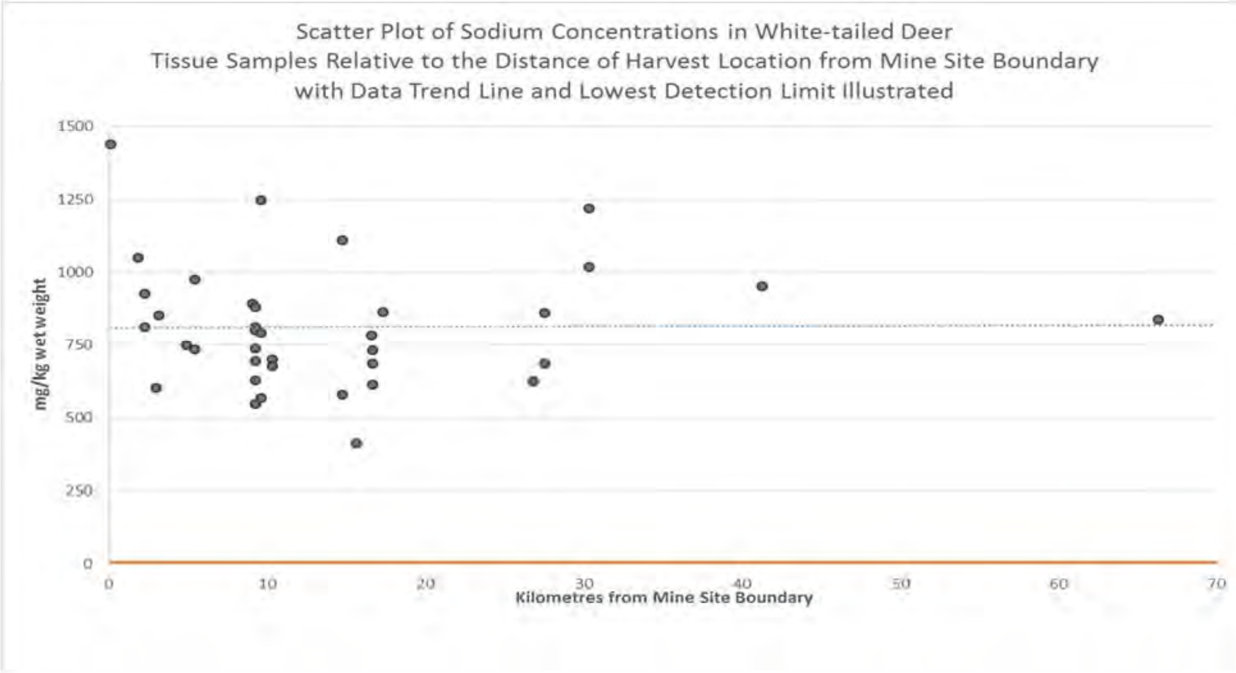

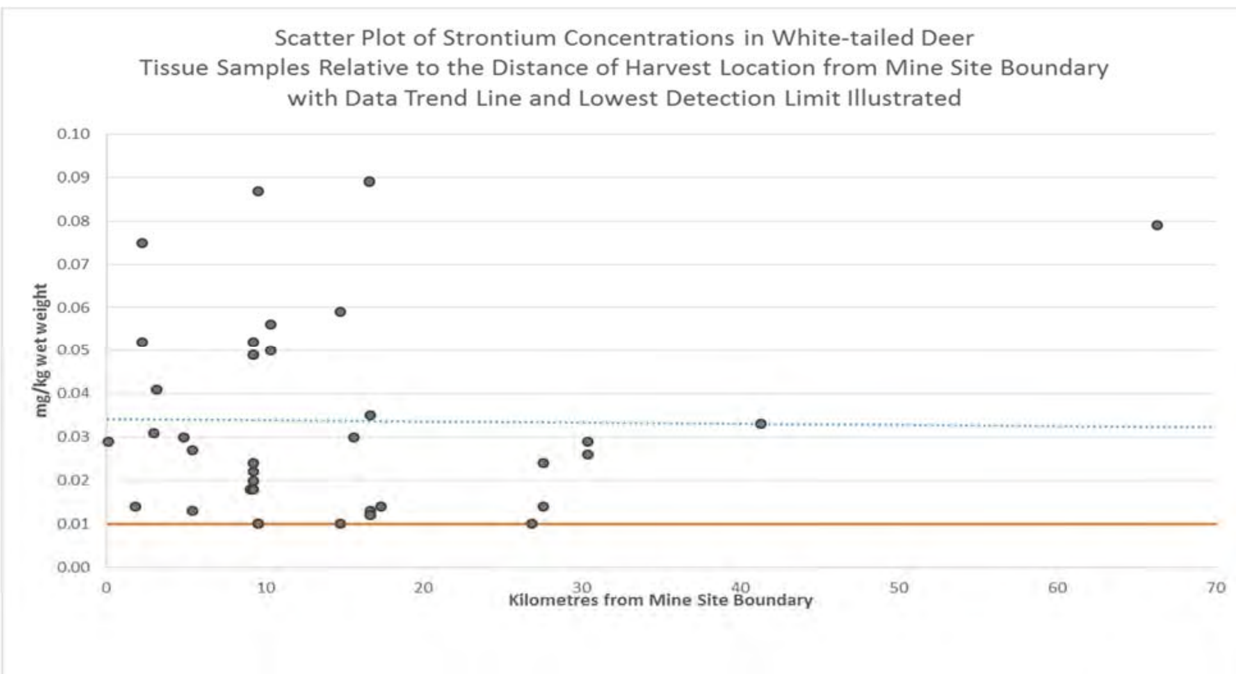

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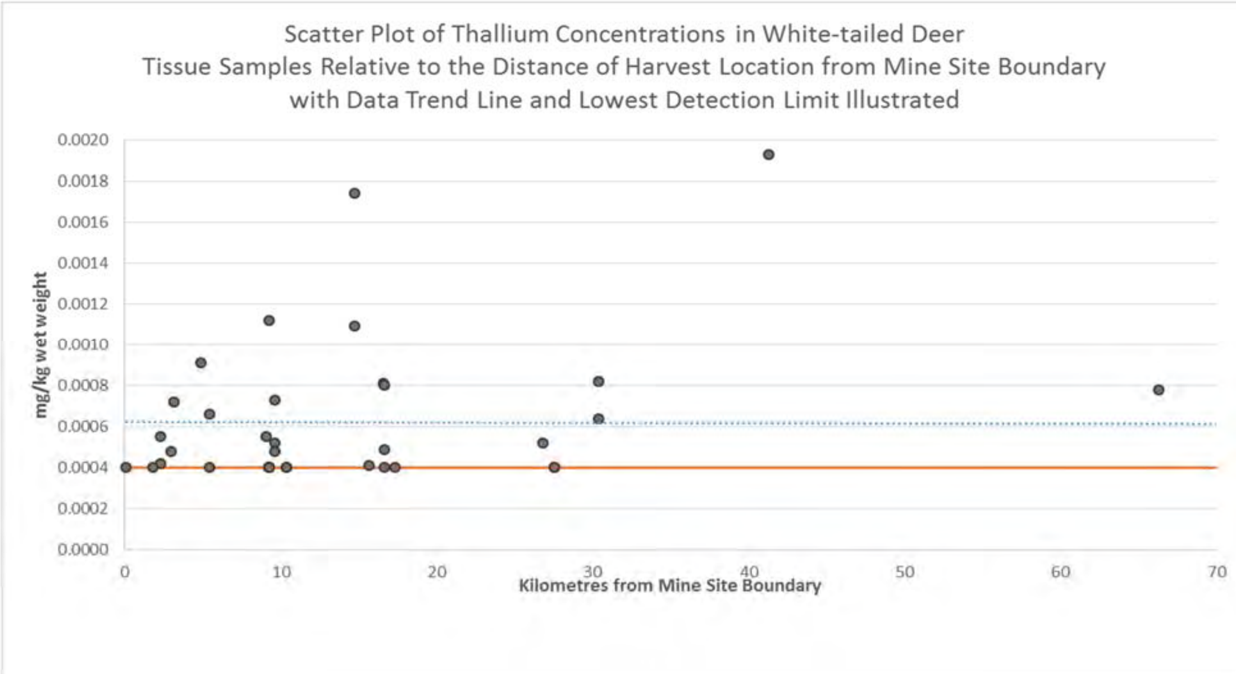

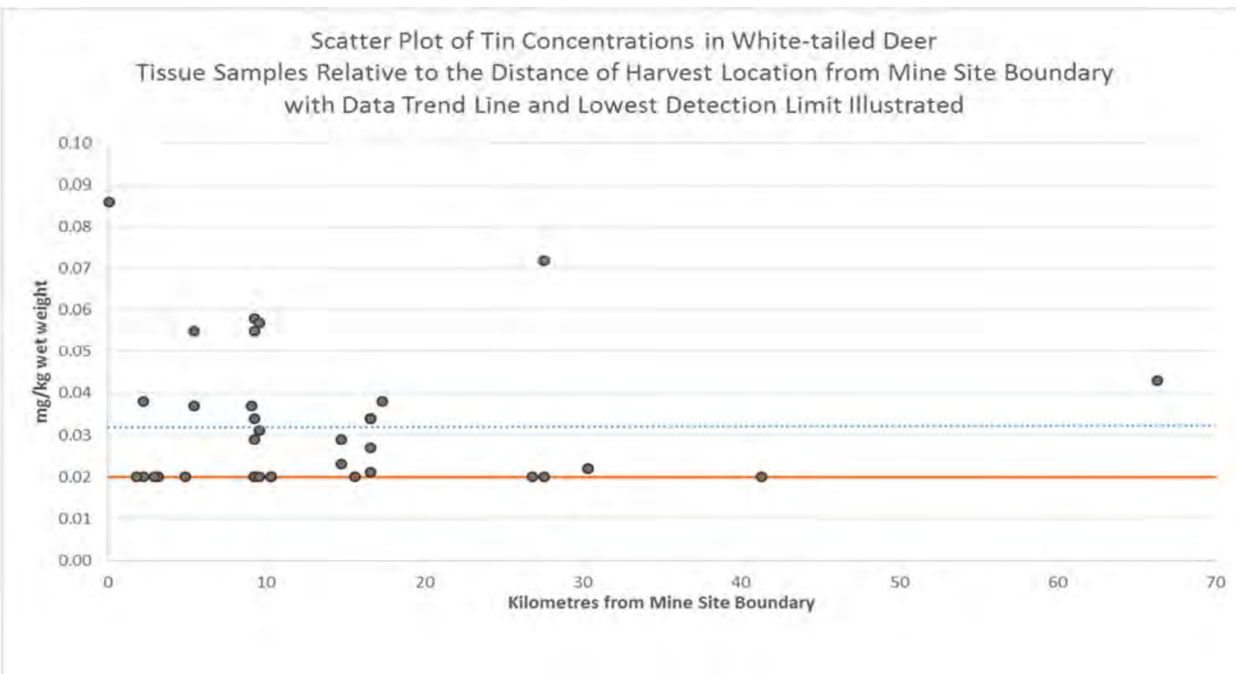

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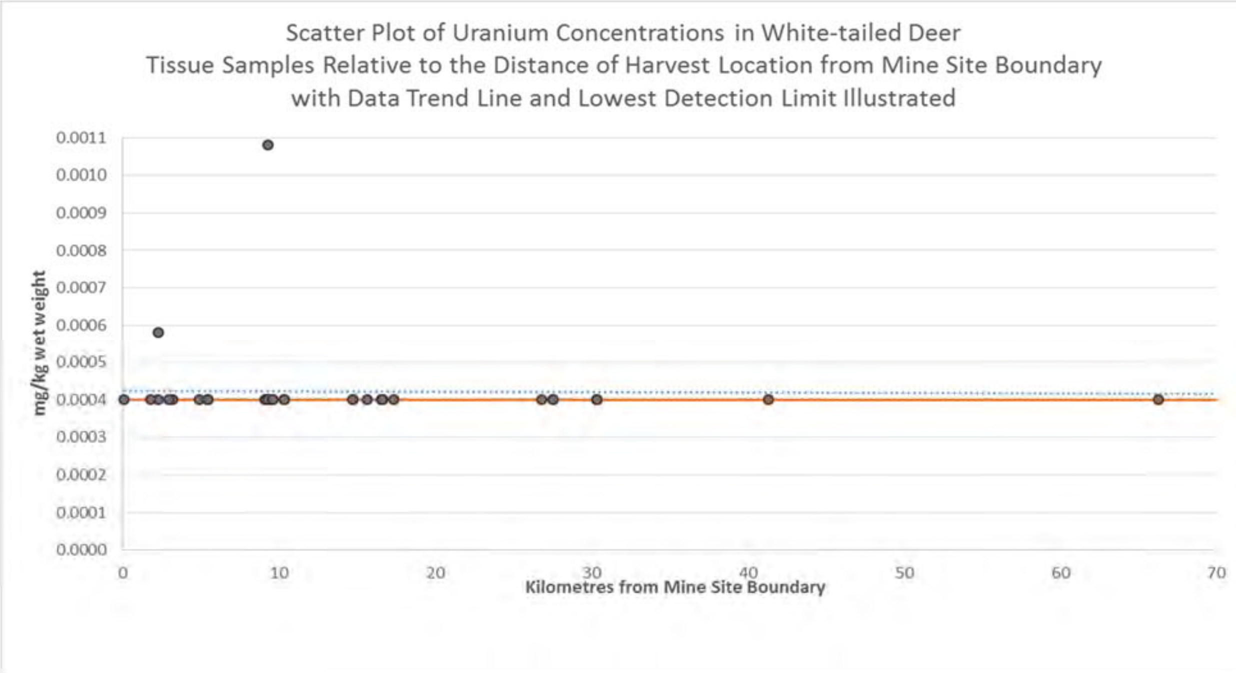

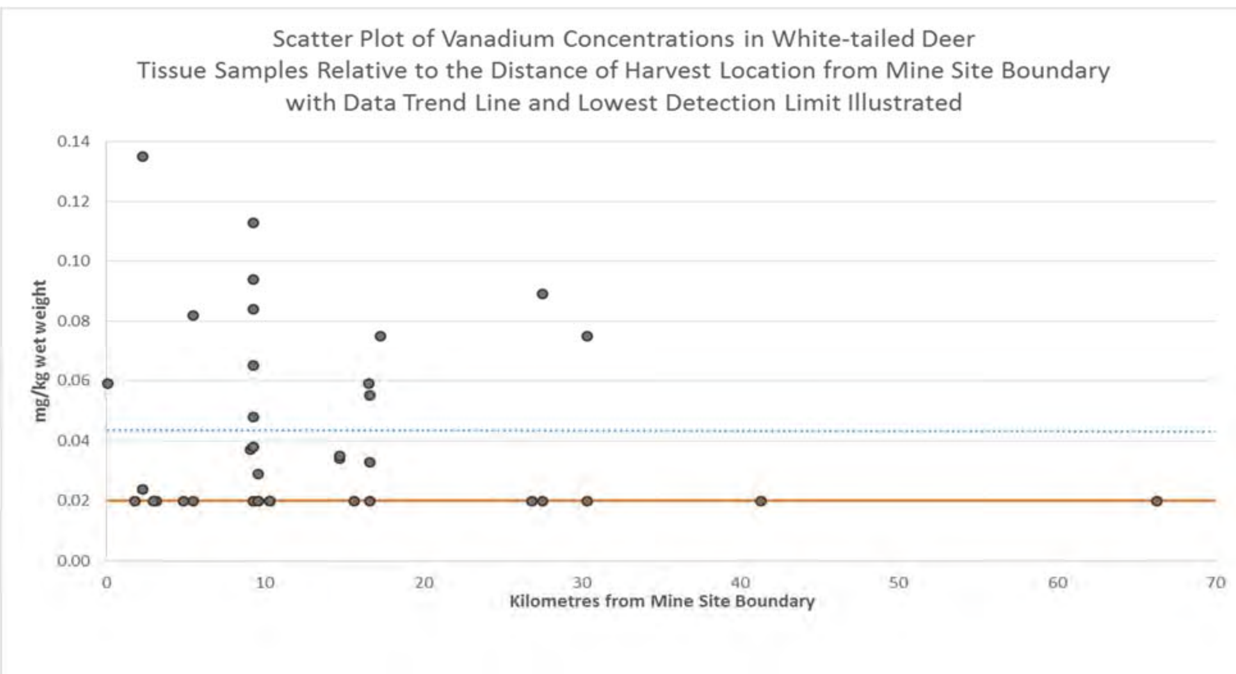

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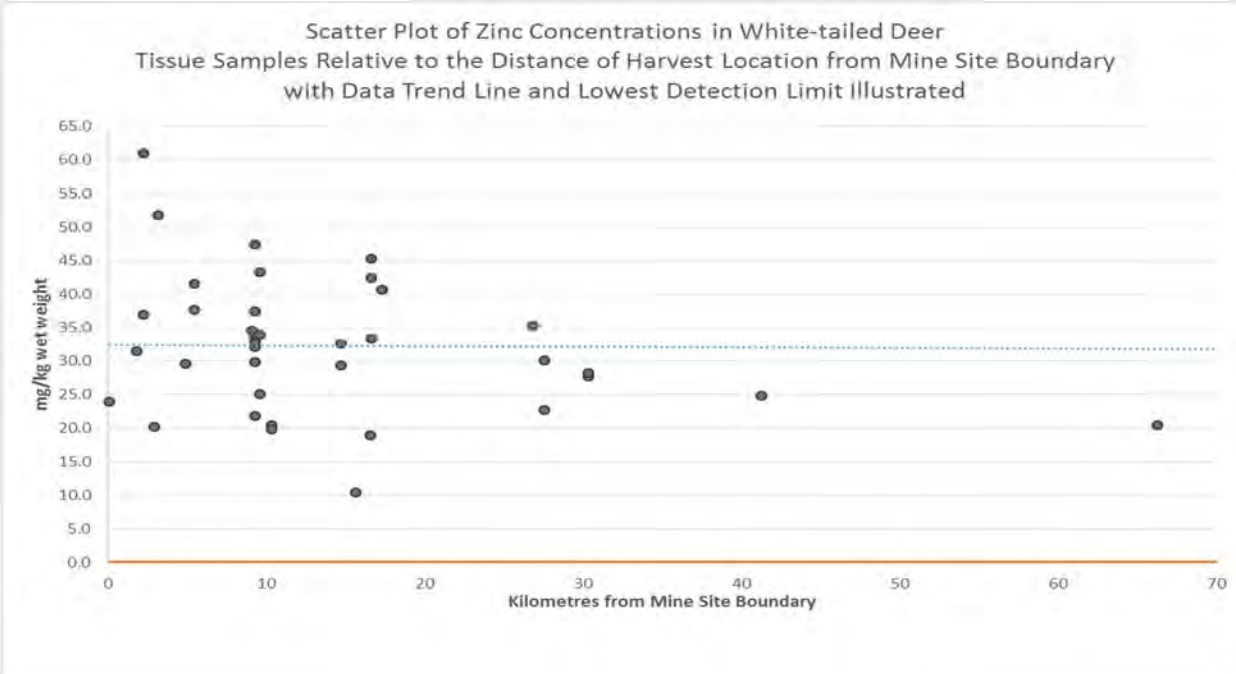

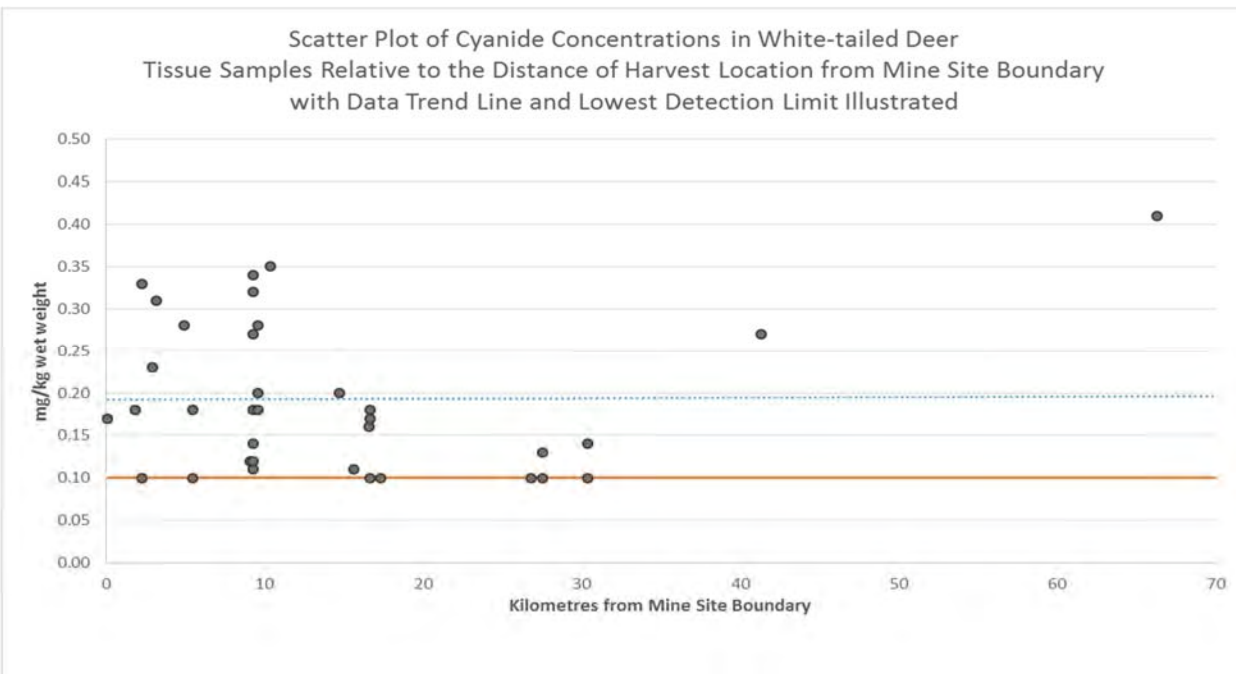

Figure 3-1 (cont'd): Scatter Plots showing Contaminant Concentrations for White-tailed Deer Tissue Samples relative to the distance of the Harvest Location from the Mine Site Boundary with a Linear Trend Line and the Lowest Detection Limit

4.0 DISCUSSION

The 2016 data presented in this report will serve as baseline concentrations of contaminants in tissue for the RRP White-tailed Deer population. Establishing baseline values for any variable, and in this case the concentrations of contaminants in deer located within 30 km of the RRP, is important so that if any future irregularities are detected, there is a data source for comparison. Data collected from future sampling programs of deer in the vicinity of the RRP will be compared to these results on a regular basis, to identify any exposure and ecological risk to local wildlife from mine-related contaminants and asses the risks to humans that consume local wildlife should they arise.

Several of the contaminants analysed have large ranges of concentrations which can make higher values appear elevated in relation to the rest of the data. The RRP has not begun operations at the time of tissue collection (or issuance of this report). The concentration of contaminants present are natural or from anthropogenic sources other than the RRP. It can be assumed that the levels shown in this data are indicative of the deer population in the area of the RRP and the high variance of values is due to these substances already occurring in the local environment.

Wildlife exposure to contaminants such as metals may come from the ingestion of plants that accumulate the metals from the local soil, or from ingestion of metal-containing dust on leaves. Some of these metals are natural and necessary nutritional requirements by wildlife, in small (trace) amounts, but become toxic at high concentrations. Conversely, deficiencies in some of these metals can also cause health problems.

There are few published studies on contaminant concentrations in the tissues and organs of deer in Ontario and Canada, and little is known about the normal nutritional requirements of various minerals and elements by deer (Schultz et al. 1994, Khan et al. 1995, Zimmerman et al. 2008). Accordingly, little is known about what the normal baseline concentrations are in deer for the various metals analyzed in this study. Similarly, information is not available regarding what concentrations would be considered detrimental, nor what the effects of detrimental concentrations would be on the physiology of deer.

Direct comparisons between the baseline data collected in this study and previous studies are difficult for many reasons, such as differences in variables such as age, sex, habitat, food sources and nearness to anthropogenic sources of contamination, which are all often unknown. Nonetheless, this baseline data will provide a resource for comparison of future study results from data collected after the RRP start operations.

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6.0 CLOSING

This White-tailed Deer Tissue Sampling Report was prepared by Amec Foster Wheeler for the sole benefit of New Gold Inc. RRP for specific application to the RRP site. The quality of information, conclusions and estimates contained herein are consistent with the level of effort involved in Amec Foster Wheeler's services and based on: i) information available at the time of preparation, and ii) the assumptions, conditions and qualifications set forth in this document. This report is intended to be used by New Gold Inc. only, and its nominated representatives, subject to the terms and conditions of its contract with Amec Foster Wheeler. Any other use of, or reliance on, this report by any third party is at that party's sole risk. This report has been prepared in accordance with generally accepted industry-standard. No other warranty, expressed or implied, is made.

If you require further information regarding the above or the project in general, please contact Sheila Daniel, Principal, Mining Environmental at (905) 568-2929. Thank you for the opportunity to be of service to New Gold Inc.

Report prepared by:	Reviewed by:
Rebecca Harris	Matt Evans
Becky Harris, B.Sc.	Matt Evans, Ph.D.
Ecologist	Senior Ecologist

newgold Rainy River Project

APPENDIX A

WHITE-TAILED DEER TISSUE CONTAMINANT CONCENTRATION VALUES

amec foster wheeler

	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Cesium (Cs)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)
LDL	0.40	0.0020	0.0040	0.010	0.0020	0.0020	0.20	0.0010	4.0	0.0010	0.010	0.0040	0.020	0.60	0.0040	0.10	0.40
Sample ID																	
D001	<0.4	0.0022	0.0067	0.037	<0.002	<0.002	0.25	0.367	40.5	0.293	<0.01	0.0467	72.1	113	<0.004	0.26	161
D002	<0.4	<0.002	0.0132	0.089	<0.002	<0.002	<0.2	0.230	41.7	0.0200	<0.01	0.0462	105	161	<0.004	0.19	152
D003	0.51	<0.002	<0.004	0.052	<0.002	<0.002	<0.2	0.686	70.4	0.0332	0.263	0.0550	64.3	103	<0.004	0.27	164
D004	<0.4	<0.002	0.0077	0.056	<0.002	<0.002	0.26	0.759	43.2	0.0822	0.025	0.0492	148	133	<0.004	0.39	143
D005	0.58	0.0797	0.0088	0.039	<0.002	<0.002	0.29	0.310	51.1	0.0335	0.111	0.0648	58.8	96.6	2.52	0.68	177
D006 liver only	<0.4	<0.002	0.0118	0.027	<0.002	<0.002	<0.2	0.527	60.8	0.0302	<0.01	0.0367	70.4	151	<0.004	0.45	166
D006 liver and heart	<0.4	<0.002	0.0120	0.022	<0.002	<0.002	<0.2	0.474	58.1	0.0302	<0.01	0.0355	67.3	172	<0.004	0.46	157
D007	0.41	<0.002	<0.004	0.110	<0.002	<0.002	0.24	0.589	41.0	0.0800	0.236	0.0906	110	139	0.0053	0.19	125
D008	<0.4	<0.002	0.0087	0.075	<0.002	<0.002	<0.2	0.925	57.9	0.270	0.035	0.0665	68.2	141	0.0068	0.26	154
D009	10.2	<0.002	0.0065	0.155	<0.002	<0.002	0.28	0.444	88.1	0.0231	0.043	0.0495	36.8	96.7	0.0728	0.29	160
D010	<0.4	<0.002	0.0084	0.019	<0.002	<0.002	0.23	0.582	49.6	0.0136	0.015	0.0672	61.0	236	<0.004	0.11	182
D011	<0.4	<0.002	0.0074	0.019	<0.002	<0.002	0.24	0.0989	45.5	0.0841	<0.01	0.0185	6.85	100	<0.004	0.17	202
D012 liver only	0.52	0.0033	0.0151	0.021	<0.002	0.0025	0.31	0.384	34.0	0.0345	0.011	0.0435	43.5	129	0.104	<0.1	157
D013	<0.4	<0.002	0.0180	0.027	<0.002	0.0042	0.52	0.239	49.3	0.0108	<0.01	0.0612	94.3	98.7	0.0042	0.36	180
D014	0.47	<0.002	<0.004	0.055	<0.002	<0.002	<0.2	0.487	54.2	0.0056	<0.01	0.0243	191	119	0.0280	0.14	155
D015	0.49	<0.002	0.0106	0.029	<0.002	<0.002	0.50	0.157	49.3	0.0077	<0.01	0.0405	143	144	0.0112	0.15	175
D016	<0.4	<0.002	0.0135	0.020	<0.002	0.0060	0.24	0.205	54.3	0.0078	0.127	0.0299	107	125	0.0488	0.32	197
D017	<0.4	<0.002	0.0139	0.022	<0.002	<0.002	<0.2	0.775	39.4	0.0044	0.039	0.0739	181	153	0.0042	0.32	175
D018	<0.4	<0.002	0.0176	0.023	<0.002	0.0023	0.32	0.184	48.4	0.0260	0.011	0.0397	110	194	0.0076	0.31	171
D019	0.91	0.0031	<0.004	0.071	<0.002	<0.002	0.28	0.0094	29.2	0.0105	0.010	<0.004	0.562	901	0.0127	<0.1	57.6
D020	0.76	<0.002	0.0049	0.024	<0.002	<0.002	0.20	0.236	39.5	0.0131	0.041	0.0426	106	182	0.0070	0.14	142
D021	<0.4	<0.002	0.0188	0.017	<0.002	0.0036	<0.2	0.314	43.3	0.0163	0.140	0.0561	58.5	172	0.0042	0.53	184
D022	1.35	0.0053	0.0066	0.038	<0.002	<0.002	0.35	0.187	45.7	0.0064	0.026	0.0554	90.0	117	0.267	0.55	174
D023	<0.4	<0.002	0.0176	0.012	<0.002	<0.002	0.28	0.183	40.2	0.0141	0.107	0.0532	74.9	192	0.0073	0.16	183
D024	<0.4	<0.002	0.0205	0.036	<0.002	<0.002	<0.2	0.639	54.1	0.0993	0.169	0.0453	89.0	120	0.0125	<0.1	166
D025	0.41	<0.002	<0.004	0.063	<0.002	<0.002	0.22	1.98	61.1	0.0085	0.025	0.0528	48.2	140	0.0044	<0.1	132
D026	<0.4	<0.002	0.0044	0.021	<0.002	0.0028	0.42	0.0944	59.7	0.0124	0.024	0.0748	42.0	142	0.0093	0.44	162
D027	6.12	<0.002	0.0375	0.064	<0.002	<0.002	<0.2	0.719	47.6	0.0412	0.033	0.0515	92.8	91.8	0.0054	0.46	172
D028	9.96	0.0049	0.0180	0.105	<0.002	0.0022	0.34	0.781	52.6	0.0654	3.20	0.108	30.7	124	0.0382	0.22	195

	Aluminum (Al)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryllium (Be)	Bismuth (Bi)	Boron (B)	Cadmium (Cd)	Calcium (Ca)	Cesium (Cs)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Lithium (Li)	Magnesium (Mg)
LDL	0.40	0.0020	0.0040	0.010	0.0020	0.0020	0.20	0.0010	4.0	0.0010	0.010	0.0040	0.020	0.60	0.0040	0.10	0.40
Sample ID																	
D029	<0.4	0.0054	0.0079	0.031	<0.002	<0.002	0.20	1.69	45.1	0.0898	<0.01	0.0463	94.6	107	0.0268	<0.1	147
D030	0.58	0.0041	0.0092	0.057	<0.002	<0.002	<0.2	0.788	47.9	0.0524	0.017	0.0433	48.4	120	0.0376	<0.1	158
D031	1.73	<0.002	0.0073	0.034	<0.002	0.0026	0.22	0.264	42.6	0.0188	0.032	0.0305	37.8	294	0.0063	0.29	143
D032	<0.4	0.0053	0.0090	0.026	<0.002	<0.002	<0.2	1.83	41.5	0.0962	0.016	0.0503	111	111	0.0662	<0.1	153
D033	0.56	<0.002	0.0075	0.020	<0.002	<0.002	<0.2	0.126	43.9	0.0119	<0.01	0.0677	66.7	79.8	0.0102	0.25	159
D034	0.42	<0.002	0.0199	0.012	<0.002	0.0049	0.27	0.281	55.9	0.0230	0.097	0.0389	124	194	0.0070	0.28	163
D035	0.65	0.281	0.0491	0.084	<0.002	0.0067	0.49	0.658	106	0.0617	0.041	0.0488	22.0	102	39.9	0.46	153
D036	0.55	<0.002	0.0191	0.023	<0.002	<0.002	0.34	0.311	43.5	0.0480	0.393	0.0588	128	155	0.0226	0.46	167
D037	<0.4	<0.002	0.0114	0.051	<0.002	<0.002	<0.2	0.973	46.7	0.0406	<0.01	0.0560	67.7	145	0.0045	<0.1	162

	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Rubidium (Rb)	Selenium (Se)	Sodium (Na)	Strontium (Sr)	Tellurium (Te)	Thallium (Tl)	Tin (Sn)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Cyanide
LDL	0.010	0.0010	0.0040	0.040	2.0	4.0	0.010	0.010	4.0	0.010	0.0040	0.00040	0.020	0.00040	0.020	0.10	0.040	0.10
Sample ID																		
D001	1.68	0.0108	0.0736	<0.04	3950	2900	26.8	1.36	952	0.033	<0.004	0.00193	<0.02	<0.0004	<0.02	24.8	<0.04	0.27
D002	0.789	0.0049	0.102	<0.04	3720	2540	22.6	1.39	684	0.014	<0.004	<0.0004	<0.02	<0.0004	<0.02	22.7	<0.04	0.13
D003	1.41	0.0110	0.130	0.170	3780	3000	20.9	1.20	853	0.041	<0.004	0.00072	<0.02	<0.0004	<0.02	51.8	<0.04	0.31
D004	1.36	0.0096	0.0904	<0.04	3720	2440	32.5	1.88	813	0.052	<0.004	0.00042	0.038	<0.0004	0.024	37.0	<0.04	<0.10
D005	1.73	0.0042	0.170	0.072	4040	2820	24.5	0.609	749	0.030	<0.004	0.00091	<0.02	<0.0004	<0.02	29.6	<0.04	0.28
D006 liver only	1.10	0.0033	0.0834	<0.04	3820	3030	13.8	0.922	699	0.056	<0.004	<0.0004	<0.02	<0.0004	<0.02	20.5	<0.04	0.35
D006 liver and heart	1.06	0.0031	0.0792	<0.04	3640	2900	13.6	0.903	676	0.050	<0.004	<0.0004	<0.02	<0.0004	<0.02	19.8	<0.04	0.16
D007	2.13	0.0061	0.125	0.165	2860	2260	20.2	0.863	783	0.089	<0.004	0.00081	0.034	<0.0004	0.059	19.0	<0.04	0.41
D008	1.57	0.0040	0.0851	<0.04	3580	2860	24.9	1.51	838	0.079	<0.004	0.00078	0.043	<0.0004	<0.02	20.5	<0.04	0.33
D009	3.07	0.0060	0.178	<0.04	3620	2620	20.1	0.560	927	0.075	<0.004	0.00055	<0.02	0.00058	0.135	61.0	<0.04	0.20
D010	3.64	0.0033	0.458	<0.04	4150	2910	7.08	0.198	852	0.021	<0.004	<0.0004	0.035	<0.0004	0.048	33.9	<0.04	0.18
D011	1.23	0.0054	0.345	<0.04	2820	2860	11.6	0.267	1050	0.014	<0.004	<0.0004	<0.02	<0.0004	<0.02	31.4	<0.04	0.20
D012 liver only	2.60	0.0053	0.575	<0.04	3350	2190	20.7	0.473	1110	0.010	<0.004	0.00174	0.023	<0.0004	0.034	29.3	<0.04	0.17
D013	3.26	0.0029	0.775	<0.04	3650	2420	14.3	1.34	579	0.059	<0.004	0.00109	0.029	<0.0004	0.035	32.6	<0.04	0.18
D014	1.60	0.0024	0.180	<0.04	3650	2970	14.7	1.49	612	0.035	<0.004	<0.0004	0.021	<0.0004	0.033	42.4	<0.04	<0.10
D015	2.55	0.0100	0.357	<0.04	3770	2820	24.7	1.33	684	0.013	<0.004	0.00080	0.027	<0.0004	0.055	45.3	<0.04	0.10
D016	0.969	0.0020	0.0873	0.088	4430	2950	20.8	1.25	732	0.012	<0.004	0.00049	0.034	<0.0004	<0.02	33.3	<0.04	0.12
D017	2.94	0.0052	0.686	<0.04	3640	2660	18.3	1.63	863	0.014	<0.004	<0.0004	0.038	<0.0004	0.075	40.7	<0.04	0.11
D018	2.75	0.0064	0.198	<0.04	4150	2760	11.1	1.44	893	0.018	<0.004	0.00055	0.037	<0.0004	0.037	34.6	<0.04	<0.10
D019	0.138	<0.001	0.0269	<0.04	853	3650	7.00	0.318	413	0.030	<0.004	0.00041	<0.02	<0.0004	<0.02	10.4	<0.04	<0.10
D020	2.97	0.0029	0.331	0.059	3140	2670	10.9	0.528	861	0.024	<0.004	<0.0004	0.072	<0.0004	0.089	30.1	<0.04	0.18
D021	3.45	0.0024	0.688	0.084	3550	2690	11.1	0.518	976	0.013	<0.004	<0.0004	0.037	<0.0004	<0.02	37.7	<0.04	<0.10
D022	3.07	0.0026	0.565	<0.04	3480	2850	7.38	0.550	734	0.027	<0.004	0.00066	0.055	<0.0004	0.082	41.6	<0.04	<0.10
D023	3.02	0.0040	0.824	0.072	3710	3110	29.8	0.559	626	<0.01	<0.004	0.00052	<0.02	<0.0004	<0.02	35.3	<0.04	0.17
D024	3.76	0.111	0.623	0.108	3870	2530	20.9	0.545	1220	0.026	<0.004	0.00082	0.022	<0.0004	<0.02	27.7	<0.04	0.14
D025	2.30	0.0051	0.401	<0.04	2790	1310	6.69	0.354	1440	0.029	<0.004	<0.0004	0.086	<0.0004	0.059	24.0	<0.04	0.27

	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Phosphorus (P)	Potassium (K)	Rubidium (Rb)	Selenium (Se)	Sodium (Na)	Strontium (Sr)	Tellurium (Te)	Thallium (Tl)	Tin (Sn)	Uranium (U)	Vanadium (V)	Zinc (Zn)	Zirconium (Zr)	Cyanide
LDL	0.010	0.0010	0.0040	0.040	2.0	4.0	0.010	0.010	4.0	0.010	0.0040	0.00040	0.020	0.00040	0.020	0.10	0.040	0.10
Sample ID																		
D026	1.37	0.0076	0.280	<0.04	3320	2550	12.9	0.522	1020	0.029	<0.004	0.00064	0.022	<0.0004	0.075	28.2	<0.04	0.18
D027	1.09	0.0151	0.0963	<0.04	3830	2970	16.8	1.23	627	0.022	<0.004	<0.0004	0.058	<0.0004	0.084	21.8	<0.04	0.34
D028	3.91	0.0151	0.726	1.50	4010	3240	26.6	0.419	813	0.049	<0.004	0.00112	0.034	0.00108	0.048	47.4	<0.04	0.32
D029	3.02	0.0056	0.419	0.056	3250	2870	13.2	0.792	799	0.020	<0.004	<0.0004	<0.02	<0.0004	<0.02	29.8	<0.04	0.12
D030	3.32	0.0058	0.367	<0.04	3340	2690	21.5	0.592	736	0.049	<0.004	<0.0004	<0.02	<0.0004	0.113	37.4	<0.04	0.11
D031	2.34	0.0041	0.310	<0.04	2640	2660	7.96	0.486	880	0.052	<0.004	<0.0004	0.029	<0.0004	0.094	33.4	<0.04	0.14
D032	3.21	0.0058	0.456	<0.04	3440	3070	14.2	0.868	694	0.018	<0.004	<0.0004	0.055	<0.0004	0.038	32.1	<0.04	0.20
D033	3.28	0.0016	0.510	<0.04	3300	2780	18.7	0.417	547	0.024	<0.004	<0.0004	<0.02	<0.0004	0.065	32.8	<0.04	0.18
D034	1.36	0.0043	0.116	0.066	3610	2700	29.7	1.29	791	<0.01	<0.004	0.00052	<0.02	<0.0004	<0.02	25.1	<0.04	0.28
D035	2.72	0.0109	0.698	<0.04	2980	2170	24.1	0.410	1250	0.087	<0.004	0.00073	0.057	<0.0004	0.029	34.0	<0.04	0.23
D036	4.14	0.0091	0.953	0.259	3340	2650	15.8	0.937	568	<0.01	<0.004	0.00048	0.031	<0.0004	<0.02	43.3	<0.04	0.27
D037	1.13	0.0052	0.0867	<0.04	3780	2940	24.3	1.32	601	0.031	<0.004	0.00048	<0.02	<0.0004	<0.02	20.2	<0.04	0.13

Notes: Values are in mg/kg wet weight.
Values listed in BOLD are the Lowest Detection Limit (LDL) where the actual value recorded was below this limit. The LDL are due to limitations in analysis and below this value concentrations cannot be precisely measured.

Rainy River Project

APPENDIX B

WHITE-TAILED DEER TISSUE
SAMPLE LOG SHEETS AND COLLECTION FORMS

newgold Rainy River Project

Fall Deer Tissue Sample Log Sheet

Date	Sample ID	Collection Location (UTM if possible)	Sampler	Comments
2016-11-06	1	West Side Stansiconning Bay	Blair Bouyere	head shot
2016-11-08	2	WMU 10	Tammy Grinsell	Neck Shot - liver fluke?
2016-11-10	3	416622 5411625	Tanner Neilson	heart Shot
2016-11-09	4	419645 5415627	Perry Sharp	Neck Shot
2016-11-11	5	Sones Rd	Nathan Baird	long time dead 8 hrs
2016-11-11	6	N-Clink 1 mile East Barwick Rd	Elvin Taylor	large Sample provided
2016-11-15	7	15U 454778 5418867	Terry Smith	Shoulder shot / heart
2016-11-19	8	Brown Bay, Aitkin Peninsula, St Cloud MN	Tom Rusin	
2016-11-20	9	417731 5412746	Colin Neilson	liver harvest 15 hours after harvest
2016-11-20	10	Hwy 617 1Km N Neilson Rd	Darryl Flank	T Bay
2016-11-18	11	Hwy 617 1Km N Neilson Rd	Robyn Gaebel	Hit By truck
2016-11-10	12	3om E Barwick Rd 20m N hillbilly Rd	Tim Blair	Muscle only liver only
2016-10-29	13	400m E Barwick Rd 20m N hillbilly	Kim Gauld	Stomach
2016-11-19	14	Stratton 1/3	Kelvin Caul	
2016-11-19	15	Stratton 2/3	Leo Heynes	
2016-11-19	16	Stratton 1/1	Brendon Loney	
2016-11-19	17	Stratton 3/3	Kelvin Caul	
2016-11-22	18	lot 8 con 4 Stratton	Dan Neilson	
2016-11-29	19	Lot 11 Con 2 Dobie Twp N 1/2	Vaughan Wilson	heart + muscle
2016-12-04	20	555 Hwy 613 N	Tammy Grinsell	
2016-11-25	21	Pelletier Hunt Camp	Brandon Gagnon	
2016-11-26	22	" " "	Roger Pelletier	
2016-~~11~~12-03	23	1295 Maki Rd Devlin	Ryan Flammand	
2016-12-04	24	Island Crow LK	John Kurkoski	
2016-12-14	25	EMR	Nathan Baird	Road Kill
2016-10-24	26	SE corner Hele and church NW 1/4	Jason Biloski	
2016-11-05	27	Lot 8 Con 3 Kingsford twp	Carol Angus	
2016-11-09	28	S 1/2 Lot 2 Con 2 Kingsford Twp	Bob Angus	
2016-12-10	29	" "	Linton Angus	
2016-12-03	30	Lot 7 Con 2 Kingsford	Fred Angus	
2016-12-10	31	P7 Lot 4 Con 3 Kingsford	Linda Angus	
2016-12-11	32	L 7 Con 2 Kingsford	Darrell Angus	
2016-12-11	33	Pt Lot 9 Con 3 Kingsford	Ken Angus	
2016-12-11	34	Corner Dance Hall Of Flake	Anthony Platt	
2016-11-5	35	Mather Twp	Randy Craig	liver Dark
2016-11-11	36	Mather Twp	Danny Maki	
2016-11-16	37	Tate Rd	Rick Woods	
	38			
	39			
	40			
	41			
	42			
	43			
	44			

666 ~~Guelph Lab~~ ALS Lab

6666 Guelph Lab.

66 ALS Lab

6 Guelph Lab

ENV-FORM-00XX