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2.0 INFORMATION REQUESTS RECEIVED FROM THE PROVINCIAL GOVERNMENT

In December 2012, Alderon received comments on the EIS from the government of Newfoundland and Labrador (Newfoundland and Labrador Department of Advanced Education and Skills: Labour Market Development Division and the Skills Development Division; Newfoundland and Labrador Department of Tourism, Culture & Recreation, Archaeology Office; Newfoundland and Labrador Department of Transportation and Works; Newfoundland and Labrador Department of Natural Resources; Newfoundland and Labrador Department of Parks and Natural Areas; Newfoundland and Labrador Pollution Prevention Division, Department of Environment and Conservation. During the preparation of responses to the information requests, Alderon requested to meet with government departments and agencies to provide an overview of Alderon's approach to answer questions and ask for clarification on their comments, as appropriate. Where these meetings proceeded, Alderon has incorporated input received from the agencies into the responses below.

2.1 Newfoundland and Labrador Department of Advanced Education and Skills: Labour Market Development Division and the Skills Development Division (NLAE)

In December 2012, Alderon received comments on the EIS from the Newfoundland and Labrador Department of Advanced Education and Skills (NLAE). During the preparation of responses to the information requests, Alderon requested to meet with NLAE to provide an overview of Alderon's approach to answer their questions and ask for clarification on their comments, as appropriate. Alderon representatives met with NLAE on January 18, 2013 and were able to provide an overview of the additional information that was being prepared in response to NLAE's information requests. Alderon has incorporated input from NLAE into the responses below.

The following section includes the information requests from NLAE and Alderon's response to each of these requests.

2.1.1 Information Request NLAE 01

National Occupation Classification (NOC) codes (at the 4-digit level) associated with each position for all phases of the project, including the number of positions associated with each NOC code.

Deficient Response: The actual number of positions associated with each NOC code is required as opposed to the average number of persons per month on site for each NOC code as is provided in the EIS. AES is requesting an amendment to the EIS containing this information.

Note: Alderon Response for NLAE 01 and NLAE 02 are combined and provided after NLAE 02, below.

2.1.2 Information Request NLAE 02

The approximate time lines for each of the positions during the construction and operations phases of the project. This would include the number of positions for each 4-digit NOC code throughout the project at specified time intervals (monthly or at least quarterly) which would show levels of employment throughout the Project timeline.

Deficient Response: The actual number of positions for each 4-digit NOC code per month is required as opposed to the average number of persons per month on site for each NOC code as is provided in the EIS. The actual number of positions will allow employment numbers to be calculated each month to determine peak employment for the project. AES is requesting an amendment to the EIS containing this information.

Alderon Response to Information Request NLAE 02

Further to the information contained in the EIS, Volume 1, Appendix E, the following tables represent the collective requirements by NOC Code and quarter for construction phases I and II. The tables estimate the timing and demand for workers in each discipline and position, as shown in the EIS. It then summarizes the requirements by NOC Code. The tables provide a baseline estimate of the Project demands for specific NOC Codes during the construction phases. These tables have been updated below (Table 2.1.1 and 2.1.2).

Table 2.16 of Volume 1 of the EIS contains annual estimates for salaried and hourly workers required during operations for the Kami Project. The table specifies personnel requirements by position and associated NOC Code. The Kami Project is anticipated to operate at a steady rate over the life of the Project producing 16 million tonnes of concentrate annually. Monthly variations in personnel requirements during operations are not expected to be significant. The annual estimates contained in Table 2.16 reflect the Company's steady state operational requirements by NOC Code for the Kami Project. The personnel requirements reflected in Table 2.16 are representative of the number of positions the Company anticipates during operations. Any discrepancy between the number of positions described in Table 2.16 and those actually hired will be identified in the employment and industrial benefits monitoring and reporting process as specified in agreements and plans governing the development and operation of the Project.

Table 2.1.1 Number of Positions During Construction Phase I

NOC Code	Discipline	Position	2012	2013				2014				2015			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
111	Constuction Management	Cost Control Manager							2	3	3	2	1		
111 Total									2	3	3	2	1		
112	Third Party Professionnal Services	Health & Safety Manager						1	2	3	3	2	1		
112 Total								1	2	3	3	2	1		
125	Constuction Management	Professionnal Services							5	9	9	5	2	1	
125 Total									5	9	9	5	2	1	
632	Catering Service	Assistant Camp Manager						1	1	3	3	3	1	1	
632	Catering Service	Camp Manager						1	1	3	3	3	1	1	
632 Total								2	2	6	6	6	2	2	
711	Constuction Management	Construction Area Manager							2	3	3	2	1		
711	Constuction Management	Construction Manager							2	3	3	2	1		
711	Constuction Management	Mechanical & Piping Construction Superintendent							2	3	3	2	1		
711	Constuction Management	Structure Construction Superintendent							2	3	3	2	1		
711 Total									8	12	12	8	4		
714	Constuction Management	Electrical & Automation Construction Superintendent							2	3	3	2	1		
714 Total									2	3	3	2	1		
1121	Constuction Management	Human Resource							2	3	3	2	1		
1121	Constuction Management	PECC Team					1		7	11	12	7	3	1	
1121 Total							1		9	14	15	9	4	1	
1225	Catering Service	Buyer						1	3	5	6	5	3	1	
1225	Constuction Management	Contract Administrator					1		11	17	17	10	4	1	
1225 Total							1	1	14	22	23	15	7	2	
1411	Catering Service	Clerk						1	3	5	6	5	3	1	
1411	Commissioning (Mechanical Completion)	Secretarial / Clerical												1	7
1411	Constuction Management	Secretarial / Clerk					1		16	26	26	16	6	2	
1411 Total							1	1	19	31	32	21	9	4	7
1414	Constuction Management	Receptionist							2	3	3	2	1		
1414 Total									2	3	3	2	1		
2131	Constuction Management	Civil Engineer							2	3	3	2	1		
2131	Constuction Management	Resident Engineer							2	3	3	2	1		

NOC Code	Discipline	Position	2012	2013				2014				2015			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2131	Constuction Management	Structure Engineer							2	3	3	2	1		
2131 Total									6	9	9	6	3		
2132	Constuction Management	Automation Engineer							2	3	3	2	1		
2132	Constuction Management	Automation Supervisor							2	3	3	2	1		
2132	Constuction Management	Mechanical Engineer							2	3	3	2	1		
2132	Constuction Management	Piping Engineer							2	3	3	2	1		
2132 Total									8	12	12	8	4		
2133	Constuction Management	Electrical Engineer							2	3	3	2	1		
2133 Total									2	3	3	2	1		
2231	Constuction Management	Civil Construction Superintendent							2	3	3	2	1		
2231	Constuction Management	Civil Supervisor							2	3	3	2	1		
2231 Total									4	6	6	4	2		
2263	Third Party Professionnal Services	Environmental Manager						1	2	3	3	2	1		
2263	Third Party Professionnal Services	Health & Safety Officer					1	3	8	12	12	7	3	1	
2263	Third Party Professionnal Services	Inspector					1	2	6	9	9	6	2	1	
2263 Total							2	6	16	24	24	15	6	2	
3012	Third Party Professionnal Services	Nurse						1	2	3	3	2	1		
3012 Total								1	2	3	3	2	1		
4302	Commissioning (Mechanical Completion)	Commissioning Manager													2
4302 Total															2
6316	Third Party Professionnal Services	Security Manager						1	2	3	3	2	1		
6316 Total								1	2	3	3	2	1		
6321	Catering Service	Assistant Chef						1	3	5	6	5	3	1	
6321	Catering Service	Chef						1	1	3	3	3	1	1	
6321 Total								2	4	8	9	8	4	2	

NOC Code	Discipline	Position	2012	2013				2014				2015			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
6322	Catering Service	Cook				1	1	4	12	21	24	20	10	4	2
6322 Total						1	1	4	12	21	24	20	10	4	2
6541	Third Party Professionnal Services	Security Guard					1	2	6	9	9	6	2	1	
6541 Total							1	2	6	9	9	6	2	1	
6663	Catering Service	Janitor				1	1	5	13	24	27	23	12	5	2
6663 Total						1	1	5	13	24	27	23	12	5	2
7201	Architecture	Foreman / woman							1	16	17	2			
7201	Automation	Foreman / woman									3	7	5	1	
7201	Civil	Foreman / woman					2	23	13						
7201	Concrete	Foreman / woman						24	38	5					
7201	Electrical	Foreman / woman								1	12	25	17	3	
7201	Electrical Power Line	Foreman / woman						5	6	2					
7201	Mechanical	Foreman / woman								6	26	28	10	1	
7201	Piping	Foreman / woman								6	26	28	10	1	
7201	Pre-development	Foreman / woman					1	4	12	18	19	13	8	2	
7201	Railway	Foreman / woman									3	7	5	1	
7201	Site Preparation	Foreman / woman					2	11	6						
7201	Structure	Foreman / woman							41	47					
7201	Structure	Structural Steel Worker							168	196	1				
7201	Tailings	Foreman / woman						2	5	6	4	1			
7201 Total							5	69	290	303	111	111	55	9	
7202	Constuction Management	Electrical Supervisor							2	3	3	2	1		
7202 Total									2	3	3	2	1		
7203	Constuction Management	Piping Supervisor							2	3	3	2	1		
7203 Total									2	3	3	2	1		
7205	Architecture	Bricklayer							1	16	17	2			
7205	Pre-development	Painter						1	1	2	2	2	1		
7205	Pre-development	Plasterer						1	1	2	2	2	1		
7205 Total								2	3	20	21	6	2		
7233	Architecture	Sheet Metal Worker							3	60	64	7			

NOC Code	Discipline	Position	2012	2013				2014				2015			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
7233	Pre-development	Metal Worker						1	1	2	2	2	1		
7233 Total								1	4	62	66	9	1		
7234	Mechanical	Boilermaker								11	49	53	19	2	
7234 Total										11	49	53	19	2	
7236	Concrete	Iron worker						53	86	12					
7236	Constuction Management	Structure Supervisor							2	3	3	2	1		
7236 Total								53	88	15	3	2	1		
7237	Mechanical	Welder								11	49	53	19	2	
7237	Piping	Welder								3	14	16	6	1	
7237 Total										14	63	69	25	3	
7241	Automation	Electrician								1	14	31	21	4	
7241	Electrical	Electrician								2	47	96	67	11	
7241	Pre-development	Loader Operator						1	1	2	2	2	1		
7241 Total								1	1	5	63	129	89	15	
7242	Electrical Power Line	Electrician					1	13	16	4					
7242 Total							1	13	16	4					
7243	Pre-development	Electrician						2	4	7	7	5	3	1	
7243 Total								2	4	7	7	5	3	1	
7244	Electrical Power Line	Line Man					1	8	9	2					
7244 Total							1	8	9	2					
7252	Mechanical	Sprinkler Fitter								3	11	12	5		
7252	Piping	Pipe Fitter								3	14	16	6	1	
7252	Pre-development	Pipe Fitter						1	3	5	5	3	2		
7252 Total								1	3	11	30	31	13	1	
7265	Structure	Welder							71	82					
7265 Total									71	82					
7271	Concrete	Carpenter						97	157	22					
7271	Pre-development	Carpenter					1	3	9	14	14	9	6	1	
7271 Total							1	100	166	36	14	9	6	1	

NOC Code	Discipline	Position	2012	2013				2014				2015			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
7282	Concrete	Finisher						20	32	5					
7282 Total								20	32	5					
7284	Architecture	Plasterer								5	6	1			
7284 Total										5	6	1			
7291	Architecture	Roofer							2	34	36	4			
7291 Total									2	34	36	4			
7293	Piping	Pipe Insulator								23	106	115	42	4	
7293 Total										23	106	115	42	4	
7294	Architecture	Painter							1	16	17	2			
7294 Total									1	16	17	2			
7301	Constuction Management	Mechanical Supervisor							2	3	3	2	1		
7301 Total									2	3	3	2	1		
7302	Commissioning (Mechanical Completion)	Commissioning Specialist													5
7302	Commissioning (Mechanical Completion)	Commissioning Technician												1	15
7302	Pre-development	Pre development worker					7	27	75	116	122	81	54	12	
7302 Total							7	27	75	116	122	81	54	13	20
7311	Mechanical	Millwright								16	74	81	30	3	
7311 Total										16	74	81	30	3	
7371	Structure	Crane Operator							41	47					
7371 Total									41	47					
7372	Pre-development	Drill Operator						1	3	5	5	3	2		
7372 Total								1	3	5	5	3	2		
7421	Pre-development	Shovel Operator						1	1	2	2	2	1		
7421	Pre-development	Truck Operator					1	6	16	25	26	17	12	3	
7421 Total							1	7	17	27	28	19	13	3	
7521	Civil	Equipment Operator					7	108	58						
7521	Concrete	Equipment Operator						10	16	2					
7521	Mechanical	Equipment Operator								3	11	12	5		
7521	Piping	Equipment Operator								1	3	3	1		

NOC Code	Discipline	Position	2012	2013				2014				2015			
			Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
7521	Pre-development	Equipment Operator					1	3	7	11	12	8	5	1	
7521	Railway	Equipment Operator								1	11	26	21	5	
7521	Site Preparation	Equipment Operator					14	78	42						
7521	Tailings	Equipment Operator					2	11	35	43	30	9			
7521 Total							24	210	158	61	67	58	32	6	
7611	Automation	Labourer									3	7	5	1	
7611	Civil	Labourer					3	38	20						
7611	Concrete	Labourer						57	93	13					
7611	Electrical	Labourer								1	20	40	28	5	
7611	Electrical Power Line	Labourer					1	8	9	2					
7611	Mechanical	Labourer								8	37	40	15	1	
7611	Piping	Labourer								5	23	25	9	1	
7611	Pre-development	Labourer					1	2	6	9	10	6	4	1	
7611	Railway	Labourer								1	7	16	13	3	
7611	Site Preparation	Labourer					7	37	20						
7611	Structure	Labourer							57	66					
7611	Tailings	Labourer						2	8	9	6	2			
7611 Total							12	144	213	114	106	136	74	12	
9212	Mechanical	Refrigerating Technician								3	11	12	5		
9212 Total										3	11	12	5		
Grand Total						**2**	**60**	**685**	**1,343**	**1,281**	**1,252**	**1,110**	**547**	**97**	**33**

Table 2.1.2 Number of Positions for Construction Phase II (Expansion to 16 Million Tonnes per Year)

NOC Code	Discipline	Position	2017				2018				2019			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
111	Construction Management	Cost Control Manager						1	2	2	2	1		
111 Total								1	2	2	2	1		
112	Third Party Professional Services	Health & Safety Manager						1	2	2	2	1		
112 Total								1	2	2	2	1		
125	Construction Management	Professional Services					1	2	5	7	6	3	1	
125 Total							1	2	5	7	6	3	1	
632	Catering Service	Assistant Camp Manager						1	1	2	2	1	1	
632	Catering Service	Camp Manager						1	1	2	2	1	1	
632 Total								2	2	4	4	2	2	
711 Total								4	8	8	8	4		
714	Construction Management	Electrical & Automation Construction Superintendent						1	2	2	2	1		
714 Total								1	2	2	2	1		
1121	Construction Management	Human Resource						1	2	2	2	1		
1121	Construction Management	PECC Team					1	3	7	9	8	4	2	
1121 Total							1	4	9	11	10	5	2	
1225	Catering Service	Buyer						1	3	5	4	3	2	1
1225	Construction Management	Contract Administrator					1	4	11	13	12	5	2	
1225 Total							1	5	14	18	16	8	4	1
1241	Construction Management	Secretarial / Clerk					2	7	16	20	18	8	3	
1241 Total							2	7	16	20	18	8	3	
1411	Catering Service	Clerk						1	3	5	4	3	2	1
1411	Commissioning (Mechanical Completion)	Secretarial / Clerical											1	6
1411 Total								1	3	5	4	3	3	7
1414	Construction Management	Receptionist						1	2	2	2	1		
1414 Total								1	2	2	2	1		
2131	Construction Management	Civil Engineer						1	2	2	2	1		
2131	Construction Management	Civil Supervisor						1	2	2	2	1		
2131	Construction Management	Resident Engineer						1	2	2	2	1		

NOC Code	Discipline	Position	2017				2018				2019			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2131	Construction Management	Structure Engineer						1	2	2	2	1		
2131 Total								4	8	8	8	4		
2132	Construction Management	Automation Engineer						1	2	2	2	1		
2132	Construction Management	Automation Supervisor						1	2	2	2	1		
2132	Construction Management	Mechanical Engineer						1	2	2	2	1		
2132	Construction Management	Piping Engineer						1	2	2	2	1		
2132 Total								4	8	8	8	4		
2133	Construction Management	Electrical Engineer						1	2	2	2	1		
2133 Total								1	2	2	2	1		
2231	Construction Management	Civil Construction Superintendent						1	2	2	2	1		
2231 Total								1	2	2	2	1		
2263	Third Party Professional Services	Environmental Manager						1	2	2	2	1		
2263	Third Party Professional Services	Health & Safety Officer					1	3	8	9	8	4	2	
2263	Third Party Professional Services	Inspector					1	2	6	7	6	3	1	
2263 Total							2	6	16	18	16	8	3	
3012	Third Party Professional Services	Nurse						1	2	2	2	1		
3012 Total								1	2	2	2	1		
6316	Third Party Professional Services	Security Manager						1	2	2	2	1		
6316 Total								1	2	2	2	1		
6321	Catering Service	Assistant Chef						1	3	5	4	3	2	1
6321	Catering Service	Chef						1	1	2	2	1	1	
6321 Total								2	4	7	6	4	3	1
6322	Catering Service	Cook					2	5	12	18	18	12	6	2
6322 Total							2	5	12	18	18	12	6	2
6541	Third Party Professional Services	Security Guard					1	2	6	7	6	3	1	
6541 Total							1	2	6	7	6	3	1	
6663	Catering Service	Janitor					2	5	13	20	20	13	7	3
6663 Total							2	5	13	20	20	13	7	3
7201	Architecture	Foreman / woman							3	13	8			

NOC Code	Discipline	Position	2017				2018				2019			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
7201	Automation	Foreman / woman									4	5	2	
7201	Civil	Foreman / woman					1	4	11	14	12	6	2	
7201	Concrete	Foreman / woman					1	30	25					
7201	Electrical	Foreman / woman								2	16	19	8	
7201	Mechanical	Foreman / woman							1	9	22	17	5	
7201	Piping	Foreman / woman							1	9	22	17	5	
7201	Structure	Foreman / woman						2	36	17				
7201	Structure	Structural Steel Worker						9	151	72				
7201 Total							2	45	228	136	84	64	22	
7202	Construction Management	Electrical Supervisor						1	2	2	2	1		
7202 Total								1	2	2	2	1		
7203	Construction Management	Piping Supervisor						1	2	2	2	1		
7203 Total								1	2	2	2	1		
7205	Architecture	Bricklayer							3	13	8			
7205 Total									3	13	8			
7233	Architecture	Sheet Metal Worker							10	49	30			
7233 Total									10	49	30			
7234	Mechanical	Boilermaker							1	16	41	32	9	
7234 Total									1	16	41	32	9	
7236	Construction Management	Structure Supervisor						1	2	2	2	1		
7236 Total								1	2	2	2	1		
7241	Automation	Electrician								2	19	24	10	1
7241	Electrical	Electrician								7	61	74	32	1
7241 Total										9	80	98	42	2
7252	Mechanical	Sprinkler Fitter								4	10	7	2	
7252	Piping	Pipe Fitter								5	12	9	3	
7252 Total										9	22	16	5	
7263	Concrete	Iron worker					3	66	56	1				
7263 Total							3	66	56	1				
7265	Mechanical	Welder							1	16	41	32	9	

NOC Code	Discipline	Position	2017				2018				2019			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
7265	Piping	Welder								5	12	9	3	
7265	Structure	Welder						4	63	30				
7265 Total								4	64	51	53	41	12	
7271	Concrete	Carpenter					6	121	102	1				
7271 Total							6	121	102	1				
7282	Concrete	Finisher					1	25	21					
7282 Total							1	25	21					
7284	Architecture	Plasterer							1	4	3			
7284 Total									1	4	3			
7291	Architecture	Roofer							6	28	17			
7291 Total									6	28	17			
7293	Piping	Pipe Insulator							3	36	88	69	19	
7293 Total									3	36	88	69	19	
7294	Architecture	Painter							3	13	8			
7294 Total									3	13	8			
7301	Construction Management	Mechanical Supervisor						1	2	2	2	1		
7301 Total								1	2	2	2	1		
7302	Commissioning (Mechanical Completion)	Commissioning Manager												2
7302	Commissioning (Mechanical Completion)	Commissioning Specialist											1	4
7302	Commissioning (Mechanical Completion)	Commissioning Technician											2	12
7302 Total													3	18
7311	Mechanical	Millwright							2	25	62	48	13	
7311 Total									2	25	62	48	13	
7371	Structure	Crane Operator						2	36	17				
7371 Total								2	36	17				
7521	Civil	Equipment Operator					6	20	51	63	55	26	11	1
7521	Concrete	Equipment Operator					1	12	10					
7521	Mechanical	Equipment Operator								4	10	7	2	

NOC Code	Discipline	Position	2017				2018				2019			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
7521	Piping	Equipment Operator								1	2	2	1	
7521 Total							7	32	61	68	67	35	14	1
7611	Automation	Labourer									4	5	2	
7611	Civil	Labourer					2	7	18	22	19	9	4	
7611	Concrete	Labourer					4	71	61	1				
7611	Electrical	Labourer								3	26	31	13	1
7611	Mechanical	Labourer							1	13	31	24	7	
7611	Piping	Labourer							1	8	19	15	4	
7611	Structure	Labourer						3	51	24				
7611 Total							6	81	132	71	99	84	30	1
9212	Mechanical	Refrigerating Technician								4	10	7	2	
9212 Total										4	10	7	2	
Grand Total							37	441	877	734	844	587	206	36

2.1.3 Information Request NLAE 03

An estimate of the number of apprentices (by level) and journeypersons required.

Deficient Response: There has been no indication of the number of apprentices, by level, or the number of journeypersons required for occupations considered to be skilled trades before project start. This information would provide AES, postsecondary institutions, and other stakeholders in the province the necessary time to develop the necessary training strategies to meet the demand of the project. These strategies would include, but would not be limited to, the review of current training, identify training gaps, develop training curriculum, and determine staff, facilities, and financial resources required to provide the necessary training for the project. AES is requesting an amendment to the EIS containing this information.

Alderon Response to Information Request NLAE 03

Opportunities for the employment of apprentices during construction will be limited, but contractors will be encouraged to use apprentices wherever it is possible and practical. However, Alderon commits that upon reaching the operations phase, 15 percent of its maintenance workforce covering all of the conventional trades will be apprentices at varying levels of the apprenticeship programs. The Company will work closely and collaboratively with the College of the North Atlantic as well as AES staff to identify training needs and opportunities and will ensure that the services on offer through these and other learning institutions will be fully utilized. While the exact composition of the apprentice workforce cannot be anticipated, the Company will provide regular (i.e., monthly, quarterly and annual) staffing reports which will detail, amongst other things, the number of apprentices hired and further distinguish them by trade and by level within the program.

2.1.4 Information Request NLAE 04

In addition, AES is requesting a copy of the Human Resource Plans once finalized prior to project start.

Alderon Response to Information Request NLAE 04

There will be two Human Resources Plans developed, one covering the construction phase and one to deal with the operational phase. The construction phase Human Resources Plan will be developed in conjunction with the EPCM contractor (WorleyParsons) and the other will be entirely the product of the Company's. Both plans will be provided to AES prior to the commencement of each phase of the Project.

2.2 Information Requests Received From Newfoundland and Labrador Department of Archaeology Office, Tourism, Culture & Recreation (NLAO).

The following section includes the information requests from the Newfoundland and Labrador Archaeology Office, Department of Tourism, Culture & Recreation and Alderon's response to each of these requests.

2.2.1 Information Request No. NLAO 01

In Summary of Project Residual Environmental Effects: Historic & Cultural Resources Table A.8 under Key – **Reversibility** missing from key, as are **R – Reversible** and **I – Irreversible**.

Alderon Response to IR No. NLAO 01

Noted. The key in Table A.8 of the Labrador Plain Language Summary should read: "*Reversibility: R – Reversible I – Irreversible*".

2.2.2 Information Request No. NLAO 02

Pg. 21-13 Under Field Survey, 3rd paragraph, line 7 add **as** to the following "In locations of particular significance, such **as** the shorelines of rivers and lakes…".

Alderon Response to IR No. NLAO 02

Noted. On page 21-13 under "Field Survey", 3rd paragraph, line 7 should read: "In locations of particular significance, such as the shorelines of rivers and lakes, …"

2.2.3 Information Request No. NLAO 03

Pg. 21-14 Under Field Survey, 2nd paragraph, line 5 change **(Locations 3 to 6)** to (**Locations 4 to 6**).

Alderon Response to IR No. NLAO 03

Noted. On page 21-14 under "Field Survey", 2nd paragraph, line 5 should read: "*(Locations 4 to 6)*".

2.2.4 Information Request No. NLAO 04

Pg. 21-14 Under Field Survey, 2nd paragraph, line 9 should add **(Location 10)** after "and one on a point of land that projects out from the east side of Long Lake **(Location 10)**.**"**.

Alderon Response to IR No. NLAO 04

Noted. On page 21-14 under "Field Survey", 2nd paragraph, line 9 should read: "…and one on a point of land that projects out from the east side of Long Lake (Location 10)."

2.2.5 Information Request No. NLAO 05

Pg. 21-25 Under Field Study Project Development Area, 2nd paragraph, line 12 add an **s** to it "*As well it**s** proximity…".*

Alderon Response to IR No. NLAO 05

Noted. On page 21-25 under under "Field Study Project Development Area", 2nd paragraph, line 12 should read: "*As well its proximity …*"

2.2.6 Information Request No. NLAO 06

Pg. 21-25 Under Field Study Project Development Area, last line on page change **(Locations 3 to 6)** to **(Locations 4 to 6)**.

Alderon Response to IR No. NLAO 06

Noted. On page 21-25 under under "Field Study Project Development Area", the last line should read: *"(Locations 4 to 6)*".

2.2.7 Information Request No. NLAO 07

Pg. 21-26 Under Field Study Project Development Area, line 4 from top of page add (Location 10) after "*…and one on a point of land that projects out from the east side of Long Lake (**Location 10)***.".

Alderon Response to IR No. NLAO 07

Noted. On page 21-26 under "Field Study Project Development Area", line 4 from top of page should read: *"…and one on a point of land that projects out from the east side of Long Lake (Location 10).*"

2.2.8 Information Request No. NLAO 08

Pg. 21-26 Under Field Study Project Development Area, line 7 add **area** to the following sentence "*Regarding Locations 1 to 3, this entire **area** was walked and testpits excavated…"*

Alderon Response to IR No. NLAO 08

Noted. On page 21-26 under "Field Study Project Development Area", line 7 should read: "…*Regarding Locations 1 to 3, this entire area was walked and testpits excavated, …*"

2.2.9 Information Request No. NLAO 09

Pgs. 21-26 & 21-28 Under Field Study Project Development Area, the 10 testing locations are discussed and the number of test pit excavated for each location is given, **n=32**. On page 21-14 Under Field Survey, 1st full paragraph on the page, line 2 the number of test pits excavated at the 10 locations is given as **20**. What is the correct number of test pits excavated?

Alderon Response to IR No. NLAO 09

Thirty two test pits were excavated. On page 21-14 under under “Field Survey”, 1st full paragraph on the page, line 2 the number of test pits excavated at the 10 locations should read 32.

2.3 Information Requests Received from Newfoundland and Labrador Department of Transportation and Works (NLTW)

The following section includes the information requests from the Newfoundland and Labrador Department of Transportation and Works and Alderon's response to each of these requests.

2.3.1 Information Request No. NLTW 01

Table 1.3 should include a Protected Roads Access Permit from Department of Transportation and Works.

Alderon Response to IR No. NLTW 01

Table 1.3 of the EIS, Volume 1 should include a Protected Roads Access Permit, issued by the Department of Transportation and Works, as indicated in the table below (Table 2.3.1).

Table 2.3.1 Potential Permits, Approvals, and Authorizations (Updated EIS Table 1.3, Volume 1)

Permit, Approval or Authorization Activity	Issuing Agency
Provincial	
• Release from environment assessment process.	NLDOEC – Environmental Assessment Division
• Permit to Occupy Crown Land.	NLDOEC – Crown Lands Division
• Permit to Construct a Non-Domestic Well. • Water Resources Real-Time Monitoring. • Certificate of Environmental Approval to Alter a Body of Water. • Culvert Installation. • Fording. • Stream Modification or Diversion. • Other Works Within 15 m of a Body of Water (site drainage, dewater pit, settling ponds). • Permit for Development inside a Protected Watershed Area.	NLDOEC – Water Resources Management Division
• Certificate of Approval for Construction and Operation. • Certificate of Approval for Generators. • Approval of MMER Emergency Response Plan. • Approval of Waste Management Plan. • Approval of Environmental Contingency Plan (Emergency Spill Response). • Approval of Environmental Protection Plan.	NLDOEC – Pollution Prevention Division
• Permit to Control Nuisance Animals.	NLDOEC – Wildlife Division
• Pesticide Operators License.	NLDOEC – Pesticides Control Section
• Blasters Safety Certificate. • Magazine License. • Approval for Storage and Handling Gasoline and Associated Products. • Temporary Fuel Cache. • Fuel Tank Registration. • Approval for Used Oil Storage Tank System (Oil / Water Separator).	Newfoundland and Labrador Government Service Centre (NLGSC)

Permit, Approval or Authorization Activity	Issuing Agency
• Fire, Life and Safety Program. • Certificate of Approval for a Waste Management System.	
• Approval of Development Plan, Closure Plan, and Financial Assurance. • Mining Lease. • Surface Rights Lease. • Quarry Development Permit.	NLDNR – Mineral Lands Division
• Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land. • Permit to Cut Crown Timber. • Permit to Burn.	NLDNR – Forest Resources
• Approval to Construct and Operate a Railway in Newfoundland and Labrador. • Protected Roads Access Permit.	Newfoundland and Labrador Department of Transportation and Works (NLDTW)
Federal	
• Authorization for Harmful Alteration, Disruption or Destruction (HADD) of fish habitat.	DFO
• Approval to interfere with navigation.	Transport Canada
• License to Store, Manufacture or Handle Explosives.	Natural Resources Canada
• Approval to construct a railway.	Canadian Transportation Agency
Municipal	
• Building Permit. • Development Permit Application. • Excavation Permit. • Fence Permit. • Occupancy – Commercial Permit. • Open Air Burning Permit. • Signage Permit.	Town of Labrador City
• Building Permit. • Development Permit Application. • Excavation Permit. • Fence Permit. • Occupancy – Commercial Permit. • Open Air Burning Permit. • Signage Permit.	Town of Wabush

2.3.2 Information Request No. NLTW 02

Table 1.2 does not show The Department of Transportation and Works as an EA Committee member.

Alderon Response to IR No. NLTW 02

Table 1.2 of the EIS, Volume 1 should include the Department of Transportation and Works as an Environmental Assessment Committee member, as included in the table below (Table 2.3.2).

Table 2.3.2 Environmental Assessment Committee (Updated EIS Table 1.2, Volume 1)

Government	Government Department
Newfoundland and Labrador Government	Newfoundland and Labrador Department of Environment and Conservation, Environmental Assessment Division
	Newfoundland and Labrador Department of Environment and Conservation, Pollution Prevention Division
	Newfoundland and Labrador Department of Environment and Conservation, Water Resources Division
	Newfoundland and Labrador Department of Environment and Conservation, Wildlife Division
	Newfoundland and Labrador Department of Environment and Conservation, Land Management Division
	Women's Policy Office
	Newfoundland and Labrador Department of Tourism, Culture and Recreation, Provincial Archaeology Office
	Newfoundland and Labrador Department of Advanced Education and Skills, Skills Development Division
	Newfoundland and Labrador Department of Advanced Education and Skills, Labour Market Development Division
	Newfoundland and Labrador Department of Advanced Education and Skills, Labour Market Development Division
	Newfoundland and Labrador Department of Natural Resources, Mines Branch
	Intergovernmental and Aboriginal Affairs Secretariat, Aboriginal Affairs Branch
	Labrador-Grenfell Regional Health Authority
	Newfoundland and Labrador Department of Municipal Affairs, Land Use Planning
	Newfoundland and Labrador Department of Transportation and Works, Highway Design and Construction
Government of Canada	Environment Canada
	Fisheries and Oceans Canada
	Transport Canada
	Canadian Environmental Assessment Agency
	Canadian Transportation Agency
	Health Canada
	Natural Resources Canada

2.3.3 Information Request No. NLTW 03

1. Missing information:

a. Anticipated number of at-grade rail crossings of Route 500 as a result of the project. (Frequency and Location).

b. Anticipated number of construction (and subsequent operation) vehicles accessing the mine site from the Route 500 access point.

Alderon Response to IR No. NLTW 03

1.a The Project Description (Chapter 2) of Volume 1 of the EIS provides the preferred routing of the proposed rail infrastructure. The Kami rail infrastructure is proposed to connect to the QNS&L Railway to the west of that rail line's connection to Route 500. Therefore, the Kami rail infrastructure will not cross Route 500.

1.b An assessment and evaluation of the likely environmental and socio-economic effects and benefits of the proposed Project is provided in the EIS. This includes information on Community Services and Infrastructure (Chapter 24). Section 24.6.1 provides the following information on Project related traffic.

During construction, materials and equipment will be transported by truck to the Project site, increasing traffic in western Labrador. Approximately 5,400 truckloads of materials and equipment will have to be moved to the Project site and western Labrador during the construction phase. This amounts to approximately 13 truck trips each day. However, traffic volumes will still be well within the design capacity of that portion of the TLH (a minimum of 1,000 vehicles/hour).

It is anticipated that the Kami Iron Ore Mine will require between 259 and 817 workers for operations and maintenance depending on the Project phase. These workers will commute to the Project site by private vehicle or bus provided by Alderon. Workers and their families will also contribute to traffic in the communities beyond the Project site.

2.3.4 Information Request No. NLTW 04

The statement "and possibly as late as 2019" is not correct. Neither is the statement "The project was originally estimated to cost $290 million, but as of March 2011 the province had spent $501.3 million and estimated it will cost another $428 million to complete the project" I understand that CBC may have reported this, but it is factually not correct.

Alderon Response to IR No. NLTW 04

The Reviewer's comment is acknowledged.

2.4 Newfoundland and Labrador Natural Resources, Policy & Planning Benefits Division (NLNR)

In December 2012, Alderon received comments on the EIS from the Newfoundland and Labrador Department of Natural Resources (NLNR). Discussions between Alderon and NLNR have been ongoing with regards to the Benefits Agreement and there have been several meetings with the department in January 2013. Alderon has incorporated input from NLNR in the responses below.

The following section includes the information requests from NLNR and Alderon's response to each of these requests.

2.4.1 Information Request No. NLNR 01

From a benefits perspective there was one key concern identified:

The document includes multiple and varied references to three specific documents – the Benefits Plan, Benefits Agreement and Diversity Plan. On occasion, the EIS appears to suggest that these documents are complete, and/or included in the EIS, while on other occasions the EIS infers future development of these documents. This can be confusing to the reader and may also incorrectly suggest completion of processes that are still underway.

Alderon Response to IR No. NLNR 01

Alderon fully understands that the contribution the Project will make to the Province's economic development is important to the people of Newfoundland and Labrador, and it is committed to the delivery of employment, business and other benefits to the Province as a whole, and especially to women and other under-represented groups, including members of Aboriginal groups and persons with disabilities. Accordingly, it is working with the provincial government to finalize a contractual Benefits Agreement and with the government and other stakeholders to develop related Benefits and Diversity Plans. These plans will describe how Alderon will satisfy the provisions of the Benefits Agreement, both generally (in the case of the Benefits Plan) and with respect to the interests of under-represented groups (in the case of the Diversity Plan, which will incorporate a Gender Equity Plan). As per Section 4.28.4 of the EIS Guidelines, the Benefits Plan will require approval by the Minister of Natural Resources. In addition, the Diversity Plan will require approval by the Minister of Natural Resources and the Minister Responsible for the Status of Women.

2.4.2 Information Request No. NLNR 02

Recommendation:

The Operator is asked to insert a general paragraph clarifying the role of the Benefits Plan, Benefits Agreement and Diversity Plan **principles** in the EIS document, and ensure consistency of reference throughout the EIS. The Operator is also asked to include a statement indicating that while these processes are still underway, they will be developed to meet the approval of the responsible Ministers.

Alderon Response to IR No. NLNR 02

Alderon and the Government of Newfoundland and Labrador will have a contractual Benefits Agreement that will provide commitments for the delivery of employment, business and other benefits to the province and its citizens. The Project Benefits and Diversity Plans will describe how Alderon will satisfy the provisions of the Benefits Agreement, both generally (in the case of the Benefits Plan) and with respect to the interests of under-represented groups (in the case of the Diversity Plan, which will incorporate a Gender Equity Plan). These Plans will set out Alderon's approaches, targets and initiatives for delivering benefits, including mechanisms to measure and report success.

Alderon is working with the provincial government to finalize the Benefits Agreement and with the government and other stakeholders to develop the Benefits and Diversity Plans. As per Section 4.28.4 of the EIS Guidelines, the Benefits Plan will require approval by the Minister of Natural Resources and the Diversity Plan will require approval by the Minister of Natural Resources and the Minister Responsible for the Status of Women.

2.5 Newfoundland and Labrador Parks and Natural Areas Division (NLPN)

In December 2012, Alderon received comments on the EIS from the Newfoundland and Labrador Department of Parks and Natural Areas (NLPN). During the preparation of responses to the information requests, Alderon requested to meet with NLPN to provide an overview of Alderon's approach to answer their questions and ask for clarification on their comments, as appropriate. Alderon representatives met with NLPN in January 2013 and were able to provide an overview of the additional information that was being prepared in response to NLPN's information requests. Alderon has incorporated input from NLPN into the responses below.

The following section includes the information requests from NLPN and Alderon's response to each of these requests

2.5.1 Information Request No. NLPN 01

The proponent did not provide tables summarizing:

- Applicable standards and guidelines; or
- Commitments made by the proponent, including the timing and responsibility of each.

These were stipulated in Section 4.15 of the EIS Guidelines and should be inserted.

Alderon Response to IR No. NLPN 01

Tables summarizing applicable standards and guidelines, and commitments made by the Proponent are provided below (Tables 2.5.1 and 2.5.2). Alderon is responsible for implementing procedures that are in compliance with statutory requirments and are consistent with guidelines and standards. Alderon is responsible for implementing commitments presented in Table 2.5.2.

Table 2.5.1 Examples of Standards and Guidelines for Birds, Other Wildlife and Their Habitats, and Protected Areas VEC

Governance	Federal	Provincial	Other
Standards and Guidelines	• *Canadian Environmental Assessment Act* (CEAA) and associated *Environmental Assessment Regulations*. • *Migratory Birds Convention Act* (MBCA). • *Species at Risk Act* (SARA). • *Canada Wildlife Act.*	• Newfoundland and Labrador *Environmental Protection Act* (NLEPA) and associated *Environmental Assessment Regulations*. • Newfoundland and Labrador *Wildlife Act.* • Newfoundland and Labrador *Endangered Species Act* (NLESA). • Duley Lake Provincial Park. • Newfoundland and Labrador Species at Risk: A Policy Regarding the Conservation of Species at Risk.	• EIS Guidelines (June 26, 2012). • Municipal Wetlands Stewardship Program. • SubSection 13(3) of the *Urban and Rural Planning Act*, 2000. • Management Units within the municipal boundaries of Labrador City (Labrador City 2010a, 2010b). • Wabush Habitat Conservation Plan (Wabush 2010).

Table 2.5.2 Commitments by Alderon relevant to the Birds, Other Wildlife and Their Habitat, and Protected Areas VEC

Commitment	Timing
Environmental Protection Plan (EPP) and Environmental Management Plans will be developed for the Project.	Prior to the start of the construction phase.
Posted speed limits on site roads to minimize wildlife collisions.	Construction, operation and maintenance.
Alderon is pursuing a Corporate Stewardship Agreement with the municipalities.	Prior to the start of the construction phase
Minimize construction footprint (i.e., PDA) to the extent feasible.	Construction phase.
Avoid sensitive species and their habitats to the extent feasible.	Construction, operation and maintenance.
Staff and contractor wildlife awareness and avoidance training.	Construction, operation and maintenance.

Commitment	Timing
Minimize disturbance and infilling within adjacent wetlands and maintain hydrological conditions to the extent feasible.	Construction, operation and maintenance.
Rehabilitate access routes that are no longer needed.	Construction, operation and maintenance.
Locate borrow pits more than 100 m away from the high water mark of waterbodies, where feasible.	Construction, operation and maintenance.
Maintain natural buffers around wetlands and riparian zones.	Construction, operation and maintenance.
Dispose of slash from clearing, as specified in permits.	Construction, operation and maintenance.
Comply with provincial and federal legislation, permits, approvals and guidelines.	Construction, operation and maintenance.
Implement erosion and sediment control.	Construction, operation and maintenance.
Manage invasive species.	Construction, operation and maintenance.
Conduct progressive rehabilitation.	Construction, operation and maintenance.
Implement an Avifauna Management Plan.	Prior to construction phase.
Restrict clearing activities to the period outside of the bird breeding bird season, whenever feasible.	Construction phase.
Restrict clearing and other activities within 800 m of an active raptor nest, and within 200 m of an inactive nest.	Construction phase.
Flag the boundaries of sensitive areas before commencing any work in the area.	Construction, operation and maintenance.
Limit noise levels whenever feasible.	Construction, operation and maintenance, decommissioning and reclamation.
Allow wildlife to pass through construction sites without harassment.	Construction, operation and maintenance, decommissioning and reclamation.
Maintain hydrology at stream crossings through approved methods to install culverts.	Construction, operation and maintenance, decommissioning and reclamation.
Conduct invasive species management.	Construction, operation and maintenance, decommissioning and reclamation.
Prohibit hunting or harassment of wildlife on Project site.	Construction, operation and maintenance, decommissioning and reclamation.
Limit situations leading to potential collisions.	Construction, operation and maintenance, decommissioning and reclamation.
Use welding mats from April 1 to November 15 to prevent forest fires.	Construction, operation and maintenance, decommissioning and reclamation.
Dispose of all waste appropriately.	Construction, operation and maintenance, decommissioning and reclamation.
Limit lighting to that required for safe operation.	Construction, operation and maintenance, decommissioning and reclamation.
Shield exterior lights from above.	Construction, operation and maintenance, decommissioning and reclamation.
Use motion sensors for security lighting.	Construction, operation and maintenance, decommissioning and reclamation.
Consider clearing by mulching and mechanized forestry equipment.	Construction, operation and maintenance, decommissioning and reclamation.

Commitment	Timing
Use best practices for fuels and other hazardous materials (e.g., herbicides).	Construction, operation and maintenance, decommissioning and reclamation.
Implement various dust-control measures.	Construction, operation and maintenance, decommissioning and reclamation.
Do not bury waste during progressive rehabilitation activities.	Construction, operation and maintenance, decommissioning and reclamation.
Allow fuel trucks to travel only on approved access roads.	Construction, operation and maintenance, decommissioning and reclamation.
Ensure equipment arrives on site free from fluid leaks.	Construction, operation and maintenance, decommissioning and reclamation.
Inspect and maintain equipment on a regular schedule.	Construction, operation and maintenance, decommissioning and reclamation.
Establish a site for equipment maintenance, repair and cleaning that is at least 100 m from any lake, river, stream or wetland.	Construction, operation and maintenance, decommissioning and reclamation.
Progressive and Final Rehabilitation and Closure Plan.	Project operations and decommissioning.

2.5.2 Information Request No. NLPN 02

The EIS Guidelines specified that in this VEC, the proponent must evaluate potential environmental effects to Duley Lake Provincial Park. However, the proponent simply notes that that Duley Lake Provincial Park is within the Regional Study Area and no further discussion of project effects on the Park is included. Effects on protected areas are discussed in the context of Pike Lake South Management Unit only, despite the fact that the proposed Rose North Waste Rock Disposal Area and Rose Pit are within 100 m and 1000 m, respectively, of the Park boundary. Of particular concern are the expected changes in hydrology and water quality of Pike Lake (given its proximity to the iron ore deposit at Rose Pit), half of which is contained within Duley Lake Provincial Park. Also concerning is the proposed site surface preparation and continued operation/use of Rose North Waste Rock Disposal Area in such close proximity to the Park boundary (e.g., changes in topology and microclimates, habitat loss and fragmentation, and generation of dust and potential deposition in the Park, etc) and effects of the disposal of 50 million m^3 tons of tailings in Rose Pit during the last 4 years of the project.

Alderon Response to IR No. NLPN 02

Duley Lake Provincial Park Reserve is located outside of the Project footprint. While there will be no direct habitat loss within the Park Reserve as a result of the Project, proximity to Project elements, particularly the Rose North Waste Rock Disposal Area and the Rose Pit, create the potential for indirect effects including dust, noise, habitat fragmentation and changes in water quality and quantity. Each of these potential effects was assessed in the EIS under respective VECs, such as Atmospheric Resources and Water Resources. A summary of these effects in relation to Duley Lake Provincial Park Reserve is provided below.

Air Quality

Dust and Air Contaminants

As assessed in Section 14.6.1.1 of the EIS, the effects of Project construction on change in air quality is predicted to be moderate in magnitude, local in geographic extent, and short term in duration. The greater potential for effects is associated with Project operation and modelling was conducted to assess these potential effects. As prevailing winds are from the west and south and Duley Lake Provincial Park is to the west and north of most Project elements, it is located outside of the predicted zone of influence for TSP, PM_{10}, and $PM_{2.5.}$ Maximum 24-hour Predicted Ground Level Concentration for NO_x (EIS, Volume 1, Figure 14.9) within the Duley Lake Provincial Park Reserve would be 40-60 µg/m^3 within the southern limits of the reserve and 20-40 µg/m^3 within other affected parts of the reserve. These levels are within regulatory limits.

Since issuing the EIS, more detailed and accurate information has become available regarding the processes and activities that have the potential to generate particulate emissions. Alderon has conducted additional air dispersion modelling for total suspended particulate (TSP), particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), based on refined input data and dust control measures. In refining the model input data and dust control measures related to the fugitive release of particulate matter during Project operations; each input was thoroughly reviewed in consultation with Project design engineers. The revised results are more accurate in terms of input data, but the overall change from those in the EIS is not a major one. Figures 2.5.1, 2.5.2, and 2.5.3 display the new modeling results.

Figure 2.5.1 Maximum Predicted 24-hour Ground Level Concentrations – TSP

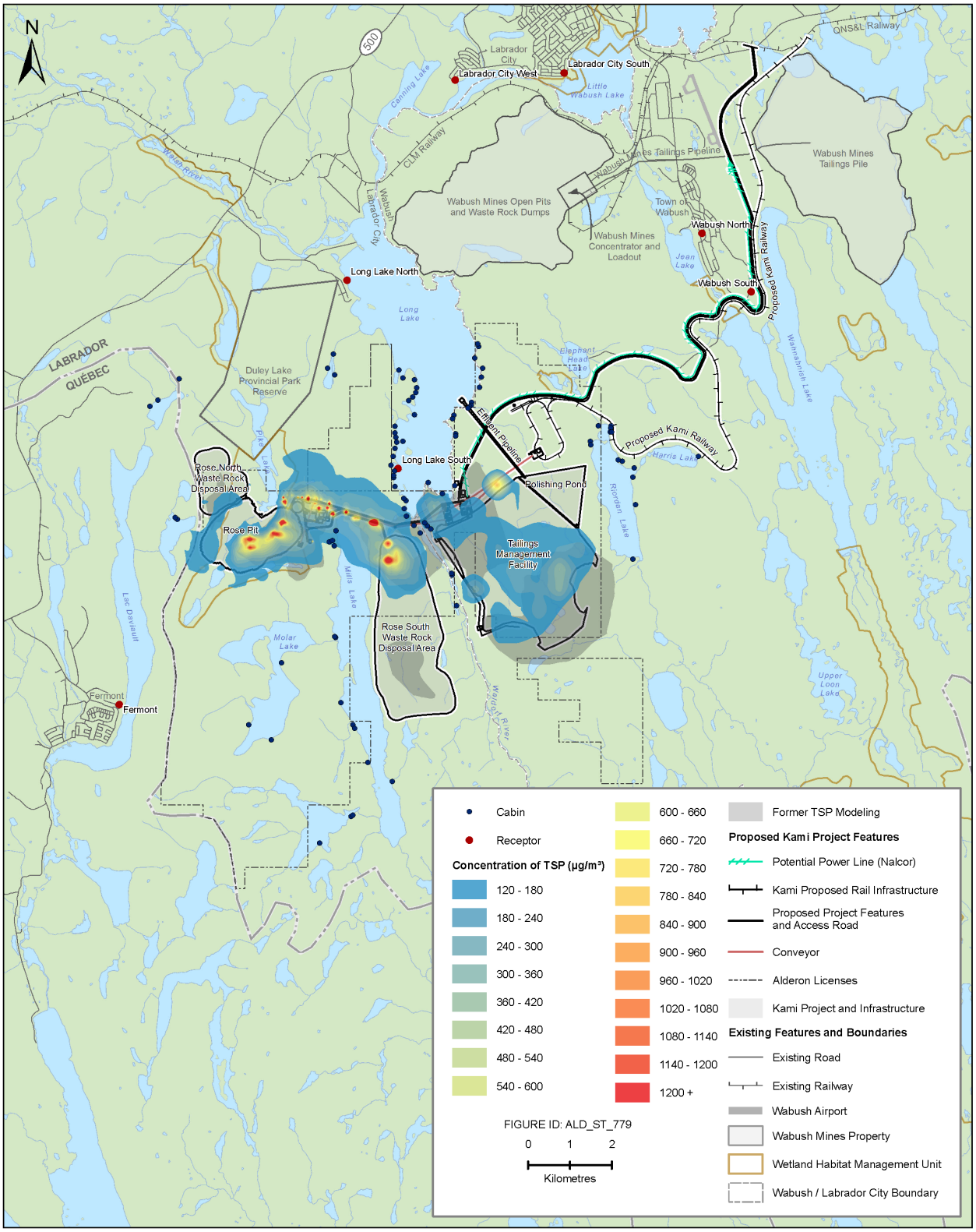


Figure 2.5.2 Maximum Predicted 24-hour Ground Level Concentrations – PM_{10}

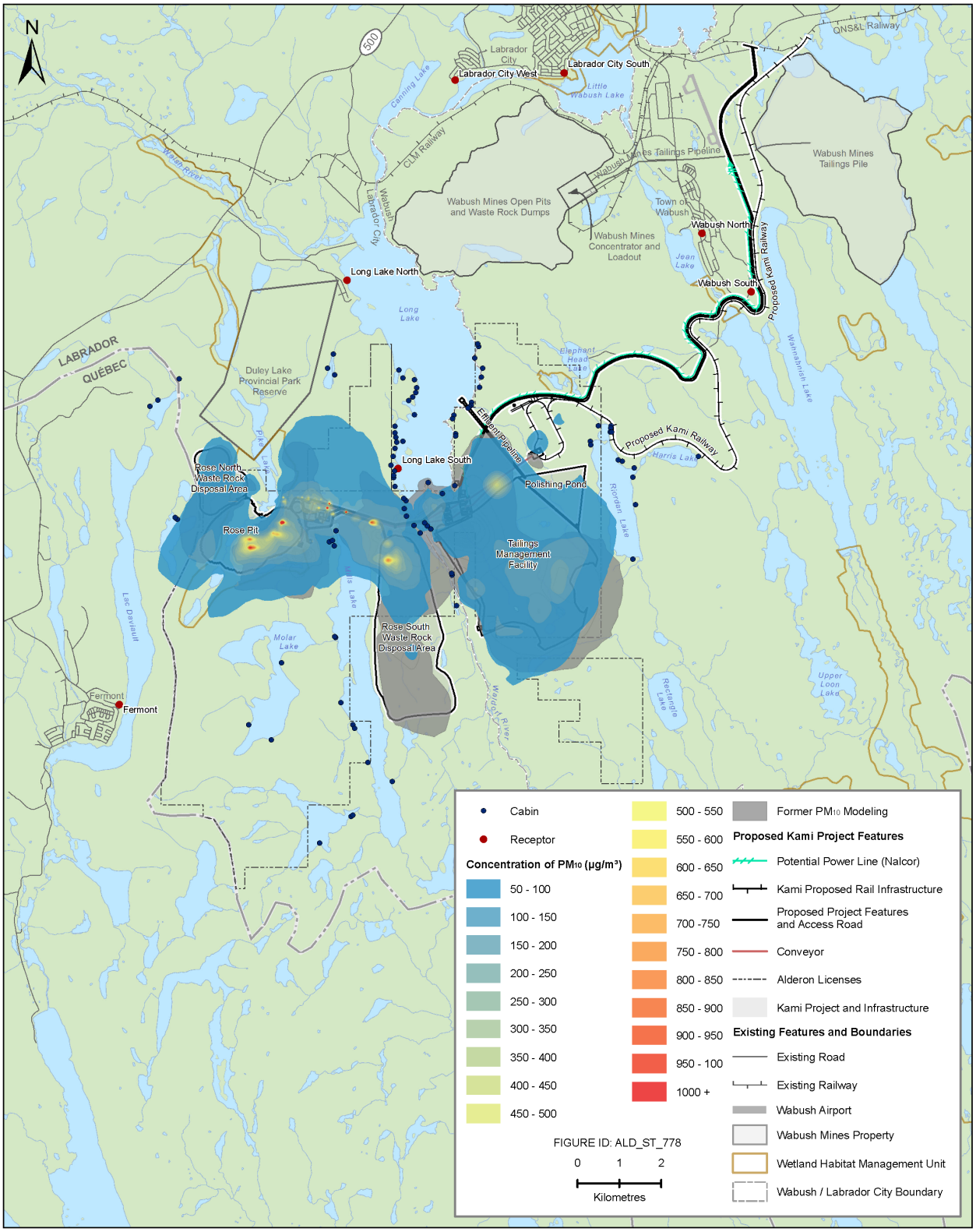
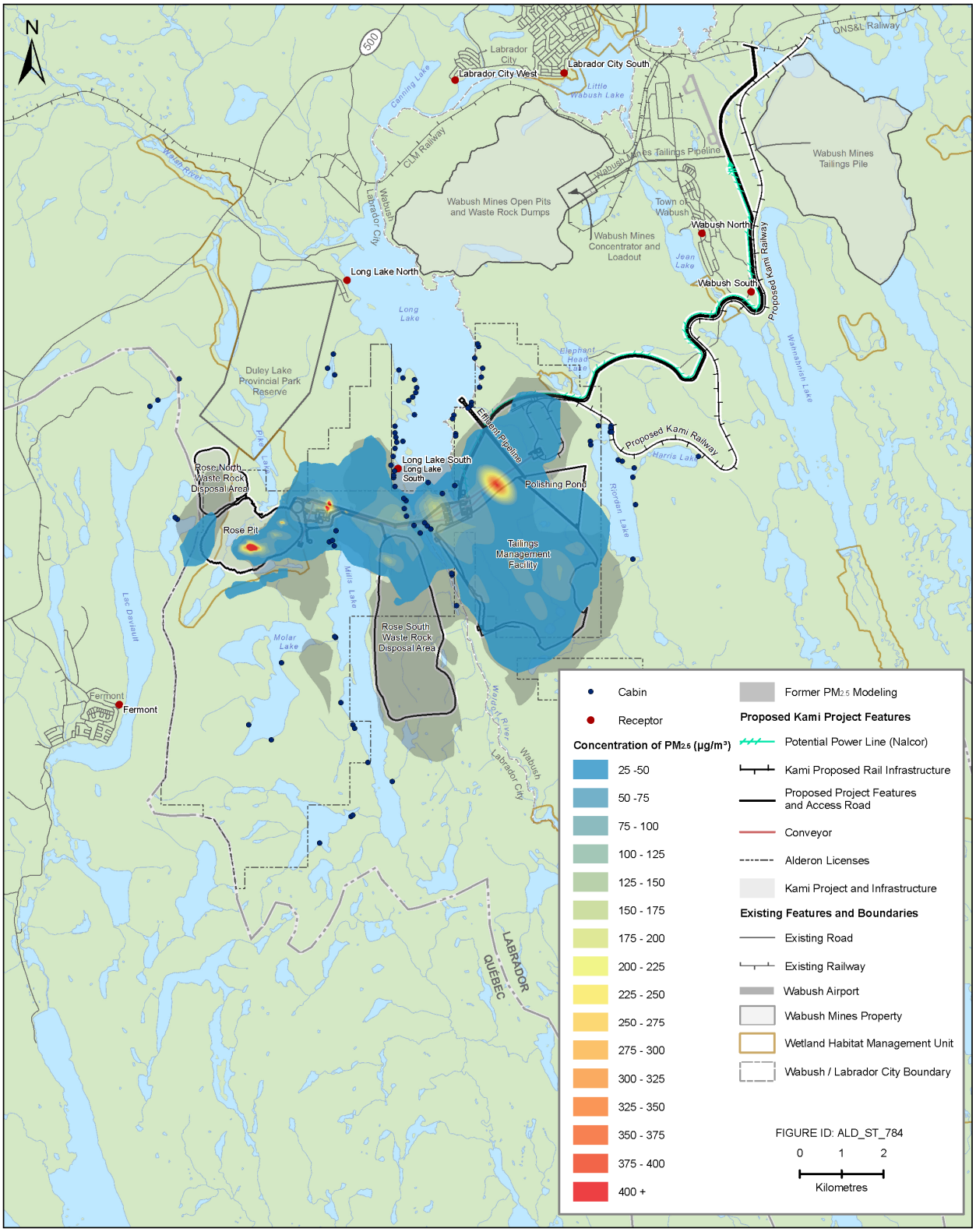


Figure 2.5.3 Maximum Predicted 24-hour Ground Level Concentrations – $PM_{2.5}$



Noise

Monitoring of background levels at a site near Long Lake indicated baseline values during summer of 35 to 47 dBA (Volume 1 of EIS, Table 14.17), with a daylight average of 42.0 dBA and night average of 39.7 dBA (Volume 1 of EIS, Table 14.18). Based on modelling, noise levels within most of the Duley Lake Provincial Park during Project operation are anticipated to be within 40 to 50 dBA (Volume 1 of EIS, Figure 14.10). Only the southern tip of the reserve would be subject to noise levels between 50 to 55 dBA (Volume 1 of EIS, Figure 14.10). As described in Volume 1 of the EIS, Table 14.3, Health Canada's guidance to assessing noise indicates that annoyance is deemed to be a community health effect and mitigation is required if the % Highly Annoyed (%HA) between baseline and Project exceeds 6.5 percent. Figure 14.10 indicates that only the southern tip of the Duley Lake Provincial Park (approximate area of 200 m by 1 km) would be subject to an increase of %HA slightly exceeding 6.5 percent. Alderon has committed to consulting and engaging with cabin owners to address Project effects, which may reduce noise levels in other adjacent areas, such as the Duley Lake Provincial Park.

Vibration

As vibration due to construction equipment will be attenuated within 75 m, vibration is not predicted to have an adverse effect at any nearby receptors during Project construction (Volume 1 of the EIS, page 14-40), including the Duley Lake Provincial Park Reserve. Operations and maintenance activities at the mine and the rail line could generate adverse vibrations and low-frequency noise. Adverse vibration effects as a result of the operation of the Project will rapidly decrease with distance, and are negligible beyond 75 m (Volume 1 of the EIS, page 14-81), so will also not affect Duley Lake Provincial Park Reserve, which is located approximately 1 km north of the Rose pit.

The effects of blasting at Rose Pit and resulting vibrations on nearby cabins (considered to be the closest sensitive receptor) were assessed on page 14-69 of Volume 1 of the EIS. At its closest point, Duley Lake Provincial Park Reserve is a similar distance from Rose Pit as the closest cabins, so the assessment can be applied to the reserve as well. The analysis in the EIS was based on a maximum weight of explosives equivalent to two holes per delay or 2,098 kg. Five cabins were found to be located within 1,000 m of the edge of the proposed Rose Pit. The predicted vibration levels for these cabins fell between 11.9 and 19.2 mm/s and 120 and 123 db for airblast levels. As damage to the weakest structural component of a building (the drywall sheets) typically occurs at vibration levels between 20 and 50 mm/s and as airblast levels are typically 150 db and greater before damage results, damage to the five nearest cabins due to blasting in the Rose Pit is not anticipated. Vibration and airblast levels would decrease with distance (i.e., the greatest effects felt in the Park Reserve would be at the southern edge and would diminish in the northern regions).

Lighting

During Project operation, light emissions will result from a number of activities, including open pit mining, ore processing and concentrator operations, tailings disposal, waste rock disposal and water treatment. The permanent lighting fixtures for the facilities will be of the full horizontal

cut-off type as appropriate, and the effect of the site lighting, given the use of these fixtures, distance, and topographic shielding, are expected to be minimal (Volume 1 of the EIS, page 14-70). As well, as the Park Reserve is not open to camping, any recreational users in the area at night would be expected to be minimal, if any. Effects of lighting on wildlife have been assessed in Section 19.6.3 of Volume 1 of the EIS where it was concluded that the magnitude of adverse effects will be low, and not likely to be significant.

Topography, Soil Quality and Snow and Ice

As assessed in Section 15.6.1 (Volume 1 of the EIS, page 15-22), landforms will be altered by the disposal of waste rock and tailings over the existing surface, thereby masking the underlying undulating and sloping topography to the north. Waste rock disposal areas will eventually become prominent “hills” in the landscape, reaching approximately 200 m in height for the Rose North Waste Rock Disposal Area (i.e., the Project feature closest to the Duley Lake Provincial Park Reserve). Overburden material from the Rose Pit will be used to top these hills for reclamation purposes. The effects of the waste rock disposal area on visual aesthetics are discussed below in relation to resource users.

As described in Section 15.6.2 (Volume 1 of the EIS, page 15-25), changes in soil quality in the surrounding area are not likely because deposited dust will be composed of iron particulates, similar to the parent geologic material. As described above, modelling also demonstrated that the Park Reserve is not within the Project’s predicted zone of influence for TSP and particulate matter.

The development of Rose Pit and the waste rock disposal areas will affect snow and ice conditions. As stated above, the Rose North Waste Rock Disposal Area will represent a new “height of land” which will affect snow deposition and drifting in the PDA, especially downwind areas. These effects will be localized and managed through the installation of snow fences, so resulting effects on the Park Reserve will be minimal. The effects of blasting on the ice in adjacent lakes, including Long Lake, will be controlled or minimized through the development of a proper blast design.

Studies (Nicholson 1975, as cited in Volume 1 of the EIS, page 15-27) have shown that dust accumulation on snowpack has resulted in the melting of snowpack four days earlier than normal. If the Project results in similar effects, the difference of four days would change the current average of 204 days a year with 1 to 5 cm of snow, to 200 days. Due to prevailing winds, the effects would be mostly distributed to the east and southeast of the Project on a regular basis during the winter period and would therefore have minimal effect on Duley Lake Provincial Park Reserve.

As assessed in Section 15.6.4, based on data from other mines in the area and site-specific information, no adverse environmental effects related to Acid Rock Drainage (ARD) / Metal Leaching (ML) are expected from ore, tailings or concentrate during mine operation. The ARD/ML potential of waste rock is also expected to be low. Pit/mine water will also be unlikely to be acidic or contain trace elements in concentrations exceeding the *Metal Mining Effluent*

Regulations (MMER) Guidelines. ARD/ML is therefore not expected to be a concern for the Duley Lake Provincial Park Reserve.

Water Quantity and Quality

Drainage across the Project site is generally directed north and east through a series of wetlands, lakes and connecting streams that form part of the headwaters of the Churchill River watershed (Volume 1 of the EIS, page 16-38). The west side of the Project site (including the Rose Pit, Rose North Waste Rock Disposal Area and crusher yard) drains through the Pike Lake South and North watershed, north to the Walsh River, which flows into Long Lake. These waterbodies pass through the middle of the Duley Lake Provincial Park Reserve. Chapter 16 assesses in detail the effects of the Project on groundwater and surface water with respect to quantity and quality. A summary of this assessment as it relates to the Pike Lake watershed (and therefore the Duley Lake Provincial Park Reserve) is presented below.

The greatest potential for effects are associated with Project operation, with the effects associated with construction being temporary and localized in nature. With respect to groundwater, preliminary assessment suggests that the effects of mine dewatering will be limited to the watershed hosting the open pit, with drawdown effects not expected to extend more than 1500 m from the open pit mine (EIS, page 16-80), which would overlap with the southern boundary of the Duley Lake Provincial Park Reserve. The presence of lakes, including the Pike Lakes within 1 km east and north of the open pit mine are expected to act as hydraulic boundaries for open pit mine dewatering effects. In consideration of distance and expected silty-clay bottom sediments in typical lakes, interaction would be expected to be negligible at 1 km or more. Therefore, it is predicted that drawdown effects will be negligible within Duley Lake Provincial Park Reserve.

With respect to surface water quantity, typical open pit mine dewatering will increase flow to Pike Lake South (EIS, page 16-85), as will runoff from the Rose North Waste Rock Disposal Area (EIS, page 16-111) and the crusher yard. Increase in streamflow from the waste rock disposal areas arises from several factors, including removal of vegetation resulting in less evapotranspiration; increase in soil compaction from the waste rock and overburden disposal process; surficial grading reducing surface depression storage; and increase in slope angle at the waste rock disposal areas perimeter. The increase in flows are within the natural range of flows experienced in the Pike Lake system and are expected to primarily result in an increase in baseflows. Subsequently, during decommissioning and reclamation, flows to the Pike Lake system will be decreased for the period required to fill the open pit mine. The reduction in flows are also within the natural range of flows experienced in the Pike Lake system (EIS page 16-154). The residual environmental effects on the Duley Lake Provincial Park Reserve are therefore not likely to be significant.

The development of the Rose North Waste Rock Disposal Area will affect local drainage patterns within their footprint; however, due to its headwater locations in its catchment areas, it will have minimal effect on external drainage and will continue to drain into its existing receiving waters (EIS, page 16-116), minimizing any residual effects on the Duley Lake Provincial Park Reserve. Development of the Rose Pit will require watercourse diversion and removal of Rose

Lake. However, minimum flow requirements will be maintained through diversion structures and therefore, hydrological effects are considered to be negligible (EIS, page 16-149).

Water quality can be affected by total suspended solids (TSS) loading and sedimentation in open pit mine dewater discharge, waste rock disposal area effluent discharge and facility area runoff or incomplete combustion of explosives used in open pit mining, which could contaminate open pit mine surface runoff and groundwater. Both could affect surface water quality within Duley Lake Provincial Park Reserve.

A Water Management Plan will be developed to describe how water on site will be diverted, collected, treated, and/or stored so as to avoid adverse environmental effects and maximize Project efficiencies through water conservation (EIS, page 16-136). Stormwater management facilities (e.g., local retention ponds, berms, drainage ditches, pumps) will be utilized to collect and contain surface water runoff from Rose Pit, waste rock disposal areas, processing plant area, crusher yard, mine service building, and ore stockpile area. These will be designed to provide on-site storage of local runoff with slow controlled releases permitted after appropriate settling and water quality sampling indicates the water is suitable for release. This plan will mitigate the potential for surface water quality within the Duley Lake Provincial Park Reserve to be affected by TSS.

Surface water quality can also be affected by nitrogen species contamination of open pit mine and waste rock disposal area dewater discharge particularly for nitrate and nitrite during the May – August high flow period (EIS, page 16-149). Ammonia contamination will be managed, and effluent will be treated for nitrates, if required, to meet regulatory effluent criteria where there would be negligible effect. Options for treatment (e.g., constructed or engineered wetland, mechanical / biological treatment facility, managing effluent discharge to coincide with the spring freshet) will be considered as required, and would serve to mitigate any effects on the Duley Lake Provincial Park Reserve.

It is recognized that while Long Lake is not located within the boundaries of Duley Lake Provincial Park Reserve, due to its proximity, biota within the Park Reserve could also be affected by changes in Long Lake. The effects of the Project on Long Lake is assessed in detail in Chapter 16, with the overall residual environmental effects determined to be not significant (EIS, page 16-154). Based on the assessment of effects under a range of climate and operational conditions, mitigation offered by offsetting increases in flows from other Project components, the fact that water withdrawal will not impinge upon environmental flows, the reduction in Long Lake outflows will account for < 1 percent of flows. Surface water quality effects relate to the mixing zones required in Long Lake to attenuate effluent quality back to baseline or Canadian Water Quality Guidelines (CWQG) thresholds. The assessment has demonstrated that mixing zones would be contained within the LSA and that baseline or CWQG background conditions would be achieved at the boundary of the LSA. Therefore, no residual effect for surface water quality is predicted.

Wetlands

For the assessment of Wetlands (Chapter 17 of Volume 1 of the EIS), the majority of Duley Lake Provincial Park Reserve is located within the LSA (EIS, Volume 1, Figure 17.2). As shown in EIS, Volume 1, Figure 17.3, several wetland complexes were identified within the Park Reserve. The majority of Project effects on wetlands will occur during construction and result from loss of wetland area within the Project footprint, which would not affect wetlands within Duley Lake Provincial Park Reserve. No wetland types will be lost completely as a result of Project activities, although the areal extent of a number of individual wetlands will be altered or lost. All wetland types present at baseline will remain after decommissioning and reclamation. On an areal basis, the net or residual loss of wetlands in the PDA represents a low proportion of the total wetland area in the overall RSA (EIS, Volume 1, Section 17.6.3).

Indirect effects could include an increase or decrease in water levels (with increase likely in some areas as a result of increased surface water flow, such as Pike Lake, or impediments to drainage), moisture regime and a change in the nutrient levels, leading towards a shift in species composition and eventually a shift towards more upland terrestrial vegetation and vegetation communities. As assessed in Section 17.6 of Volume 1 of the EIS, these effects will be limited to the Project footprint and will be minimal compared to the direct loss or alteration of wetlands. Standard mitigation measures for erosion and sediment control, maintenance of drainage, dust control and invasive species management will minimize these indirect effects to wetlands. Therefore, no residual environmental effects are anticipated for wetlands within the Duley Lake Provincial Park Reserve.

Freshwater Fish and Fish Habitat

The Pike Lakes drainage, which is partially located within the Duley Lake Provincial Park Reserve, drains directly north into the Walsh River approximately 3 km upstream from Long Lake. The Pike Lakes drainage includes the headwater Rose Pit Ponds, which drain into Pike Lake South, then into Pike Lake North and from there into the Walsh River. The majority of waterbodies and watercourses within this system were surveyed as part of the baseline work. (Volume 1 of the EIS, Section 18.5.1).

Effects to fish habitat will be limited to alterations and losses from site preparation activities during construction (EIS, Section 18.6.4). None of these direct Project effects will occur within the Duley Lake Provincial Park Reserve. Minimum flow requirements in the Pike Lake system will be maintained as prescribed by DFO. Effects upstream of the Park Reserve will be mitigated with fish habitat compensation, which will result in a not significant, low level and localized adverse effect that will last for a year or two while the compensation habitat gradually supports fish production. The provision of flows around the Rose Pit from upstream drainage will minimize the flow loss into the Pike Lake system and hence limit effects on recreational fishing downstream. No additional effects to habitat are anticipated during operations and maintenance, and decommissioning and reclamation.

Fish health or mortality may experience some losses where fish relocation is required prior to dewatering ponds or streams during construction (EIS, page 18-49). This effect will be limited to

the Project footprint. The removal of fish habitat during construction will include the relocation of fish prior to any disturbance or dewatering which will result in minimal losses. Where temporary dewatering occurs at stream crossing locations, water flow will be maintained to preserve downstream habitat to prevent incidental losses. During operation, the potential for effects on fish health are monitored as a requirement of the MMER. Blasting guidelines will protect fish and eggs in the vicinity of the pit. The resulting residual adverse effects to fish health and mortality will be neutral, of negligible magnitude, localized, occurring once per site, and reversible. No significant effects on fish populations within the Duley Lake Provincial Park Reserve are predicted.

Birds, Other Wildlife and their Habitats, and Protected Areas

The effects of the Project on birds and other wildlife were assessed in relation to the LSA and the RSA and would be applicable to all habitats in these respective areas, including the Duley Lake Provincial Park Reserve, which is considered to be mostly located within the RSA for the purposes of this VEC assessment (with the exception of the southern tip, which is within the LSA) (Volume 1 of the EIS, Figure 19.2). Project effects were rated as low (i.e., the residual Project effects (alteration/loss) are not expected to exceed five percent of the known population in the RSA, and are not measureable) and site-specific (i.e., effect confined to the Project footprint for all Project components (i.e., PDA), and limited to directly affected environmental components) and therefore not significant (EIS Volume 1, Table 19.10). These predictions would also be applicable to bird and other wildlife populations occurring within the Duley Lake Provincial Park Reserve.

Species at Risk and Species of Special Conservation Concern

As shown in Figure 20.3 in Volume 1 of the EIS, there were no known locations of plant species of special conservation concern within the Duley Lake Provincial Park Reserve. The greatest potential for Project effects on SAR and SOCC are associated with habitat removal and loss of individual plants within the Project footprint during construction. No direct effects would occur within the Duley Lake Provincial Park Reserve. Indirect effects on any bird species at risk that may occur within the Park Reserve would be less than those predicted for the LSA and PDA as issues associated with noise, dust and human disturbance will decrease with distance. For example, Bayne et al. (2008) studied the effects of noise on habitat quality for forest birds relative to distance from the noise source. While construction and operation are predicted to result in an adverse change in distribution and movement for wildlife SAR/SOCC over the life of the Project and could cause a change in health for wildlife SAR/SOCC either through an increase in stress possibly leading to disease, or masking of auditory signals, the magnitude of adverse effects will be low because the estimated number of species potentially redistributed or affected following implementation of mitigative measures is expected to be less than 5 percent of the local population (EIS Volume 1, page 20-41).

Resource Users

While Duley Lake Provincial Park Reserve is classified as a park reserve, activities within the park reserve are prohibited (e.g., camping, harvesting). In addition, the *Provincial Park Regulations* (Section 3) contain the following prohibitions:

3. *(1) A person shall not, except in accordance with a permit for management or scientific purposes, remove, harm, hunt, chase, destroy or cause damage to any object whether animate or inanimate that is contained within the boundaries of a provincial park.*

   (2) A person shall not introduce to a provincial park a plant or animal species except in accordance with a permit for management or scientific purposes.

Recreational use of the Park Reserve is not expected to be significantly affected by the Project because effects to air quality, noise, water, wildlife and vegetation will be only minimally affected. Access restrictions as a result of the Project will be limited to the PDA. Restricted access zones around Rose Pit during blasting operations will also not affect access to the Park Reserve. Modelling has shown that dust, air quality effects and any changes in hydrology are likely to be minimal and not significant for users of the Park Reserve. The greatest potential effect will be noise levels and vibration levels from blasting at the southern edge of the Park Reserve, which may result in a localized change in recreational use patterns within this area of the Park Reserve (approximately 200 m by 1 km). With respect to aesthetic changes, viewshed analyses and before and after photosimulations of the Project from select vantage points have been included in the EIS. Based on the viewshed analysis, Project features including the waste rock disposal areas and the Rose Pit will likely to be visible from most of the southern portion of the Duley Lake Provincial Park Reserve (Volume 1 of the EIS, Figure 23.36) and from other select spots within the northern portion of the Park Reserve. It is not likely that the Project will affect the view from the camp grounds near the Duley Lake Provincial Park Reserve at the northwestern end of Long Lake. The Rose South Waste Rock Disposal Area will be minimally visible from the dock at the Duley Lake Provincial Park Reserve (EIS Volume 1, Table 23.1).

Overall, the Project should not limit or prevent any existing day uses within the Duley Lake Provincial Park Reserve, although noise at the southern edge of the Park Reserve could result in users shifting their activities further to the north.

Summary

While the Park Reserve is located in close proximity to several Project components, mitigation will be in place to limit Project effects to the PDA for the most part. The location of the reserve in relation to the prevailing winds will limit effects associated with dust, although noise and blasting will be experienced in the southern portions of the reserve, which may affect resource use. Increase in flows to the Pike Lake system as a result of open pit dewatering and runoff will be within naturally occurring ranges. The main purpose of the Duley Lake Provincial Park Reserve is to protect open lichen woodlands, which is representative of Ecoregion V (Labrador). The Project is not predicted to result in effects within the Park Reserve that would jeopardize this

objective or contravene the prohibitions contained within the *Provincial Park Regulations* (Section 3).

References:

Bayne, E.B., L. Habib and S. Boutin. 2008. Impacts of Chronic Anthropogenic Noise from Energy Sector Activity on Abundance of Songbirds in the Boreal Forest. Conservation Biology Vol. 22(5): 1186-1193.

2.5.3 Information Request No. NLPN 03

Numerous references to possible changes in water quality and hydrology of Pike Lake South and its tributaries (among other waterbodies) are made throughout Section 16 (Water Resources VEC) yet there is no mention of potential effects (or lack thereof) on Duley Lake Provincial Park.

Alderon Response to IR No. NLPN 03

Chapter 16 of Volume 1 of the EIS assesses potential Project effects on surface water and groundwater with respect to quantity and quality, including within Duley Lake Provincial Park Reserve. With respect to groundwater, preliminary assessment indicates that the effects of mine dewatering will be limited to the watershed hosting the open pit, with drawdown effects not expected to extend more than 1500 m from the open pit mine (EIS, page 16-80), which would overlap with the southern boundary of the Duley Lake Provincial Park Reserve. Additional lakes (Mills, Long and Pike Lakes) within 1 km east and north of the open pit mine are expected to act as hydraulic boundaries for open pit mine dewatering effects.

With respect to surface water quantity, typical open pit mine dewatering will increase flow to Pike Lake South (EIS Volume 1, page 16-85), as will runoff from the Rose North Waste Rock Disposal Area (EIS Volume 1, page 16-111) and the crusher yard. The increase in flows are within the natural range of flows experienced in the Pike Lake system and are expected to primarily result in an increase in baseflows. Subsequently, during decommissioning and reclamation, flows to the Pike Lake system will be decreased for the period required to fill the open pit mine. The reduction in flows are also within the natural range of flows experienced in the Pike Lake system (EIS Volume 1, page 16-154). The residual environmental effects on the Duley Lake Provincial Park Reserve are therefore not likely to be significant.

The development of the Rose North Waste Rock Disposal Area will affect local drainage patterns within their footprint; however, due to its headwater locations in its catchment areas, it will have minimal effect on external drainage and will continue to drain into its existing receiving waters (EIS Volume 1, page 16-116), minimizing any residual effects on the Duley Lake Provincial Park Reserve. Development of the Rose Pit will require watercourse diversion and removal of Rose Lake. Minimum flow requirements as prescribed by DFO will be maintained in the Pike Lake system. Hydrological effects are considered to be negligible with a pipeline reducing conveyance water losses and mitigating against slope instability concerns (EIS Volume 1, page 16-149).

Water quality can be affected by TSS loading and sedimentation in open pit mine dewater discharge, waste rock disposal area effluent discharge and facility area runoff or incomplete combustion of explosives used in open pit mining, which could contaminate open pit mine surface runoff and groundwater. To address this, a Water Management Plan will be developed to direct how water on site will be diverted, collected, treated, and/or stored so as to avoid adverse environmental effects and maximize Project efficiencies through water conservation (EIS Volume 1, page 16-136). Stormwater management facilities (e.g., local retention ponds, berms, drainage ditches, pumps) will be utilized to collect and contain surface water runoff from Rose Pit, waste rock disposal areas, processing plant area, crusher yard, mine service building, and ore stockpile area. These will be designed to provide on-site storage of local runoff with slow controlled releases permitted after appropriate settling and water quality sampling indicates the water is suitable for release. These mitigation measures will address and minimize effects to surface water quality within Duley Lake Provincial Park Reserve.

Surface water quality can also be affected by nitrogen species contamination of open pit mine and waste rock disposal area dewater discharge particularly for nitrate and nitrite during the May – August high flow period (EIS Volume 1, page 16-149). Ammonia contamination will be managed, and effluent will be treated for nitrates, if required, to meet regulatory effluent criteria where there would be negligible effect. Options for treatment (e.g., constructed or engineered wetland, mechanical / biological treatment facility, managing effluent discharge to coincide with the spring freshet) will be considered, as and if required, and would serve to mitigate any effects on the Duley Lake Provincial Park Reserve. Significant effects on water quality are not likely.

Mitigation measures described in Chapter 16 of the EIS will be implemented, and therefore Project effects to water quality, including surface water within Duley Lake Provincial Park Reserve will not likely be significant.

2.5.4 Information Request No. NLPN 04

PNAD requests that the proponent include text regarding effects of the project specific to Duley Lake Provincial Park (i.e., on biotic and abiotic features, aesthetic value, and the inherent value this protected area), as was specified in Sections 4.21.3.3 and 4.21.4 of the EIS Guidelines.

Alderon Response to IR No. NLPN 04

Duley Lake Provincial Park Reserve is located outside of the Project footprint. While there will be no direct habitat loss within the Park Reserve as a result of the Project, proximity to Project elements, particularly the Rose North Waste Rock Disposal Area and the Rose Pit, create the potential for indirect effects including dust, noise, habitat fragmentation, change in viewscape, and changes in water quality and quantity. Each of these potential effects was assessed in the EIS under respective VECs, such as Atmospheric Resources, Water Resources, Fish, Fish Habitat and Fisheries, Birds, other Wildlife and their Habitats and Protected Areas, Wetlands, Species at Risk and Species of Conservation Concern, and Land and Resource Use. A summary of these effects in relation to Duley Lake Provincial Park Reserve is provided in the response to IR No. NLPN 02.

Alderon acknowledges the value of Duley Lake Provincial Park Reserve. Provincial park reserves protect areas with important natural features and landscapes. These areas may also hold social importance (e.g.,recreation, inherent value, spiritual). The Province has identified that the primary purpose of this reserve is the preservation of habitat associated with open lichen woodland, which is representative of Ecoregion V. Regardless, the features of this park have been described and assessed in Volume 1 of the EIS, and additional information is provided within this Amendment (Chapter 2, IR No. NLPN 02).While the Park Reserve is located in close proximity to several Project components, for the most part, mitigation will be in place to limit Project effects to the PDA. The location of the Park Reserve in relation to the prevailing winds will limit effects associated with dust, although noise and blasting will be experienced in the southern portions of the reserve. Increase in flows to the Pike Lake system as a result of open pit dewatering and runoff will be within naturally occurring ranges.

2.5.5 Information Request No. NLPN 05

The proponent should acknowledge and reference legislation governing Duley Lake Provincial Park (i.e., *Provincial Parks Act* and *Provincial Parks Regulations*) as it has for migratory birds (*Migratory Birds Convention Act*) and other wildlife (*Wildlife Act*). Relevant sections of the *Provincial Parks Regulations* (i.e., Section 3 regarding prohibitions) should be cited in the text as was done for sections of the *Wild Life Act*.

Alderon Response to IR No. NLPN 05

The *Provincial Parks Act* and *Provincial Parks Regulations* apply to Duley Lake Provincial Park Reserve. Relevant prohibitions contained within the *Provincial Park Regulations* (Section 3) include:

3. *(1) A person shall not, except in accordance with a permit for management or scientific purposes, remove, harm, hunt, chase, destroy or cause damage to any object whether animate or inanimate that is contained within the boundaries of a provincial park.*

   (2) A person shall not introduce to a provincial park a plant or animal species except in accordance with a permit for management or scientific purposes.

While the Park Reserve is located in close proximity to several Project components, mitigation will be in place to limit Project effects to the PDA for the most part. The location of the Park Reserve in relation to the prevailing winds will limit effects associated with dust, although noise and blasting will be experienced in the southern portions of the Park Reserve. Increase in flows to the Pike Lake system as a result of open pit dewatering and runoff will be within naturally occurring ranges. The main purpose of the Duley Lake Provincial Park Reserve is to protect open lichen woodlands, which is representative of Ecoregion V (Labrador). The Project is not predicted to result in effects to the open lichen woodlands, or within the Park Reserve that would jeopardize this objective or contravene the prohibitions contained within the *Provincial Park Regulations* (Section 3).

2.5.6 Information Request No. NLPN 06

The proponent has not specifically identified "important biotic or abiotic feature(s) which may be affected by the Project (e.g., as a result of noise or visual stimulus)," or "effects on protected areas and their abiotic and biotic features, including impacts of dust and tailings on waterbodies in and flowing in/out of protected areas" as was outlined in Section 4.21.4 of the Guidelines.

Alderon Response to IR No. NLPN 06

Duley Lake Provincial Park Reserve is located outside of the Project footprint. While there will be no direct habitat loss within the Park Reserve as a result of the Project, proximity to Project elements, particularly the Rose North Waste Rock Disposal Area and the Rose Pit, create the potential for indirect effects including dust, noise, habitat fragmentation and changes in water quality and quantity. Each of these potential effects was assessed in the EIS under respective VECs, such as Atmospheric Resources, Water Resources, Fish, Fish Habitat and Fisheries, Birds, other Wildlife and their Habitats and Protected Areas, Wetlands, Species at Risk and Species of Conservation Concern, and Land and Resource Use. A summary of these effects in relation to Duley Lake Provincial Park Reserve is provided in the response to IR No. NLPN 02.

While the Park Reserve is located in close proximity to several Project components, mitigation will be in place to limit Project effects to the PDA for the most part. The location of the reserve in relation to the prevailing winds will limit effects associated with dust, although noise and blasting will be experienced in the southern portions of the reserve, which may affect resource use. Increase in flows to the Pike Lake system as a result of open pit dewatering and runoff will be within naturally occurring ranges. The main purpose of the Duley Lake Provincial Park Reserve is to protect open lichen woodlands, which is representative of Ecoregion V (Labrador). The Project is not predicted to result in effects within the Park Reserve that would jeopardize this objective or contravene the prohibitions contained within the *Provincial Park Regulations* (Section 3).

2.5.7 Information Request No. NLPN 07

The proponent defines a significant adverse residual environmental effect for protected areas as an effect that *"…causes a change or decline in the effectiveness of [the] protected status such that the likelihood of the long-term viability or designated function of the protected area….is substantially reduced.*"

Given this definition, how does the proponent propose to measure protected area effectiveness? Table 19.3 notes that the amount of protected area function lost or altered (km^2) will be measured but baseline info regarding these parameters is not presented in the document. It is unclear if the proponent proposes to measure the physical amount of protected area affected, or whether underlying drivers of protected area integrity will be measured / monitored (e.g., degree of physical and functional connectivity between the protected area and the surrounding landscape for a variety of species, amount and value of ecosystem services provided by the protected area such as carbon cycling or primary productivity, level of biodiversity, etc). This should be clarified.

Alderon Response to IR No. NLPN 07

There is no intent to directly measure "effectiveness" of the protected status of a particular protected area, the chosen measureable parameter for this effect is amount (km^2) of designated Protected Area lost. This is considered by assessing whether or not the protected areas can continue to meet the objectives of the protected status designation. The measureable parameter chosen to measure the Change in Protected Area is area (km^2), including both directly affected area (e.g., project presence) lost and the extent of potential indirect effects that have the potential to interfere with the objectives of the protected status designation. For example, if the protected status designation is for rare wetland species and groundwater flow patterns are expected to change the water regime, this could affect the protected status designation. In this example, this effect could be measured by the area (km^2) that is affected. The purpose of measurable parameters is to inform the effects analysis, but these are not the sole factors on which the significance of the residual effects are determined. As indicated in the EIS, other criteria including magnitude, geographic extent, duration, frequency, reversibility and context are also considered. The main purpose of the Duley Lake Provincial Park Reserve is to protect open lichen woodlands, which is representative of Ecoregion V (Labrador). The Project is not predicted to result in effects that would jeopardize this objective or contravene the prohibitions contained within the *Provincial Park Regulations* (Section 3).

2.5.8 Information Request No. NLPN 08

It is difficult to interpret from this table which of the potential environmental effects will affect each of the protected areas. There are legal implications (i.e., Section 3 of the *Provincial Parks Regulations*) for Duley Lake Provincial Park and ecological implications for the Park and all Habitat Management Units (e.g., Pike Lake South Management Unit).

Alderon Response to IR No. NLPN 08

Table 19.10 in Volume 1 of the EIS is a summary table and rankings contained within the table are based on worst-case scenarios for all of the protected areas considered. As the Project footprint overlaps with the Pike Lake South Management Area (that was established on an active mining claim), this would represent the worst-case scenario for the protected areas assessed. Ranking of residual effects for the Duley Lake Provincial Park Reserve would be equal to or less than these rankings, as there are no direct effects on the Reserve and any Project effects are limited to indirect effects, related to noise and vibration from blasting during operation, as well as changes in the viewshed. Refer to Response to IR NLPN 02 for a complete discussion of potential Project effects on Duley Lake Provincial Park Reserve.

2.5.9 Information Request No. NLPN 09

The proponent proposes to measure change in habitat by considering only the amount of habitat lost. Yet changes in habitat quality are just as important to species/populations. Loss of habitat can influence habitat quality and habitat availability of remaining habitat patches (whether primary or secondary habitat) due to species' physiological and psychological characteristics (e.g., while highly vagile species such as forest birds are physically capable of

crossing areas where habitat has been removed in order to reach remaining habitat patches, there may be mental barriers to movement for these species such that remaining patches are in fact not available). The proponent should include metrics of habitat quality as well as habitat quantity that will be measured and monitored over the lifetime of the project for a variety of species, as these parameters are species-specific.

Alderon Response to IR No. NLPN 09

Habitat loss or alteration was calculated based on the physical change in amount of primary or other sensitive or limiting habitat (km^2). However, the effects assessment in the EIS includes other measurable parameters that include elements related to habitat quality, including density and distribution of individuals on the landscape, mortality, reproductive output and success, sensory disturbance (i.e., noise, light and other stimuli), and extent of air emissions. Project effects using these measureable parameters were assessed in Sections 19.6.2, 19.6.3 and 19.6.4. These metrics of habitat quality were considered over an area extending beyond that area directly affected by surface disturbance activities (i.e., the Project footprint) – specifically the LSA and RSA – to provide a more regional understanding of potential effects. The LSA for this VEC includes the Project footprint plus a 500 m buffer surrounding Project components. The RSA includes the LSA and surrounding area.

2.5.10 Information Request No. NLPN 10

The proponent notes that “site decommissioning will result in changes, but…. the net change in wildlife habitat availability is expected to be positive” and “for most birds and other wildlife will result in a net increase in occurrence.” These statements erroneously lead the reader to believe that the project will have an overall positive effect on available habitat and wild life populations, when in fact the positive net changes are relative to construction and operation phases, and not to pre-mine conditions, which should be the benchmark against which effects are measured.

Alderon Response to IR No. NLPN 10

The referenced statements are intended to describe the beneficial effects of rehabilitation overall, and specifically relative to construction conditions and not as compared to pre-disturbance. However, given the context, the sentence should be removed.

2.5.11 Information Request No. NLPN 11

The proponent also notes that increased risk of mortality caused by the project will be “to an extent that would be acceptable” but doesn’t indicate the suspected amount of mortality or define “acceptable” (i.e., what standard/guideline or authority has determined what is acceptable mortality? Presumably this will be species-specific).

Alderon Response to IR No. NLPN 11

An acceptable risk is one where the sustainability of the identified species will not be compromised by the Project and the existing biological diversity will be maintained, as discussed in Section 19.6.1 of Volume of the EIS.

2.5.12 Information Request No. NLPN 12

Scientific names provided for a number of species are incorrect/outdated (i.e., genera of most of the warblers are incorrect). These should be edited to reflect the proper scientific names.

Alderon Response to IR No. NLPN 12

The scientific names of the species in Volume 1 of the EIS were written in accordance with the ACCDC. They have been changed to the most recent scientific names identified by the Birds of North America and the mammal species of the Smithsonian Museum of Natural History. The following statements provide updated EIS text. In addition, an updated version of Table 19.6 from Volume 1 is provided below (Table 2.5.3).

Volume 1, page 19-23, second paragraph of ELC Habitat Analysis, 7th line should read "…Boreal Chickadee *(Poecile hudsonicus)*…".

Volume 1, page 19-23, second paragraph of ELC Habitat Analysis, 8th line should read "…Tennessee Warbler *(Oreothlypis peregrina)…".*

Volume 1, page 19-23, second paragraph of ELC Habitat Analysis, 13th line should read "…Porcupine *(Erethizon dorsata*)…".

Table 2.5.3 Forest Songbirds Observed During Field Surveys Conducted in Support of the Project (Updated EIS Table 19.6, Volume 1)

Common Name	Scientific Name
Alder Flycatcher	*Empidonax alnorum*
American Robin	*Turdus migratorius*
Black-and-white Warbler	*Mniotilta varia*
Blackpoll Warbler	*Setophaga striata*
Boreal Chickadee	*Poecile hudsonicus*
Chipping Sparrow	*Spizella passerine*
Fox Sparrow	*Passerella iliaca*
Gray Jay	*Perisoreus canadensis*
Hermit Thrush	*Catharus guttatus*
Lincoln's Sparrow	*Melospiza lincolnii*
Nashville Warbler	*Oreothlypis ruficapilla*
Northern Flicker	*Colaptes auratus*
Northern Waterthrush	*Parkesia noveboracensis*
Olive-sided Flycatcher	*Contopus cooperi*
Orange-crowned Warbler	*Oreothlypis celata*
Palm Warbler	*Setophaga palmarum*
Pine Grosbeak	*Pinicola enucleator*
Pine Siskin	*Oreothlypis* pinus
Pine Warbler	*Setophaga* pinus
Ruby-crowned Kinglet	*Regulus calendula*
Dark-eyed Junco	*Junco hyemalis*

Common Name	Scientific Name
Swainson's Thrush	*Catharus ustulatus*
Tennessee Warbler	*Oreothlypis peregrine*
Tree Swallow	*Tachycineta bicolor*
White-crowned Sparrow	*Zonotrichia leucophrys*
White-throated Sparrow	*Zonotrichia albicollis*
White-winged Crossbill	*Loxia leucoptera*
Wilson's Warbler	*Cardellina pusilla*
Yellow-bellied Flycatcher	*Empidonax flaviventris*
Yellow-rumped Warbler	*Setophaga coronate*

2.5.13 Information Request No. NLPN 13

The proponent lists "25 non-migratory bird species in the RSA," but the majority of species listed are in fact migratory; they are not protected under the *Migratory Birds Convention Act*, which presumably is what this list is intended to highlight (e.g., Double-crested Cormorant, many of the raptors, and all of the blackbirds, among others, are migratory but not protected under the MBCA). The text should be edited to reflect the species' migratory nature.

Alderon Response to IR No. NLPN 13

The referenced text (Section 19.5.3 of Volume 1 of the EIS) should read:

"*In most sources of bird data for western Labrador, bird species not protected by the MBCA account for less than 20 percent of species reported; therefore, the occurrence of birds is largely summarized in this section. Data from the Breeding Bird Survey, Christmas Bird Count, and eBird indicate the occurrence of 25 bird species not listed under the MBCA in the RSA…*".

2.5.14 Information Request No. NLPN 14

The proponent proposes to evaluate change in habitat by "measuring loss of primary habitat" and provides estimates of average amounts of primary habitat to be lost for various groups of wildlife and individual species. The proponent assumes that small percentages of primary habitat lost will mean small effects on the species. However, amount of physical habitat lost does not necessarily correlate with the effect on a species or population (i.e., loss of small amounts of habitat can translate to large impacts on species or populations due to underlying drivers not readily apparent to humans). Small changes at the habitat patch level can mean important effects at the regional or landscape level, and across long periods of time. Without knowing the threshold of habitat loss for a given species, it is impossible to predict effects of habitat loss on species or populations. It is also erroneous to note that "project effects on habitat and protected areas will occur primarily if not exclusively during the construction phase" for the same reasons. As noted above, habitat quality should also be measured as it will also be affected over the lifetime of the project (from construction to decommissioning and possibly even post-decommissioning).

Alderon Response to IR No. NLPN 14

The alteration or loss of habitat is only one of the potential effects evaluated in the assessment. Parameters such as dust, noise, human presence and other stimuli that could affect habitat quality are also considered. The LSA by definition includes that area that would be cleared during construction, and to a lesser degree during operation, as well as a modelled zone where emissions such as dust, noise or visual effects would be evident. Conservative lower values representing the magnitude were used as the threshold for habitat loss that would cause a decline in a local population. No single habitat type will be lost as a result of the Project, and no single habitat type is limiting. Therefore, it is appropriate to use loss of habitat to inform significance determination. Habitat quality and other measurable parameters (e.g., primary or other sensitive and limiting habitats, reproductive outputs and success) are all considered in the assessment (Sections 19.6.2, 19.6.3 and 19.6.4 of the EIS).

2.5.15 Information Request No. NLPN 15

The proponent proposes to "conduct invasive species management" as one way to mitigate effects on habitat but does not provide any details. What is the proponent's definition of invasive species and which species are expected to be invasive? What methods will be used in management of invasive species? At what point during the project will methods be carried out? An Invasive Species Management Plan should be included in the Next Steps Section (19.11) similar to the Avifauna Management Plan and should be developed in consultation with Wildlife Division. These Management Plans should be included as part of an Environmental Protection Plan to be developed by the proponent and reviewed by the Environmental Assessment Committee.

Alderon Response to IR No. NLPN 15

Invasive species management (Section 19.6 of Volume 1 of the EIS) is intended to deal with the management of non-native and invasive plant species with the aim of maintaining native plant biodiversity associated with the Project. The EIS focused on invasive plant species because project activities are not anticipated to provide a conduit for invasive wildlife species. Although non-native and invasive species are already present within the Project area, construction and operations activities have the potential to increase the spread and establishment of these species into areas adjacent to disturbed sites.

Invasive alien plant species with potential to occur in the western Labrador, may include, but are not limited to Canada thistle (*Cirsium arvense*), coltsfoot (*Tussilago farfara*), tansy ragwort (*Senecio jacobaea*), common dandelion (*Taraxacum officinale*), pineappleweed (*Matricaria discoidea*), in addition to that of common, non-native agronomic species including clover (*Trifolium* spp*.),* common timothy (*Phleum pratense*), and fowl bluegrass (*Poa palustris*).

Mitigation measures for minimizing effects on native plant species / habitats are outlined in Section 20.6.1(e.g., rare or sensitive plant species and/or their habitats will be avoided where possible; transplantation of plant species of conservation concern to alternate sites of suitable habitat will be undertaken where feasible; SAR or SOCC and/or their habitats will be avoided to

the extent feasible; natural buffers will be maintained around watercourses, wetlands and riparian zones; when access routes are no longer needed, they will be rehabilitated; progressive reclamation will be implemented). Details regarding the invasive species management or weed control program will be outlined in a Project-specific EPP that will be developed in consultation with the appropriate regulatory authorities for the Project prior to start of the construction phase.

Section 20.11, "Next Steps" on Page 20-67 should read:

- *"Protection measures for SAR / SOCC will be incorporated into the EPP prior to construction. Locations of plant SOCC will be delineated prior to construction for avoidance, if possible. Where occurrences of plant SOCC cannot be avoided, transplantation to alternate sites of suitable habitat will be investigated.*
- *Additionally, invasive plant species management measures will be included in a site-specific EPP."*

2.5.16 Information Request No. NLPN 16

The proponent states that because the project will result in the loss of 22 km^2 of habitat while pre-existing disturbance is 250 km^2, the effects of the project will not significantly contribute to cumulative effects. The proponent does not provide any evidence or research to support such a statement. The threshold of disturbance at which ecological integrity of the ecosystems in the project area will be significantly altered is unknown (i.e., it is unknown if the addition of 22 km^2 of habitat loss will result in adverse effects on species, populations, ecosystem services, etc). Furthermore, there is no assessment provided of the relative quality of the 22 km^2 of habitat which will be disturbed as a result of the project.

Alderon Response to IR No. NLPN 16

Consistent with CEAA guidance, the assessment of cumulative effects is designed to understand the effects of the proposed Project within the context of other existing and likely foreseeable anthropogenic activities. The Project is to be located within an area that has a long-standing history of mining development and mineral exploration activity that has been ongoing for several decades. The various components of the Project will occur within a portion of the Labrador City Municipal Planning Area (MPA), most of which has been zoned for Mineral Extraction (ME) or Mining Reserve-Rural (MRR) activities. The proposed mine is located within in an area designated as MRR, where permitted uses include mineral exploration and mining-related transportation. As these activities have been ongoing for an extended period of time it is difficult to describe pre-disturbance conditions within the Regional Assessment Area. Mining in western Labrador and in the vicinity of Fermont has been ongoing for decades. The flora and fauna of the region are a reflection of this previous activity.

No single habitat type will be lost as a result of the Project, and no single habitat type is limiting. Therefore, it is appropriate to use loss of habitat to inform significance determination.The loss of 22 km^2 of habitat will cause the displacement of flora and fauna within the LSA, however, within the context of available adjacent habitat, it was determined that the sustainability of the species being assessed would not be compromised by the Project and the existing biological diversity

would be maintained. No unique or otherwise limiting habitats were identified within the area of proposed disturbance that would compromise the regional sustainability of flora or fauna species that such areas support, and therefore, the cumulative environmental effects on these species were determined to be not significant.

2.5.17 Information Request No. NLPN 17

Edit text to reflect the full name of Duley ***Lake*** Provincial Park.

Alderon Response to IR No. NLPN 17

Table 19.11 on page 19-55 of Volume 1 of the EIS should read: "*Duley Lake Provincial Park Reserve is located just north of the Rose North Waste Rock Disposal Area*", as shown in Table 2.5.4 of this response.

Table 2.5.4 Summary of Potential Cumulative Effects to Birds, Other Wildlife and their Habitat, and Protected Areas (Updated EIS Table 19.11, Volume 1)

VEC Existing Condition (Past & On-Going Activities)	• As many as 138 species of migratory birds and 25 species of non-migratory birds have been reported in the RSA. • Thirteen terrestrial wildlife species have been observed in the RSA. • Three amphibian species have been reported in the RSA. • There are sixteen Management Units within the RSA. Duley Lake Provincial Park Reserve is located just north of the Rose North Waste Rock Disposal Area.		
Project Residual Environmental Effects	• The amount of primary habitat lost for most species will be 5% or less of the total in the RSA. • Project activities will also affect distribution and abundance, mortality risk, and health to birds and wildlife; however, the effects are considered not significant because the estimated number of individuals potentially affected following mitigation measures is expected to be less than 5% of the local population. • The Project will result in the loss of a portion of the Pike Lake South Management Area. Alderon is in the process of pursuing a Corporate Stewardship Agreement.		
Other Projects / Activities	**Likely Effect Interaction (Y/N)**	**Rationale**	**Cumulative Effects**
IOC Labrador Operations	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.
Wabush Mines (Cliffs Resources)	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.
Mont-Wright Mine (ArcelorMittal)	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.

Bloom Lake Mine and Rail Spur (Cliffs Resources)	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.
Schefferville Iron Ore Mine (Labrador Iron Mines)	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA. Migratory avifauna could stage at the Project and breed at this location.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.
DSO Iron Ore Project (Tata Steel Minerals Canada)	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA. Migratory avifauna could stage at the Project and breed at this location.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.
Lower Churchill Generation Project (Nalcor Energy)	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA. Migratory avifauna could stage at the Project and breed at this location.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.
Infrastructure or Other Projects at Port of Sept-Îles	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA. Migratory avifauna could stage at the Project and breed at this location.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.
Urbanization	Y	• The loss of habitat and disturbance to wildlife species could overlap within the RSA.	• Effects to birds and wildlife include habitat loss, changes in distribution and movement, changes in mortality risk, and changes in health. • There is no known loss / alteration of a Protected Area resulting from this Project.

Cumulative Effects Summary (Project + Relevant Other Projects and Activities)	Direction	Magnitude	Geographic Extent	Duration	Frequency	Reversibility	Significance	Confidence
	A	L	R	LT	C	I	N	H
The potential residual environmental effects of the Project may have measurable interactions with other existing and planned projects and activities on the amount of habitat and the distribution and movement of bird and wildlife species in the RSA. Project residual effects for Birds, Other Wildlife and their Habitat, and Protected Areas are low in magnitude and not significant. Because of the low magnitude of effects on habitat, distribution and movement, mortality risk, health, and Protected Areas, and because it is assumed ad understood that other projects and activities will implement effective similar mitigation measures as those outlined for the Project, the cumulative effects of the Project in combination with other past, present, and future projects and activities are predicted to be not significant. **Note:** Environmental effects descriptors and their definitions are as used in the assessment of Project-related environmental effects.								

2.5.18 Information Request No. NLPN 18

The proponent makes numerous definitive statements throughout the document where these should instead be speculative in nature. For example on pg 19-33, it is stated “However, the magnitude of these effects will be low;” on pg 19-36 “…therefore adverse residual effects will not be seen on sustainability or populations;” on pg 19-37 “Additional standard mitigation measures to protect species… will be adequate; ” and on pg 19-63 “the project will not affect the sustainability of the populations.” Yet the proponent has not referenced any literature or research to support these definitive statements. The text should be edited to reflect that while the proponent suspects these statements to be the case, the true effects of the project and mitigative measures are unknown are this point in time (i.e., statements containing the phrase “will be” should be edited to “is expected to be”).

Alderon Response to IR No. NLPN 18

The comment is acknowledged. The level of certainty of these statements is reflected in the final determination of significance (Table 19.10 of Volume 1 of the EIS), whereby the Confidence of the Prediction is rated. It is agreed that in the examples provided above, qualifying text would be appropriate, and these statements should be qualified as the reviewer indicates. The statements and conclusions in the EIS are supported by field work and analysis including scientific background reports for water, wildlife, wetlands, species at risk, and other environmental components including the development and analysis of an ELC for the Project. The primary Project effects will result from alteration or loss of habitat, which are well understood, and can be addressed with proven mitigation measures (e.g., minimize Project footprint, avoid sensitive habitats where feasible, progressive reclamation). Therefore, Alderon does not concede that the true effects of the Project and mitigation measures are unknown at this point. Further, a monitoring and follow up program will be implemented by Alderon, in accordance with the Sustainability Management Framework (Appendix J) and guidance from the CEA Agency, and as outlined in Chapter 8 of the EIS (Volume 1), to verify effects and monitor the effectiveness of mitigation where required and appropriate.

2.6 Information Requests Received from Newfoundland and Labrador Pollution Prevention Division (NLPP)

The following section includes the information requests from the Newfoundland and Labrador Pollution Prevention Division and Alderon's response to each of these requests.

2.6.1 Information Request No. NLPP 01

Tables 5.3 and 5.4 detail the results of ambient monitoring at 3 sites during the winter 2012 for $PM_{2.5}$ and PM_{10} respectively. Though most data indicates "nd", on days when data does occur, the $PM_{2.5}$ data, in general, is greater than or equal to the PM_{10} data.

Are the tables reversed?

Alderon Response to IR No. NLPP 01

A thorough review of field notes, lab analysis reports and tabulation files indicates that Tables 5.3 and 5.4 in Section 5.2 of Appendix F in Volume 1 of the EIS have not been reversed. As shown in these tables, between the two baseline monitoring sites sampled for particulate matter (Site 1 – Fermont and Site 2 – Wabush) concentrations greater than the non-detect (nd) limit were recorded on six different days, with three of those days showing greater $PM_{2.5}$ concentrations and the other three showing greater PM_{10} concentrations. At concentrations near the detection limit, random variation and sampling error could result in some results like this.

2.6.2 Information Request No. NLPP 02

Assuming the tables are not reversed, the text to Table 5.3 indicates "No exceedances of provincial $PM_{2.5}$ regulations were recorded at any site." In fact, based on the data presented, on February 27 a level of 29 ug/m^3 was recorded at Fermont, which would be an exceedance of the NL standard (25 ug/m^3) but not the QC standard (30 ug/m^3). The text should qualify this given Fermont is less than 2 kilometres from the NL/QC border and only the NL ambient air standards are presented.

Alderon Response to IR No. NLPP 02

As presented in Table 5.3 in Section 5.2 of Appendix F in the EIS, on February 27, 2012 a $PM_{2.5}$ level of 29 µg/m^3 was recorded at Site 1 – Fermont and the text beneath this table does state "No exceedances of provincial $PM_{2.5}$ regulations were recorded at any site". As noted by the NL Pollution Prevention Division this statement warrants clarification.

The provincial standard for $PM_{2.5}$ in Newfoundland and Labrador is 25 µg/m^3. This standard does apply to monitoring Sites 2 (Labrador City) and 3 (Wabush). However, as monitoring site 1 (Fermont) is located in the Province of Québec the Québec provincial ambient air quality standards would apply and for $PM_{2.5}$ this value is 30 µg/m^3. Therefore, no exceedances of the Québec provincial air quality standards were recorded at Site 1 (Fermont).

2.6.3 Information Request No. NLPP 03

In Tables 1.1 thru 1.10, clarity is sought, in general, as to whether the values provided are "per unit" or "per fleet". For example in Table 1.1, the "Total hp-hr" appears to be a fleet number. In Table 1.7, is the "fuel consumption (L/h)" value for fleet or unit? – it appears to be a unit number. It is suggested that both unit and fleet numbers be provided in all tables.

Alderon Response to IR No. NLPP 03

Tables 1.1 through to 1.10 in Appendix A, Air Dispersion Modelling Study, of Appendix F in Volume 1 of the EIS have been updated to include the requested information pertaining to "per unit" or "per fleet" and are provided below for clarification. Note that the emissions provided in the Tables 1.8, 1.9 and 1.10, have also been updated to reflect changes that have been made most recently to Project equipment and controls. The updated tables are provided below.

Table 2.6.1 Construction Equipment and Operating Times (Updated EIS Appendix A of Appendix F, Table 1.1)

Equipment	Unit Quantity	Operating Hours (hr) per Unit	Horsepower (hp) Per Unit	Total hp-hr Per Fleet
General				
Mobile Cranes - 200 t	3	2016	536	3,241,728
Boom Truck	20	2016	410	16,531,200
Earth moving Equipment	35	2016	400	28,224,000
Dump Truck	5	2016	470	4,737,600
Diesel Generator	5	2016	2680	27,014,400
Cement Plant	1	2016	250	504,000
Cement Mixer	2	2016	350	1,411,200
Rail				
Blasting Drill Rig	2	2016	225	907,200
Dump Truck	17	2016	470	16,107,840
Bulldozer	6	2016	263	3,181,248
Hydraulic Excavator	8	2016	523	8,434,944
Grader	2	2016	260	1,048,320
Roller Compactor	3	2016	354	2,140,992
Front End Wheeled Loader	5	2016	369	3,719,520
Diesel Generator	2	2016	2680	10,805,760
Boom Crane	2	2016	300	1,209,600
Boom Truck	2	2016	410	1,653,120
Rail Equipment (diesel engine)	7	2016	300	4,233,600
Tractor Backhoe/Loader	5	2016	100	1,008,000
TMF				
Hydraulic Excavator	1	2016	523	1,054,368
Earth Moving Equipment	2	2016	400	1,612,800
Drill	6	2016	50	604,800
Tractor Backhoe/Loader	1	2016	100	201,600
Bulldozer	2	2016	263	1,060,416
Vibratory Roller	1	2016	174	350,784
Sheepsfoot Roller	2	2016	174	701,568
Dump Truck	2	2016	470	1,895,040

Table 2.6.2 Transportation Equipment used during the Construction Phase (Updated EIS Appendix A of Appendix F, Table 1.2)

Vehicle Type	Number of Vehicles	Total Number of Roundtrips Per Fleet	Roundtrip Distance (km)	Total Fuel Consumed (L) Per Fleet
General				
Light duty truck	5	33600	5	17,522
Tankers	2	13440	5	20,758
Flat bed truck	5	33600	5	51,895
Multi-axle trailers	5	33600	5	51,895
Rail				
Light duty trucks	15	100800	5	52,567
Personnel bus	5	33600	5	71,266
Water truck	1	6720	5	6,404
Fuel truck	1	6720	5	6,404
Concrete truck	2	13440	5	20,758
Rail welding supply truck	1	6720	5	6,404
Rail boom truck	1	6720	5	6,404
TMF				
Haul truck	5	33600	5	51,895

Table 2.6.3 Estimated Construction Equipment Emissions of CACs during Project Construction (Updated EIS Appendix A of Appendix F, Table 1.3)

Equipment	CAC Emissions per Fleet (tonnes)			
	CO	NOx	SO2	PM
General				
Mobile cranes - 200 t	2.8	8.12	0.37	0.39
Boom truck	19.5	43.26	1.91	3.31
Earth moving equip.	38	73.89	3.26	5.79
Dump Truck	6.5	12.42	0.55	1.04
Diesel generator	67.5	159.44	3.87	8.59
Cement plant	0.6	1.32	0.06	0.1
Cement mixer	1.1	3.53	0.16	0.16
Rail				
Blasting drill rig	0.7	2.27	0.1	0.11
Dump truck	22.1	42.22	1.86	3.54
Bulldozer	3.8	8.33	0.37	0.68
Hydraulic excavator	11.3	22.08	0.97	1.73
Grader	1.3	2.75	0.12	0.22
Roller compactor	2.8	5.6	0.25	0.42

Equipment	CAC Emissions per Fleet (tonnes)			
	CO	NOx	SO2	PM
Front end wheeled loader	7.3	11.29	0.5	1.25
Diesel generator	27	63.78	1.55	3.43
Boom crane	0.9	3.03	0.14	0.15
Boom truck	2	4.33	0.19	0.33
Rail equipment (diesel engine)	8.3	12.85	0.57	1.4
Tractor backhoe/loader	2.3	3.06	0.14	0.51
TMF				
Hydraulic excavator	1.4	2.76	0.12	0.22
Earth moving equip.	2.2	4.22	0.19	0.33
Drill	1	2.87	0.08	0.13
Tractor backhoe/loader	0.5	0.61	0.03	0.1
Bulldozer	1.3	2.78	0.12	0.23
Vibratory roller	0.5	0.92	0.04	0.07
Sheepsfoot roller	0.9	1.84	0.08	0.14
Dump Truck	2.6	4.97	0.22	0.42
Total	**236**	**505**	**18**	**35**

Table 2.6.4 Estimated Transportation Emissions of CACs during Project Construction (Updated EIS Appendix A of Appendix F, Table 1.4)

Equipment	CAC Emissions (tonnes per fleet)					
	SO_2	NO_x	CO	PM	PM_{10}	$PM_{2.5}$
General						
Light duty truck	0.001	0.08	1.57	0.003	0.003	0.001
Tankers	0.001	0.36	0.07	0.009	0.009	0.007
Flat bed truck	0.003	0.91	0.18	0.022	0.022	0.017
Multi-axle trailers	0.003	0.91	0.18	0.022	0.022	0.017
Rail						
Light duty trucks	0.002	0.24	4.72	0.008	0.008	0.004
Personnel bus	0.005	1.28	0.29	0.044	0.044	0.039
Water truck	0.000	0.07	0.02	0.002	0.002	0.002
Fuel truck	0.000	0.07	0.02	0.002	0.002	0.002
Concrete truck	0.001	0.36	0.07	0.009	0.009	0.007
Rail welding supply truck	0.001	0.18	0.04	0.004	0.004	0.003
Rail boom truck	0.000	0.07	0.02	0.002	0.002	0.002
TMF						
Haul truck	0.003	0.91	0.18	0.022	0.022	0.017
Total	**0.02**	**5.44**	**7.35**	**0.15**	**0.15**	**0.12**

Table 2.6.5 Estimated Particulate Emissions for Travel on Unpaved Roads, Site Preparation and Concrete Production (Updated EIS Appendix A of Appendix F, Table 1.5)

Emission Activity	Particulate Emissions (tonnes/yr)		
	TPM	PM_{10}	$PM_{2.5}$
Unpaved Road (all vehicles)	1077	179	2.07
Site Preparation	116	-	-
Concrete Production	0.11	0.04	-
Total	**1,193**	**179**	**2.07**

Table 2.6.6 Total CAC Emissions From Project Construction Activities (Summary of Tables 1.3, 1.4 & 1.5) (Updated EIS Appendix A of Appendix F, Table 1.6)

Activity	Total CAC Emissions (tonnes)						
	CO	NO_x	SO_2	TPM	PM_{10}	$PM_{2.5}$	THC
Transportation of equipment - general	2.00	2.26	0.008	0.055	0.055	0.042	0.17
Transportation of equipment - rail	5.17	2.27	0.010	0.071	0.071	0.058	0.31
Transportation of equipment - TMF	0.18	0.91	0.003	0.022	0.022	0.017	0.04
Equipment operation - general	135.9	302.0	10.2	19.4	--	--	18.4
Equipment operation - rail	89.9	181.6	6.8	13.8	--	--	13.3
Equipment operation - TMF	10.3	21.0	0.87	1.6	--	--	1.4
Unpaved roads	--	--	--	1076.7	179.1	2.1	--
Fugitive dust (ground clearing)	--	--	--	115.7	--	--	--
Cement plant operation	--	--	--	0.11	0.04	--	--
Total	**243**	**510**	**18**	**1227**	**179**	**2**	**34**

Table 2.6.7 Mining Equipment List for Project Operation and Fuel Consumption Information (Updated EIS Appendix A of Appendix F, Table 1.7)

Mining Equipment	Fuel Consumption Per Unit (L/h)	Utilization Per Unit (%)	Equipment Quantity (Year 5 of Operation)
Primary Equipment			
Shovel (Ore) (Bucyrus 395HR converted to Caterpillar 7395)	E	70	2
Shovel Komatsu PC5500	E	70	1
Shovel (Waste) (Bucyrus 495HD converted to Caterpillar 7495 HD)	E	70	1
Wheel Loader (CAT994)	144	70	2
Haul Truck (Komatsu 930E)	250	70	50
Blasthole Drill (Bucyrus 49HR converted to Caterpillar MD6640)	E	70	6
Secondary Equipment			
Wheel Dozer (Caterpillar 844)	64	70	3
Track Dozer (Caterpillar CAT D9)	60	70	2

Mining Equipment	Fuel Consumption Per Unit (L/h)	Utilization Per Unit (%)	Equipment Quantity (Year 5 of Operation)
Track Dozer (Caterpillar CAT D10)	85	70	4
Motor Grader (Caterpillar 16M)	42	70	3
Water Truck 20,000 gallons(Caterpillar CAT777F)	82	70	4
Auxiliary Equipment			
Air Track Drill (200 HP 80 to 100 mm)	60	50	1
RC Drill (Explorac R50, Cubex QCR920)	E	50	1
Wheel Loader (Caterpillar 988H)	60	50	1
Service Truck (250 HP 22,000 GVW)	20	50	2
Forklifts 15 tones	10	50	1
Forklifts 2.5 tones	10	50	1
Pickup 3/4 Ton (4x4 crew cab Chevrolet 2500) Mine Ops.	10	50	6
Pickup 3/4 Ton (4x4 crew cab Chevrolet 2500) Maint.	10	50	4
Pickup 3/4 Ton (4x4 crew cab Chevrolet 2500) Eng.,Survey.,Geol.,	10	50	3
Pickup 3/4 Ton (4x4 crew cab Chevrolet 2500) Ore Cotrol, Samplers	10	50	2
Pickup 3/4 Ton (4x4 crew cab Chevrolet 2500) Blasting	10	50	3
Pickup 1 Ton (4x4 crew cab Chevrolet 2500) Flatbed	10	50	1
Pickup 1 Ton (4x4 crew cab Chevrolet 2500) Service Body	10	50	1
Water truck fill station	10	50	1
Light Plant (1000 w. diesel generator)	20	50	5
Dewatering Pump (250 HP electric submersible)	E	50	2
Mobile Pump (125 HP diesel)	20	50	1
Portable Generator 600 kw	20	50	1
Aggregate Plant	50	50	1
Notes: E - Electric			

Table 2.6.8 CAC Emissions during Project Operation - Mining & Maintenance Equipment, Railway and Boilers (Updated EIS Appendix A of Appendix F, Table 1.8)

Equipment	Emissions of CACs per Fleet of Equipment (tonnes/yr)					
	CO	NO_x	SO_2	TSP	PM_{10}	$PM_{2.5}$
Primary Mining Equipment						
Wheel Loader	1.89	2.74	0.94	0.10	0.09	0.09
Haul Truck	477	936	32.3	31.13	29.88	28.02
Secondary Mining Equipment						
Wheel Dozer (Caterpillar 844)	0.72	1.77	0.52	0.07	0.06	0.06
Track Dozer (Caterpillar CAT D9)	0.41	1.01	0.3	0.04	0.04	0.03

Equipment	Emissions of CACs per Fleet of Equipment (tonnes/yr)					
	CO	NO_x	SO_2	TSP	PM_{10}	$PM_{2.5}$
Track Dozer (Caterpillar CAT D10)	1.23	3.04	0.89	0.11	0.11	0.10
Motor Grader (Caterpillar 16M)	4.98	9.44	0.42	1.13	1.08	1.02
Water Truck 20,000 gallons (Caterpillar CAT777F)	4.6	20.21	0.1	0.66	0.63	0.59
Auxiliary Equipment						
Air Track Drill	0.09	3.27	0.11	0.01	0.01	0.01
Wheel Loader	0.25	0.37	0.13	0.01	0.01	0.01
Service Truck	3.77	0.19	0	0	0	0
Forklifts 15 tones	0.34	1.01	0.03	0.05	0.05	0.04
Forklifts 2.5 tones	0.34	1.01	0.03	0.05	0.05	0.04
Pickup 3/4 Ton Mine Ops.	2.05	0.11	0	0	0	0
Pickup 3/4 Ton Maint.	2.05	0.11	0	0	0	0
Pickup 3/4 Ton Eng.,Survey.,Geol.,	2.05	0.11	0	0	0	0
Pickup 3/4 Ton Ore Cotrol, Samplers	2.05	0.11	0	0	0	0
Pickup 3/4 Ton Blasting	2.05	0.11	0	0	0	0
Pickup 1 Ton Flatbed	2.05	0.11	0	0	0	0
Pickup 1 Ton Service Body	2.05	0.11	0	0	0	0
Water truck fill station (diesel pump)	0.66	3.08	0.2	0	0.01	0
Light Plant (1000 w. diesel generator)	5.25	6.55	0.28	0.68	0.65	0.61
Mobile Pump (125 HP diesel)	1.33	6.16	0.41	0.01	0.01	0.01
Portable Generator 600 kw	1.33	6.16	0.41	0.01	0.01	0.01
Aggregate Plant	1.43	2.84	0.13	0.21	0.2	0.19
Tailings Management Facility Equipment						
Pickup Truck	2.05	0.11	0	0	0	0
Excavator	1.04	1.97	0.09	0.01	0.01	0.01
Boom Truck	2.29	4.54	0.2	0.33	0.32	0.3
Water Truck	0.08	0.36	0	0.01	0.01	0.01
Dump Truck	0.15	3.18	0.1	0.16	0.16	0.15
Loader	0.34	0.49	0.17	0.02	0.02	0.02
Dozer	0.2	0.48	0.14	0.02	0.02	0.02
Vibratory Roller	0.77	1.47	0.06	0.17	0.16	0.15
Sheepsfoot Roller	0.77	1.47	0.06	0.17	0.16	0.15
Boiler House						
Boiler (up to 5)	12	48	170.3	4.73	2.37	0.57
Railway						
Locomotives	4.81	34.28	0.12	0.89	0.89	0.89

Equipment	Emissions of CACs per Fleet of Equipment (tonnes/yr)					
	CO	NO_x	SO_2	TSP	PM_{10}	$PM_{2.5}$
Railway Inspector Pick-up Truck	0.21	0.11	0	0	0	0
Rail Ballast Regulator	0.11	0.11	0	0.02	0.02	0.01
Rail Track Tamper	0.11	0.11	0	0.02	0.02	0.01
Boom Truck	2.29	4.54	0.2	0.33	0.32	0.3
Total	**547.2**	**1,107**	**208.6**	**41.14**	**37.37**	**33.41**

Table 2.6.9 Estimated Fugitive Dust Releases During Project Operation (Updated EIS Appendix A of Appendix F, Table 1.9)

Activity	Fugitive Dust Emissions per Activity (tonnes/yr)		
	TSP	PM_{10}	$PM_{2.5}$
Blasting*(annual)	141.91	73.79	4.26
Drilling	20.88	20.88	20.88
Material Handling - Loading Mined Ore into Haul Trucks	34.37	16.27	2.46
Unpaved Road - Haul Truck Travel to Primary Crusher No.1	32.67	8.64	0.86
Unpaved Road - Haul Truck Travel to Primary Crusher No.2	43.27	11.04	1.10
Material Handling - Unloading of Mined Ore to Gyratory Crusher	34.37	16.27	2.46
Material Handling - Loading of Overburden/Waste Rock	73.79	35.00	5.30
Unpaved Road - Haul Truck Travel to Rose North Disposal Area	79.09	21.07	2.11
Unpaved Road - Haul Truck Travel to Rose South Disposal Area	347.53	92.53	9.27
Material Handling - Unloading of Overburden/Waste Rock	73.79	35.00	5.30
Wind Erosion - Rose North Waste Pile	0.28	0.13	0.06
Wind Erosion - Rose East Waste Pile	8.01	4.01	1.61
Wind Erosion - ROM Stockpile Small	0.01	0.00	0.00
Wind Erosion - ROM Stockpile Large	0.06	0.03	0.02
Crusher Buildings	25.45	12.98	3.82
Material Handling - Loading to Crusher Conveyor	25.45	12.61	12.61
Material Handling - Conveying to Crushed Ore Stockpile	2.54	1.26	1.26
Material Handling - Stacking Conveyor	127.25	63.07	63.07
Wind Erosion - Crushed Ore Stockpile 1	0.01	0.00	0.00
Wind Erosion - Crushed Ore Stockpile 2	0.01	0.00	0.00
Material Handling - Reclaim of Crushed Ore from Stockpile	25.45	12.61	12.61

Activity	Fugitive Dust Emissions per Activity (tonnes/yr)		
	TSP	PM_{10}	$PM_{2.5}$
Material Handling - Conveying of Reclaimed Crushed Ore to Process Plants	2.54	1.26	1.26
Feeding to Process Plants	2.54	1.26	1.26
Process Plants - Grinding/Screening	Neg	Neg	Neg
Material Handling - Final Concentrate Loading to Conveyor	9.59	4.79	4.79
Material Handling - Final Concentrate Conveying	0.96	0.48	0.48
Material Handling - Rail Car Loading	9.59	4.79	4.79
Wind Erosion - Tailings Pond	193.63	96.82	38.79
Total	**1315.06**	**546.62**	**200.45**

Table 2.6.10 Summary of Project CAC Emissions during Operation (Summary of Tables 1.8 & 1.9) (Updated EIS Appendix A of Appendix F, Table 1.11)

Activity	Total Emissions of CACs (tonnes/yr)					
	CO	SO_2	NO_X	TSP	PM_{10}	$PM_{2.5}$
Mining and other Project Equipment	547.2	208.6	1106.8	41.1	37.4	33.4
Fugitive Emissions	-	-	-	1315.1	546.6	200.4
Total Project Emissions	**547.2**	**208.6**	**1,107**	**1356.2**	**584**	**233.8**

2.6.4 Information Request No. NLPP 04

Further to comment #1, there are no reference calculations provided to validate that the emissions are accurate. Such calculations are required.

Alderon Response to IR No. NLPP 04

To support the annual emissions data provided in Tables 1.3, 1.4, 1.5, 1.8 and 1.9 in Appendix A, Air Dispersion Modelling Study, of Appendix F of the EIS, (Volume 1) reference calculations have been provided below.

Reference Calculation for Emissions Provided in Table 1.3.

The emissions provided in Table 1.3 were calculated using the following equation:

Emissions (tonnes/yr) = Emission Factor (g/hp-hr) * Activity Rate (total hp-hr/yr)*(1 tonne/10^6 g)

The activity rates are provided in Table 1.1 and the emission factors were acquired from the United States Environmental Protection Agency (US EPA) Non-road Program (available at http://www.epa.gov/otaq/nonroad-diesel.htm) and from the US EPA AP-42 Chapter 3.3, Gasoline and Diesel Industrial Engines (available at http://www.epa.gov/ttnchie1/ap42/).

For example, the estimated annual emissions of 2.8 tonnes of CO per year due to the operation of three mobile cranes during Project construction were calculated as follows:

Emissions per Fleet (tonnes/yr) = 0.8639 g/hp-hr * 3,241,728 total fleet hp-hr/yr

* (1 tonne/10^6 g)

= 2.80 tonnes/yr

Reference Calculation for Emissions Provided in Table 1.4

The emissions provided in Table 1.4 were calculated using the following equation:

Emissions (tonnes/yr) = Emission Factor (g/km) * Activity Rate (km/yr) * (1 tonne/10^6 g)

The activity rates were provided in Table 1.2 of Appendix A in Appendix F of the EIS, Volume 1 and the emission factors were retrieved from Transport Canada's Urban Transportation Emission Calculator (UTEC) (available at http://wwwapps.tc.gc.ca/prog/2/UTEC-CETU/menu.aspx?lang=eng).

For example, the estimated annual emissions of 0.001 tonnes of SO_2 per year due to the travel of light duty trucks during Project construction were calculated as follows:

Emissions (tonnes/yr) = 0.0044 g/km * (33,600 roundtrips/fleet/yr * 5 km per roundtrip)

* (1 tonne/10^6 g)

= 0.001 tonnes/yr

Reference Calculation for Emissions Provided in Table 1.5.

As stated in Section 1.1.3 of Appendix F, Air Quality Monitoring Baseline Study: Kami Iron Ore Project, of the EIS the particle emissions site preparation, travel on unpaved roads, and concrete production during Project construction were calculated using guidance and emission factors from the US EPA AP-42, Chapter 13.2.3, 13.2.2 and Chapter 11.12, available at http://www.epa.gov/ttnchie1/ap42/, and various Project activity data as provided in Appendix F of the EIS.

For example, the estimated emissions of 116 tonnes/yr of TSP from site preparation during Project construction were calculated as follows:

Emissions (tonnes/yr) = Controlled Emission Factor (Mg/hectare/month)* Activity (hectare)

= 1.345 tonne/hectare/month * 43 hectares

= 57.84 tonnes/month

= 116 tonnes/period

In the absence of final Project design during the preparation of the EIS it was assumed that site preparation would occur over a two month period.

Reference Calculation for Emissions Provided in Table 1.8.

The emissions provided in Table 1.8 were calculated using one of the following equations depending on the piece of equipment:

1. Emissions (tonnes/yr) = Emission Factor (g/hp-hr) * Activity Rate (total hp-hr/yr) * (1 tonne/10^6 g) (heavy duty mining equipment and off road trucks).
2. Emissions (tonnes/yr) = Emission Factor (g/km) * Activity Rate (km/yr) * (1 tonne/10^6 g) (pick-up trucks, service trucks and rail).
3. Emissions (tonnes/yr) = Emission Factor (lb/10^3 gal) * Activity Rate (10^3 gal/yr) * (1 tonne/ 2200 lb) (boilers).

For the first equation the activity rates were calculated assuming that each piece of equipment would be in operation 24/7 at the utilization rate provided in Table 1.7. For the second equation the activity rates were determined based on the vehicle travel speed, operating time and utilization rates as provided in Table 1.7 and the activity rate for the third equation was based on the total consumption of fuel. Emissions related to the operation of the equipment listed in Table 1.8 were calculated using emission factors from the US EPA Non-road Program (available at http://www.epa.gov/otaq/nonroad-diesel.htm), US EPA AP-42 (available at http://www.epa.gov/ttnchie1/ap42/) Chapter 3.3, Gasoline and Diesel Industrial Engines, the US EPA AP-42 Chapter 1.3 Fuel Oil Consumption, Transport Canada's Urban Transportation Emission Calculator (UTEC) (available at http://wwwapps.tc.gc.ca/prog/2/UTEC-CETU/menu.aspx?lang=eng) and Transport Canada's Locomotive Emissions Monitoring Program (available at http://www.tc.gc.ca/eng/programs/environment-ecofreight-about-voluntary-voluntaryagreementsrail-1844.htm).

Using equation 1 for example, the estimated annual emissions of 32.2 tonnes of SO_2 per year due to the operation of the haul trucks during Project operation were calculated as follows:

Emissions (tonnes/yr) = 0.0809 g/hp-hr * ((1300 hp* 8760 hr/yr) * (70/100) * 50 trucks)

= 32245122 g/yr* (1 tonne/10^6 g)

= 32.2 tonnes/yr

Using equation 2 for example, the estimated annual emissions of 0.0007 tonnes of SO_2 per year due to the operation of the service trucks during Project operation were calculated as follows:

Emissions (tonnes/yr) = 0.0059 g/km * 116800 km/yr* (1 tonne/10^6 g)

= 0.0007 tonnes/yr

Using equation 3 for example, the estimated annual emissions of 170.3 tonnes of SO_2 per year due to the operation of the boiler house during Project operation were calculated as follows:

SO_2 Emission Rate (g/s) = Emission Factor * Total Annual Fuel Usage

= 142 S lb/10^3 gal * 5,283.441 10^3 gal/yr; where S represents the % sulphur in fuel

= 142 (0.5) lb/10^3 gal * 5,283.441 10^3 gal/yr

= 71 lb/10^3 gal * 5,283.441 10^3 gal/yr

= 375,124.31 lb/yr * (454 g/lb) * (3600 s/hr) * (24 hr/day)

* (365 days/yr)

= 5.4 g/s

Total SO_2 Emissions per Year, Boilers (t/yr) = 5.4 g/s * 60 s/min+ 60 min/hr * 24 hr/day * 365 days/yr

= 170294400 g/yr* (1 tonne/10^6 g)

= 170.3 tonnes/yr

Reference Calculation for Emissions is provided in Table 1.9.

As stated in Section 1.2.3 of Appendix F, Air Quality Monitoring Baseline Study: Kami Iron Ore Project, of the EIS the emissions related to the fugitive releases of particulate matter from the various Project activities were calculated using guidance and emission factors from the US EPA AP-42 Chapter 11.19.2 Crushed Stone Processing and Pulverized Mineral Processing, Chapter 11.23 Taconite Ore Processing, Chapter 11.24 Metallic Minerals Processing, Chapter 13.2.2 Unpaved Roads, Chapter 13.2.4 Aggregate Handling and Storage Piles and US EPA AP-42 Appendix B2, Generalized Particulate Size Distributions available at http://www.epa.gov/ttnchie1/ap42/, and various activity data as provided in the Project Description chapter of the EIS.

For example, the estimated annual emissions of 34.4 tonnes of total suspended particulate (TSP) from the material handling of loading mined ore into the haul trucks, was calculated using the approach in US EPA AP-42 Chapter 13.2.4:

TSP Emissions Rate (g/s) = k (0.0016) $((U/2.2)^{1.3})/((M/2)^{1.4}$

Where k is the particle size multiplier constant (0.74), U is the mean wind speed (m/s) and M is moisture content (%) = 0.74 (0.0016) $(4/2.2^{1.3})/(3.4/2^{1.4})$

= 0.00081 kg/Mg

Approximately 42,400,000 Mg/yr of ore will be mined from the Rose Pit, therefore:

= 0.00081 kg/Mg * 42,400,000 Mg/yr

= 34,344 kg/yr

= 1.09 g/s

Emissions (tonnes/yr) = 1.09 g/s * 60 s/min+ 60 min/hr * 24 hr/day *365 days/yr /1000000

= 34.4 t/yr

2.6.5 Information Request No. NLPP 05

Table 1.4 is inaccurate as the emission levels are too high. It is likely that the emissions are in kilograms and not tonnes. Please confirm.

Alderon Response to IR No. NLPP 05

The emission levels provided in Table 1.4 in Section 1.1.3 of Appendix A, Air Dispersion Modelling Study, of Appendix F in the EIS are presented in kg, not tonnes. This table has been revised and is provided below.

Table 2.6.11 Estimated Transportation Emissions of CAC's during Project Construction (Updated EIS Appendix A of Appendix F, Table 1.4)

Equipment	CAC Contaminant (tonnes)						
	SO2	NOx	CO	PM	PM_{10}	$PM_{2.5}$	VOC
General							
Light duty truck	0.001	0.08	1.57	0.003	0.003	0.001	0.076
Tankers	0.001	0.36	0.07	0.009	0.009	0.007	0.016
Flat bed truck	0.003	0.91	0.18	0.022	0.022	0.017	0.040
Multi-axle trailers	0.003	0.91	0.18	0.022	0.022	0.017	0.040
Rail							
Light duty trucks	0.002	0.24	4.72	0.008	0.008	0.004	0.227
Personnel bus	0.005	1.28	0.29	0.044	0.044	0.039	0.042
Water truck	0.000	0.07	0.02	0.002	0.002	0.002	0.004
Fuel truck	0.000	0.07	0.02	0.002	0.002	0.002	0.004
Concrete truck	0.001	0.36	0.07	0.009	0.009	0.007	0.016
Rail welding supply truck	0.001	0.18	0.04	0.004	0.004	0.003	0.008
Rail boom truck	0.000	0.07	0.02	0.002	0.002	0.002	0.004
TMF							
Haul truck	0.003	0.91	0.18	0.022	0.022	0.017	0.040
Total	**0.02**	**5.44**	**7.35**	**0.15**	**0.15**	**0.12**	**0.52**

2.6.6 Information Request No. NLPP 06

A sulphur content in diesel of 0.035 percent was assumed. This assumption needs to be validated against the federal sulphur in diesel regulations which limits the sulphur content to 15 ppm (0.0015 percent) for most sources, and 1000 ppm for large stationary sources.

Alderon Response to IR No. NLPP 06

The emissions data, pertaining to the combustion of diesel fuel in equipment, provided throughout Appendix F in the EIS for sulphur is based on the US EPA default value of 0.035 wt%. As stated by the Newfoundland and Labrador Pollution and Prevention Division the sulphur content in most sources is now limited to 0.0015 percent and 1000 ppm for large

stationary sources as per the federal *Sulphur in Diesel Fuel Regulations*. The sulphur emissions provided throughout Appendix F in the EIS are therefore a conservative representative of the sulphur emissions resulting from the construction and operation of the proposed Project. If lower sulphur content in diesel was to be assumed, the resulting sulphur emissions from the construction and operation of the proposed Project would be lower.

2.6.7 Information Request No. NLPP 07

In Table 1.8, the SO_2 emissions appear to be excessive from the boiler house, while all emissions from the haul trucks also appear high. Further to comments #2, reference calculations and volumes need to be provided.

Alderon Response to IR No. NLPP 07

The emissions of sulphur related to the combustion of diesel fuel in the boiler house, as presented in Table 1.8 in Section 1.2.3 in Appendix A, Air Dispersion Modelling Study, in Appendix F of the EIS were determined using the following assumptions: emission factors provided in US EPA AP-42, Compilation of Air Pollutant Emission Factors (http://www.epa.gov/ttnchie1/ap42/), Chapter 1.3, Fuel Oil Combustion; that approximately 20 million liters of diesel fuel would be consumed in one year; and that the fuel would contain approximately 0.5 percent sulphur. An example calculation is provided below:

SO_2 Emission Rate (g/s) = Emission Factor * Total Annual Fuel Usage
= 142 S lb/10^3 gal * 5,283.441 10^3 gal/yr; where S represents the % sulphur in fuel
= 142 (0.5) lb/10^3 gal * 5,283.441 10^3 gal/yr
= 71 lb/10^3 gal * 5,283.441 10^3 gal/yr
= 375,124.31 lb/yr
= 5.4 g/s

Total SO_2 Emissions per Year, Boilers (t/yr) = 5.4 g/s * 60 s/min+ 60 min/hr * 24 hr/day *365 days/yr
= 170294400 g/yr
= 170.3 t/yr

The emissions of sulphur related to the combustion of diesel fuel in the haul trucks, as presented in Table 1.8 in Section 1.2.3 in Appendix A, Air Dispersion Modelling Study, in Appendix F of the EIS were determined using emission factors provided in the US EPA, NONROAD Program (http://www.epa.gov/oms/nonrdmdl.htm) and assuming that approximately 50 haul trucks will be operating 24 hours per day, 365 days per year, at a utilization rate of 70 percent. As each haul truck is to consume approximately 250 liters of diesel fuel per hour, a horsepower rating of 1300 was assumed.

An example calculation is provided below:

SO_2 Emissions (tones/yr) = Emission Factor (g/hp-hr) * Total Hp hours (hp-hr/yr) per Fleet
= 0.0809 g/hp-hr * ((1300 hp* 8760 hr/yr) * (70/100) * 50 trucks)
= 32245122 g/yr
= 32.2 tonne/yr

The sulphur emissions represented above are conservative as they do not incorporate changes to the federal *Sulphur in Diesel Fuel Regulations*, which would reduce the sulphur content to 0.0015 percent in truck fuel.

2.6.8 Information Request No. NLPP 08

Clarification / linkages are required between the Calpuff input file and Tables 2.2 and 2.3. The Calpuff input file identifies emission sources as SRC_90, SRC_102, etc and are therefore not readily identifiable with the values in Tables 2.2 and 2.3.

Alderon Response to IR No. NLPP 08

For clarification purposes Table 2.6.12 below illustrates the direct linkages between the sources as represented in Tables 2.2 and 2.3 of Appendix A, in Appendix F of the EIS (e.g., blasting, drilling, etc.) and those listed in the CALPUFF input files (e.g., SRC_90, SRC_91, etc.).

Since issuing the EIS, the design and specifications of the Project are evolving, and Alderon has conducted additional air dispersion modelling for total suspended particulate (TSP), particulate matter less than 10 microns in diameter (PM_{10}) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), based on refined input data and dust control measures.

Some of the refinements made during this review process include the following:

- Revised blasting area and number of blasts per year;
- Revised number of holes to be drilled per year;
- Revised haul truck travel route and traffic partitioning to both the north rose disposal area and the south rose disposal area;
- Modified assumptions regarding the amount of exposed area open to wind erosion on stockpiles following a disturbance;
- Enclosed reclaim tunnel with a dust collection system for the reclaim of crushed ore from the crushed ore stockpiles;
- Enclosed process plant feed systems within the process plant buildings;
- Wet ore processing within the process plants versus dry processing;
- Wet concentrate handling versus dry during final concentrate handling and conveying; and
- Revised silt content in tailings based on actual lab testing results.

Table 2.6.12 Project Activities, Planned Mitigation and Particulate Emission Rates

Activity	Uncontrolled Emission Rate (g/s)			Planned Mitigation	Control Efficiency (%)	Controlled Emission Rate (g/s)		
	TPM	PM_{10}	$PM_{2.5}$			TSP	PM_{10}	$PM_{2.5}$
Blasting (annual)	1.61	0.837	0.0483	-	-	4.5	2.34	0.135
Drilling	0.331	0.331	0.331	-	-	0.662	0.662	0.662
Material Handling - Loading Mined Ore into Haul Trucks	1.09	0.516	0.078	-	-	1.09	0.516	0.078
Unpaved Road - Haul Truck Travel to Primary Crusher No.1	51.8	13.7	1.37	Dust Suppression / Vehicle Restrictions	98	1.036	0.274	0.0274
Unpaved Road - Haul Truck Travel to Primary Crusher No.2	68.6	17.5	1.75	Dust Suppression / Vehicle Restrictions	98	1.372	0.35	0.035
Material Handling - Unloading of Mined Ore to Gyratory Crusher	1.09	0.516	0.078	-	-	1.09	0.516	0.078
Material Handling - Loading of Overburden/Waste Rock	2.34	1.11	0.168	-	-	2.34	1.11	0.168
Unpaved Road - Haul Truck Travel to Rose North Disposal Area	125.4	33.4	3.34	Dust Suppression / Vehicle Restrictions	98	2.508	0.668	0.0668
Unpaved Road - Haul Truck Travel to Rose South Disposal Area	551	146.7	14.7	Dust Suppression / Vehicle Restrictions	98	11.02	2.934	0.294
Material Handling - Unloading of Overburden/Waste Rock	2.34	1.11	0.168	-	-	2.34	1.11	0.168
Wind Erosion - Rose North Waste Disposal Area	-	-	-	Assumes that at any given time only approximately 6% of the pile is exposed to wind erosion or contains newly deposited material.	94	0.009	0.004	0.002
Wind Erosion - Rose East Waste Disposal Area	-	-	-	Assumes that at any given time only approximately 6% of the pile is exposed to wind erosion or contains newly deposited material.	94	0.254	0.127	0.051

Activity	Uncontrolled Emission Rate (g/s)			Planned Mitigation	Control Efficiency (%)	Controlled Emission Rate (g/s)		
	TPM	PM_{10}	$PM_{2.5}$			TSP	PM_{10}	$PM_{2.5}$
Wind Erosion - ROM Stockpile Small	-	-	-	Assumes that at any given time only approximately 6% of the pile is exposed to wind erosion or contains newly deposited material.	94	0.0002	0.0001	4.37E-05
Wind Erosion - ROM Stockpile Large	-	-	-	Assumes that at any given time only approximately 6% of the pile is exposed to wind erosion or contains newly deposited material.	94	0.002	0.001	0.0005
Crusher Buildings	0.807	0.41157	0.12105	Baghouse	-	0.807	0.41157	0.12105
Material Handling - Loading to Crusher Conveyor	80.7	40	40	Enclosed building with bag house / collection at transfer points.	99	0.807	0.4	0.4
Material Handling - Conveying to Crushed Ore Stockpile	80.7	40	40	Uncovered Conveyor / Undisturbed Material	99.9	0.0807	0.04	0.04
Material Handling - Stacking Conveyor	80.7	40	40	Minimize drop height/coarse material.	95	4.035	2	2
Wind Erosion - Crushed Ore Stockpile 1	-	-	-	Assumes that at any given time only approximately 6% of the pile is exposed to wind erosion or contains newly deposited material.	94	0.0003	0.0001	5.77E-05
Wind Erosion - Crushed Ore Stockpile 2	-	-	-	Assumes that at any given time only approximately 6% of the pile is exposed to wind erosion or contains newly deposited material.	94	0.0003	0.0001	5.77E-05
Material Handling - Reclaim of Crushed Ore from Stockpile	80.7	40	40	Enclosed in reclaim tunnel - dust collection with baghouse.	99	0.807	0.4	0.4
Material Handling - Conveying of Reclaimed Crushed Ore to Process Plants	80.7	40	40	Uncovered Conveyor / Undisturbed Material.	99.9	0.0807	0.04	0.04
Feeding to Process Plants	80.7	40	40	Enclosed in building with dust collection and is a wet process.	99.9	0.0807	0.040	0.040

Activity	Uncontrolled Emission Rate (g/s)			Planned Mitigation	Control Efficiency (%)	Controlled Emission Rate (g/s)		
	TPM	PM_{10}	$PM_{2.5}$			TSP	PM_{10}	$PM_{2.5}$
Process Plants - Grinding/Screening	Neg.	Neg.	Neg.	Wet process.	-	Neg.	Neg.	Neg.
Material Handling - Final Concentrate Loading to Conveyor	30.4	15.2	15.2	3.5% to 6% moisture - no dust collection.	99	0.304	0.152	0.152
Material Handling - Final Concentrate Conveying	30.4	15.2	15.2	Uncovered Conveyor / Undisturbed Moist Material	99.9	0.0304	0.0152	0.0152
Material Handling - Rail Car Loading	30.4	15.2	15.2	Baghouse on hopper - no dust collection at discharge chute - moist material.	99	0.304	0.152	0.152
Wind Erosion - Tailings Pond	-	-	-	-	94	6.14	3.07	1.23

2.6.9 Information Request No. NLPP 09

All emission sources have been programmed as volume sources in the Calpuff input file. While it is appreciated that the final logistics of the site plan are not yet finalized, it is assumed that the location of major structures, such as the crusher and concentrator, are. These sources would likely be better modelled as point sources and not volumes sources. In general, the input parameters for the volume sources need to be justified with calculations provided, particularly for the road segments.

Alderon Response to IR No. NLPP 09

The Kami Iron Ore Mine dispersion model consists of a combination of point and volume sources. Point sources in most dispersion models, including CALPUFF, are those with an effective height determined by the physical height plus an allowance for rise determined by the combined effects of stack gas velocity (momentum) and stack gas temperature (buoyancy). Where there is no vertical height increment, it is appropriate to use volume sources. This is common in the treatment of horizontal discharges, such as vents exiting from the side of buildings, such as louvered openings as can be found on certain processing facilities. It is also appropriate for stationary dust sources such as drops from conveyors or stackers, where the impact of material on the ground causes enough local turbulence to form a dust cloud, to be considered volume sources. The source has no buoyancy, there is no net air discharged, but there is a source of pollutants that begins dispersion in the atmosphere as a volume. It is important to note that, by not taking credit for a temperature or velocity induced buoyancy or momentum, the results for a volume source are often more conservative (i.e., higher concentrations) than those from point sources.

Guidelines for estimating initial dispersion parameters can be found in US EPA EPA-454/R-92-019:

Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised. 1992. U.S. ENVIRONMENTAL PROTECTION AGENCY, Office of Air and Radiation, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina 27711.

The initial sigma x and sigma y values for volume sources are selected such that the volume of the initial discharge (cloud in particulate terms) is contained within 4 “standard deviations” of the emission point. Close to the source, results are very similar, if not identical, to a situation where downwash occurs in the lee of a building with a conventional point source from a low stack. The point source plume loses all credit for buoyancy and momentum as it is mixed into the building wake and loses the momentum and temperature difference. Volume sources can be used to simulate line sources. At some distance downwind, the plumes from multiple point sources overlap enough so that the result is not distinguishable from a continuous line source. For a plume, horizontal spread is of the order of 10 degrees, or a half-width of 5 degrees. For a small angle, the tangent is approximately the value of the angle in radians, or about 1/12, so volume sources spaced at 100 m intervals will be fully merged at about 1200 m downwind. The main

advantage to a volume source approximation is that the computational time for situations with long linear features can be reduced drastically while losing nothing in computational accuracy.

Parameters chosen for the volume sources are provided in the CALPUFF input files (Attachment 1 of Appendix A, in Appendix F of the EIS) and the direct link between Project sources as listed in the EIS document and Appendix F to those listed in the CALPUFF input files are provided below in Table 2.6.13, for clarification. In some cases some volume sources, that were of the same nature and adjacent to each other were lumped together as one volume source with the appropriate emission rate. The conveyor sources were modeled as a series of volume sources with the emissions divided among them. The road segments in particular were modelled as a series of volume sources, to reduce model computation time. The methodology used to determine the number of volume sources per road segment was based on the guidance presented in the US EPA's "User's Guide for the Industrial Source Complex (ISC3) Dispersion Models" (available at http://www.epa.gov/scram001/userg/regmod/isc3v2.pdf).

Table 2.6.13 Clarification between CALPUFF Input File Source ID and Source Descriptions as Listed in the EIS

Source ID	Source Description	Source Type
SRC_1	Wheel Loader	Point
SRC_2	Wheel Loader	Point
SRC_3	Wheel Dozer	Point
SRC_4	Wheel Dozer	Point
SRC_5	Haul Truck Travel to Rose North Disposal Area 1	Volume
SRC_6	Track Dozer	Point
SRC_7	Track Dozer	Point
SRC_8	Haul Truck Travel to Rose North Disposal Area 2	Volume
SRC_9	Track Dozer	Point
SRC_10	Track Dozer	Point
SRC_11	Haul Truck Travel to Rose North Disposal Area 3	Volume
SRC_12	Motor grader	Point
SRC_13	Motor Grader	Point
SRC_14	Haul Truck Travel to Rose North Disposal Area 4	Volume
SRC_15	Water Truck	Point
SRC_16	Water Truck	Point
SRC_17	Water Truck	Point
SRC_18	Water Truck	Point
SRC_19	Air Track Drill	Point
SRC_20	Haul Truck Travel to Rose North Disposal Area 5	Volume
SRC_21	Service Truck	Point
SRC_22	Service Truck	Point
SRC_23	TMF Excavator	Point

Source ID	Source Description	Source Type
SRC_24	TMF Water Truck	Point
SRC_25	TMF Boom Truck	Point
SRC_26	TMF Dump Truck	Point
SRC_27	TMF Loader	Point
SRC_28	TMF Dozer	Point
SRC_29	TMF Vibratory Roller	Point
SRC_30	Sheepsfoot Roller	Point
SRC_31	Boilers	Point
SRC_36	Forklift	Point
SRC_37	Forklift	Point
SRC_38	Haul Trucks Group 1	Point
SRC_39	Haul Trucks Group 2	Point
SRC_40	Haul Trucks Group 3	Point
SRC_41	Haul Truck Travel to North Disposal Area 9	Volume
SRC_42	Haul Truck Travel to North Disposal Area 10	Volume
SRC_43	Haul Trucks Group 6	Point
SRC_44	Haul Trucks Group 7	Point
SRC_45	Haul Trucks Group 8	Point
SRC_46	Haul Truck Travel to North Disposal Area 11	Volume
SRC_47	Haul Truck Travel to North Disposal Area 12	Volume
SRC_48	Water Truck Fill Station (diesel pump)	Point
SRC_52	Light Plant Generators (1-5)	Point
SRC_54	Mobile Pump	Point
SRC_55	Portable Generator	Point
SRC_56	Rail Ballast Regulator	Point
SRC_57	Boom Truck Rail	Point
SRC_58	Rail Track Tamper	Point
SRC_92	Aggregate Plant	Point
SRC_59	Railway Inspector Pick-up	Volume
SRC_60	Pick-up Mine Ops.(1-6)	Volume
SRC_66	Pick up Mine Maint.(1-4)	Volume
SRC_70	Pick up Geol Survey (1-3)	Volume
SRC_73	Pick up Truck ore samplers	Volume
SRC_74	Pick up Ore Samplers	Volume
SRC_77	Pick up Blasting (1-3)	Volume
SRC_78	Pick up Flatbed	Volume
SRC_79	Pick up Service	Volume
SRC_80	Loading Ore in Haul Trucks	Volume

Source ID	Source Description	Source Type
SRC_81	Unloading Ore into Crusher	Volume
SRC_82	Haul Truck Travel to Rose South Disposal Area 8	Volume
SRC_83	Loading of Waste Rock to Haul Trucks	Volume
SRC_84	Unloading Waste Rock to North Disposal Area	Volume
SRC_85	Unloading of Waste Rock into South Disposal Area	Volume
SRC_86	Crusher Building	Volume
SRC_87	Haul Truck Travel to Rose South Disposal Area 9	Volume
SRC_88	Haul Truck Travel to Rose South Disposal Area 10	Volume
SRC_89	Loading onto Crusher 1 Conveyor	Volume
SRC_90	Rail Car Loading	Volume
SRC_96	Drill Blast Holes	Volume
SRC_99	Stacking Conveyor to Crusher Stockpile 1	Volume
SRC_100	Conveying to Crushed Ore Stockpile 6	Volume
SRC_101	Conveying to Crushed Ore Stockpile 7	Volume
SRC_102	Loading of Ore to Process Plant 1 Conveyor	Volume
SRC_105	Conveying to Crushed Ore Stockpile 10	Volume
SRC_106	Crushed Ore Conveying to Process Plant 1	Volume
SRC_107	Crushed Ore Conveying to Process Plant 2	Volume
SRC_108	Crushed Ore Conveying to Process Plant 1	Volume
SRC_109	Crushed Ore Conveying to Process Plant 4	Volume
SRC_32	Haul Truck Travel to North Disposal Area 6	Volume
SRC_33	Haul Truck Travel to North Disposal Site 7	Volume
SRC_34	Haul Truck Travel to North Disposal Area 8	Volume
SRC_35	Process Plant Feed	Volume
SRC_49	Process Plant Vent	Volume
SRC_50	Final Concentrate Loading to Conveyor	Volume
SRC_51	Haul Truck Travel to Crusher 1	Volume
SRC_53	Haul Truck Travel to North Disposal Area 13	Volume
SRC_61	Haul Truck Travel to North Disposal Area 14	Volume
SRC_62	Haul Truck Travel to North Disposal Area 15	Volume
SRC_63	Haul Truck Travel to Crusher 2	Volume
SRC_64	Haul Truck Travel to Crusher 3	Volume
SRC_65	Haul Truck Travel to Crusher 4	Volume
SRC_67	Haul Truck Travel to Rose South Disposal Area 1	Volume
SRC_68	Haul Truck Travel to Rose South Disposal Area 2	Volume
SRC_69	Haul Truck Travel to Rose South Disposal Area 3	Volume
SRC_71	Haul Truck Travel to Rose South Disposal Area 4	Volume
SRC_72	Haul Truck Travel to Rose South Disposal Area 5	Volume

Source ID	Source Description	Source Type
SRC_75	Haul Truck Travel to Rose South Disposal Area 6	Volume
SRC_76	Haul Truck Travel to Rose South Disposal Area 7	Volume
SRC_91	Blasting	Volume
SRC_93	Conveying to Crushed Ore Stockpile 1	Volume
SRC_94	Conveying to Crushed Ore Stockpile 2	Volume
SRC_95	Conveying to Crushed Ore Stockpile 3	Volume
SRC_97	Conveying to Crushed Ore Stockpile 4	Volume
SRC_98	Conveying to Crushed Ore Stockpile 5	Volume
SRC_103	Conveying to Crushed Ore Stockpile 8	Volume
SRC_104	Conveying to Crushed Ore Stockpile 9	Volume
SRC_110	Crushed Ore Stockpile 1	Area
SRC_111	Final Concentrate Conveying 1	Volume
SRC_112	ROM Stockpile Large	
SRC_113	Final Concentrate Conveying 2	Volume
SRC_114	North Rose Disposal Area	Area
SRC_115	South Rose Disposal Area	Area
SRC-116	Tailings Pond	Area
SRC_117	Final Concentrate Conveying 3	Volume
SRC_118	Final Concentrate Conveying 4	Volume
SRC_153	Crushed Ore Stockpile 2	Area
SRC-154	ROM Stockpile Small	Area
SRC_200	Wheel Dozer	Point
SRC_201	Track Dozer	Point
SRC_202	Track Dozer	Point
SRC_203	Motor Grader	Point
SRC_204	Wheel Loader	Point
SRC_205	Haul Trucks Group 4	Point
SRC_206	Haul Trucks Group 5	Point
SRC_207	Haul Trucks Group 9	Point
SRC_208	Haul Trucks Group 10	Point
SRC_209	Unloading of Ore into Crusher 2	Volume
SRC_210	Crusher building 2	Volume
SRC_211	Loading onto Crusher Conveyor 2	Volume
SRC_212	Stacking to Crusher Stockpile 2	Volume
SRC_213	Conveying to Crushed Ore Stockpile 2 1	Volume
SRC_214	Conveying to Crushed Ore Stockpile 2 2	Volume
SRC_215	Conveying to Crushed Ore Stockpile 2 3	Volume
SRC_216	Conveying to Crushed Ore Stockpile 2 4	Volume

Source ID	Source Description	Source Type
SRC_217	Conveying to Crushed Ore Stockpile 2 5	Volume
SRC_218	Conveying to Crushed Ore Stockpile 2 6	Volume
SRC_219	Conveying to Crushed Ore Stockpile 2 7	Volume
SRC_220	Conveying to Crushed Ore Stockpile 2 8	Volume
SRC_221	Conveying to Crushed Ore Stockpile 2 9	Volume
SRC_222	Conveying to Crushed Ore Stockpile 2 10	Volume
SRC_223	Process Plant Feed	Volume
SRC_224	Process Plant Vent	Volume
SRC_225	Haul Truck Travel to Crusher No2 1	Volume
SRC_226	Haul Truck Travel to Crusher No2 2	Volume
SRC_227	Haul Truck Travel to Crusher No2 3	Volume
SRC_228	Haul Truck Travel to Crusher No2 4	Volume
SRC_229	Crushed Ore Conveying to Process Plant 2 1	Volume
SRC_230	Crushed Ore Conveying to Process Plant 2 2	Volume
SRC_231	Crushed Ore Conveying to Process Plant 2 3	Volume
SRC_232	Crushed Ore Conveying to Process Plant 2 4	Volume
SRC_233	Reclaim of Ore to Process Plant Conveyor 2	Volume

2.6.10 Information Request No. NLPP 10

Per Section 4.16.2 of the guidelines, the “effects on ambient air quality due to particulate matter (e.g., dust) and other potential air contaminants during construction activities (including the installation of hydro and rail lines)” is to be included. It only appears that the operational scenario was modelled and thus construction modelling is required.

Alderon Response to IR No. NLPP 10

The effects on ambient air quality due to particulate matter and other potential air contaminants during construction activities were assessed in Section 14.6.1 of Volume 1 of the EIS through the development of an emissions inventory (refer to Table 14.23 in Section 14.6.1.1 of the EIS), as the EIS guidelines did not specifically state that construction emissions were to be modeled. As the activity during construction is temporary, and lower in activity level than operation, it was concluded an acceptable level of impact from operations implied an acceptable level of impact during construction. The emissions related to the operation of the Project were modeled. The operational model was based on an estimated production of 16 MMtpa, whereas the initial period, of 3 years or more will be a half of that production rate. Construction emissions for the 8 MMtpa phase are likely to be lower than the emissions for the operational scenario analyzed here. Most emissions will be similar, arising from earth moving, material handling, and diesel engine combustion. Those sources that differ in terms of emissions are likely to be much lower in magnitude, for example welding, concrete batching and painting. Without a detailed construction sequence, it is not possible to meaningfully produce a model for the construction

period, however, based on the reasoning above, it is concluded that the impact of the construction on the offsite areas will be lower than the worst-case operational scenario, and that routine monitoring as part of an EPP will avoid excessive emission impacts.

Note also that electric power will be provided from the grid during construction. Although on-site generation was considered, there are significant advantages in the use of grid power, including a reduction in potential emissions. An emergency backup generator will be available; it is anticipated that this will only run for nominal test/maintenance intervals of a few minutes each month.

2.6.11 Information Request No. NLPP 11

It lists: “Industrial Processing Works”, but the DOEC-PPD doesn’t issue such approvals.

Alderon Response to IR No. NLPP 11

Certificates of Approval (C of A) as issued by PPD are issued for “various industrial facilities”, as per the NLDOEC web site. EIS Table 1.3, Volume 1 is revised for clarification by deleting “*Industrial Processing Works*”.

Table 2.6.14 Potential Permits, Approvals, and Authorizations (Updated EIS Table 1.3, Volume 1)

Permit, Approval or Authorization Activity	Issuing Agency
Provincial	
• Release from environment assessment process.	NLDOEC – Environmental Assessment Division
• Permit to Occupy Crown Land.	NLDOEC – Crown Lands Division
• Permit to Construct a Non-Domestic Well. • Water Resources Real-Time Monitoring. • Certificate of Environmental Approval to Alter a Body of Water • Culvert Installation. • Fording. • Stream Modification or Diversion. • Other Works Within 15 m of a Body of Water (site drainage, dewater pit, settling ponds). • Permit for Development inside a Protected Watershed Area.	NLDOEC – Water Resources Management Division
• Certificate of Approval for Construction and Operation. • Certificate of Approval for Generators. • Approval of MMER Emergency Response Plan. • Approval of Waste Management Plan. • Approval of Environmental Contingency Plan (Emergency Spill Response). • Approval of Environmental Protection Plan.	NLDOEC – Pollution Prevention Division
• Permit to Control Nuisance Animals.	NLDOEC – Wildlife Division
• Pesticide Operators License.	NLDOEC – Pesticides Control Section

Permit, Approval or Authorization Activity	Issuing Agency
• Blasters Safety Certificate. • Magazine License. • Approval for Storage and Handling Gasoline and Associated Products. • Temporary Fuel Cache. • Fuel Tank Registration. • Approval for Used Oil Storage Tank System (Oil / Water Separator). • Fire, Life and Safety Program. • Certificate of Approval for a Waste Management System.	Government Service Centre (NLGSC)
• Approval of Development Plan, Closure Plan, and Financial Assurance. • Mining Lease. • Surface Rights Lease. • Quarry Development Permit.	NLDNR – Mineral Lands Division
• Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land. • Permit to Cut Crown Timber. • Permit to Burn.	NLDNR – Forest Resources
• Approval to Construct and Operate a Railway in Newfoundland and Labrador. • Protected Roads Access Permit	Department of Transportation and Works (NLDTW)
Federal	
• Authorization for Harmful Alteration, Disruption or Destruction (HADD) of fish habitat	DFO
• Approval to interfere with navigation	Transport Canada
• License to Store, Manufacture or Handle Explosives	Natural Resources Canada (NRCan)
• Approval to construct a railway	Canadian Transportation Agency
Municipal	
• Building Permit • Development Permit Application • Excavation Permit • Fence Permit • Occupancy – Commercial Permit • Open Air Burning Permit • Signage Permit	Town of Labrador City
• Building Permit • Development Permit Application • Excavation Permit • Fence Permit • Occupancy – Commercial Permit • Open Air Burning Permit • Signage Permit	Town of Wabush

2.6.12 Information Request No. NLPP 12

It mentions drilling and blasting. If drilling and blasting in wet holes there may be incomplete combustion leading to an ammonia contamination of pit effluent. This may not be a problem initially but may be after the pits become deep and ground water levels become problematic.

Alderon Response to IR No. NLPP 12

The potential chemistry and sediments collected in pit drainage at all stages of open pit development and operation are recognized and will be managed in-pit using best practices in blasting techniques, proper sump construction and management techniques (submerged intakes, sediment control, etc), and the final treatment for residual chemistry and solids will be addressed in the design of the sedimentation pond to which pit drainage will report prior to being discharged to the environment (final discharge point). If modelling of pit water quality shows that an active treatment system for chemistry (including ammonia) may be required this will be addressed in the detailed design phase of the Project and will be included in the Project design details in the construction and operation permit applications.

2.6.13 Information Request No. NLPP 13

With respect to the Environment Protection Plan (EPP), Environmental Management Plans, and Environmental Response Plans. It may be requirement by the Department that final versions of these be submitted and approved prior to the Pollution Prevention Division (PPD) issuing a Certificate-of-Approval for the Kami project (particularly the first two plans).

Alderon Response to IR No. NLPP 13

Alderon acknowledges the comment and will abide by the conditions of release.

2.6.14 Information Request No. NLPP 14

This appears to be an incorrect use of the term “sewerage” as sewerage means the piping system; and “sewage” means the material flowing in the pipes.

Alderon Response to IR No. NLPP 14

The term “sewerage” in the title of Section 8.1.8, Volume 1 of the EIS, and in the fourth line of that section is revised to “sewage”. The section should read:

8.1.8 Sewage *(Volume 1 of EIS, revised)*

Sewage generated by the Project will be treated on site using either a septic tank system or a commercial sewage/wastewater treatment system. The processes included in a commercial wastewater system, if such a system is required, will be determined during the permitting phase of the Project based on the nature and quantity of sewage and wastewater requiring treatment.

2.6.15 Information Request No. NLPP 15

Discusses “progressive rehabilitation” but mention doesn’t what vegetation will be used. Alderon may want to consider contacting Cliffs and IOC about their strategies and successes. Cliffs uses grass while IOC uses tress.

Alderon Response to IR No. NLPP 15

Alderon intends to consult with the other mining operations in the area with respect to their experiences (successes and failures) regarding revegetation practices in support to conducting independent vegetation studies and trials given the specific overburden, topography, drainage, and mine design conditions for the Project. Current revegetation strategies generally combine quick-growth vegetation such as grasses to aid in surface stabilization (dust and erosion suppression) and to provide regenerative organics as a base for other vegetation (shrubs and trees). The ultimate goal is to achieve revegetation focusing on the use of native local species during progressive revegetation, provided that they are effective in preventing dust lift and erosion.

2.6.16 Information Request No. NLPP 16

It should be noted that the Department Guidelines are updated time-to-time. The most recent update was GD-PPD-019.2 Plume Dispersion Modeling and this was provided to Alderon on September 25, 2012. Also, GD-PPD-009.4 Compliance Determination is in the process of being updated.

Alderon Response to IR No. NLPP 16

Alderon is aware that the Department has updated GD-PPD-019.2 and has received a copy of the updated guideline. However, during the time that this study was being conducted such updated guidance was not available and through correspondence between Alderon’s consultant and the NLDOEC (Pollution Prevention Division) on June 6, 2012 it was noted that such update would not be available for a few months and as such would not be a requirement for this Project. The adoption of the revised guideline would not likely result in changes to the assessment that would change the determination of the “not significant effect” effect.

2.6.17 Information Request No. NLPP 17

It states: “Wabush Mines has five approved discharge points (Current C of A ~~Approval~~ # AA06-055481B) “ “A” means “Approval”; and Wabush’s (Cliffs) current C-of-A is Approval # AA12-055569 (issued May 2012).

Alderon Response to IR No. NLPP 17

Error noted, revised text reads “*Wabush Mines has five approved discharge points. Current C-of-A is Approval # AA12-055569 (issued May 2012).*”

2.7 Information Requests Received from Newfoundland and Labrador Water Resources Management Division (WRMD)

In December 2012, Alderon received comments on the EIS from the Newfoundland and Labrador Department of Water Resources (NLWR). During the preparation of responses to the information requests, Alderon requested to meet with NLWR to provide an overview of Alderon's approach to answer their questions and ask for clarification on their comments, as appropriate. Alderon representatives met with NLWR on January 10, 2013 and were able to provide an overview of the additional information that was being prepared in response to NLWR's information requests. Alderon has incorporated input from NLWR into the responses below.

Alderon is committed to consulting with the Town of Wabush and WRMD to address the concerns regarding the potential impacts to the PWSA resulting from the construction and operation of the proposed rail line.

Alderon, in agreement with the Town and WRMD will establish a working committee to involve both parties in the design process with respect to the rail routing, mitigation, and contingency options.

The following section includes the information requests from NLWR and Alderon's response to each of these requests.

2.7.1 Information Request No. NLWR 01

The Water Resources Management Division (WRMD), along with the Town of Wabush has some serious concerns regarding the proposed rail route through the Wahnahnish Lake Protected Public Water Supply Area (PPWSA). In the EIS the proponent undertook a malfunction/accident analysis and indicates that the worst case scenario is a release of 180,000 gallons of diesel fuel in the PPWSA and that such an event could have a significant adverse environmental effect on the PPWSA. The proponent also notes that there is a low likelihood of this occurring. WRMD acknowledge that under normal operating conditions that the Project will not likely have any significant environmental effects on the Wahnahnish PPWSA. However, in the EIS the proponent has reported that for rails operating in Newfoundland and Labrador there have been 16 train derailments in the 10 year period from 2001 – 2010 but no reported leaks of dangerous commodities. The WRMD recommends that any rail route for this project be located completely outside of the Wahnahnish Lake PPWSA in order to remove all likelihood of a train derailment adversely impacting the Town of Wabushs' drinking water supply. It should be noted, that the Town of Wabush is the owner and operator of the PPWSA and their consent must be obtained on any activity in the PPWSA, including any environmentally viable options for the rail.

Alderon Response to IR No. NLWR 01

Alderon has reviewed comments within the EIS Information Requests from NLDOEC Water Resources Management Division (WRMD) and the Town of Wabush and has since met with both parties to review their respective concerns directly. Alderon is aware of, and understands the concerns regarding the Wahnahnish Lake Protected Public Water Supply Area (PPWSA) and is committed to taking the necessary steps to ensure that the concerns of the Town and WRMD are addressed.

The engineering assessment of alternatives to the rail routing proposed in the EIS show that this is the only feasible option available to Alderon. This response outlines Alderon's engineering evaluation of rail routing options and the proposed go-forward approach to achieving an acceptable solution to address potential impacts to the Wahnanish Lake PWSA. The discussion below includes:

- A detailed description of the engineering analysis of routing options completed.
- Further discussion of the risk associated with the operation of rail line within the PPWSA.
- On the basis of advancing the Project using the currently proposed rail route, construction and operations strategies that will mitigate the risk of potential impacts to the PPWSA.
- A strategy to identify and construct a new water supply in the event that the Town of Wabush and WRMD are not in agreement with the strategies proposed by Alderon to implement the currently proposed rail route.

- A proposed consultation platform to be established between Alderon, the Town of Wabush, and WRMD to review and address the issues described herein in greater detail.

Alderon is confident that with modern rail construction, equipment, and operations, combined with advanced mitigation strategies and back-up measures for the water supply in the unlikely event of a spill, as further described below, that the current routing option can be constructed and operated in a safe and environmentally neutral manner, protecting the existing Town of Wabush water supply.

Railway Alignment Options Evaluation

The "Railway Alignment Options Evaluation" report (Attachment 1 of Appendix K) presents the original alignment options analysis that was conducted at the Preliminary Economic Assessment (PEA) and Feasibility Study stages of the Project. The report outlines the basis on which the proposed alignment was chosen for inclusion in the PEA of the Kami Mine Project (September 2011), the modifications made to the selected PEA alignment based on further analysis at the Feasibility Study stage and presents the final alignment recommended in the Kami Feasibility Study report (December 2012).

It is noted in Information Request comments by both WRMD and the Town of Wabush that Option 2 would be preferred to Option 3A. Specific to this comment, Alderon's assessment of Option 2 is detailed at the end of this section.

It is important to note that through ongoing consultation with the Town of Wabush and the public during the Environmental Assessment process, Alderon has responded to previously raised concerns with the proposed rail route. The issues of aesthetics, noise, and safety were addressed in several iterations of the route design provided in the EIS. In addition, during the Feasibility Study, Alderon completed a second review o the rail routing alternatives at the request of the Town. This exercise led to the same conclusion that the routing of Option 3A was the only feasible option.

During the Feasibility Study the engineering team applied LIDAR survey data, topographical data and surface geology to revise the alignment of Option 3A to produce a technically feasible and appropriate routing identified as Option 5 in Figure 2.21 of the EIS, Volume 1. The significant changes to the prior Option 3A alignment include the adjustment of the routing of the rail line over the ridge west of Wahnahnish Lake and the revised layout of the loading loop at the mine.

Assessment of Option 2

Option 2, as shown on EIS Figure 2.21, Volume 1, would require 9.5 km of rail infrastructure from the proposed loop loading track to the existing Wabush Lake Railway (WLR) and would require trains to travel on the WLR approximately 1 km to the junction with the QNS&L near Labrador City. This route was considered not feasible for the following technical, operating and economic reasons:

- The rail line would require a descent in excess of 1 percent from the Alderon mine loadout to a point near the Wabush Mines rail loop. A grade of this steepness is not ideal for the heavy train operation departing the loadout and would present difficulties for empty trains ascending in severe winter conditions.
- The route requires avoidance or removal of waste rock piles between the Alderon mine site and Wabush Mines.
- The route would impact existing industrial buildings and property in the Wabush Industrial Park.
- There is no viable location to build an interchange yard near the QNS&L due to the proximity of the WLR immediately to the west and industrial park properties immediately to the west.
- This alignment would intersect with the main entrance road leading to Wabush Mines.
- Rail operational complexity is high due to required interaction with Wabush Mines Railway and personnel.

Any one of the above restrictions could alone make Option 2 unfeasible during detailed design, but a combination of these restrictions led to the conclusion that this route is unfeasible and this route was eliminated as an option for the Kami Project.

Selected Routing

The selected rail route is identified in Figure 2.7.1 (Wabush Protected Water Supply Area Plan) below and the sections of the rail alignment which traverse the PWSA are further presented in Figure 2.7.28 (Rail Alignment through PWSA). The selected rail alignment has a minimum 50 m offset from Wahnahnish Lake.

The remainder of the discussion in this document refers to the selected routing.

Figure 2.7.1 Wabush Protected Water Supply Area Plan

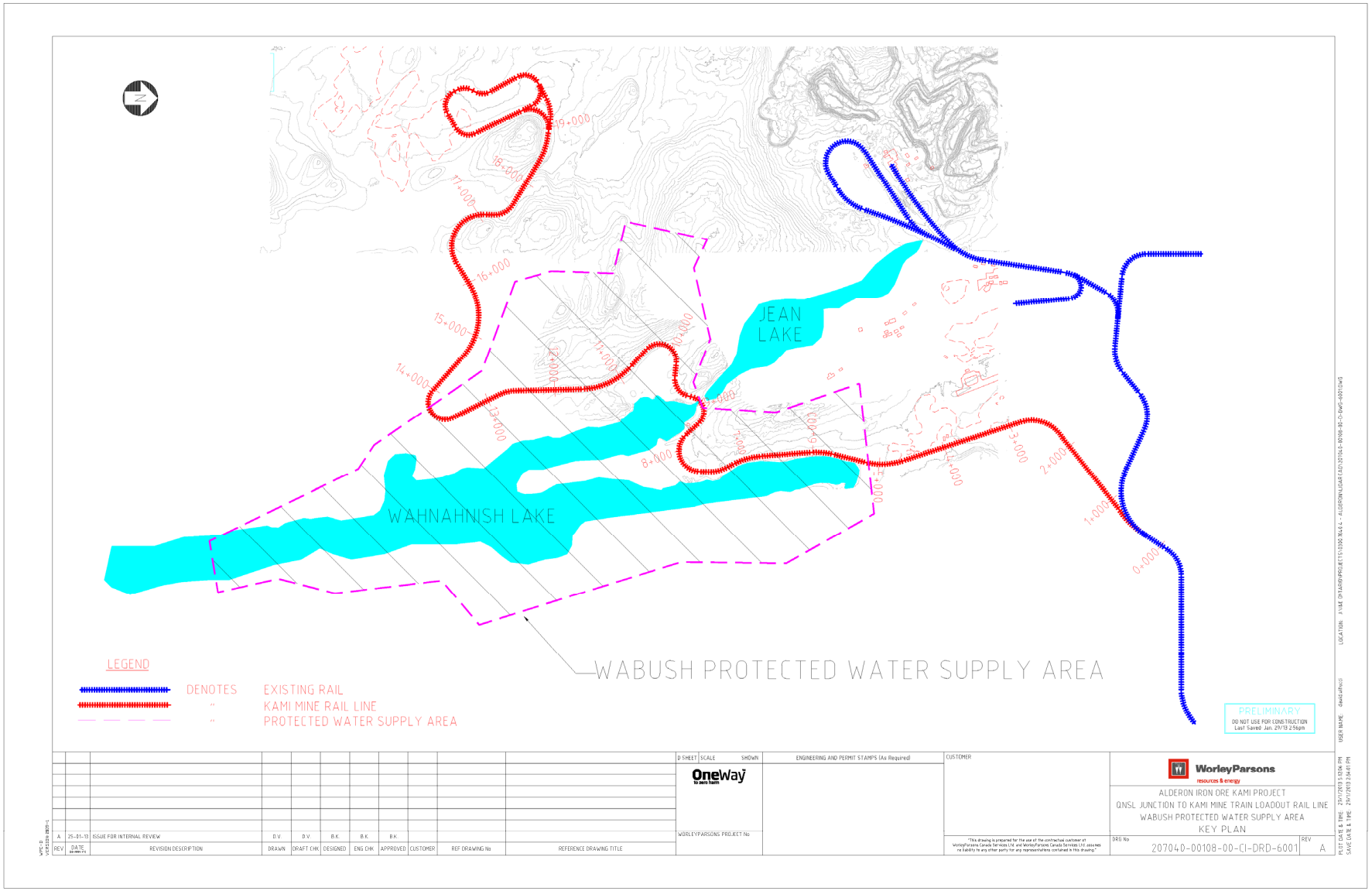
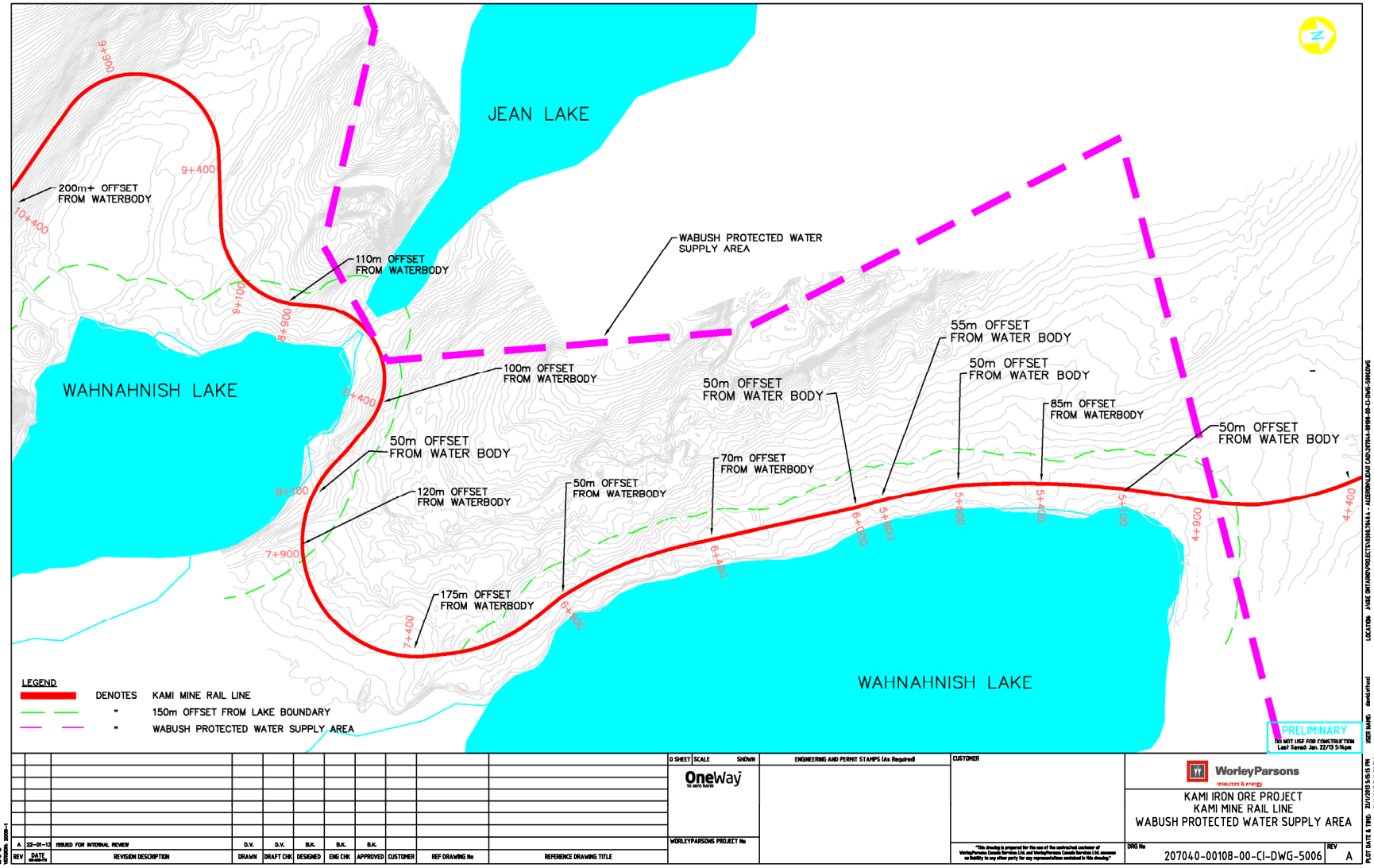


Figure 2.7.2 Rail Alignment through PWSA



Rail Transportation Safety

As noted in the Information Request comments provided by WRMD and the Town of Wabush, the risk of a fuel spill has the highest potential impact on the PWSA. A malfunction/accident analysis is presented in Section 4.5 of the EIS, however additional statistical data is presented below and in Section 6 of the "Kami Rail Line – Fuel Delivery" report, located in Attachment 2 of Appendix K to provide context to the risk of a fuel spill due to a rail transportation incident.

- North American rail systems carry in excess of 1 million shipments containing over 100 million tons of hazardous material in tank cars annually. 99.996 percent of hazardous materials arrive at their destination without a release caused by an accident.
- According to the Railway Association of Canada, rail transportation is considered to be the safest means of ground transportation in Canada and Canada's railways have the best safety record in North America.
- Historical safety performance of the federally-regulated railways in Labrador indicates that leaks of dangerous commodities from tank cars are an uncommon event on these operations. The Transportation Safety Board 2010 Statistical Summary indicates that for the years 2001-2010, there were no reported leaks of dangerous commodities, regardless of car type, on federally-regulated railways in Newfoundland and Labrador.
- Based on the quantities and frequency of tank car movements on the Kami rail line and current freight train safety statistics, the probability of a reportable accident involving a fuel train in transit on the Kami Rail Line is 1 in 311,370 shipments or once every 5,987 years.

In order to keep the risk of a fuel spill as low as possible, advanced rail construction and operations strategies are proposed for the Kami Rail Line as further described in the following section.

Rail Construction and Operation Strategy

In consideration to proceeding with the selected rail route option, Alderon is committed to developing a safe approach to moving fuel and consumables through the PWSA. Through the detailed engineering phase of the Project and in consultation with WRMD and the Town of Wabush, Alderon is developing detailed designs and operational strategies to minimize the risk of a spill and in the unlikely event of a spill, provide mitigation to prevent the spill from impacting the supply of potable water to the Town of Wabush as summarized below and detailed in the following subsections.

- Construction activities will be planned and executed in a manner to protect the PWSA. An Environmental Protection Plan (EPP) for construction within the PWSA will be developed as part of the overall Environmental Management System and Sustainability Management Framework for the Project.

- The rail line will be operated as safely as possible to reduce the risk of a derailment by transporting fuel and consumables separately from the main iron ore cars, reducing the speed of the shipment, only moving fuel and consumable railcars by daylight and sending an inspection vehicle (hi-rail pick-up truck) ahead of the fuel cars to inspect the line for damage and obstructions so that the train can be stopped well in advance of any problems on the route. In addition, the movement of fuel to the site will employ new, double-jacketed tank cars that are designed to withstand certain types of roll-overs and not spill.
- To address the unlikely event that there is a spill, the rail and road corridor through the PWSA will be designed as a spill containment area with lined ditches and berms along both sides of the corridor to capture spills, oil / water separators (OWS) will be installed that will capture fuels so that they do not enter Wahnahnish Lake, and sluice gates will be installed that will be shut before the fuel train moves through the PWSA to stop flow in the event of a spill.
- Emergency response plans will be established to provide protocols to quickly react to any spills in order to protect the water supply. The operators of the hi-rail inspection vehicle that travels in front of the fuel train will be trained members of the emergency response team and will be in constant communication with the locomotive and mine operations to provide rapid response in the event of a spill.
- Alderon commits to studying and implementing options to ensure the continued supply of water to the Town of Wabush in the unlikely event of a spill. Alderon will also consult and work with the WRMD and the Town of Wabush with the objective of identifying an alternative water supply location that can be used for emergencies and also as a back-up for maintenance and operational issues with the existing water supply system.

Construction Activities

Any work performed within the PWSA will be subject to an approved Permit for a Development in a Protected Public Water Supply Area, which will provide guidance and procedures for the protection of the PWSA during construction activities.

An Environmental Protection Plan (EPP) for any construction within the PWSA will be developed as part of the overall Environmental Management System and Sustainability Management Framework for the Project.

The EPP will include mitigation measures to protect Wahnahnish Lake from impacts from construction activities including silt fences to control dust and sediment from entering the lake, storm water management at drainage locations to minimize flow disruptions caused by construction, and spill prevention protocols that will include inspecting vehicles and hydraulics on a daily basis for leak or damage that could cause minor spills and rapid spill response to contain any minor spills so they cannot impact the lake. Machinery on site will be limited to the quantity necessary to perform the work and after hours storage of machines and equipment will be limited to controlled areas where containment of spills can be provided.

Concrete, steel or plastic composite ties will be used instead of creosote ties in the sections of the rail route within the PWSA.

Kami Rail Line Operations & Maintenance

The "Kami Rail Line – Fuel Delivery" report (Attachment 1 of Appendix K) outlines the safety of fuel delivery along the Kami Rail Line within the watershed area.

It is projected that operation of the Alderon Kami mine will require approximately 180,000 gallons of diesel fuel and fuel oil per week for operations. The demand for 180,000 gallons of diesel and fuel oil would equate to the ownership and operation of 12 to 18 rail tank cars operating from the Kami mine site to the Port of Sept-Îles. These railcars will operate in two separate blocks of 6 to 9 tank cars. The variation in the number of cars is dependent on the type and capacity of tank car that is selected for mine operations.

Based upon the current railway design and the proximity to the PWSA, the following railway operating procedures are proposed for the safe movement of diesel fuel and fuel oil to the Kami mine site:

- Tank cars destined to or from the Kami mine site will be run in a dedicated train service where loaded fuel tank cars would depart the QNS&L yard at Labrador City with only the minimum number of iron ore cars that are required to meet safety guidelines (5 at the front of the train). The fuel tank cars will be dedicated to the Kami mine and will be new, double-jacketed tank cars that are designed to withstand certain types of roll-overs and not spill.
- To reduce the risk of derailment the speed of the fuel car movement through the PWSA will be reduced to "restricted speed". Restricted speed is defined as the speed at which you are able to safely stop the train within one half the range of vision of equipment, at no time exceeding 15 mph. This speed restriction would minimize the risk of a potential derailment and/or release of diesel fuel or fuel oil into the watershed area. Fuel trains will only move through the PWSA during daylight hours so that any track issues can be identified and potential spill response completed effectively.
- When the fuel train arrives at the Kami rail line it will be met by a hi-rail vehicle which will lead the fuel train at a specified distance in advance to inspect the rail prior to the train travelling through the PWSA. The rail will be inspected for broken rails, damage, obstructions, wash-outs, ice/snow buildup and any other derailment potential. Communication between the hi-rail vehicle and the dedicated fuel train will be via radio, train dispatcher and/or cellular phone.
- Empty tank cars from the Kami mine site would operate in the reverse manner of the loaded tank cars inbound to the mine site.

A track maintenance plan will be prepared and implemented to reduce the frequency and magnitude of incidents and maximize the safe handling of all commodities. The most frequent of these required track activities will be track inspections. Track inspection requirements are

prescribed by Transport Canada Rules Respecting Track Safety (TC E-54). This document is located in Attachment 2 of Appendix K "Kami Rail Line – Fuel Delivery" report, Appendix 4 – Track Inspection Requirements. The Kami rail line is considered Class 2 track with a maximum speed of 25 mph. As described earlier, speeds will be restricted within the PWSA.

Alderon will procure and utilize fuel tank cars that meet or exceed standards set by the Railway Association of Canada, Association of American Railroads and Transport Canada. A typical tank car structure and associated components proposed for the Project is included in Attachment 2 of Appendix K "Kami Rail Line – Fuel Delivery" report, Appendix 3 – Tank Car Drawings and Specifications.

Rail engineering, design, simulation and modelling indicate that tank cars with an internal capacity of approximately 29,000 gallons can be used. Typical tank car bodies are generally constructed with double walled steel construction with a layer of insulation between the walls. Steel thickness can vary from 25-50 mm, depending on the car type and manufacturer. The ends of the tank are generally reinforced to prevent potential rupture from normal train movements and switching. Emergency shutoff valves are installed as a safety device in fluid lines and are designed to close when the normal flow rate of the line is exceeded due to breakage or damage. These valves will also protect the integrity of the tanks if lines are damaged due to derailment.

Maintenance inspections for motive power and railcars are required on a quarterly and annual basis. Inspections are also required after loading and unloading. Alderon will add an additional inspection of motive power and empty tank cars prior to departure from the mine fuel facility and an inspection of loaded tank cars upon arrival at the Kami Railway Line junction prior to departing for the mine fuel facility. The requirements and objectives of the inspection process are set out in the Railway Freight Car Inspection and Safety Rules, Transport Canada document TC O-06-1, included in Attachment 2 of Appendix K "Kami Rail Line – Fuel Delivery" report, Appendix 5 – Railway Freight Car Inspection Rules.

Spill Containment Design

The portion of the rail corridor that traverses the PWSA will be designed as a spill containment area with the following features:

- An up-hill berm to direct storm water away from and under the transportation corridor to minimize the potential for storm water to carry spills to Wahnahnish Lake
- Lined ditches and berms along both sides of the corridor to capture storm water and spills within the transportation corridor
- Oil and solids separator systems that will capture hydrocarbons and total suspended solids from storm water to prevent them from entering Wahnahnish Lake.
- The oil / water separators (OWS) will be equipped with sluice gates that will be shut before the fuel train moves through the PWSA to stop flow in the event of a spill. Once

the fuel train has moved through the PWSA, the sluice gates will be re-opened to allow storm water and runoff to flow through the OWS.

- A regular maintenance program will be established to clean out the separators and ensure they are ready to capture any spills.

A typical plan and cross-section of the proposed spill containment is located in Attachment 2 of Appendix K "Kami Rail Line – Fuel Delivery" report, Appendix 2 – Spill Containment System.

Emergency Response Plans

Alderon's preliminary "Transportation Spill Response Plan" located in Attachment 3 of Appendix K outlines procedures and measures to prevent, minimize, mitigate and remediate any effects to the environment in the unlikely event of a spill during transport of materials by rail or truck to and from the Project site.

To provide rapid spill response, the hi-rail vehicle that will lead the fuel cars to the mine site will be staffed with emergency response personnel and will contain a spill kit to facilitate immediate first response in the event of a spill due to derailment or tank car leak. Spill kits will also be installed along the rail route at regular intervals to facilitate rapid spill response. The spill kits will contain the appropriate type, size and quantity of equipment for the volume and type of product being transported. In addition to the spill response material, various hand-held tools including shovels and a variety of mobile heavy equipment including excavators, front-end loaders, bull-dozers, haul trucks and a vacuum truck will be available and can be quickly mobilized from the mine site to aid in spill response as required.

A team of two trained emergency responders operating the hi-rail vehicle will be responsible for checking the track for any hazards ahead of the rail cars during transportation of fuel to the mine site. In the event of a derailment, the rail locomotive will immediately notify the team of first responders in the hi-rail vehicle and the team will:

- Ensure site and personnel safety;
- Assess the preliminary severity and source of the spill;
- Identify and contain the spill;
- Immediately report to mine dispatch and to the Town of Wabush;
- Control road traffic if required to maintain a safe environment; and
- Participate in spill response as a member of the cleanup crew.

Alternative Water Supply

In order to prepare for the unlikely event of a spill that is not contained by the emergency response crews, Alderon will provide the Town of Wabush with an alternative water supply location that can be used for emergencies and also as a back-up for maintenance and operational issues with the existing water supply system. The exact location of the alternative

water supply will be discussed and developed in consultation with the Town of Wabush and WRMD.

Further protection can be provided by installing a Granular Activated Carbon (GAC) filtration system at the existing water supply location that can be used in the event of a spill to remove any hydrocarbons that are present in lake water prior to chlorination and distribution to the Town.

New Protected Water Supply Area

If the proposed mitigations/strategies outlined above are deemed insufficient, Alderon will seek the approval of the Town of Wabush to identify and develop a new water supply. Subject to receiving approval from the Town, Alderon will commit to working with WRMD and the Town to permanently relocate the water supply and redefine the PWSA.

A selection and design process will be initiated to establish potential alternative water supply locations with the following general constraints and objectives:

- Water Quality – The new water source will need to provide the Town of Wabush with high quality, clean water similar to the current water supply.
- Water Volume – The water source must have sufficient volume and recharge to provide for the Town's water requirements now and in the future.
- Accessibility – The new water supply must be easily accessible for operations and maintenance activities including year-round road access and power availability.
- Ownership/Permission – The Town of Wabush must be able to acquire access rights to the water.
- Watershed Protection – The new supply must be able to be protected without major concerns raised by industrial operations or recreational users.
- Distance – The supply must be located within a reasonable pumping distance so operations and pipe maintenance costs are reasonable.

Alderon will complete an initial review of possible water supplies in the area and narrow down the potential list based on the constraints and objectives listed above. For the selected alternatives a pre-feasibility design will be completed to review possible intake and piping locations, access and maintenance requirements, power requirements, preliminary cost estimate and potential environmental and/or social issues that will need to be managed.

Consultation with the Town of Wabush will be an important part of developing the pre-feasibility design review to understand how the Town currently manages the water supply and how any changes would impact on the Town's operations and budget requirements.

Stakeholder Consultation

Alderon is committed to consulting with the Town of Wabush and WRMD to address the concerns regarding the potential impacts to the PWSA resulting from the construction and operation of the proposed rail line.

Alderon will establish and lead a working committee with WRMD and the Town of Wabush to involve both parties in the design process with respect to the rail routing and selection of an alternative back-up water supply or relocation of the existing PWSA. This has been discussed with both WRMD and the Town of Wabush and all parties are in agreement with the development of this committee.

2.7.2 Information Request No. NLWR 02

The proponent should confirm whether a tailings dam failure could result in spillage of water or tailings into the natural drainage area of Wahnahnish PPWSA. If this is possible, then the proponent should include this information in the EIS document. Any future expansion of the Tailings Management Facility must be away from the natural drainage area of the PPWSA.

Alderon Response to IR No. NLWR 02

The TMF is completely located within the Long Lake watershed (EIS Figure 16.8, Volume 1). In the case of a tailings dam breach, the flow path (Figure 2.7.3) would be towards Long Lake and the tailings or water would not be discharged into the Wahnahnish Lake watershed.

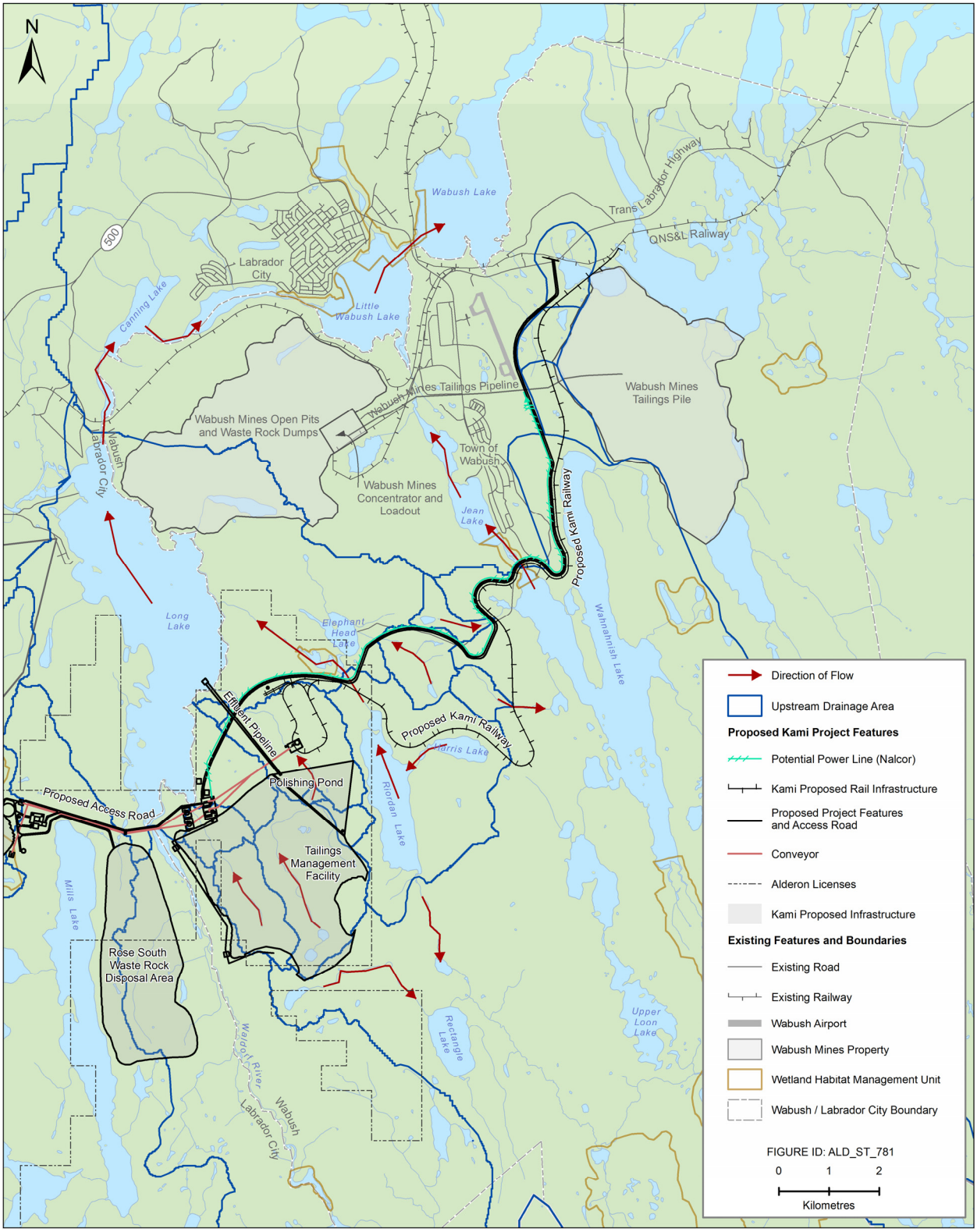
Although a potential accidental breach would not result in spillage to the Wahnahnish PPWSA, each potential emergency will be evaluated with consideration of the consequences of failure so that appropriate preventive, mitigative or remedial action can be taken. This will involve the following:

- Preparation of flood inundation maps;
- Identification of flooded areas including infrastructures, surface water resources, sensitive ecological and protected areas, community and cultural sensitivities;
- Assess potential human, economic losses and environmental impacts including fisheries and water quality; and
- Development of contingency and mitigation plans based on the above consideration.

This hazard consequence assessment will be carried out during the detailed design stage when adequate information is available.

It is acknowledged that future expansion of the TMF must be away from the natural drainage area of the Wahnahnish PPWSA.

Figure 2.7.3 TMF Flow Path Direction



2.7.3 Information Request No. NLWR 03

The proponent should include Permit for Development inside a Protected Watershed Area.

Alderon Response to IR No. NLWR 03

Table 1.3 of the EIS, Volume 1 is revised to include the Permit for Development Inside a Protected Watershed Area.

Table 2.7.1 Potential Permits, Approvals, and Authorizations (Updated EIS Table 1.3, Volume 1)

Permit, Approval or Authorization Activity	Issuing Agency
Provincial	
• Release from environment assessment process.	NLDOEC – Environmental Assessment Division
• Permit to Occupy Crown Land.	NLDOEC – Crown Lands Division
• Permit to Construct a Non-Domestic Well. • Water Resources Real-Time Monitoring. • Certificate of Environmental Approval to Alter a Body of Water • Culvert Installation. • Fording. • Stream Modification or Diversion. • Other Works Within 15 m of a Body of Water (site drainage, dewater pit, settling ponds). • Permit for Development inside a Protected Watershed Area.	NLDOEC – Water Resources Management Division
• Certificate of Approval for Construction and Operation. • Certificate of Approval for Generators. • Approval of MMER Emergency Response Plan. • Approval of Waste Management Plan. • Approval of Environmental Contingency Plan (Emergency Spill Response). • Approval of Environmental Protection Plan.	NLDOEC – Pollution Prevention Division
• Permit to Control Nuisance Animals.	NLDOEC – Wildlife Division
• Pesticide Operators License.	NLDOEC – Pesticides Control Section
• Blasters Safety Certificate. • Magazine License. • Approval for Storage and Handling Gasoline and Associated Products. • Temporary Fuel Cache. • Fuel Tank Registration. • Approval for Used Oil Storage Tank System (Oil / Water Separator). • Fire, Life and Safety Program. • Certificate of Approval for a Waste Management System.	Government Service Centre (NLGSC)

Permit, Approval or Authorization Activity	Issuing Agency
• Approval of Development Plan, Closure Plan, and Financial Assurance. • Mining Lease. • Surface Rights Lease. • Quarry Development Permit.	NLDNR – Mineral Lands Division
• Operating Permit to Carry out an Industrial Operation During Forest Fire Season on Crown Land. • Permit to Cut Crown Timber. • Permit to Burn.	NLDNR – Forest Resources
• Approval to Construct and Operate a Railway in Newfoundland and Labrador. • Protected Roads Access Permit.	Department of Transportation and Works (NLDTW)
Federal	
• Authorization for Harmful Alteration, Disruption or Destruction (HADD) of fish habitat.	DFO
• Approval to interfere with navigation.	Transport Canada
• License to Store, Manufacture or Handle Explosives.	Natural Resources Canada (NRCan)
• Approval to construct a railway.	Canadian Transportation Agency
Municipal	
• Building Permit. • Development Permit Application. • Excavation Permit. • Fence Permit. • Occupancy – Commercial Permit. • Open Air Burning Permit. • Signage Permit.	Town of Labrador City
• Building Permit. • Development Permit Application. • Excavation Permit. • Fence Permit. • Occupancy – Commercial Permit. • Open Air Burning Permit. • Signage Permit.	Town of Wabush

2.7.4 Information Request No. NLWR 04

"Truck wash bay / shop to be located east of the Rose Pit…" Does this water discharge to the sedimentation pond in this area?

Alderon Response to IR No. NLWR 04

The truck wash bay is located within the mine area and any water collected in the wash bay will be treated through an oil/grit chamber and then discharged into the main storm water capture and sedimentation pond for the process area. Water from the sedimentation pond will be either recycled back into the process as make-up water or discharged along with stormwater from the mine process area.

2.7.5 Information Request No. NLWR 05

From the information provided, it is unclear as to the location, length, and maximum height of each dam necessary to construct the Tailings Management Facility. Are there any proposed emergency spillways? If so, where are they proposed to be located?

The tailings management facility is bordering the natural protected drainage area for the Wahnahnish Lake PPWSA. The EIS document does not address the potential for a breach of the tailings facility into the PPWSA or mitigation measure protocols.

The proponent should indicate that no portion of the tailings management facility will be located within the natural drainage area for the Wahnahnish Lake.

Alderon Response to IR No. NLWR 05

The location of the dams are presented in Figure 2.7.4, copied from the Tailings Facility Feasibility Report by Golder (September 2012). The final location of the dams will be confirmed during the detailed design of the Kami Project, however they are not currently expected to change substantially from those shown. The facility will be designed to contain the 1:100 year 24 hour storm event. Any excess flow occurs due to a larger storm event or combination of events that cannot be stored temporarily in the TMF will be conveyed through an emergency spillway to prevent dam overtopping. If the emergency spillway is activated, the discharge flow would be conveyed either to a tributary of Long Lake (Riordan Lake) or through the Polishing Pond, depending on the stage of the development. The location of the spillways are presented in Figure 2.7.5.

During consultation with the NL Department of Water Resources with respect to the Information Requests made by the Department, Alderon was advised that since the submission of the EIS the Town of Wabush applied for and received approval to extend 'protected' status to then entire watershed area upstream of Wahnahnish Lake. As a result, the area immediately south of the Tailings Management Facility is now part of the protected area of the Public Water Supply Area. Based on this recent change in status, Alderon will continue to consult with NLWR and the Town of Wabush during the detailed engineering design of the TMF. Alderon is committed to ensuring that the construction and operation of the project does not impact the Town of Wabush's PWSA. The TMF design to the south may also be impacted by the outcome of consultation with the Town of Wabush and NLWR with respect to the protection or relocation of the PWSA as a result of rail construction near Wahnahnish Lake.

Figure 2.7.4 TMF Layout - Initial Construction and Ultimate Configuration Requirements

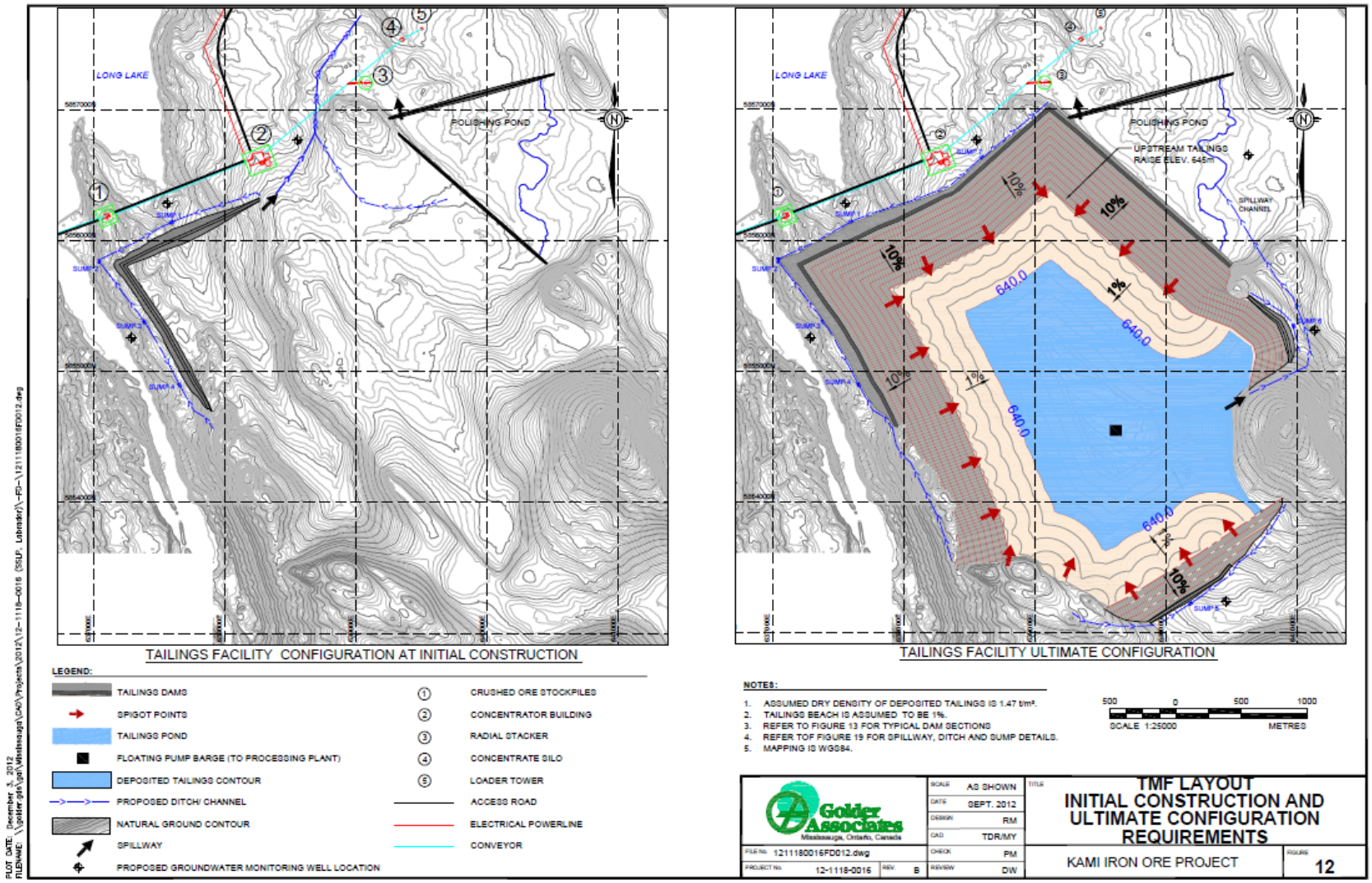
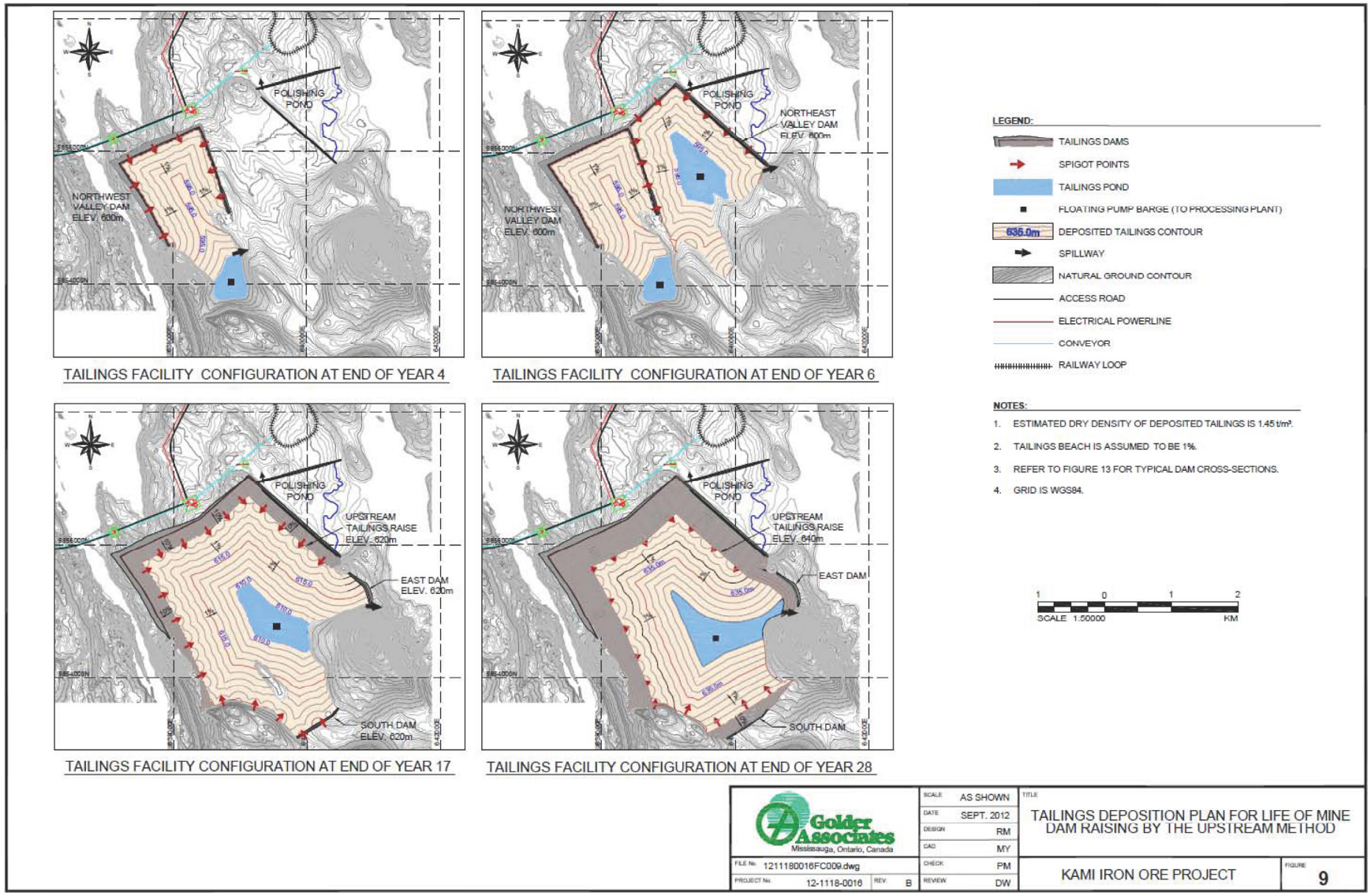


Figure 2.7.5 Location of Spillways (Figure 9 from the Tailings Facility Feasibility Report (Golder, September 2012))



The potential for a tailings dam breach for all dams will be included in the Risk Assessment that will be completed as part of the detailed design for the project. Mitigation measures to minimize the risk of a dam breach will include a conservative dam design with an appropriate factor of safety to be adopted in accordance with the Canadian Dam Association Dam Safety Guidelines. In the unlikely event of a dam breach, contingency plans will be in place as part of the site's Emergency Response Plan to prevent or minimize an impact to the surrounding environment and receiving waters, including the PWSA.

2.7.6 Information Request No. NLWR 06

Any hazardous wastes generated from the project must not be transported through the Wahnahnish Lake PPWSA.

Alderon Response to IR No. NLWR 06

Hazardous wastes generated from the Project will primarily include used oil, used solvents and chemicals from machinery and heavy equipment. It is currently anticipated that the collection, containment, and off-site transport of these materials would be contracted to a licensed hazardous waste contractor. Based on the volumes of these materials expected to be generated from the Project, and the operation of existing hazardous waste contractors in western Labrador, it is anticipated the contractor would remove these materials by heavy truck from the site to their local facility. Trucks would travel the access road to the Town of Wabush which would result in the trucks travelling through the PPWSA for a short distance along the southwest side of Wahnahnish Lake.

Alderon is currently engaging with the Town of Wabush and the Water Resources Management Division of NLDOEC regarding the transport of materials such as fuels by rail through the Wahnahnish Lake PPWSA and the Town of Wabush. The requirement to move hazardous materials via trucks through this small area upstream of the water supply will be included in this consultation.

A full description of the rail options including safety and environmental mitigation is included in the response to NLWR 01, above.

2.7.7 Information Request No. NLWR 07

"… Alderon anticipates that the ties will be creosote-treated…" The use of creosote treated wood is strictly prohibited within 15 metres of all bodies of fresh water in the province. The use of creosote treated wood anywhere within the Protected Public Water Supply Area is strictly prohibited.

Alderon Response to IR No. NLWR 07

The design of the rail ties will incorporate this restriction and where required, concrete, steel, or plastic composite ties will be used to replace creosote rail ties within the PPWSA.

2.7.8 Information Request No. NLWR 08

"The development of the TMF is currently planned to reflect the concept and layout… size and arrangement of the facility may evolve as detailed engineering design and optimization work progress." The proponent should be aware that no future expansion of the Tailings Management Facility will be recommended in the southbound direction into the natural drainage area for Wahnahnish Lake PPWSA.

Alderon Response to IR No. NLWR 08

Alderon does not intend to expand the TMF to the southbound direction in the natural drainage area for Wahnahnish Lake PPWSA.

2.7.9 Information Request No. NLWR 09

Section 4.4.5 of the EIS Guidelines state 'alternative means of carrying out the Project shall include… transportation, including alternative rail routes outside municipal water supply areas' – Although this was provided in Section 2.8.3 of the EIS, only 2 of the 7 options were provided that did not go through the protected water supply within the 150 m "no development" buffer. Water Resources Management Division prefers Option 2 alternate route as it does not affect any major water bodies and is outside the PWSA.

Alderon Response to IR No. NLWR 09

Please refer to Alderon's Response to Information Request No. NLWR 01.

2.7.10 Information Request No. NLWR 10

The proponent has provided only a 10 year record while the QNS&L has been operating for a much longer period. The proponent should provide more details on the history of train derailments since QNS&L has been operating. In addition, using the Transportation Safety Board or other sources, the proponent should provide additional information on train derailment statistics across Canada.

The proponent indicates that based on experience with past train derailments on the QNS&L, the reasonable worst-case is the derailment of 60 to 75 cars that would result in iron ore being spilled onto the ground or at stream crossings. Each train will carry 240 railcars of ore concentrate but it will also carry up to 9 railcars per week with diesel. Therefore there is a potential that of the 60-75 cars that one or more of them will be a car with fuel. The proponent should change the wording to reflect that the reasonable worst case derailment may include 2 or more railcars of diesel fuel.

Alderon Response to IR No. NLWR 10

The Transportation Safety Board (TSB) issues an annual Statistical Summary Railway Occurrences report; the most recent edition was issued in 2011. Each annual report shows historical information for a 10-year span, starting at the most recent year. The following is a

summary of railway incidences from 1991 to 2011. The TSB historical data prior to 1991 groups Newfoundland, Labrador, Prince Edward Island, and Nova Scotia as one territory, and therefore that data are not included in the table below.

Table 2.7.2 Statistical Summary Railway Occurrences

Type of Occurrence	Years Reporting	NL	Canada	NL Total as a % of Canada Total
Main track derailments	1991 - 2011	23	2810	0.82%
Non-main track collisions	1991 - 2011	None	2183	0.00%
Non-main track derailments	1991 - 2011	8	9642	0.08%
Dangerous Goods Leaker Incidents *	1991 – 2010*	0	4641	0.00%

Notes:
*In 2011 TSB dropped the "Dangerous Goods Leaker Incidents" Table from its report; therefore 2011 is not represented in the data above for this type of occurrence.

With regard to the number of railcars of diesel that could be involved in a reasonable worst-case derailment, the final sentence on page 4-16 of Volume 1 of the EIS should read "*In a worst-case scenario, two or more railcars of diesel fuel (to a maximum of nine during the 24-week heating period and to a maximum of six duing the remainder of the year) may be released*". A derailment is highly unlikely when proper inspections, maintenance, and train operation are performed.

In addition to the low frequency of a derailment occurring, the railways observe marshaling rules in their General Operating Instructions that will not allow a railcar containing dangerous goods to be placed directly behind the locomotive at the head of the train. Given that the trains that will be used for the Project are unit trains the crews are unlikely to break the train and place the railcars of diesel in the middle of the train. The most likely situation is that the railcars of diesel will be added to the end of the train as a means to improve operational efficiency and comply with marshaling requirements. From observed experience with train derailments, the railcars at the end of the train typically stop on the track before becoming part of the derailment, which further reduces the likelihood that a railcar of diesel would be involved in a derailment.

TSB Historical Statistics are available at: http://www.tsb.gc.ca/eng/stats/rail/index.asp.

2.7.11 Information Request No. NLWR 11

"This deposition method progressively moves the tailings impoundment water farther away from the tailings dam and subsequently lowers the risk of a flooding break of the tailings dam. In the event of a tailings dam breach, tailings impoundment water would have to migrate through the tailings beach to the breach and in the process peak flows would be expected to be attenuated to low consequence levels." What is meant by low consequences level? Is there a possibility that a dam could breach and tailings or water be discharged into the natural drainage area of the Wahnahnish Lake?

Alderon Response to IR No. NLWR 11

The flows classified as low consequence levels are flows which are not expected to result in downstream loos of life, but could result in minor property damage and/or minimal environmental losses (i.e., flood and erosion impacts, habitat).

The TMF is completely located within the Long Lake watershed (Figure 16.8 of EIS, Volume 1). In the case of a dam breach, the flow path is towards Long Lake and the tailings or water from the TMF will not enter Wahnahnish Lake watershed. Figure 2.7.3 illustrates the direction of water flow at and near the TMF.

2.7.12 Information Request No. NLWR 12

"The potential does exist for acid generation in waste rock due to the occurrence of pyrrhotite and pyrite (sulphides) in the Menihek Formation of the ore deposit. However, the other formations contain acid-neutralizing carbonate (calcite, dolomite, and ankerite) and no visible sulphides. This means that if waste rock is relatively well mixed in the disposal areas, it will not generate acid…" Potentially misleading statement. If the waste rock is not relatively well mixed it could generate acid?

Alderon Response to IR No. NLWR 12

Based on the early phases of static ARD/ML test work completed to date, the results indicate that there is potential for a portion of the waste rock generated from mining to be acid-generating. Additional phases of static (ABA analysis, shake flask tests, and other work) and kinetic (humidity cells, barrel tests, and others) ARD/ML test work are in progress, with additional test work commencing in early 2013, to determine if these waste rock materials will generate acid drainage when mined and exposed, and if yes, to what extent. The ARD/ML test work program, which requires several phases of test work which can take up to several years to complete, is being completed in accordance with industry standards and Natural Resources Canada's Mine Environment Neutral Drainage (MEND) Program.

In the event this portion of the waste rock materials that shows to be potentially acid generating (PAG) based on the early phases of the ARD/ML test work do prove to be acid-generating, testing to date on the other waste rock materials generating from mining indicate that they have the buffering capacity to neutralize any acidic drainage from the acid-generating waste rock. The PAG rock will be properly 'mixed'/deposited within the waste rock material in accordance with proper planning and design for waste rock management, any acidic drainage from these materials should be neutralized when the drainage comes in contact with the waste rock materials with buffering potential and there would be no acid drainage released from the waste rock disposal areas. Future humidity cell and barrel cell tests can be conducted to confirm this drainage interaction within the waste rock disposal areas.

2.7.13 Information Request No. NLWR 13

Chapter 16 should have had a dedicated section regarding the Wahnahnish Lake PPWSA as this is a major protected area that will be affected greatly by the proposed railway/road route.

The EIS document does not sufficiently assess the extent that the construction and operation of a railway and access road may have on the public drinking water supply. The protection of the Wahnahnish Lake watershed was established by the Town and the Province to safeguard this water supply for public health. The EIS did not address the development of specific protection/mitigation plans with details outlining how the water supply would be safeguarded during construction/operation/reclamation phases or in emergency scenarios.

Alderon Response to IR No. NLWR 13

Chapter 16 addresses Project interactions with the Wahnahnish Lake PPWSA throughout the chapter in detail on pages 16-3, 16-4, 16-8, 16-10, 16-15, 16-24, 16-33, 16-54, 16-77, 16-125, 16-161, 16-164, and 16-165 and in Tables 16.1 and 16.3, and Figure 16.18 (EIS Volume 1).

The proposed construction/operation/reclamation of the power transmission line, mine access road and rail line through portions of the Wahnahnish Lake PPWSA will be subject to NLDOEC approval as specified in Policy Directive W.R. 95-01.

A detailed Emergency Response and Spill Response Plan will be developed as part of Alderon's Sustainability Management Framework. The Sustainability Management Framework is a part of the overall Kami Project management system that includes quality management systems, document control, risk management and Health, Safety and Environment (HSE) systems. The framework is made up of three main systems, the components of which are:

1. The Sustainable Project Delivery (SPD) system will provide a high level approach to sustainability management by establishing clear objectives, tracking of key Project commitments, support for engineering and procurement activities and reporting on overall sustainability performance;
2. The Environmental Management System (EMS) will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Environmental Management Plans will be developed in consultation with relevant regulatory agencies and stakeholder groups.
3. The Social Responsibility System (SRS) will manage and track the commitments made in various guidance documents and contracts (e.g., benefits agreement) as well as establish plans for effective Project communications, community liaison and complaints management.

Working closely with the HSE team, the Sustainability Management Framework will facilitate the incorporation of sustainability issues into employee orientation, daily tailgate and safety meetings, contractor management, monitoring and incident response procedures.

The Reviewer requests further information on the development of specific protection / mitigation plans with details outlining how the water supply would be safeguarded during construction / operation / reclamation phases and in emergency scenarios. Alderon recognizes the special significance of the PPWSA and is committed to the implementation of environmental protection

and mitigation measures where the Project interacts with the PPWSA throughout the Project life cycle to eliminate or minimize potential effects that could affect PPWSA water quality. The primary vectors where the Project may affect water quality in the PPWSA include:

- Increase in erosion and suspended sediment in runoff within the PPWSA to Wahnahnish Lake;
- Use of rock fill material in road and rail construction which has ARD/ML potential; and
- The potential for spills to release chemicals and hydrocarbons into the groundwater and surface water environment which could subsequently enter Wahnahnish Lake and the Town of Wabush water intake.

Waste rock which could be used as a road and rail bed construction aggregate has low ML and ARD potential. However, Alderon is committed to implementing an ARD/ML testing program on construction aggregate to ensure that road and rail construction materials are not metal leaching or acid generating. Therefore the primary potential Project water quality interactions would be derived from increased erosion and sedimentation and spill release. The following information is provided to demonstrate Alderon's committment to environmental protection/mitigation measures specifically within the PPWSA; in p consultation with NLDOEC, further measures may be required.

During construction the following protection/mitigation plans would be implemented:

- As per Section 16.4.1, and 16.6.1.1 and 16.6.1.2 of Volume 1 of the EIS, potential effects of construction of the power transmission line, access road and rail line can be largely mitigated through implementation of conventional best practices. Section 16.6.1.2 of Volume 1 provides both general construction and specific road/rail construction protection/mitigation measures.
- Specific additional construction phase protection/mitigation measures to be implemented within those parts of the PDA that fall within the Wahnahnish Lake PPWSA will be developed during detailed design and in further consultation with NLDOEC. The following specific measures will be considered:
    - Use of double – walled silt fencing to augment the reduction of erosion/sedimentation potential to undisturbed areas and prevent sediment release to local watercourses;
    - Restrict vehicular and equipment access or provide working surfaces/pads;
    - Limitation of active construction zones;
    - Minimization of the time period between clearing and grubbing to subsequent grading and surface stabilization vegetation establishment;
    - Where feasible, utilize borrow pits for road/rail bed construction located outside the PPWSA;
    - Limitation of water used for dust suppression to avoid inducing erosion and runoff turbidity;

- Use of slope cross drainage, slope benching and scarification and other measures to mitigate the erosive potential of longer slopes;
- Implementation of turbidity curtaining between active construction zones and watercourses and waterbodies;
- All construction-related chemical and hydrocarbon storage and vehicle fueling, lubrication, washing and maintenance is to occur outside the PPWSA boundaries;
- To the extent feasible, over-night parking of construction vehicles should be located outside the PPWSA and where not feasible at least 100 m from watercourses and waterbodies;
- Use of both locally-indigenous annual and perennial vegetation to speed vegetation establishment and soil stabilization;
- During construction, establish a rigorous spill watch to detect the visible appearance of hydrocarbon sheen on exposed groundwater and surface water;
- During construction, establish a rigorous water quality monitoring program to protect the PPWSA within the PDA;
- Provision of spill control kits and equipment at active construction zones and consideration to the provision of secondary spill containment locations on watercourses downstream of watercourse crossings;
- Development of a detailed spill prevention, mitigation, control and clean up plan with redundancy measures in the Project ERSRP to prevent the release of deleterious substances into watercourses within the PPWSA; and,
- Development of water quality monitoring plans and water supply contingency plans in the unlikely event that a spill release reaches Wahnahnish Lake.

During operations and maintenance the following protection/mitigation plans will be implemented.

- As per Section 16.6.2.1 potential effects of operation and maintenance of the power transmission line, access road and rail line can be largely mitigated through implementation of conventional best practices. Section 16.6.2.2 provides both general construction and specific road/rail construction protection/mitigation measures.
- Specific additional operations and maintenance phase protection/mitigation measures to be implemented within those parts of the PDA that fall within the Wahnahnish Lake PPWSA will be developed during detailed design and in further consultation with NLDOEC. The following specific measures will be considered:
  - Maintenance of vegetated road and railside ditches to minimize erosion and sedimentation;
  - Restrict chemical and hydrocarbon storage and vehicle fueling, lubrication, washing and maintenance to outside the PPWSA;
  - Control dust suppression road/rail bed watering to avoid the production of runoff;

- Implementation of routine spill and water quality monitoring and reporting along the access road and rail line with particular attention paid to periods during and after major precipitation and runoff events;
- Implementation of a detailed ERSRP to address a worse case spill as detailed below by rapid spill reporting and response. An example would be estimation of hydrocarbon spill travel times in conveyance ditches along the road and rail lines, to local watercourses and subsequently to Wahnahnish Lake in order to plan/prioritize spill response activities to eliminate/minimize/control spill release to the Lake;
- Implementation of spill release water quality monitoring plans in the event of a spill release to Wahnahnish Lake and contingency plans in the event that a spill release contaminates the Town of Wabush water supply intake in the Lake.

During decommissioning and reclamation the following protection/mitigation plans would be implemented:

- As per Section 16.6.3 potential effects of decommissioning and reclamation of the power transmission line, access road and rail line can be largely protected/mitigated through implementation of conventional best practices. Sections 16.6.3.1 and 16.6.3.2 provide both general construction and specific road/rail construction protection/mitigation measures.
- Specific additional decommissioning and reclamation phase protection/mitigation measures to be implemented within those parts of the PDA that fall within the Wahnahnish Lake PPWSA will be developed during detailed design and in further consultation with NLDOEC. The following specific measures will be considered:
  - Leave road and rail infrastructure in-place and continue operations and maintenance protection/mitigation measures during period when road and rail transport will support decommissioning and reclamation activities at other parts of the PDA;
  - Scarification of the road and rail line to promote revegetation;
  - Reseeding of the road and rail line; and,
  - Vegetation and water quality monitoring to stabilize soils and avoid increases in runoff turbidity.

Alderon acknowledges that a spill release within the PPWSA portion of the PDA poses a significant effect to safety of the Wahnahnish Lake PPWSA. Sections 16.4.2, and 16.8 address a potential worse-case hydrocarbon (diesel) release via a train derailment. Section 16.8 describes how such a worse-case release of diesel fuel would be responded to and points outs the criticality of such a spill within the PPWSA. The primary elements of spill prevention, protection and mitigation will be road and rail design, traffic management, vehicle, road and rail inspections, runoff controls and monitoring.

During the detailed design phase and in consultation with regulatory authorities, Alderon will prepare a detailed Emergency Response Plan which will include measures to reduce the risk of accidents and malfunctions affecting water resources. Priority will be given to spill prevention;

however, design of rail infrastructure will incorporate emergency response accommodations in design, development of spill response plans, training of first response staff including response practice, and comprehensive planning to protect human and ecosystem health in the event of a spill accident, or malfunction.

Any wells potentially at risk would be identified, monitored, and if necessary remediated (provision of alternate supply, well repair, well replacement, etc.). A groundwater quality monitoring program will be implemented to assess the effectiveness of clean-up.

The Emergency Response Plan will specifically address a train derailment event within the Wahnahnish Lake watershed area for hydrocarbon, reagent and iron ore spills. This plan will identify major flow paths from the spill location to Wahnahnish Lake and will have specific management and mitigation plan for each flow path.

Emergency containment and recovery plans specific to the preferential flow path will include the following but not be limited to:

- Identification of persons responsible for managing spill response efforts, including their authority, role and contact details;
- An appropriate number of staff will be trained in the handling of emergency response and spill scenarios;
- Diagrams of the surrounding infrastructure, access points and routes, topography, evacuation paths and drainage flow paths, ground and surface water resources, sensitive ecological and protected areas;
- Immediate containment and recovery of spill material using equipment including a variety of containment and absorbent booms, pads, barriers, sand bags, and skimmers, as well as natural and synthetic sorbent materials before it reaches Wahnahnish Lake;
- Excavation and removal of hydrocarbon saturated soil for temporary storage, and eventual treatment/disposal;
- Where necessary, temporary dikes in ditches or watercourses would be installed to capture runoff for removal;
- Conduct post-spill response investigation to evaluate the performance of spill prevention measures; and,
- Collect post-response samples of soil and water for testing.

Mitigation measures to prevent derailments include:

- Road and rail design to maximize driver sightlines, maximize bend radii, and minimize slopes;
- Manual inspection of rolling stock, undertaken before trains are loaded at the mine site, to confirm there are no problems with wheels, couplers, carbody, or brakes. Defective equipment will be removed from the train and kept out of service until repaired;

- Electronic wayside inspection, undertaken on QNS&L approximately eight miles before trains enter the Kami rail infrastructure. The system is designed to identify dragging equipment, hot wheels, and overheated axle bearings that could lead to derailment. A separate detection system approximately three miles before trains enter the Kami rail infrastructure identifies wheels with excessive impact forces that could damage the track and/or derail;
- Track inspections (both manual and electronic) to be carried out in accordance with Transport Canada regulations to identify track defects that could lead to derailment;

Strict enforcement of traffic management criteria such as road and rail speeds, rail signaling, road snow and ice management will also be implemented. Alderon will establish and lead a working committee with NLWR and the Town of Wabush to involve both parties in the design process with respect to the rail routing and selection of an alternative back-up water supply or relocation of the existing PWSA. This has been discussed with both NLWR and the Town of Wabush and all parties are in agreement with the development of this committee.

2.7.14 Information Request No. NLWR 14

The proponent should note in the EIS document that the Wabush intake infrastructure falls within the LSA.

Alderon Response to IR No. NLWR 14

The final sentence beginning on page 16-11 should read: "*The LSA is limited to and includes the approximate 8,000 hectare area bounded by the Québec-Labrador border and Rose Pit on the west, Riordan Lake and portions of the Wahnahnish Protected Water Supply Area on the east, Long Lake and Duly Lake Provincial Park Reserve on the north, and the Québec-Labrador border to the south, and waterbodies over which the rail line and access road cross.*"

Also the fourth sentence of the third paragraph on page 16-54 (Local Water Supplies) should read: "*The Wabush drinking water intake is located in Wahnahnish Lake, approximately 175 m upstream of the lake outlet and within the LSA and RSA.*"

2.7.15 Information Request No. NLWR 15

Misleading statement: "The required management of protected water supply areas is within the mandate of DOEC (2004) which describes that any development within 15 m of a water body within a protected water supply area may be subject to additional approvals such as water crossings and watercourse alterations." Should read: "All projects/activities/developments inside a Protected Water Supply Area are subject to approval from DOEC" Policy WR 95-01 Land and Water related developments in PWSAs should be referenced.

Alderon Response to IR No. NLWR 15

The first two sentences of the final paragraph prior to Section 16.3 are clarified:

"*The required management of protected water supply areas is within the mandate of NLDOEC (2004). NL Policy Directive W.R. 95-01 indicates that all development activities within a designated water supply area are subject to approval from NLDOEC.*"

A portion of the proposed transmission line, mine access road and rail line will traverse portions of the Wahnahnish PPWSA. The construction and operation of the power transmission line, road and rail line through the PPWSA will be subject to, at a minimum, the following permitting criteria from Section 7.0 ACTIVITIES REGULATED IN A DESIGNATED AREA of the Policy Directive W.R. 95-01:

> *7.2 Construction of residential, commercial, industrial and institutional facilities or any other related activity including land clearing or drainage, construction of access roads, servicing of lands for subsequent use, or extension and upgrading of existing buildings or facilities.*
>
> *7.6 Mineral exploration related activities and aggregate extraction, or any other construction activity incidental to mining and quarrying including access roads, stream crossings, land drainage with adequate treatment, land clearing and excavation.*
>
> *7.8 Construction of roads, bridges, culverts, and other stream crossings, and installation of power and telecommunication transmission lines.*

2.7.16 Information Request No. NLWR 16

"Major Project components such as the access road, power transmission line and rail line extend to the east through the Jean Lake and Flora Lake watersheds and represent the only Project components not located within the greater Long Lake watershed." Note that proposed railway line is located inside the Wahnahnish Lake Protected Water Supply Area.

Alderon Response to IR No. NLWR 16

Comment acknowledged. The final sentence on page 16-38 should read: "*Major Project components such as the access road, power transmission line and rail line extend to the east through the Wahnahnish- Jean Lake and Flora Lake watersheds and represent the only Project components not located within the greater Long Lake watershed.*"

2.7.17 Information Request No. NLWR 17

"The Canada-Newfoundland Water Quality Monitoring Agreement (WQMA) facilitates the monitoring of water quality across the province. DOEC has mapped water quality concentration contours across the province. Mapping of those contours is presented in Appendix U. The results were based on average recorded values at WQMA sites for all data collected between 1985-2000. The contour regions were estimated using a geo-statistical approach known as Inverse Distance Weight (IDW), with a power of 5..." should include "…, thus the values presented are not true values but rather estimated ranges. The contour maps provide general information for comparison purposes. The contour maps are currently being reviewed and revised by DOEC utilizing all available data to date."

Alderon Response to IR No. NLWR 17

Comment acknowledged. The second paragraph on page 16-58, Section 16.5.2 should read:: "*The Canada–Newfoundland Water Quality Monitoring Agreement (WQMA) facilitates the monitoring of water quality across the province. NLDOEC has mapped water quality concentration contours across the province. Mapping of those contours is presented in Appendix U. The results were based on average recorded values at WQMA sites for all data collected between 1985-2000. The contour regions were estimated using a geo-statistical approach known as Inverse Distance Weight (IDW), with a power of 5 thus the values presented are not true values but rather estimated ranges. The contour maps provide general information for comparison purposes. The contour maps are currently being reviewed and revised by NLDOEC utilizing all available data to date.*"

2.7.18 Information Request No. NLWR 18

Values under "WQMA" column are incorrect and need to be changed as follows: "Phosphorus" range should be 7.27-11.36 (not 7.12-11.36) and "Nickel" range should be 0.23-0.36 (not 2.3-3.6).

Alderon Response to IR No. NLWR 18

Table 16.19 (EIS, Volume 1) is updated with respect to Phosphorus and Nickel values. Also note that at the request of Health Canada, EIS Volume 1, Table 16.19 was updated to include the Guidelines for Canadian Drinking Water Quality. The updated Table 16.19 of Volume 1 of the EIS is provided below.

Table 2.7.3 Summary Regulatory Criteria and Reference Water Quality in Western Labrador (updated EIS Table 16.19, Volume 1)

Parameter	Regulatory Criteria and Reference Water Quality					
	Units	GCDWQ[2]	CWQG	MMER[1]		WQMA
				(Max Monthly Mean)	(Max Grab)	
Alkalinity	mg/L					4.0332 – 6.5461
Colour	TCU	AO: ≤ 15	Narrative			18.5 – 27.7 (RU)
Conductivity	µS/cm					8.9 – 515.9
DO	mg/L		6.5 – 9.5 (cold water–life stage)			1.68 – 3.60
pH	pH	6.5 – 8.5	6.5 - 9			6.51 – 6.61
Turbidity	NTU	Treated water <0.1 at all times. Where not achievable; ≤ 0.3, ≤ 1.0, ≤ 0.1	Narrative			0.0 – 1.98 (JTU)
Temperature	Deg C	AO: ≤ 15	Narrative			3.7 – 5.1
TSS	mg/L		Narrative	15	30	
Calcium	mg/L	None required				0.81 – 1.69
Chloride	mg/L	AO: ≤ 250				0.15 – 30.12
Fluoride	mg/L	1.5	0.120 (inorganic F)			0.025
Magnesium	mg/L	None required				0.23 – 1.43
Potassium	mg/L					0.0 – 0.80
Sodium	mg/L	AO: ≤ 200				0.0 – 10.55
Sulphate	mg/L	AO: ≤ 500				0.41 – 6.38
Cyanide	mg/L	0.2	0.005 (as free CN)	1	2	
DOC	mg/L		2000			4.4 – 4.5
Total Ammonia - N	Mg/L	None required	T°C and pH dependent			0.136 – 0.150
Un-ionized Ammonia	µg/L		19			
Nitrite	mg/L	3.2	0.06			
Nitrate	mg/L	45	13			
Phosphorus	µg/L		< 4 - >100 (trophic status)			7.27 – 11.36
Aluminum	µg/L	OG < 100 (conventional treatment); <	5 if pH <6.5, 100 if pH > 6.5			35 - 82

Parameter	Regulatory Criteria and Reference Water Quality					
	Units	GCDWQ[2]	CWQG	MMER[1] (Max Monthly Mean)	MMER[1] (Max Grab)	WQMA
		200 (other treatment)				
Arsenic	µg/L	10 ALARA	5	500	1000	0.05 – 0.08
Boron	µg/L	5000	1500 (Long Term)			
Cadmium	µg/L	5	Hardness adjusted			0.103 – 0.117
Copper	µg/L	AO: ≤ 1000	Hardness adjusted, a minimum of 2 µg/l regardless of water hardness (Demayo and Taylor, 1981)	300	600	4.35 – 4.93
Iron	µg/L	AO: ≤ 300	300			61.8 – 185.9
Lead	µg/L	10	Hardness adjusted, a minimum of 1 µg/L regardless of water hardness (CCREM, 1987: Table 3-10)	200	400	0.34 – 0.42
Mercury	µg/L	1.0	0.026			0.087 – 0.103
Molybdenum	µg/L		73			0.05 – 0.062
Nickel	µg/L		Hardness adjusted, a minimum of 25 µg/L regardless of water hardness (IJC, 1976)	500	1000	0.23 – 0.36
Selenium	µg/L	10	1			0.05 – 0.057
Silver	µg/L	None required	0.1			
Thallium	µg/L		0.8			
Uranium	µg/L	20	33 (short term), 15 (long term)			
Zinc	µg/L	AO: ≤ 500	30	500	1000	3.4 – 3.8
$Radium_{226}$	Bq/L	0.5		0.37	1.11	

Notes:
[1] The MMER provides three effluent water quality limits including the maximum authorized monthly mean concentration, maximum authorized concentration in a composite sample and maximum authorized concentration in a grab sample. The Maximum Authorized Monthly Mean Concentration will be the MMER effluent criteria carried forward in Project effects assessments.
[2] GCDWQ values are Maximum Allowable Concentration (MAC) or Other Value. Other Value abbreviations include AO – Aesthetic Objective, OG – operational guidance value, and ALARA – as low as reasonably achievable

2.7.19 Information Request No. NLWR 19

"Application of the Canadian Water Quality Index to WQMA sites in Labrador indicated Good to Excellent water quality as depicted in Figure 16-20." should be removed as the text provided is not reflected in the figure.

Alderon Response to IR No. NLWR 19

Comment acknowledged. The first sentence on page 16-60 should read: "*Application of the Canadian Water Quality Index to WQMA sites in Labrador indicates Fair to Good water quality as depicted in Figure 16.20.*"

2.7.20 Information Request No. NLWR 20

This figure should be removed as it does not show "Good to Excellent" water quality in Labrador but rather "Fair to Good" water quality in Labrador. Since the time when this map was generated, there has been significant work in this area of water quality index rankings under the national Canadian Environmental Sustainability Indicators (CESI) Program through which NL government provides the water quality data/scores. More relevant and up-to-date information / maps can be taken from the following link: http://www.ec.gc.ca/indicateurs-indicators/default.asp ?lang=En&n=cB97D13E-1.

Alderon Response to IR No. NLWR 20

Based on 2007 – 2009 monitoring data on freshwater quality in the Newfoundland and Labrador drainage basin (No. 25) presented in http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang =En&n=1C71AB61-1 and http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=C B97D13E-1, Environment Canada indicates that freshwater quality in the western Labrador region is Good or Excellent.

2.7.21 Information Request No. NLWR 21

Pg.16-77 There are no specific mitigation measures noted for working inside the Wabush PPWSA to safeguard the PPWSA from potential negative effects stemming from the construction of railway / roadway / power line route.

Alderon Response to IR No. NLWR 21

Any work performed within the PPWSA will be subject to an approved Permit for a Development in a Protected Public Water Supply Area, which will provide guidelines and procedures for the protection of the PPWSA during construction activities. A specific Environmental Protection Plan (EPP) for construction within the PPWSA will be developed as part of the overall Environmental Management System, under the Sustainability Management Framework. The EPP will include mitigation measures to protect Wahnahnish Lake from impacts from construction activities including erosion control procedures, dust suppression measures, and silt fences to control dust and sediment from getting into the lake; stormwater management at drainage locations to minimize flow disruptions caused by the construction; use of environmentally friendly oils in

operating equipment; spill prevention protocols that will include inspecting vehicles and hydraulics on a daily basis for leaks or damage; moving outside the protected drainage area to fuel or maintain equipment that could cause minor spills; and rapid spill response to contain any minor spills before they can impact the Lake and any drainage to the Lake.

2.7.22 Information Request No. NLWR 22

There was limited discussion on the potential for altering groundwater divides through pit construction, and the affect of a possible shift in groundwater flow that could adversely affect groundwater recharge to surface water sites beyond the project area (specifically, areas in Québec adjacent to the site). The Groundwater Section would like to review the data currently being collected and interpreted for further update prior to the construction phase of the program. Additionally, there was little discussion with regard for any potential adverse affect from the proposed tailings facility to the drinking water supply for Wabush via groundwater flow. Additional monitoring of groundwater in this area is recommended.

Alderon Response to IR No. NLWR 22

Based on the assessment as described in Sections 16.1.3, 16.2, 16.3.1, 16.4, 16.5.1, 16.5.2, 16.6.1.1, 16.6.1.2, 16.6.1.3, 16.6.2.1, 16.6.2.2, 16.6.2.3, 16.6.3.1, 16.6.4.1, 16.7.1 and 16.9 of Volume 1 of the EIS, it is expected that there will be minimal alteration to the groundwater divide due to the construction of the open pit. The distribution of precipitation will be maintained on each side of the surface/groundwater divide and the rate of groundwater infiltration and overland flow is not expected to be altered. In addition, Gleason Lake will likely act as a hydraulic boundary condition that should maintain groundwater levels in this area. Upland lakes in predominantly bedrock dominated topography are expected to have very low bottom sediment permeability; otherwise the lake would not persist in the dry season. Depending on the permeability of the lake bottom exfiltration may not be significantly increased even with a decrease in water level below the lake. Therefore, surface water recharge to Gleason Lake would continue to follow its current drainage route to Daviault Lake.

Adverse effects to the drinking water supply for Wabush via groundwater from the TMF are not expected because chemical processing is not being considered.

2.7.23 Information Request No. NLWR 23

“Watercourse diversion or bypass piping will ensure that flooding and erosion and sedimentation are minimized” – repetition of previous bullet?

Alderon Response to IR No. NLWR 23

This is not a repetition. The previous bullet on page 16-83 of Volume 1 of the EIS refers to the need for runoff attenuation facilities upstream of the open pit and the bullet referred to by the Reviewer speaks to the watercourse diversion needed to route runoff around the open pit.

2.7.24 Information Request No. NLWR 24

The conversions from m^3/h to L/s seem to be off by a factor of 10. Proponent should check and revise numbers accordingly.

Alderon Response to IR No. NLWR 24

The third and fourth sentences on page 16-85 are updated to read as follows: "*The watershed catchment area upstream of the open pit mine watercourse (Sub-watershed Node #15 in Table 16.14) is estimated at 583 ha and the existing condition climate normal mean annual streamflow is estimated at 359.7 m^3/h (100 L/s). Typical open pit mine dewatering will increase flow to Pike Lake South to 621.3 m^3/h (173 L/s) or approximately 73 percent*".

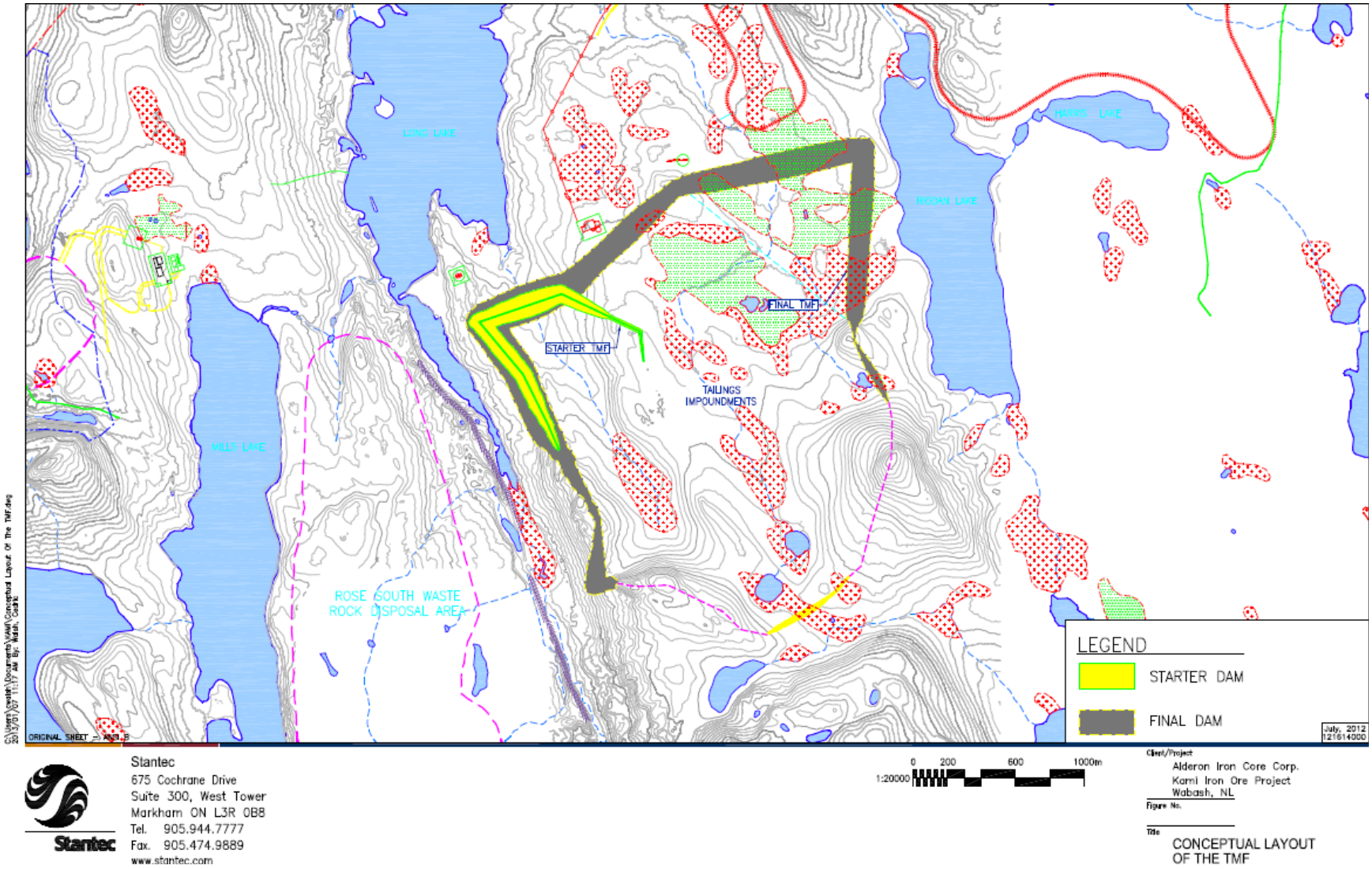
2.7.25 Information Request No. NLWR 25

Add a legend to the figure.

Alderon Response to IR No. NLWR 25

Figure 16.26 of the EIS Volume 1 is revised to include a a legend for dam phases (Figure 2.7.6).

Figure 2.7.6 Conceptual Layout of the TMF (Revised EIS Figure 16.26, Volume 1)



2.7.26 Information Request No. NLWR 26

The proponent should have a dedicated subsection regarding the PWSA. This information was required in Section 4.18.4.2 of the EIS Guidelines (June 26, 2012) "*Particular attention should be given to the potential for a spill to affect the municipal water supplies and watershed areas;"*

Alderon Response to IR No. NLWR 26

As presented in the response to IR No. NLWR 13, the effects of the Project on the PPWSA were assessed in Chapter 16 of Volume 1 of the EIS. The primary vectors where the Project may affect water quality in the PPWSA are understood and have been assessed. Alderon will develop mitigation measures for all phases of the Project (construction, operation and maintenance, and decommissioning) in consultation with NLDOEC and implement the measures to manage effects in the PPWSA, as detailed in the response to IR No. NLWR 13.

During the detailed design phase and in consultation with regulatory authorities, Alderon will prepare a detailed Emergency Response Plan in accordance with the Sustainability Management Framework, which will include measures to reduce the risk of accidents and malfunctions affecting water resources, particularly a train derailment. The Emergency Response Plan will specifically address a train derailment event within the Wahnahnish Lake watershed area for hydrocarbon, reagent and iron ore spills. This plan will identify major flow paths from the spill location to Wahnahnish Lake and will have containment and recovery plans specific to each flow path. Persons responsible for managing spill response efforts will be identified and staff will be trained in the handling of emergency response and spill scenarios. Post-spill response monitoring and investigations will be conducted to evaluate the performance of spill prevention measures. Details of mitigation and emergency response planning are presented in the response to IR No. NLWR 13.

2.7.27 Information Request No. NLWR 27

"While surface water and groundwater resources are interactive, the effect to groundwater resources (e.g., well users) should be minimal, due to absence of well users near the TMF." All well users should be identified in the EIS document.

Alderon Response to IR No. NLWR 27

Data from the Water Well Data for Newfoundland and Labrador 1950-1994, Water Resources Report 1-4, Groundwater Series was reviewed, and no water wells were identified in the area. In addition, a request was made to the Groundwater section of the Water Resources Management Division to identify any possible water wells in the area; however, no response was received.

2.7.28 Information Request No. NLWR 28

Statements in red should be added to the table:

"Surface water quantity monitoring during construction, operations and closure using real-time and/or traditional methods as recommended by the regulatory agencies."

"Surface water quality monitoring during construction, operations and closure using real-time and/or traditional methods as recommended by the regulatory agencies."

"Monitoring of groundwater chemistry and water levels using real-time and/or traditional methods as recommended by the regulatory agencies."

Alderon Response to IR No. NLWR 28

Alderon acknowledges these requirements and has updated Table 27.2 of Volume 1 of the EIS.

Table 2.7.4 Monitoring and Follow-up Commitments in EIS (Updated EIS Table 27.2, Volume 1)

VEC	Commitment	Section of EIS
Atmospheric Environment	• Ambient air monitoring at the facility boundary and within the nearest communities. • Annual monitoring of GHG emissions and reporting to Environment Canada. • Sound pressure level monitoring during both construction and operation.	Chapter 8 Section 14.10
Landforms, Soils, Snow and Ice	• Monitoring cut and fill locations have been placed, as well as any stream crossings for drainage conditions. • Personnel will supervise soil stripping, stockpiling, and replacement operations. • Volumes of stockpiled soil will be measured and tracked from salvage to replacement. • Soil stockpiles will be monitored to ensure erosion control and re-vegetation measures are effective and proper signage is in place. • Vegetation growth and erosion will be monitored on replaced soils against reclamation standards. • Regular checks of snow fences will be completed from November to April to ensure that fences are properly placed and functioning properly. • Monitor runoff from stockpiles, discharge from TMF, and mine water from the pit for pH, TDS, sulfate, and dissolved metals, as per MMER and the NL *Environmental Control Water and Sewage Regulations*.	Chapter 8 Section 15.10
Water Resources	• Surface water quantity monitoring during construction, operations and closure using real-time and/or traditional methods as recommended by the regulatory agencies. • Surface water quality monitoring during construction, operations and closure using real-time and/or traditional methods as recommended by the regulatory agencies. • Establishment of water quantity withdrawal / discharge thresholds. • Establishment of water balance restoration targets. • Erosion / sedimentation monitoring. • Restoration of drainage patterns at closure. • Monitoring of channel and water feature naturalization. • Monitoring of OPM filling.	Chapter 8 Section 16.10

VEC	Commitment	Section of EIS
	• Install permanent monitoring wells at OPM, TMF and select mine facilities. • Monitoring of groundwater chemistry and water levels using real-time and/or traditional methods as recommended by the regulatory agencies. • Perimeter and off-site water level monitoring (OPM,TMF, site). • OPM sump discharge monitoring. • Water quality monitoring (TMF, OPM Inflows). • Emergency response for spills. • Post decommissioning monitoring of water levels near Rose Pit. • Post decommissioning monitoring of groundwater chemistry near TMF.	

2.8 Information Requests Received from Newfoundland And Labrador Wildlife Division (NLWD)

In December 2012, Alderon received comments on the EIS from the Newfoundland and Labrador Wildlife Division (NLWD). During the preparation of responses to the information requests, Alderon requested to meet with NLWD to provide an overview of Alderon's approach to answer their questions and ask for clarification on their comments, as appropriate. At the time of writing these responses, the NLWD has not expressed its availability to meet with Alderon.

The following section includes the information requests from NLWR and Alderon's response to each of these requests.

2.8.1 Information Request No. NLWD 01

No alternatives to the open pit mine have been listed. Proponent should discuss in this section other means of extracting iron ore from this location and compare those to the open pit module. A brief description of these potential alternatives and the rationale for why they were not the chosen option should suffice, at least from the Wildlife Divisions perspective.

Alderon Response to IR No. NLWD 01

The two primary methods of mineral extraction include open pit and underground mining. At a conceptual level, these options would be considered at the very earliest stages of Project planning. Underground mining is generally used for deposits at depth and/or for deposits that are smaller in scale than the considerable size of the Rose Lake iron ore formation. While it may be possible to use underground mining methods for the Rose Lake iron ore deposits the following reasons have precluded this option:

1. Approximately 95 percent of the near surface resource is being recovered through the use of open pit mining. This would be reduced to something in the range of 65 to 70 percent. A large portion of the resource would be sterilized through the need to leave behind a considerable surface pillar. This practice would be in opposition to the NLDNR requirement to use the most suitable mining methods to ensure maximum exploitation of a known resource.
2. Underground mining costs on a ‘per tonne of ore mined’ would be approximately 5 to 10 times as large compared to open pit. Total mining costs on a ‘per tonne of iron ore concentrate produced’ would increase from an estimated $17/tonne to at least $75/tonne. This would change the Project from being a competitive producer to a marginal producer at best. It is very unlikely that the Project would generate investment with this cost framework.
3. Underground mining is both more complex and less safe when direct comparisons of safety statistics between underground and open pit operations are used.
4. A more skilled work-force is required for underground mining, specifically in the areas of tunneling and support. A greater portion of the work-force would be sourced from people outside of the local communities and it would be considerably more difficult to keep the work-force staffed with appropriately trained individuals.
5. It would be virtually impossible to generate the same production rates through underground mining methods. Lower production rates would mean Alderon could not be competitive with other producers in the area, or in the market.

Given these reasons the only feasible option for extracting the Kami Deposit is open pit mining.

2.8.2 Information Request No. NLWD 02

What are the different ways that the area can be reclaimed once the work is done? Were alternatives considered?

Alderon Response to IR No. NLWD 02

The rehabilitation and closure methods provided are developed based on the applicable regulations and guidelines in Newfoundland and Labrador, as well as best practices in general industry and in similar climatic regions. In order to address the various physical and chemical parameters related to each area of the mine that must be rehabilitated, it generally means there are few or no practical alternatives to the rehabilitation method developed. Global rehabilitation and closure alternatives, including moving waste (rock and tailings) back to the open pit at closure, or the possibility of alternative long term land uses such as agriculture, commercial/industrial, or forestry, have been considered and not deemed feasible for the Project. Rehabilitation details will be included in the Rehabiltation and Closure Plan, which will be developed in consultation with Newfoundland and Labrador Department of Natural Resources (Mines Branch) and NLDOEC, prior to rehabilitation activities.

2.8.3 Information Request No. NLWD 03

Pg 2-104 mentions that "*…no other mining approach is viable […] hence no economically feasible alternatives are considered.*" Can this be expanded on to clearly understand the decision making/feasibility analysis for other potential options?

Alderon Response to IR No. NLWD 03

The two primary methods of mineral extraction include open pit and underground mining. At a conceptual level, these options would be considered at the very earliest stages of Project planning. Underground mining is generally used for deposits at depth and/or for deposits that are smaller in scale than the considerable size of the Rose Lake iron ore formation. While it may be possible to use underground mining methods for the Rose Lake iron ore deposits the following reasons have precluded this option:

- Approximately 95 percent of the near surface resource is being recovered through the use of open pit mining. This would be reduced to something in the range of 65 to 70 percent. A large portion of the resource would be sterilized through the need to leave behind a considerable surface pillar. This practice would be in opposition to the Newfoundland and Labrador Department of Natural Resources requirement to use the most suitable mining methods to ensure maximum exploitation of a known resource.
- Underground mining costs on a 'per tonne of ore mined' would be approximately 5 to 10 times as large compared to open pit. Total mining costs on a 'per tonne of iron ore concentrate produced' would increase from an estimated $17/tonne to at least $75/tonne. This would change the Project from being a competitive producer to a marginal producer at best. It is very unlikely that the Project would generate investment with this cost framework.
- Underground mining is both more complex and less safe when direct comparisons of safety statistics between underground and open pit operations are used.
- A more skilled work-force is required for underground mining, specifically in the areas of tunneling and support. A greater portion of the work-force would be sourced from people

outside of the local communities and it would be considerably more difficult to keep the work-force staffed with appropriately trained individuals.

- It would be virtually impossible to generate the same production rates through underground mining methods. Lower production rates would mean Alderon could not be competitive with other producers in the area, or in the market.

Given these reasons, the only feasible option for extracting the Kami Deposit is open pit mining.

2.8.4 Information Request No. NLWD 04

The guidelines state to include a discussion of possible contaminants (manganese), ammonia residues, air emission sources, air sampling stations, noise creation, and noise monitoring locations. None of these have been addressed in this section.

Alderon Response to IR No. NLWD 04

Chapter 14 of Volume 1 of the EIS provides detailed discussion on the contaminants and the impacts. As per discussions with the Newfoundland and Labrador Department of Environment and Conservation, the focus is on particulate matter (i.e., dust) and nitrogen oxides (NO_x), as the amounts of other substances in the emissions are well below levels of potential concern. Table 2.8.1 shows the estimated annual and 24-hour concentration levels for PAHs, VOCs, and metals identified on page 25-50 of Volume 1 of the EIS. The PAH and VOC 24-hour concentrations were calculated by multiplying the annual value by the ratio of NO_x 24-hour and annual concentrations. A similar calculation was made to estimate the 1-hour concentrations found in Table 2.8.2. The locations in both Tables are the representative locations considered in the community health assessment in Chapter 25 of Volume 1. The ratio of NO_x was used since the source of PAH, VOC, and NO_x are all due to combustion gas exhaust, whereas particulates would be confounded by dust emissions (compared to using the Total Suspended Particulate (TSP) ratio). These calculations indicate that emissions from the Kami mine are at least an order of magnitude lower than Newfoundland and Labrador, Ontario, or Québec regulations.

Both Tables show a calculation of metal concentration in dusts, assuming that metals in the TSP occur in the 98th percentile of soil tests found in Table 25.5 of Volume 1. Based on these results, the metal emissions from dust occurring from the Kami mine will be three to four orders of magnitude lower than applicable Newfoundland and Labrador or Ontario regulations. The following Tables also include metals originating from diesel sources, which negligibly increment the total emission of metals by the Kami mine. Finally, the two Tables show that NO_x and TSP emissions are generally an order of magnitude closer to applicable standards for VOCs, PAHs or metals. Meeting applicable criteria for NO_x and TSP is a strong indication that standards will also not be exceeded for VOCs, PAHs, or metals.

As part of the Environmental Management System (EMS), under the Sustainability Management Framework, for the mine, Alderon is committed to dust composition monitoring (including metals screening) during the construction and operation phase of the Project in order to confirm the ambient concentrations of regulated trace metals at sites selected in co-operation with the NLDOEC.

The ammonia residue from blasting has an odour that may reach offsite at very low, but perceptible concentrations; however, the potentially harmful emissions from blasting, such as NO_x, are confined to the immediate vicinity of the blast and are dispersed safely before being blown offsite.

Table 2.8.1 Predicted Maximum 24-hour Ambient Concentration Levels for Regulated VOCs, PAHs and Metals from Kami Mine Operations

Contaminant		Predicted Maximum 24-hour Ambient Concentration (µg/m^3)		Regulation			% of Standard	
		Location 1	Location 2	NL	Ontario	Québec	Location 1	Location 2
CAC	NO_x	17.75	31.78	200	200	207	8.9%	15.9%
	TSP	41	32	120	120	120	34.2%	26.7%
Ambient Concentration from Diesel Combustion								
VOC	Acrolein	0.006	0.010	-	0.4	-	1.45%	2.59%
	Acetaldehyde	0.036	0.065	-	500	-	0.01%	0.01%
	Benzene	0.042	0.075	-	2.3	10	1.82%	3.26%
	1,3-Butadiene	0.004	0.007	-	10	-	0.04%	0.07%
	Formaldehyde	0.078	0.140	-	65	-	0.12%	0.22%
Metal	Antimony	0.00004	0.00007	-	25	-	0.00%	0.00%
	Arsenic	0.00004	0.00007	0.3	-	-	0.01%	0.02%
	Cadmium	0.00004	0.00007	2	-	-	0.00%	0.00%
	Chromium VI	0.00001	0.00003	-	0.0007	-	2.03%	3.64%
	Manganese	0.00008	0.00015	-	0.4	-	0.02%	0.04%
	Mercury	0.00010	0.00019	2	-	-	0.01%	0.01%
	Nickel	0.00007	0.00012	2	-	-	0.00%	0.01%
PAH	Benzo(a)pyrene	0.00004	0.00007	-	0.005	-	0.83%	1.49%
	Naphthalene	0.04	0.07	-	22.5	-	0.17%	0.31%
Ambient Concentration from Particulate Emissions								
Copper		0.0007	0.0005	50	50	2.5	0.03%	0.02%
Lead		0.0002	0.0002	2	0.5	-	0.05%	0.04%
Vanadium		0.0015	0.0012	2	2	-	0.08%	0.06%
Zinc		0.0011	0.0009	120	120	-	0.00%	0.00%
Arsenic		0.00004	0.00003	0.3	0.3	-	0.01%	0.01%
Cadmium		0.000008	0.000006	2	0.025	-	0.03%	0.03%
Mercury		0.000000	0.000000	2	2	-	0.00%	0.00%
Nickel		0.0007	0.0006	2	0.2	-	0.37%	0.29%

Table 2.8.2 Predicted Maximum 1-hour Ambient Concentration Levels for Regulated VOCs and Metals from Kami Mine Operations

Contaminant		Predicted Maximum 1-hour Ambient Concentration (µg/m^3)		Regulation			% of Standard	
		Location 1	Location 2	NL	Ontario	Québec	Location 1	Location 2
CAC	NO_x	62.61	115.15	400	400	414	15.7%	28.8%
	TSP	-	-	-	-	-	-	-
Ambient Concentration from Diesel Combustion								
VOC	Acrolein	0.02	0.04	-	4.5	-	0.45%	0.83%
	Acetaldehyde	0.13	0.24	-	500	-	0.03%	0.05%
Metal	Nickel	0.0002	0.0004	-	-	6	0.00%	0.01%
Ambient Concentration from Particulate Emissions								
Nickel		0.002	0.001	-	-	6	0.03%	0.02%

2.8.5 Information Request No. NLWD 05

Pg 2-29 §4: Seepage is anticipated to be minimal based on the assumption of bedrock or native fill founding strata. There is no back-up plan in the event that the assumption is not met (A geological map would support this assumption).

The system of groundwater monitoring wells that will be installed needs to be clarified in terms of locations, numbers, threshold values for identification of further actions required, and monitoring frequency.

Alderon Response to IR No. NLWD 05

Preliminary geotechnical information from the exploration drilling and geotechnical drilling done at the Tailings Management Facility site was used as the basis for the assumption that the glacial till and bedrock surficial geology would be consistent across the dam locations.

Permeable dam foundations can be addressed using several design techniques, the most common of which is a key or cut-off trench constructed in the permeable foundation materials. It is important to note that for the Kami Project, the permeability through or beneath the dams is not a concern from an environmental perspective as there are no chemicals used in the process or other chemistry in the tailings effluent that requires treatment prior to release. The primary consideration for seepage beneath the dams is the impact to the stability of the dam itself and this is addressed through engineering design and construction methods.

The details of the groundwater monitoring wells installation and monitoring program will be developed through the detailed design and regulatory permitting process that follow the Environmental Assessment. The approval for construction and operation Certificate of Approvals will provide the final requirements for Alderon to install monitoring wells and monitor

groundwater conditions around the Tailings Management Facility (as well as other Project features). The conditions of the Certificate of Approvals issued by NLDOEC will dictate the threshold values for various substances (e.g., hydrocarbons, chemicals) and water characteristics (e.g., pH, dissolved oxygen), which would trigger further monitoring, mitigation, or other required measures that would be conducted in consultation with NLDOEC and other regulatory agencies.

2.8.6 Information Request No. NLWD 06

Pg 2-30 §1: It is stated that there is no evidence of adverse effects of red water on fish and fish habitat. This should be referenced.

Alderon Response to IR No. NLWD 06

Reference:

The reference for this statement is the following:

Canada Gazette. 2009. Regulations Amending the *Metal Mining Effluent Regulations*. Volume 143 (4). February 18.

2.8.7 Information Request No. NLWD 07

Pg 2-30 §2: Controlling pH and dissolved oxygen concentration is listed within both alternatives for red water treatment. Water oxygen concentration and water and soil pH have known effects on plants, wildlife, and the ecosystem functioning as a whole. What is the pH and dissolved oxygen properties before treatment and what is it expected to be after? How does this relate to those of the environment into which the effluent will be dumped? Discussion needed.

Alderon Response to IR No. NLWD 07

The pH of the water before treatment will vary depending on conditions in the Tailings Management Facility. Those include the depth of standing water, the degree of wind mixing action, the antecedent moisture conditions of source areas, and other factors. Initial evaluations have indicated that the tailings will on average not be net acid generating. Initial testing indicated that the pH of prototype leachate ranged approximately between 8.0 and 9.0. Provisions for addition of chemicals to the net discharge stream would be included as part of the discharge treatment system. The exact pH target value of the treatment system to optimize precipitation and settling of iron will be determined by treatability testing during the final design phase; but it is likely that the treatment target value will be somewhere between 7.5 and 9.0. The chemical feed system will include features for final adjustment of the treated water prior to discharge, in the event that such adjustment is needed to meet receiving water quality goals. It is projected that the final discharge pH will be between 7.5 and 8.5; however, the exact discharge target will be confirmed during final design.

In a similar manner, the concentration of dissolved oxygen in the water before treatment will vary with conditions in the tailings management facility. Those factors include temperature, degree of wind action, degree of ice cover, and other factors. The treatment system will be

designed to aerate the water sufficiently to promote the oxidation of ferrous iron to the ferric form for optimum precipitation and settling of iron floc. In addition, the treatment aeration system will be designed to ensure that the dissolved oxygen of the final discharge meets receiving water quality goals. It is projected that the basis of design final dissolved oxygen concentration target will be between 7.0 and 12.0 mg/L. The exact target value will depend on the aquatic life goals for the specific species in the receiving water system. The exact method of aeration may involve mechanical aeration blowers with diffusers, surface mixers, cascade aeration steps; or combinations of these techniques. The final discharge target values and the aeration method will be determined during the final design phase.

2.8.8 Information Request No. NLWD 08

Pg 2-41 §2: Where will vegetation materials and organic soil layers be stored?

Alderon Response to IR No. NLWD 08

Vegetation materials may be removed and stored in different forms depending on the cutting and construction permit conditions and the type of material. Larger trees, alders and shrubs may be cut, shredded or chipped to be used as ground cover to reduce dust and/or mixed with overburden/topsoil materials to improve the organic content for revegetation (rehabilitation) work. Saleable timber will be harvested as per the cutting permit. Smaller shrubs and vegetative ground cover will likely be mixed with the overburden/topsoil removal and will decompose and add to the organic content of these materials. Shredded or chipped wood and excavated organic soils will be stored within the waste rock disposal areas and the Tailings Management Facility area so that they are readily available for use during progressive closure and so that run-off from these stock piles can be controlled and treated if necessary. In general, vegetation and organic soil materials will be stockpiled in the waste rock disposal area or TMF closest to the source of the material.

2.8.9 Information Request No. NLWD 09

Pg 2-42 §1: It should be stated what ‘required borrow materials’ will be used for and why overburden material or waste rock cannot be used instead. If additional quarry material is required, the amount of material and locations of new quarries (including footprint) needs to be considered as part of cumulative effects.

Alderon Response to IR No. NLWD 09

'Required borrow materials' will be used for many of the construction activities during Project development including road and rail construction, building and infrastructure foundation preparation and backfill, underground services trench bedding and backfill, hydrocarbon storage tank containment, sediment pond dams, storm runoff and effluent conveyance ditching, and Tailings Management Facility construction. In order to satisfy the various engineering requirements for each type of construction, a variety of borrow sources may be required to obtain the specified materials directly, or to obtain materials that can be crushed, screened, mixed, or otherwise altered to meet the engineering specification for each material.

In order to minimize the cumulative effects of the Project, and to minimize construction costs (primarily purchase and transport costs to the site of off-site borrow materials), Alderon's design and geotechnical teams will review all available on site soil and rock materials in terms of their suitability for the various requirements of the Project. The priority will be to utilize waste rock and overburden materials that must be excavated as part of the site development and stockpiled or disposed elsewhere if not used in construction where ever possible. This evaluation will be conducted in the detailed design phase of the Project where volumes of borrow materials for each construction area are better developed, specifications and schedules for borrow materials are determined, and the materials characteristics of the on-site soils and rock are better understood through advanced test work. Some examples of how the on-site materials may be used as borrow materials are as follows:

- Road and Rail construction - esker sands and gravels, blasted and crushed/screened waste rock;
- Building and infrastructure foundation preparation and backfill - blasted and crushed/screened waste rock, overburden soils of low fines content;
- Underground services trench bedding and backfill - esker sands and gravels, overburden soils of low fines content;
- Hydrocarbon storage tank containment - glacial tills of high fines content;
- Dams for sediment ponds and TMF - blasted and crushed/screened waste rock, esker sands and gravels, glacial tills of high fines content;
- Concrete production - esker sands and gravels; and
- Progressive rehabilitation activities - overburden, organic soils, waste rock.

It is likely that not all of the borrow materials required for Project construction will be available on site.The potential volumes of required off-site borrow materials has not been developed at this time, but will be developed during the detailed engineering phase of the Project. Off-site borrow materials are anticipated to be procured from local contractors and material suppliers. The environmental effects created by use of any off-site, local quarry(s) operated by contractors or materials suppliers are addressed by the environmental approvals for that quarry(s).

2.8.10 Information Request No. NLWD 10

Pg 2-58 §2: How will it be ensured that emissions will comply with regulations? No air sampling stations are discussed; are these required? What is the reason behind *"… the above ground dumping area into the crusher will […] have no dust collection system…*"?

Alderon Response to IR No. NLWD 10

An air quality monitoring program will be designed in accordance with Alderon's Sustainability Management Framework, and in consultation with the Newfoundland and Labrador Department of Environment and Conservation (NLDOEC). It will be integrated into the regional air monitoring plans that are operated by other industries, also in cooperation with NLDOEC. The

detailed design of such a system cannot be determined prior to the final design, and the review process by the regulators; however, it is reasonable to assume that it will be similar to the monitoring systems already in place, and focusing on the surveillance of particulate pollution.

The reason that a dust collection system is not used for the above ground dumping into the conveyor is that the materials at this point in the material handling have very low content of fine particulate matter, having been brought directly from the pit, and excessive dust emissions are not anticipated. Dust control systems are used at subsequent points of the handling after the crusher and other mechanical processes have caused the breakdown of the material into a greater proportion of fine material that can become airborne.

2.8.11 Information Request No. NLWD 11

Pg 2-58 last §: It is said that ARD and ML will not likely occur. However, it is a possibility and a plan to monitor and mitigate for this potential should be developed.

Alderon Response to IR No. NLWD 11

Pit water, TMF discharge, and waste rock runoff will be monitored during the operation and after the closure. If water quality monitoring shows potential effects from ARD / ML, the impacted discharge will be treated to meet MMER discharge criteria. Approaches to potential ARD management include:

- Grouting of producing fractures in PAG formations;
- Limit overland flow over exposed PAG surfaces;
- Reduce waste rock and overburden in-pit exposure to groundwater seepage and runoff;
- If ARD conditions are detected in runoff/dewater, consider in-pond pH adjustment methods such as lime addition or other pH adjustment approaches;
- Isolate/encapsulate ARD waste rock/overburden material in waste rock disposal areas; and
- If ARD does occur, treatment of acidic leachate and capping of the waste rock and overburden piles will be implemented.

For details, refer to Volume 1 of the EIS, Sections 15.6.4 and 15.10, pages 15-28 to 15-30 and 15-44, respectively.

In addition, emergency response and monitoring will be detailed through the development of the Sustainability Management Framework (SMF). The SMF is a part of the overall Kami Project management system that includes quality management systems, document control, risk management and Health, Safety and Environment (HSE) systems. The framework is made up of three main systems, the components of which are:

1. The Sustainable Project Delivery (SPD) system will provide a high level approach to sustainability management by establishing clear objectives, tracking of key Project

commitments, support for engineering and procurement activities and reporting on overall sustainability performance;

2. The Environmental Management System (EMS) will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Environmental Management Plans will be developed in consultation with relevant regulatory agencies and stakeholder groups.
3. The Social Responsibility System (SRS) will manage and track the commitments made in various guidance documents and contracts (e.g., benefits agreement) as well as establish plans for effective Project communications, community liaison and complaints management.

2.8.12 Information Request No. NLWD 12

Pg 2-69/70: Wildlife can also be affected by the noise; in addition, there will be increased traffic on railroad.

Alderon Response to IR No. NLWD 12

Volume 1 of the EIS, Page 2-70, Paragraph 3 should read:

"Important sources of noise for both construction and operation will be diesel powered heavy equipment and materials and rock movement. The larger sources of noise will occur during operations and will include drilling, blasting, process equipment, crushing and the movement of railway cars. Wildlife can also be affected by the noise; in addition, there will be increased traffic on the railroad."

2.8.13 Information Request No. NLWD 13

Pg 2-73: How and where will organic soils, mineral soils, glacial till be stockpiled? How will it be protected from rain-mediated leaching of nutrients?

Alderon Response to IR No. NLWD 13

Organic soils, mineral soils and glacial till removed during site preparation activities will be segregated and stored at selected areas within the waste rock disposal areas and the Tailings Management Facility so that they are readily available for use during progressive rehabilitation and so that storm water run-off from the stock piles can be controlled and directed to sedimentation ponds for treatment prior to discharge. The stockpiles will be sloped as per the Project technical specifications, compacted and re-vegetated to shed rain water and minimize infiltration to minimize rain-mediated leaching of nutrients and for erosion control to minimize sediment in run-off water. The high-organic surface soils may be mixed with till materials prior to stockpiling to create a better material for re-vegetating waste rock and tailings as part of progressive and final rehabilitation efforts.

2.8.14 Information Request No. NLWD 14

Does an open pit mine allow for progressive rehabilitation of exploited parts – as the front part of the mine is being exploited, part of the waste rock is being dumped at the tail end which is being rehabilitated at the same time (smaller footprint)?

Alderon Response to IR No. NLWD 14

The geometry of the open pit proposed for this mine is deep and will be mined vertically from the surface to the base of the pit with little lateral progression. The opportunity for backfilling the bottom sections of the mine with waste rock will only be possible late in the mine life and would not represent a significant volume of waste rock. The option for some waste rock disposal in the bottom of the mine will continue to be assessed in the detailed design stages of the development.

2.8.15 Information Request No. NLWD 15

Pg 3-3 last sentence: EHJV Management Units "*No unique habitat features were identified within the Management Unit or elsewhere within the project footprint*."

Management unit areas are comprised primarily of wetlands and wetland associated upland which were conserved in recognition, both in terms of their ecological value, but also their social/cultural/recreational contribution and long-term quality of life in these towns.

Alderon Response to IR No. NLWD 15

The existing environment includes designated wetland areas, or Habitat Management Units, in the municipalities of Labrador City and Wabush. Of these, a portion of the Pike Lake South Management Unit overlaps the Rose Pit, and would be lost or altered as a result of the Project. This (and other) Management Units were selected for conservation based on several parameters, including (but not limited to) provision of suitable habitat for waterfowl. Habitat within the Pike Lake South Management Unit has not been identified as unique to this particular Management Unit.

Alderon is committed to sustainable development of the Project and has made every reasonable effort to design Project infrastructure so as to avoid interaction with environmentally sensitive areas, including the Management Units within the municipal planning boundaries of the Towns of Labrador City and Wabush. However, Alderon acknowledges that a portion of the Pike Lake South Management Unit overlaps the proposed Rose Pit and would be lost as a result of the development of the mine. Alderon proposes to work with the Town of Labrador City to implement a strategy that will permit the development of the Project while advancing the protection of wetlands.

2.8.16 Information Request No. NLWD 16

Figure 3.4: Underlying base data to derive habitat types need to be mentioned (reference to where to find this information/ approach to derive these habitat types).

Alderon Response to IR No. NLWD 16

Details associated with the approach are provided, in part, in a separate environmental study completed for the Project, entitled *Ecological Land Classification (ELC) of the Kamistiatusset (Kami) Iron Ore Mine and Rail Infrastructure Project* (Appendix B).

An Ecological Land Classification (ELC) was undertaken to describe the local ecological context of the Study Area, such that interactions between biota, the physical environment and the Project can be assessed within the context of the specific ecology of the area. The Project ELC was completed to identify, compile and summarize information on vegetation and vegetation communities, and wildlife habitat in the vicinity of the proposed Project as environmental information for use in the EIS.

The habitat types presented in Figure 3.4 of the EIS, Volume 1 are derived from those vegetation types (ecotypes) identified during completion of the ELC. Baseline vegetation studies for the Project were completed to investigate and document existing characteristics of vegetation within and around the Project. High-resolution satellite images and aerial photographs were incorporated into a computer-based geographic information system (GIS) and used to define and delineate ecotypes. This imagery provided the basis for the delineation of geological, vegetation and hydrological attributes across the Project Development Area (PDA), Local Study Area(LSA) and Regional Study Area (RSA). Digital imagery was complimented with extensive field studies undertaken to further characterize surficial geology, geomorphology, vegetation and soils within the Study Area. Data collected in the field provided information on local species distributions and occurrence patterns as required to characterize ecosystem units, refine the classification of ecotypes, as well as to verify ecotype map unit designations and support satellite-based classification (RapidEye 5m multispectral) of ecotypes and the development of mapping products. Sampling effort was directed at inspecting as many biotic habitats, plant communities and biophysical features as possible.

A total of 14 vegetated and 3 sparsely or non-vegetated ecotypes were identified within the Study Area, described from 114 sample plots, and based on the ecosystem classification system adapted for use with this and other similar projects completed throughout Labrador. Of these, 11 are vegetated ecotypes, Alpine Heath (<1 percent); Hardwood Forest (<2 percent); Mixedwood Forest (<5 percent); Black Spruce-Labrador Tea-Feathermoss (24 percent); Black Spruce Lichen (5 percent); Black Spruce / Tamarack Sphagnum Woodland (13 percent); Tamarack / Black Spruce-Feathermoss (Water Track) (8 percent); Riparian Thicket (<1 percent); Riparian Marsh / Fen (<1 percent); Patterned Shrub Fen (<1 percent); and Non-Patterned Shrub Fen (includes Graminoid Fen, 3 percent). Two of these, Black Spruce-Labrador Tea-Feathermoss and Black Spruce-Lichen, also had corresponding burned subtype (i.e., Hardwood Burn / Regeneration [9 percent], Mixedwood Burn / Regeneration [<2 percent] and Softwood Burn / Regeneration [<10 percent]) which were large enough to be mapped separately, resulting in a total of 14 vegetated map units. Additionally, three sparsely vegetated, non-vegetated and/or anthropogenically altered / disturbed ecosystem units were also mapped including Shallow Open Water with Vegetation, Exposed Earth / Anthropogenic and Open Water. These ecotypes accounted for approximately 21 percent of the mapped ELC. These ecotypes included open water (i.e., lake, pond, river), shallow open water with vegetation, and

exposed earth / anthropogenic. Non-ELC areas, including Cloud and Shadow, account for <3 percent of the mapped ELC areas (Stantec 2012).

2.8.17 Information Request No. NLWD 17

Page 5-1: A description of how economic and technical feasibility is determined would be helpful in understanding how assessments/decisions were made for the EIS document. What constraints determine if something is feasible (e.g., expertise in province? Cost would increase project cost beyond a threshold?)

Alderon Response to IR No. NLWD 17

The technical and economic feasibility of the Project has been assessed within a Feasibility Study prepared in accordance with the National Instrument (NI) 43-101 guidelines and standards. NI 43-101 is a national instrument for the *Standards of Disclosure for Mineral Projects* within Canada. The purpose of the NI 43-101 is to ensure that misleading, erroneous or fraudulent information relating to mineral properties is not published and promoted to investors on the stock exchanges overseen by the Canadian Securities Authority. The NI is a codified set of rules and guidelines for reporting and displaying information related to mineral properties owned by, or explored by, companies which report these results on stock exchanges within Canada. In the Feasibility Study, the Mineral Reserve (that portion of the Mineral Resource with proven economic value) is estimated. This, in combination with the process flowsheet, plant throughput, concentrate production rate, and the estimated cost of processing facilities, infrastructure, supporting services, and other factors is used to assess the economic feasibility and associated economic risks of the Project.

The economic feasibility of the Project is determined by the market and as reported in the NI 43-101. Economic constraints are therefore dependent on the market and the associated feasibility-stage cost estimate as presented in the NI 43-101. In accordance with the Feasibility Study, the Project needs to be developed at an estimated cost of $1.3 billion or less to be economically feasible. Technical constraints are determined by several factors including reliability of process and materials, proven ability to conduct similar projects in similar settings, and safety.

Likely environmental effects are typically mitigated by reduction and avoidance through Project design, or by alternative mitigations, such as habitat compensation for loss of fish, wetland, or terrestrial habitat. The cost of these mitigations are factored into the overall cost of the Project.

Decisions regarding Project design have been greatly influenced throughout the environmental assessment process. The Project has been designed and modified as outlined in Section 5.1 of Volume 1 of the EIS, to address issues that have been raised by stakeholders. These include:

- The Project was configured to avoid Duley Lake Provincial Park Reserve;
- Where economical and technically possible, the Project was designed to avoid waterbodies and wetland Management Units;

- The larger of the two waste rock disposal areas, Rose South, was moved to the east to avoid dust, noise, and viewscape issues raised by the residents of Fermont;
- A new road will be built to avoid Grenfell Drive to access the mine site, eliminating concerns with increased traffic and safety; and
- The rail line was moved further away from the northeast section of Wabush to reduce potential interactions with future town development.

2.8.18 Information Request No. NLWD 18

Page 5-6/7: Mitigation and monitoring protocols should be described in more detail within the Environmental Protection Plan (EPP) and Environmental Effects Monitoring Plan (EEM).

Alderon Response to IR No. NLWD 18

Prior to initiation of Project activities, a detailed Environmental Protection Plan (EPP) and follow-up program will be developed by Alderon and submitted to appropriate regulatory agencies for review prior to the initiation of Project activities. The EPP and Follow-up Program will be developed within the Sustainability Management Framework (SMF), and more specifically within the Environmental Management System that is one of three components of the SMF. The SMF is presented in Appendix J.

The Sustainability Management Framework is a part of the overall Kami Project management system that includes quality management systems, document control, risk management and Health, Safety and Environment (HSE) systems. The framework is made up of three main systems, the components of which are:

1. The Sustainable Project Delivery (SPD) system will provide a high level approach to sustainability management by establishing clear objectives, tracking of key Project commitments, support for engineering and procurement activities and reporting on overall sustainability performance;
2. The Environmental Management System (EMS) will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Environmental Management Plans will be developed in consultation with relevant regulatory agencies and stakeholder groups.
3. The Social Responsibility System (SRS) will manage and track the commitments made in various guidance documents and contracts (e.g., benefits agreement) as well as establish plans for effective Project communications, community liaison and complaints management.

The EPP will specify the mitigation measures and procedures to be used on site in sufficient detail to allow contractors and employees to implement these commitments in the field. This detail will become available at the permitting stage when the Project design is sufficiently detailed and finalized to prescribe site-specific environmental protection measures. A proposed Table of Contents for the EPP is provided in Section 5.3 of Volume 1 of the EIS. The above-

noted approach to EPP development recognizes that detailed Project design information, which is still being developed, is required to fully operationalize the higher-level commitments contained in the EIS and allows for regulatory review of these details, prior to Project initiation.

The final design of both biophysical and socio-economic follow-up and monitoring programs will, as appropriate, be dependent on consultation with relevant government agencies, communities and stakeholders. Such programs will also be consistent with the terms and conditions of permits and approvals. As a result, proposed follow-up and monitoring programs must be described at this time in a more general manner so as not to pre-suppose the needs or interests of other involved parties.

Under Section 4.10.2 of the EIS Guidelines, Alderon was requested to describe the follow-up program that will be developed, specifically:

- The requirements and objectives of the follow-up program;
- A description of the main components of the program, each monitoring activity under that component, and the objectives of each monitoring activity (i.e., confirmation of mitigation, confirmation of assumptions, and verification of predicted effects);
- A schedule for the finalization and implementation of the follow-up program;
- A description of the roles and responsibilities for the program and its review process, by government, Aboriginal people and the public;
- A discussion of possible involvement of independent researchers;
- Any contingency procedures/plans or other adaptive management provisions for dealing with unforeseen effects, or situations where benchmarks, regulatory standards or guidelines are exceeded; and
- A description of how results will be managed and reported.

This information is included in Section 8.3 of Volume 1 of the EIS and is reiterated below.

Requirements and Objectives

The purpose of the follow-up program is to verify the accuracy of the predictions made in the environmental assessment as well as the effectiveness of the mitigation measures. Follow-up programs are proposed in those cases where the level of confidence in an effects prediction is low due to the nature of the effect (i.e., unique or relatively unknown). This information will be used to refine and optimize mitigation measures and implement adaptive management measures associated with the Project. Upon completion, each follow-up plan will have its own objectives specific to the plan.

Compliance and inspection monitoring will also be conducted, the object of which is to confirm that the Project is being operated in compliance with mitigation commitments, and that Project releases are within regulatory limits.

Main Components of the Program

The following table (Table 2.8.3, originally presented as Table 8.2 from Volume 1 of the EIS) lists the main component of the follow-up program.

Table 2.8.3 Summary of Follow-up and Monitoring Programs (EIS Table 8.2 from Volume 1 of the EIS)

VEC / Topic	Proposed Monitoring Objective or Activity	Monitoring Area or Location	Construction	Operation and Maintenance	Decommissioning and Reclamation	Post-closure
Water Resources	Groundwater Monitoring	Open Pit Mine, TMF, and Select Mine Facilities		x	x	
	Groundwater Chemistry and Levels	Perimeter and Off-site (Open Pit Mine, TMF)		x	x	
	Mine Sump Discharge Monitoring	Open Pit		x	x	
	Water Levels and Groundwater Chemistry	Near Open Pit and near TMF				x
	Water Quantity Monitoring	Long Lake, Pike Lake South	x	x	x	
Water Resources and Fish, Fish Habitat, and Fisheries	End of Pipe Monitoring	Discharge Location	x	x	x	x
	Water Quality and Toxicity Monitoring	Receiving Environment	x	x	x	x
Fish, Fish Habitat, and Fisheries	Success of Compensation Plan	Location of Measures Implemented for Compensation Plan		x		
Air Quality	Levels of Dust and Emissions	At Perimeter of Project Property	x	x	x	
GHG Emissions	Greenhouse Gas Emissions will be Quantified on an Annual Basis as per the GHG Emissions Reporting Program	At Perimeter of Project Property	x	x	x	
Noise	Noise Levels	Noise-Sensitive Areas and at the Perimeter of the Project Property	x	x	x	
Protected Areas	Compliance Monitoring for the Corporate Stewardship Agreement	Location of Measures Implemented for Corporate Stewardship Agreement		x	x	
Infrastructure and Services	Joint Monitoring Initiative with the Towns of Fermont, Labrador City, Wabush and Other Stakeholders	Local Area	x	x	x	

For each main component, a detailed methodology for the sampling will be developed. This could include, for example:

- A detailed description of the sample locations, replicates, timing, frequency, quality control and quality assurance, etc;
- Where applicable, a detailed description of the sample handling (e.g., collection procedure and chain-of-custody) and analysis to be conducted;
- References to accepted methods in the published literature;
- Statistical considerations in the sampling design;
- Statistical considerations for data analysis following collection; and
- A rationale for the choices used in the design.

Schedule for the Finalization and Implementation of the Follow-Up Program

The follow-up and monitoring program will be finalized after release from the environmental assessment process, and prior to the relevant Project phase (i.e., construction, operation and maintenance, decommissioning and reclamation, post-closure). The frequency and duration of monitoring will be determined at that time. Monitoring objectives (i.e., confirmation of mitigation, and verification of predicted effects) will be established within a field-testable and statistically verifiable framework.

Roles and Responsibilities for the Program

Alderon will be responsible for managing, conducting and reporting, as it relates to the follow-up, as well as implementation of efforts to address deficiencies as discussed below under “Adaptive Management Procedures”.

Involvement of Independent Researchers

Although not currently foreseen, if required, Alderon will retain the services of independent researchers.

Adaptive Management Procedures

The effectiveness of Follow-up Programs will be assessed during the reporting phase. At that time, any deficiencies or limitations would be noted, and addressed as appropriate. Where a follow-up program is found to be inadequate or inappropriate (e.g., not generating appropriate data), corrective measures would be undertaken (e.g., additional sampling undertaken, duration of the program extended), as appropriate. If follow-up programs identify that predictions in the EIS were not correct, the associated adaptive management measures would be specific to the VEC.

Management and Reporting of Results

As stated in Section 8.3 of Volume 1 of the EIS, results of the follow-up and monitoring program will be reported on an annual basis to the relevant government agencies, and will be shared with Aboriginal groups and the public.

2.8.19 Information Request No. NLWD 19

Page 5-9: How often would a "regular compliance audit" take place and who would be responsible to complete the audit?

Alderon Response to IR No. NLWD 19

The plans for regular environmental compliance audits will be outlined in the Sustainability Management Framework (see Appendix J) and will be developed further in the Environmental Management System. During construction, internal compliance audits will take place on a quarterly basis to ensure that construction management systems are proactively managing environmental impacts. During operations, compliance audits will be reduced to annually and will involve a rotating schedule of internal and external audits.

2.8.20 Information Request No. NLWD 20

Consideration should be given to:

- Existing quarries for borrow material; is there a way to use the same quarry for multiple mining sites?

Alderon Response to IR No. NLWD 20

The detailed siting and design of all Project components and ancillary infrastructure, including any quarries, has not yet been completed by Alderon, and will occur during detailed engineering design and construction planning. This is in keeping with the role of environmental assessment as a planning tool, which is (and should) be completed at a relatively early stage of Project planning and design.

The EIS (Volume 1, Chapter 2) generally describes possible quarries and other sources of borrow material required for Project construction, including, for example, the following (Section 2.6.1):

"Materials for building the new access road will be obtained from waste material generated during mine pre-stripping and other site preparation activity, with additional material being sourced from the on-site esker. Some additional material may also need to be brought in from off-property quarries. Existing sites and sources will be used wherever possible and practical, and any new quarries or borrow areas will be established and operated in compliance with relevant permits and guidelines

Borrow sources for dam / dyke construction are expected to be locally available within the Project area itself. Till for the core may be sourced from pre-stripping the open pit and waste rock generated from pit development, or a site quarry will be utilized for the dam shell materials. Appropriate materials for the construction of the dam / dyke filter zone will be sourced from local esker material."

Detailed quarry planning and siting will therefore occur at a later stage of Project engineering design, and will involve the eventual construction contractor(s). This design process will include consideration of Project requirements and associated technical and economic factors (e.g., availability of required materials, distances, volumes), as well as environmental issues. Alderon has and will continue to attempt to make use of existing access roads, infrastructure, quarry sites, and other developed areas wherever possible and practical. In some cases, this would be subject to the above noted considerations as well as having appropriate arrangements in place with relevant municipalities and/or other developers in the region.

Alderon and/or its contractors will identify, apply for and adhere to all required permits and other authorizations that are required for Project construction and operation. The post-environmental assessment permitting process will provide the opportunity for relevant regulatory departments and agencies to receive and review further information on these eventual plans and designs, including any new quarries proposed.

2.8.21 Information Request No. NLWD 21

Consideration should be given to:

- An assessment of increased railway traffic and risk of animal mortality. Particularly, Lac Joseph caribou (and likely assessment for Québec caribou which spend portions of their lifecycle in Labrador).

Alderon Response to IR No. NLWD 21

The EIS provides an assessment of the potential environmental effects of the proposed Kami Iron Ore Project, as well as its likely cumulative environmental effects in combination with other relevant projects and activities that have been or will be carried out. The approach and methods used in the cumulative effects assessments for each VEC are described in Sections 6.1 to 6.3 of Volume 1 of the EIS. Volume 1, Chapter 6 (referenced by the Reviewer) summarizes the overall conclusions of the environmental assessment in that regard, but the detailed cumulative effects assessments for each VEC are provided in Chapters 14-26 of Volume 1, Chapter 19 in particular provides the environmental effects assessments for various wildlife species and their habitats.

The EIS Guidelines issued by the provincial and federal governments for the environmental assessment require an assessment of potential Project effects on caribou in the vicinity of the proposed mine and associated infrastructure in western Labrador and at the port facilities in Sept-Îles. As described in Volume 1, Section 19.5.3 of the EIS, neither of these Project components are anticipated to overlap or interact with the current ranges of either of the herds

that occur in western Labrador, and therefore, will not likely result in any adverse effects upon caribou. This was further confirmed by the fact that none of the survey work (aerial and ground) undertaken for the Project to date have observed any caribou in or near the Project area, as well as through input received from local residents and others during the public consultation activities completed by Alderon as part of the environmental assessment process.

The scope of the environmental assessment was focused on the various Project activities and components highlighted above. The QNS&L was not directly considered in assessing potential Project-specific or cumulative environmental effects, as this is existing infrastructure that has been in operations for decades. It is also not anticipated that the Kami Project will cause a substantial change to or increase in the railway's current operations (which involves approx 12-14 trains per day) as the Project will contribute 1-2 additional trains. In consideration of past and existing operation levels and projected growth on the QNS&L Railway, the Kami Project's incremental contribution to these activities and any associated effects is not anticipated to be material, or especially, to increase or change existing disturbance levels.

2.8.22 Information Request No. NLWD 22

Consideration should be given to:

- Local usage of waste rock piles from various mining companies in this area. Can this material be used locally to decrease future need for quarries, etc.?

Alderon Response to IR No. NLWD 22

As noted in an earlier response (see IR NL WD 20), the EIS (Volume 1, Chapter 2) generally describes possible quarries and other sources or borrow material required for Project construction. The detailed identification and siting of these sources has not yet been completed by Alderon, and will occur during detailed engineering design and construction planning by the eventual construction contractor(s). This design process will include attempting to make use of existing infrastructure (including quarry sites and rock sources) wherever possible and practical, and with consideration of Project requirements, technical and economic factors (e.g., distances, volumes, etc), environmental considerations, and subject to having appropriate arrangements in place with relevant municipalities, other developers etc in the region where relevant. Again, the post-environmental assessment permitting process will provide the opportunity for relevant regulatory departments and agencies to receive and review these details for any proposed quarries and other applicable Project components and activities.

2.8.23 Information Request No. NLWD 23

8.1.4: There is a suggestion that storms formerly considered "100 year storms" may increase in frequency as a result of changes associated with climate change. Untreated releases (waste rock/tailings) are still unlikely but these conditions may need to be examined in the future (i.e., over the life of the mine this could pose a problem).

Alderon Response to IR No. NLWD 23

The stability of the waste rock disposal areas and integrity of the Tailings Management Facility will be inspected on a regular basis over the life of the Project. Maintenance activities will address stability and/or integrity issues, if they occur. Run-off from waste rock stockpiles will be directed to a sedimentation pond and treated as required to meet regulatory guidelines, prior to release to the environment. Water quality at the final point of discharge from the TMF will be monitored to ensure it meets regulatory guidelines prior to release to the environment.

2.8.24 Information Request No. NLWD 24

Section 8.1.11: Re-vegetation must be with local native plants to reduce chance of increasing the impact/presence of invasive /exotic species. This is addressed in the mitigation information but should be clearly stated in all areas that deal with re-vegetation/ rehabilitation efforts.

Alderon Response to IR No. NLWD 24

The Rehabilitation and Closure Plan will stipulate that native plant species will be used to re-vegetate disturbed areas, as appropriate.

2.8.25 Information Request No. NLWD 25

Table 8.1: Environmental Monitoring Plans (EMP) should be prepared for all phases of the project and throughout the life of the project. Changes to Environmental Management Plans i.e., Avifauna Management Plan may be necessary throughout the life of the mine as changes occur with listed species, mitigation requirements, or species knowledge.

Alderon Response to IR No. NLWD 25

As indicated in Table 8.2 of Volume 1 of the EIS, follow-up and monitoring programs are proposed over the life of the Project. Environmental Management Plans will be developed as part of the Sustainability Management Framework, which will include processes for change management and continuous improvement that provide the ability to change plans as experience with the Project is developed and as new information is made available. The SMF framework is presented in Appendix J; a draft table of contents for the Avifauna Management Plan is presented in Appendix I.

2.8.26 Information Request No. NLWD 26

Section 8.3: If necessary, updates on monitoring should be provided annually or more frequently to government/regulatory agencies (updates can vary pending on items) and, in particular, results should be reported immediately if the mitigation measures put in place for this project are shown to be ineffective through the monitoring process.

Alderon Response to IR No. NLWD 26

As stated in Volume 1 of the EIS, Section 8.3, page 8-11:

"Results of the follow-up and monitoring program will be reported on an annual basis to the relevant government agencies, and will be shared with Aboriginal groups and the public. Although not currently foreseen, if required, Alderon will retain the services of independent researchers.

In the event of an unforeseen effect, or where benchmarks, regulatory standards, or guidelines are exceeded, Alderon will work with regulatory agencies to identify the underlying cause and to address it in an adaptive manner.

If potential adverse environmental effects are identified for a listed wildlife species or its critical habitat, a monitoring plan will be developed. Government departments responsible for the species in question would be engaged in developing adaptive management measures to effectively mitigate the adverse environmental effects."

Alderon commits to providing updates annually, or more frequently if appropriate based on the results of the follow-up and monitoring program. Further, reporting on environmental performance and regulatory commitments is part of the overall Sustainability Management Framework (see Appendix J) and the Environmental Management System. Reporting requirements will be tracked with the Project's Commitment Register and any specific permitting reporting requirements will be tracked and reported using the Permit Register. Any unforeseen effects, or where benchmarks, regulatory standards, or guidelines are exceeded, these issues will be reported using protocols that will be established in the Project's sustainability framework and environmental management systems.

2.8.27 Information Request No. NLWD 27

Pg 27-2 (Bullet 1) Wetlands: Should this read: "Minimize the impact to wetlands by restricting construction activities…"?

Alderon Response to IR No. NLWD 27

The bullet in Table 27 (EIS, Volume 1) should read "*Minimize the effect to wetlands by containing construction activities to the PDA, when feasible.*"

2.8.28 Information Request No. NLWD 28

Pg 27-3 (Bullet 11) Habitat: What is meant by invasive species management? A list of species considered invasive and how these species will be managed/monitored should be discussed.

This comment applies to all references of invasive species management in **Chapter 19** and in the rest of this table.

Alderon Response to IR No. NLWD 28

Invasive species management (Section 19.6 of Volume 1 of the EIS) is intended primarily as a hands-on strategy employed to deal with the management of non-native and invasive plant species with the aim of maintaining native plant biodiversity associated with the Project. The EIS focused on invasive plant species because Project activities are not anticipated to provide a conduit for invasive wildlife species. Although non-native invasive species are already present within the vicinity of the Project, construction and operations activities have the potential to increase the spread and establishment of these species into areas adjacent to disturbed sites.

The term “invasive plant” as it relates to this EIS refers to any invasive alien plant species that has the potential to pose undesirable or detrimental effects on humans, animals or ecosystems. Invasive plants have the capacity to establish quickly and easily on newly disturbed sites, and they have widespread negative economic, social and environmental effects.

Invasive alien plant species with potential to occur in the western Labrador, may include, but are not limited to Canada thistle (*Cirsium arvense*), coltsfoot (*Tussilago farfara*), tansy ragwort (*Senecio jacobaea*), common dandelion (*Taraxacum officinale*), pineappleweed (*Matricaria discoidea*), in addition to that of common, non-native agronomic species including clover (*Trifolium* spp.*),* common timothy (*Phleum pratense*), and fowl bluegrass (*Poa palustris*).

Although a variety of mitigation measures for minimizing effects on native plant species / habitats are also outlined in Section 20.6.1 of Volume 1 of the EIS, details regarding the invasive species management or weed control program will be outlined as part of a Project-specific EPP that will be developed in consultation with the appropriate regulatory authorities for the Project prior to start of the construction phase. Where required, the identification and mapping of invasive plant populations and conducting of weed control measures will be implemented and will occur throughout the operational period and during decommissioning.

In order to be effective, management strategies directed at invasive species or weed control should be undertaken in a coordinated and strategic manner, with focus on the prevention of the introduction and spread of invasive species. Non-native and invasive species mitigation measures may include, but not be limited to the following:

- Minimizing areas of bare ground during Project construction, operation and decommissioning;
- Using a certified native seed-mix for erosion control, and using re-vegetation species that are compatible with the intended end land use; and
- Using recommended re-vegetation techniques and species that will limit the establishment and spread of non-native and invasive species.

Revised EIS, Volume 1, Section 20.11 Next Steps on Pg 20-67 to read:

“Protection measures for SAR / SOCC will be incorporated into the EPP prior to construction. Locations of plant SOCC will be delineated prior to construction for avoidance, if possible.

Where occurrences of plant SOCC cannot be avoided, transplantation to alternate sites of suitable habitat will be investigated."

Additionally, invasive plant species management measures will be included in a site-specific EPP.

2.8.29 Information Request No. NLWD 29

Pg 27-4: Are there any wildlife species relocations proposed, as is the case with fish?

Alderon Response to IR No. NLWD 29

Amphibian relocations will be considered. Amphibians have limited dispersal capability and populations located within areas where heavy disturbance, such as grubbing or development of open pit mines can be expected to experience mortality. The most effective way to relocate amphibians would be to net waterbodies where amphibian larvae are present during the early summer and move the larvae to suitable habitat. Capture and relocation of adult amphibians would be less effective since they are more cryptic and have greater mobility.

2.8.30 Information Request No. NLWD 30

Pg 27-12: What is the description of compliance monitoring? More detail is needed on how this will be carried out.

Alderon Response to IR No. NLWD 30

The compliance program will be a part of the final design and permitting stage of the Project. The formal specification of the compliance program is likely to be contained within the operating permit to be issued by the Newfoundland and Labrador Department of Environment and Conservation (NLDOEC). At this time, it is possible to say that it will likely broaden the surveillance that is provided by the networks operated by existing local industry, and it is therefore likely to be similar in operational features.

2.8.31 Information Request No. NLWD 31

What are the proposed education initiatives?

Background and Scope of Comment

In 2005, the Towns of Labrador City and Wabush signed individual Municipal Stewardship Agreements with the province agreeing to conserve habitat and its associated biodiversity within their respective municipal planning boundaries. Specific conservation areas or habitats recognized as significant are known under the Stewardship Agreement process as "Management Units".

In both Labrador City and Wabush, management unit areas are comprised primarily of wetlands and wetland associated upland which were conserved in recognition, both in terms of their

ecological value, but also their social/cultural/recreational contribution to the long-term quality of life in these towns. Under the terms of the Stewardship Agreements and associated Habitat Conservation Plans, management units are intended to be set aside from development and are considered “no loss areas”.

Towns that enter into stewardship agreements are entitled to become members of the Stewardship Association of Municipalities Inc. This incorporated non-profit entity has a current membership comprised of 28 municipalities ranging from St. John’s and Torbay on the east coast, to Grand Falls Windsor and Gander in central, and Happy Valley-Goose Bay and Labrador City and Wabush in the west.

The scope of comment and proposed mitigations herein is limited to the scope of the municipal stewardship agreements currently in place with the Towns of Wabush and Labrador City. These agreements require provincial input to any development being proposed within management units of the impacted municipality as well as through any triggered environmental assessment process.

Alderon Response to IR No. NLWD 31

Alderon will work with the Municipalities to develop Community Conservations Initiatives under Corporate Municipal Stewardship Agreements. Conservation initiatives would likely include educational initiatives, subject to the approval of the Municipality.

2.8.32 Information Request No. NLWD 32

1) Impacts in the Town of Wabush:

a) Elephant Head Management Unit: Alderon indicates that the preferred route of the main project access road, rail-line and power line will pass just south of the Elephant Head Management Unit. As such the primary impact will be general disturbance, in particular, during the construction phase of the project but also during the operations phase of the project.

Alderon Response to IR No. NLWD 32

Volume 1 of the EIS, Page 19-34, Paragraph 3 should read:

“Operation and Maintenance

Project effects on habitat and protected areas will occur primarily, if not exclusively, during the construction phase “of the Project but also during the operation phase of the Project”. The effects due to operational maintenance activities (access road grading and ditching) and siltation from tailings will be managed so that erosion and sediment run-off are controlled. Any resulting effects would be low in magnitude and localized.”

2.8.33 Information Request No. NLWD 33

b) Jean Lake Rapids Management Unit: Alderon indicates that the preferred route of the main project access road, rail-line and power line is to cross near the center of the Jean Lake rapids in the same location as an existing dirt surface, multi-culvert, bridge whose existence pre-dates the Wabush Stewardship Agreement. It is anticipated that the primary impact on this area would be during the construction phase of the project when existing bridge infrastructure will need to be updated and significantly widened to accommodate an increased volume and heavier vehicular traffic. In addition, a rail bridge is proposed to be constructed and the main site power line infrastructure will need to span this water crossing.

Alderon Response to IR No. NLWD 33

The conservation function provided by the Jean Lake Rapids Management Unit will not be impaired as a result of the Project. Alderon has designed its activities to use the same location as the current overpass, enhance it during construction, and identify appropriate mitigation measures to reduce potential disturbance to a not significant level in the surrounding area for potential staging Harlequin Duck or other environmental components.

The existing crossing at Jean Lake Rapids consists of five culverts, approximately 100 m downstream of the outflow from Wahnahnish Lake and 500 m upstream of Jean Lake, and is currently used by the general public and others; the stream crossed connects Wahnahnish Lake to Jean Lake.

Alderon designed the rail and road crossing at the Jean Lake Rapids to address the potential effects of construction and operation phases of the Project on the local environment. The Project will require this crossing to accommodate a single rail-line, main road access, power line, and snowmobiles. The required crossing will be a single span precast concrete structure that will be constructed adjacent to the existing crossing. The structure will be designed to maintain navigability by allowing for a navigable envelope of at least 4 meters wide by 2 meters high above mean annual summer low flows.

2.8.34 Information Request No. NLWD 34

2) Impacts in the Town of Labrador City:

a) Pike Lake South Management Unit: The development of the primary iron ore body, known as the “Rose Pit” and the associated “rock dump” to the north will result in a total unavoidable and un-mitigable loss of approximately 400 hectares of habitat within the actual Management Unit footprint. It will not be possible to restore, rehabilitate or reclaim any of this area through proposed mine closure activities relative to the area’s current ecological, social, cultural and recreational values.

Alderon Response to IR No. NLWD 34

Alderon is proposing to develop a Sustainability Management Framework which will include an Environmental Management System (EMS) that will provide detailed management of regulatory

and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Alderon has committed to the implementation of several mitigation measures to reduce the inadvertent effects on avifauna and other wildlife species, and on wetlands. Proposed mitigative measures include the following:

- Minimize the construction footprint;
- Avoid sensitive species and their habitats where feasiblet;
- Rehabilitate access routes that are no longer needed;
- Maintain natural buffers around wetlands and riparian zones;
- Comply with provincial and federal legislation, permits, approvals, and guidelines;
- Conduct invasive species management;
- Conduct progressive rehabilitation and wetland restoration;
- Restrict clearing activities to outside of the bird breeding season, whenever feasible;
- Restrict clearing and other activities within 800 m of an active raptor nest, and within 200 m of an inactive nest;
- Limit noise levels whenever feasible;
- Limit lighting to that required for safe operation;
- Prohibit hunting or harassment of wildlife on Project site;
- Minimize effects on wetlands by restricting construction activities to the PDA, and minimize Project footprint;
- Maintain natural drainage, where possible;
- Maintain hydrology at stream crossings;
- Implement erosion and sediment control measures;
- Pursue a Corporate Stewardship Agreement between the municipalities of western Labrador and Alderon (A memorandum of understanding will be signed that would outline all aspects of this relationship);
- Implementation of an Avifauna Management Plan prior to construction. The avifauna management plan will identify specific measures that will be undertaken to avoid the harassment of migratory birds, nests, and eggs, particularly during the 1 May through 31 July period.

Compliance monitoring will be conducted to confirm that mitigation measures are appropriately implemented and effective (e.g., culverts and stream crossings, delineating locations sensitive areas). Water quality and biota sampling will also be done as per MMER requirements. In addition, a variety of monitoring and education initiatives will also be considered.

2.8.35 Information Request No. NLWD 35

At multiple points throughout the EIS submission Alderon proposes, as a remedy for the above described impacts on the municipal stewardship agreements, the negotiation of a corporate stewardship agreement between the directly impacted parties; the company, the municipalities and the province. The company further indicates that activities are currently ongoing as it relates to this initiative but includes no commitment or statement regarding what such an agreement might contain.

Alderon Response to IR No. NLWD 35

Bilateral negotiations are ongoing between Alderon and the town of Labrador City. The details of conservation initiatives will be developed and agreed upon by the parties.

2.8.36 Information Request No. NLWD 36

Part II- Page 17-3 indicates that remedies proposed by consulted stakeholders in relation to the impact of the project on the municipal stewardship agreements include “dedicating a new wetland, use of money for interpretation sites, viewing area at Wabush Narrows, education and clean-up of historically impacted sites.”

Alderon Response to IR No. NLWD 36

Alderon and the Town of Labrador City are in the process of identifying acceptable conservation initiatives. These initiatives will form part of the Corporate Stewardship Agreement which is under negotiation between the Town and Alderon.

2.8.37 Information Request No. NLWD 37

The company also indicates (Part I- Page 13-52) that, in addition to pursuing a corporate stewardship agreement, it would seek to “establish a replacement protected area that performs the regional functions of the Pike Lake South Management Unit.”

Alderon Response to IR No. NLWD 37

Initially, Alderon sought to identify replacement habitat that performs the regional function of the Pike Lake South Management Unit. Work was initiated and field surveys were conducted by Alderon to find suitable replacement habitat within the municipal planning boundaries. In a subsequent meeting with a Department of Environment and Conservation representative and the Town of Labrador City, Alderon presented candidate replacement areas for discussion. Unfortunatly, at this meeting Alderon was informed by the government that it was highly unlikely that replacement habitat could be re-established within the municipal planning boundaries as the majority of the lands were under active mineral claims.

2.8.38 Information Request No. NLWD 38

1) Town of Wabush:

a) Elephant Head Management Unit: Existing proposed general construction and pollution pre-cautionary measures relating to the sensitivity of this area in supporting breeding waterfowl and wetland associated biodiversity should be adequate to maintain its value and primary wetland ecological functions. In particular, care should be taken to ensure contractors are aware of the significance of the site when carrying out their activities. As the primary value for which this area was first conserved relates to breeding waterfowl, activities undertaken during the May-June period would have the most general disturbance impact. Lastly, this area should be included in long-term effects monitoring studies as it relates to avian species and water quality impacts.

Alderon Response to IR No. NLWD 38

Alderon is proposing to develop a Sustainability Management Framework which will include an Environmental Management System (EMS) that will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Alderon has committed to the implementation of several mitigation measures to reduce the inadvertent effects on avifauna and other wildlife species, and on wetlands. Proposed mitigative measures include the following:

- Minimize the construction footprint;
- Avoid sensitive species and their habitats where feasible;
- Rehabilitate access routes that are no longer needed;
- Maintain natural buffers around wetlands and riparian zones;
- Comply with provincial and federal legislation, permits, approvals, and guidelines;
- Conduct invasive species management;
- Conduct progressive rehabilitation and wetland restoration;
- Restrict clearing activities to outside of the bird breeding season, whenever feasible;
- Restrict clearing and other activities within 800 m of an active raptor nest, and within 200 m of an inactive nest;
- Limit noise levels whenever feasible;
- Limit lighting to that required for safe operation;
- Prohibit hunting or harassment of wildlife on Project site;
- Minimize effects on wetlands by restricting construction activities to the PDA, and minimize Project footprint;
- Maintain natural drainage, where possible;

- Maintain hydrology at stream crossings;
- Implement erosion and sediment control measures;
- Pursue a Corporate Stewardship Agreement between the municipalities of western Labrador and Alderon (A memorandum of understanding will be signed that would outline all aspects of this relationship);
- Implementation of an Avifauna Management Plan prior to construction. The avifauna management plan will identify specific measures that will be undertaken to avoid the harassment of migratory birds, nests, and eggs, particularly during the 1 may through 31 July period.

Compliance monitoring will be conducted to confirm that mitigation measures are appropriately implemented and effective (e.g., culverts and stream crossings, delineating locations sensitive areas). Water quality and biota sampling will also be done as per MMER requirements. In addition, a variety of monitoring and education initiatives will also be considered.

2.8.39 Information Request No. NLWD 39

b) Jean Lake Rapids Management Unit: Alderon indicates that the preferred route of the main project access road, rail-line and power line is to cross the Jean Lake rapids. As it relates to the project access road there is an existing dirt road bridge with multiple culverts across the rapids whose existence pre-dates the Wabush Stewardship Agreement being signed.

However, this area is also part of the town's protected water supply area and links the water supply intake pond to Jean Lake, the town's major recreational aquatic park. Part I- Page 2-101 of the EIS submission presents three alternate rail-line routes which would not cross through this management unit and would be preferred options in relation to minimizing environmental impact on the Jean Lake Rapids Management Unit.

It is anticipated that the primary impact on this management unit would be during the construction phase of the project when existing bridge infrastructure will need to be updated and significantly widened to accommodate more and heavier vehicular traffic. In addition, a separate rail bridge will need to be constructed and the main site power line infrastructure will need to span this water crossing.

Alderon Response to IR No. NLWD 39

An evaluation of the road / rail options was presented in Section 2.8.3 Transportation of Volume 1 of the EIS. From a variety of environmental, engineering and economic perspectives, the selected route at the existing Jean Lake Rapids Crossing is the most acceptable. Regardless, a series of mitigation measures are identified by Alderon to manage potential environmental effects in the vicinity of the proposed route to levels that are rated as not significant, as follows:

- Construction activities will be planned and executed in a manner to protect the PWSA. An Environmental Protection Plan (EPP) for construction within the PWSA will be

developed as part of the overall Environmental Management System and Sustainability Management Framework for the Project.

- The rail line will be operated as safely as possible to reduce the risk of a derailment by transporting fuel and consumables separately from the main iron ore cars, reducing the speed of the shipment, only moving fuel and consumable railcars by daylight and sending an inspection vehicle (hi-rail pick-up truck) ahead of the fuel cars to inspect the line for damage and obstructions so that the train can be stopped well in advance of any problems on the route. In addition, the movement of fuel to the site will employ new, double-jacketed tank cars that are designed to withstand certain types of roll-overs and not spill.
- To address the unlikely event that there is a spill, the rail and road corridor through the PWSA will be designed as a spill containment area with lined ditches and berms along both sides of the corridor to capture spills, oil / water separators (OWS) will be installed that will capture fuels so that they do not enter Wahnahnish Lake, and sluice gates will be installed that will be shut before the fuel train moves through the PWSA to stop flow in the event of a spill.
- Emergency response plans will be established to provide protocols to quickly react to any spills in order to protect the water supply. The operators of the hi-rail inspection vehicle that travels in front of the fuel train will be trained members of the emergency response team and will be in constant communication with the locomotive and mine operations to provide rapid response in the event of a spill.

Alderon commits to studying and implementing options to ensure the continued supply of water to the Town of Wabush in the unlikely event of a spill. Alderon will also consult and work with the NLWR and the Town of Wabush with the objective of identifying an alternative water supply location that can be used for emergencies and also as a back-up for maintenance and operational issues with the existing water supply system.

2.8.40 Information Request No. NLWD 40

It should be understood that these river rapids were originally conserved via the municipal stewardship agreement by virtue of them remaining open and/or ice-free early and late winter. As such, their primary wildlife value is as a congregating resting/feeding area for migratory waterfowl and other avian species in the early spring and late fall when other nearby waterbodies remain frozen and are largely inaccessible for feeding. The site is also known for multiple sightings of the endangered Harlequin duck during these time periods. Generally speaking, the area is not breeding habitat for waterfowl species.

Avoidance of construction in the immediate vicinity (approximately 30 meters from the waters edge) of the rapids during these 3-4 week spring (April) and fall (November) freeze up and melt periods could largely mitigate the impact of the construction period. The annual timing of this could be implemented in consultation with the Town of Wabush in each affected season.

Alderon Response to IR No. NLWD 40

Consistent with the *Migratory Bird Conservation Act* (MBCA) and *Migratory Bird Regulations* (MBR) (i.e., "avoidance guidelines to reduce incidental take" and "planning ahead to reduce risks to migratory bird nests"), an Avifauna Management Plan will be developed and reviewed by Environment Canada-CWS prior to Construction. Further to this, mitigation measures will be implemented to reduce the inadvertent effects on the avifauna (and other wildlife) species, including avoidance of sensitive species and their habitats within feasible extent, and compliance with provincial and federal legislation, permits, approvals, and guidelines.

In terms of the occasional observations of Harlequin Duck at this location, Alderon recognizes this species may use this location during staging activity. Harlequin Duck occur in fast-water streams in Labrador (Trimper et al. 2008), and has been observed in the Study Area (at the Jean Lake Rapids Management Unit [Wabush 2009]) on at least one occasion in recent years (C. Porter, pers. comm.) and 10 additional observations have been recorded in the western Labrador region between 2000 and 2009 (G. Parsons, pers. comm.). This species of special concern was not observed during any of the 2011 surveys.

Examples of relevant mitigation measures outlined in the EIS to address potential effects include:

- Project infrastructure will be sited (or routed [access roads / trails and rail lines]) to avoid, to the extent practical, important habitats, and the minimum footprint practical will be used for construction activities;
- Sediment barriers will be installed immediately after initial disturbance where heavily sediment-laden surface runoff has the potential to flow into any lake, river, stream, or wetland. Such measures may include (but are not limited to) surface water diversion ditches, silt fences, stone or brush cover, erosion control fabrics, settling ponds and other sediment filtration, and flow management products;
- Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete;
- Upon completion of construction, disturbed areas (e.g., exposed mineral soils) and construction staging areas not required for operation / maintenance and / or access of the mine will be graded to establish drainage patterns, blend with the natural terrain and allowed to revegetate, either naturally or using an appropriate seed mixture, to promote native vegetation re-establishment. Seed mixtures will be selected as appropriate to the site conditions;
- If clearing occurs during the migratory bird breeding season (i.e., mid-May to July), procedures to reduce or eliminate the possible disturbance of active nests will be included in the EPP; and

- Waterbodies and wetland buffers (e.g., extra work area setbacks, refueling restrictions) will be clearly marked with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

Based on the incorporation of these mitigation measures and consideration of environmental interactions, potential environmental effects at the Jean Lake Rapids are therefore deemed to be not significant on Harlequin Duck or other environmental components as a result of this crossing.

References:

Parsons, G. Naturalist in Labrador West, Newfoundland and Labrador. Correspondence in 2011-2012.

Porter, C. Conservation Officer, Newfoundland and Labrador Department of Natural Resources, Wabush, Newfoundland and Labrador. Correspondence in September 2011.

Town of Wabush. 2009. Habitat Conservation Plan for the Town of Wabush. Prepared with the assistance of the staff of the Eastern Habitat Joint Venture. 57 pp.

Trimper, P.G., P.W. Thomas and T.E. Chubbs. 2008. Harlequin Ducks in Labrador. Waterbirds 31 (Special Publication 2): 32-43.

2.8.41 Information Request No. NLWD 41

Town of Labrador City:

a) Pike Lake South Management Unit: The development of the “Rose Pit” and the associated “rock dump” to the north will result in a total unavoidable and un-mitigable loss of approximately 400 hectares of land within the actual Management Unit footprint. It will not be possible to restore, rehabilitate or reclaim any of this area through proposed mine closure activities relative to the area’s current ecological, social, cultural and recreational values. The Labrador City Stewardship Agreement indicates that this area is to be a “no loss” area in terms of wildlife habitat. As such, approval of the development application in its current format would be in contravention of the agreement.

Alderon Response to IR No. NLWD 41

It is Alderon’s position that the establishment of the Pike Lake South Management Unit failed to take into account prior and existing mineral claims held by Altius Resources Inc and therefore the rights of the license holder were not considered.

In view of the importance of mining to the economic viability of the region and given the legal issues associated with the creation of the Pike Lake South Management Unit as a protected area without recognition of the underlying mineral rights or consultation with the holders of those rights, Alderon proposes to work with the Town of Labrador City to implement a strategy that will permit the development of the Project while advancing the protection of wetlands.

2.8.42 Information Request No. NLWD 42

Drainage of surrounding ponds

The proposed drainage solution (Part II- Page 16-142), to reroute waterflow around the Rose Pit, is likely sufficient to maintain the waterflow, at least in terms of quantity, between the upstream and downstream ponds which eventually flow into Pike Lake. Long-term monitoring is suggested to help determine the seasonal impact on the water quality and quantity as changes will impact vegetation growth and associated wildlife.

Alderon Response to IR No. NLWD 42

Comment acknowledged. The Proponent recognizes that long-term water quantity and quality monitoring will be required throughout the life of the Project for environmental protection. The specific details of monitoring methods, parameters, frequency and reporting will be determined during detailed design and in consultation with regulatory authorities. It is expected that water quantity and quality monitoring will be a requirement of NLDOEC's Certificate of Approval as well as NLDNRs approval of dams.

2.8.43 Information Request No. NLWD 43

Wetland and Upland Loss

In recognition of the loss of wetland and upland habitat within the Pike Lake South Management Unit, Alderon has proposed to negotiate a corporate stewardship agreement between the affected parties. The company further indicates that activities are currently ongoing as it relates to this initiative but makes no clear commitments or statements within the EIS submission as to what such an agreement might contain.

Alderon Response to IR No. NLWD 43

Alderon has entered in to an MOU with the Town of Labrador City which commits both parties to working together to resolve a number of issues. Alderon has also advanced a draft Corporate Municipal Stewardship Agreement to the Town of Labrador City. Bilateral negotiations are ongoing between Alderon and the town of Labrador City. The details of conservation initiatives will be developed and agreed upon by the parties.

2.8.44 Information Request No. NLWD 44

Part II- Page 17-3 indicates that remedies proposed by consulted stakeholders in relation to the impact of the project on the municipal stewardship agreements include "dedicating a new wetland, use of money for interpretation sites, viewing area at Wabush Narrows, education and clean-up of historically impacted sites."

Alderon Response to IR No. NLWD 44

This is a repeat of NLWD 36.

2.8.45 Information Request No. NLWD 45

The company also indicates (Part I- Page 13-52) that, in addition to pursuing a corporate stewardship agreement, it would seek to "establish a replacement protected area that performs the regional functions of the Pike Lake South Management Unit."

Alderon Response to IR No. NLWD 45

This is a repeat of NLWD 37.

2.8.46 Information Request No. NLWD 46

A corporate stewardship agreement is recommended that should address impacts to the Pike Lake South Management Unit and to the Municipal Stewardship Agreement of the Town of Labrador City. As such, the corporate stewardship agreement should be initiated directly between the company and the Town of Labrador City. As administrator of the municipal stewardship program, the NL Wildlife Division will provide advice to the Town of Labrador City on both the terms of the agreement, including the scope and duration, along with how the proposed terms of any agreement would impact, or is consistent with, the existing municipal stewardship agreement terms and goals.

Alderon Response to IR No. NLWD 46

Alderon agrees that the negotiation of a Corporate Stewardship Agreement is bilateral and between the company and the town.

2.8.47 Information Request No. NLWD 47

Pg 13-36 of Vol 1: The Regional Study Area (as well as Water Resource SA) should be based on watershed boundaries.

Alderon Response to IR No. NLWD 47

The identification of the Wetland Regional Study Area (RSA) was based on the extent of existing watershed boundaries and stream layers from digital datasets in GIS format, consistent with the objectives of the Wetlands study, where applicable. Watershed boundaries are typically defined by topographic divides and delineate areas where surface water runoff drains into surface waterbodies, including lakes, ponds, rivers, streams, and wetlands. The western and southern border of the RSA is bounded by the Québec-Labrador border, which follows existing watershed boundaries and the eastern limit of the RSA follows a subwatershed boundary associated with Wahnahinish Lake. Effects on topography, local hydrology, and surface water (including wetlands) associated with Rose Pit and the Rose North Waste Rock Disposal Area for example are located east of the provincial topographic divide and therefore restricted to Newfoundland and Labrador. As indicated on page 16-60 of Volume 1 of the EIS, "*With respect to groundwater, preliminary assessment suggests that the effects of mine dewatering will be limited to the watershed hosting the open pit, with drawdown effects not expected to extend more than 1500 m from the open pit mine*." Adverse effects on wetlands in the area of

Lac Daviault, Fermont, and beyond are not anticipated. The remaining portions of the RSA boundaries are defined by the extent of the waterbodies within the Local Study Area and / or the extent of the RSA used for other VECs (e.g., Birds and Other Wildlife), which is based on an approximate 13 km radius around the Project Development Area.

2.8.48 Information Request No. NLWD 48

Section 17.1: The value of wetlands in the boreal ecosystem for carbon storage is substantial and should be acknowledged.

Alderon Response to IR No. NLWD 48

Alderon acknowledges that peatlands throughout the boreal ecosystem are among the most important stores of atmospheric carbon available and that peatland ecosystems contain disproportionately more organic carbon than other terrestrial ecosystems. As identified in Table 17.8 of Volume 1 of the EIS, all wetlands identified within the LSA were considered to contribute to the function of carbon sequestration and thus the long-term storage of fixed carbon in live and preserved (peat) biomass. Further acknowledgement of the importance of wetlands in the boreal ecosystem in contributing to this function is made by updating EIS, Volume 1, Section 17.6.2, Characterization of Residual Project Environmental Effects, page 17-36, end of paragraph 2, with the following text:

"*However, estimates of contributing area for some wetland functions are expected to be highly associated with their overall size. In particular, by storing large amounts of organic matter in the form of peat, fens contribute to the function of carbon storage and sequestration throughout much of their extent. Due to the abundance of peatlands throughout the region, the value of wetlands in the boreal ecosystem in contributing to the function of carbon sequestration and storage is substantial."*

Further discussion on the ability of these wetlands to contribute to this function is provided in the Wetland Baseline Study report provided in Appendix I of the Volume 1 of the EIS, as follows:

"*Wetlands can act as both sinks and sources for greenhouse gases. Wetlands may contribute to the mitigation of global climate change if the fixation of atmospheric carbon (carbon dioxide) through photosynthesis exceeds the release of carbon to the atmosphere through the decomposition of organic material (carbon dioxide, methane), on a long term basis (greater than one year). Although individual wetlands can vary widely in their annual net carbon balances, those with peat formation and woody vegetation are typically attributed this function, as these features represent long-term storage of sequestered carbon."*

The accumulation of biomass within wetlands occurs when net primary productivity exceeds losses of organic matter due to decomposition, disturbances (e.g., fires), and dissolved organic carbon export. The rate of peat production within wetlands is directly linked to that of carbon sequestration. In fens and bogs, microbial activity and ensuing decomposition rates are adversely affected by cold soil temperatures, low nutrient availability, and a water table at or near the surface of the wetland for most of the year. As such, bogs and fens can be important

carbon sinks by storing large volumes of organic matter. However, because nutrients are more available and pH is higher in fens (especially rich fens) than bogs, microbial activity and rates of decomposition are also greater. As such, fens have a much slower rate of peat accumulation, are often less than 1 m in depth, although those within the Study Area were found to have peat depths varying from 1.4 to 2.8 m. Marshes may also be important for sequestering carbon, although their ability to do so depends on the hydrological regime (Tiner 2003; NSE 2011). In particular, wetlands that are saturated throughout the year tend to accumulate peat and act as carbon sinks. In contrast, wetlands with large seasonal water level fluctuations are typically poor at sequestering carbon, since exposure of the substrate to air during drawdown periods promotes rapid decomposition of organic matter deposited in the sediment. The rate of plant decomposition in marshes is often equal to or greater than the rate of plant biological productivity, resulting in minimal to no peat accumulation. Additionally, although carbon is stored in marshes in the form of living plant biomass, the amount of carbon stored over several seasons is likely to remain the same.

The large majority of wetland within the Study Area is comprised of fen with extensive peat development. Because marshes within the Study Area are likely to be at least seasonally flooded (i.e., as opposed to temporarily flooded), and were typically associated with shore fen wetland components, they are also considered here to contribute to the function of carbon sequestration and storage. As such, all wetlands within the Study Area are considered.

2.8.49 Information Request No. NLWD 49

Section 17.1.1: A description of how economic and technical feasibility is determined would be helpful in understanding how assessments/decisions were made for the EIS document.

Alderon Response to IR No. NLWD 49

As identified in the EIS, Volume 1, Section 17.1.1, “technically and economically feasible mitigation measures to minimize residual adverse environmental effects” are to be identified. A variety of mitigation measures for minimizing impacts to wetlands are outlined in Volume 1, Sections 17.6.1 and 17.6.3 (i.e., minimize wetland loss and restrict construction activities to the PDA; comply with provincial and federal legislation, permits, approvals and guidelines; maintain hydrology at stream crossings; maintain natural drainage where possible; erosion and sediment control; invasive species management; progressive reclamation, including wetland restoration; and pursuing a Corporate Stewardship Agreement). As stated in Volume 1, Sections 17.6.1, “the timing, location, extent, type of proposed Project activities and existing legislated requirements will inform the level of restriction or mitigation that will be implemented to mitigate effects to wetlands”.

The technical and economic feasibility of the Project has been assessed within a Feasibility Study prepared in accordance with the National Instrument (NI) 43-101 guidelines and standards. NI 43-101 is a national instrument for the Standards of Disclosure for Mineral Projects within Canada. The purpose of the NI 43-101 is to ensure that misleading, erroneous or fraudulent information relating to mineral properties is not published and promoted to investors on the stock exchanges overseen by the Canadian Securities Authority. The NI is a codified set

of rules and guidelines for reporting and displaying information related to mineral properties owned by, or explored by, companies which report these results on stock exchanges within Canada. In the Feasibility Study, the Mineral Reserve (that portion of the Mineral Resource with proven economic value) is estimated. This, in combination with the process flowsheet, plant throughput, concentrate production rate, and the estimated cost of processing facilities, infrastructure, supporting services, and other factors is used to assess the economic feasibility and associated economic risks of the Project.

The economic feasibility of the Project is determined by the market and as reported in the NI 43-101. Economic constraints are therefore dependent on the market and the associated feasibility-stage cost estimate as presented in the NI 43-101. Technical constraints are determined by several factors including reliability of process and materials, proven ability to conduct similar projects in similar settings, and safety.

Likely environmental effects, including effects to wetlands, are typically mitigated by reduction and avoidance through Project design, or by alternative mitigations such as restoration where feasible. The cost of these mitigations are factored into the overall cost of the Project.

Decisions regarding Project design have been greatly influenced throughout the environmental assessment process. The Project has been designed and modified as outlined in Section 5.1 of Volume 1 of the EIS, to address issues that have been raised by stakeholders. This includes, where economical and technically possible, the Project was designed to avoid waterbodies and Wetland Management Units.

2.8.50 Information Request No. NLWD 50

Section 17.2.1: The decision on what is a directly affected wetland is not sufficiently inclusive. Wetlands that are not completely lost or do not have severe alteration to habitat may still be directly and significantly affected. Perhaps another measure can be used to determine if wetlands are directly affected (e.g., all wetlands with >25 percent loss of function or habitat?)

Alderon Response to IR No. NLWD 50

As defined in the EIS, Volume 1, Section 17.2.1, a “direct” effect to a wetland is one which causes a ground disturbance that results in a loss or severe alteration of wetland habitat. This definition does not require for the entirety of a wetland to be affected, and data on the estimated amount of area to be directly affected by the Project (as provided in Volume 1, Tables 17.9 and Table 17.10) reflect the area of wetland impacted by surface disturbance, regardless of size. As such, the identification of “direct” effects to wetlands used in Section 17 of Volume 1 is considered more inclusive than that being suggested by the NL Wildlife Division.

2.8.51 Information Request No. NLWD 51

Section 17.2.1.1: Why are the sizes of the Local Study Area (LSA) / Regional Study Area (RSA)/Project Development Area (PDA) reported in “ha” here but as “km²” in other chapters? The extent of effects should be relatively similar for wetlands, SAR and other wildlife; therefore, same LSA/RSA should be used.

Alderon Response to IR No. NLWD 51

Although presented in hectares, the size of the LSA, RSA, and PDA are easily converted to km^2 for comparison with the area of the study areas used for other VECs (e.g., Wetland LSA = 1.6 km^2 and the Wetland RSA = 7.4 km^2).

The extent of effects related to wetlands are expected to be similar for SAR and other wildlife, the extent of the LSA and RSA have been tailored to better represent the availability of information on wetlands and their connectivity across the landscape. In particular, the boundaries of the RSA were refined to follow those of watersheds (i.e., as suggested by the Newfoundland and Labrador Wildlife Division in Comment NLWD 47), whereas the LSA included the extent of the area for which detailed air photos were available (i.e., which were required for detailed wetland delineation, classification, and assessment).

2.8.52 Information Request No. NLWD 52

Section 17.2.3.1: Please clarify if there are federal lands within the project area and how much of the area is comprised of federal lands.

Alderon Response to IR No. NLWD 52

The Project and its associated components in western Labrador do not overlap with any federal lands, as defined under CEAA.

No federal authority is the proponent of the Project or providing financial assistance to the proponent; no federal lands are being sold, leased or otherwise disposed; no requirement for a federal permit, license or other approval is anticipated.

Alderon is aware of their responsibilities and duties under environmental legislation and intend to construct and operate the Project in compliance with all federal and provincial Acts and regulations.

Alderon is also familiar with the *Federal Policy on Wetland Conservation* (*1991)* which indicates that for projects on federal lands, the CEAA requires that before federal authorities make any decision that would allow a project to proceed; they must determine whether a project is likely to cause significant adverse environmental effects, including those on wetlands and wetland function.

2.8.53 Information Request No. NLWD 53

Section 17.3: Significant adverse environmental effects should also be considered when there is loss or significant degradation of any specific class of wetland beyond a threshold area or percent of area within the project area. This could be similar to the overall 10 percent loss threshold. Please explain why the 10 percent loss was used as a threshold. What is the rationale behind this amount?

Alderon Response to IR No. NLWD 53

As identified in the EIS, Volume 1, Section 17.3, a determination of a significant adverse residual environmental effect on wetlands has, in part, been identified as one that "affects a high proportion of wetlands, regionally (greater than 10 percent of wetland area within the RSA)". Because detailed wetland classification information is currently only available for the LSA (including information on wetland class, form, and physiognomic vegetation types, as identified by the Canadian Wetland Classification System), it is not possible to quantify the effects of the Project on specific wetland types beyond the LSA (i.e., within the entire RSA). However, consideration of the effects of the Project on wetland form have been integrated into the definition, as a significant adverse effect on wetlands is also considered one that "results in the permanent loss of a wetland type (class and form), and its associated functions in the LSA and RSA". With respect to the specific recommendation that "significant adverse environmental effects should also be considered when there is loss or significant degradation of any specific ***class*** of wetland beyond a threshold area or percent of area within the project area", it is important to note that the results of the ELC analyses indicate that the various "fen" vegetation types and "riparian marsh / fen" (i.e., only "fen" and marsh" wetland classes are identified with the PDA and LSA) are well represented throughout the RSA.

A 10 percent loss of wetlands within the RSA was identified as a threshold for a determination of a significant adverse environmental effect to wetlands in consideration of the relative size of the PDA in comparison to the RSA. Because the PDA (approximately 2,400 ha) is just over 3 percent of the size of the RSA (approximately 73,900 ha), an effect to 10 percent of the wetlands within the RSA would represent a relatively high amount of wetland affected in relation to the footprint of the Project. Although there is a lack of information on the regional role of wetlands and thresholds related to impacts to important functions within the landscape, the 10 percent threshold identified here is considered conservative.

2.8.54 Information Request No. NLWD 54

Table 17.2: Some of these classifications of potential environmental effects are probably conservative; more detail should be included on how these numbers were reached and what information was considered.

For example: It is difficult to understand how 'open pit mining' can be ranked a '1' and its resulting effects be limited to acceptable levels? This will constitute complete alteration and loss of areas of habitat for some species.

Alderon Response to IR No. NLWD 54

Alderon has taken a conservative approach to the classification of potential environmental effects for those Project activities (i.e., construction, operation and maintenance, and decommissioning and reclamation) with potential to affect wetland quality and quantity. With respect to the NL Wildlife Division's request for additional detail, the Reviewer is referred to the rationale as provided for each Project activity with interactions ranked as 0 or 1 (0 - no interaction occurs and 1 - interaction occurs however the resulting effect can be managed

through proven mitigation and codified practice) in EIS, Volume 1, Chapter 17, Section 17.4, pages 17-12 to 17-15 and Section 17.6, pages 17-33 to 17-42 of the EIS.

For the purposes of the evaluation of potential Project interactions on Wetlands, interactions are ranked as "2", with potential to result in "significant" environmental effects on Wetlands (assessed in detail in EIS, Volume 1, Section 17.6) include all site preparation activities (including clearing, excavation, filling, material haulage, grading, removal of overburden, and stockpiling) associated with construction of Project and all associated infrastructure. During the operations phase of the Project, open pit mining, tailings disposal in the TMF and waste rock disposal on surface are not anticipated to involve further ground disturbance activities in previously undisturbed areas or the addition of Project-related infrastructure in areas within or directly adjacent to wetlands. Thus, these activities have limited potential to cause direct adverse environmental effects to these resources. As such, open pit mining, tailings disposal in TMF and waste rock disposal during the operations phase, as identified in the Reviewers example, is not anticipated to result in any additional environmental effects to Wetlands beyond that identified during construction, has been appropriately ranked as '1' and its resulting effects limited to acceptable levels.

2.8.55 Information Request No. NLWD 55

Section 17.6.2: What is meant by a "period of time" to return to natural state? (pg 17-38)

Alderon Response to IR No. NLWD 55

Generally speaking, wetlands, both native and restored, evolve over years, decades and centuries. Successful reclamation / restoration takes time. In the instance highlighted in the EIS, Volume 1, page 17-38, reference has been made to those Project components (i.e., conveyors, power line easements, temporary access roads, above-ground tailings pipelines) that are anticipated to experience minimal effects on the underlying wetland hydrology. As such, focus is placed on the re-establishment of healthy, productive wetland vegetation. In these instances, the viability of the native wetland seedbank on reclamation / restoration of a site is inversely proportional to how long the site was effected.

Decommissioning and reclamation of the Project will evolve over time. At closure, the Project will be reclaimed with the intent of achieving a land capability equivalent or similar to that of their pre-existing condition; resulting in a reclaimed landscape that is compatible with the surrounding landscape, including wetlands.

2.8.56 Information Request No. NLWD 56

Section 17.7: "*…wetlands in western Labrador are currently abundant and healthy*…" – Is there reference/data that supports this claim?

Alderon Response to IR No. NLWD 56

Peatlands are generally known to be abundant throughout the boreal region, including Labrador and adjacent parts of Québec. For example, approximately 18 percent of the land area in

Newfoundland and Labrador is estimated to be comprised of wetland (North American Wetland Conservation Council 1993), and it is stated in the *Wetlands of Atlantic Canada* that in Labrador "bogs and fens are abundant" (Wells and Hirvonen 1988). Wetlands within Labrador may be considered to be in a relatively "healthy" state as a result of the region having been subject to relatively low amounts of development compared to more southerly localities. In particular, the major impacts to wetlands in Canada have been as a result of agricultural activities (conversion to agricultural land is estimated to account for 85 percent of the wetland loss since the early 1800s (NRCAN 2009)), which have been relatively minor in Labrador.

However, due to a lack of explicit references or data which address the "health" of wetlands in western Labrador and adjacent Québec, EIS, Volume 1, Section 17.7, Assessment of Cumulative Effects, page 17-44 should read: "… *wetlands in western Labrador are currently abundant*,…"

References:

North American Wetland Conservation Council (Canada). 1993. Wetlands A Celebration of Life. Final Report of the Canadian Wetlands Conservation Task Force. Issue Paper, No. 1993-1. Ottawa. Available at: http://www.wetlandscanada.org/Wetlands%20a%20Celebration%20of%20Life%201993-1.pdf.

NRCAN (Natural Resources Canada). 2009. The Atlas of Canada - Wetlands. Available at: http://atlas.nrcan.gc.ca/site/english/learningresources/theme_modules/wetlands/index.html/#tphp.

Wells, E.D. and H.E. Hirvonen. 1988. Wetlands of Atlantic Canada. Pp. 249-303. In: National Wetlands Working Group. Wetlands of Canada. Published by Ecological Land Classification Series, No. 24, Sustainable Development Branch, Environment Canada, Ottawa, ON, and Polyscience Publications Inc., Montreal, QC. 425 pp.

2.8.57 Information Request No. NLWD 57

There are concerns regarding the fish sampling that occurred in the lakes and how the fish data sampled from both stream and pond were analyzed. For example, in accordance with the work reported in Appendix H, sampling effort was extremely low and therefore it is difficult to reach conclusions pertaining to fish populations within each of the respective ponds. Additionally, there is inadequate baseline data from which future comparisons can be conducted.

Alderon Response to IR No. NLWD 57

All NLWD comments on fish, fish habitat and fisheries relate to baseline population sampling reported within the Fish, Fish Habitat, and Fisheries Baseline Study. While sample collection would be somewhat low for determination of population parameters, as outlined by NLWD, for a research and/or management program, the data collected was focused on meeting the regulatory requirements associated with *Fisheries Act* authorization. The methods are outlined in DFO guidelines, such as the *Standard methods guide for the classification/quantification of*

lacustrine habitat in Newfoundland and Labrador (Bradbury et al. 2001); and the *Standard Methods Guide for the Classification and Quantification of Fish Habitat in Rivers of Newfoundland and Labrador for the Determination of Harmful Alteration, Disruption or Destruction of Fish Habitat* (DFO 2012 Draft). The principle outcome of the sampling is fish species presence and habitat characterization. The data is used to calculate habitat equivalent units (HEU) of the waterbodies and streams determined by DFO to require authorization, and hence fish habitat compensation, under the *Fisheries Act*. In this respect, the HEU values are considered conservative in that the actual number of fish does not affect the value of the habitat, only that they are present.

As NLWD is probably aware, the *Fisheries Act* is currently undergoing revisions such that productive capacity of the habitat and its relative support to either commercial, Aboriginal, or recreational fisheries will be used in determining the compensation required. Because of this, additional sampling in key habitats was completed in 2012, after discussions with DFO. This information is provided in an addendum report to the Fish, Fish Habitat and Fisheries Baseline Study (as indicated in the baseline study). Quantitative electrofishing stations throughout stream habitat within the pit, TMF, and waste rock disposal areas were completed, as well as population estimates within ponds in the pit and TMF (Schnabel mark-recapture).

The data from these surveys will be provided to DFO to assist in the HADD determination. Additional baseline data is also being collected at locations of fish habitat compensation for direct comparison to post-compensation enhancements. This data will be included in the required Fish Habitat Compensation Plan, to be submitted to DFO prior to issuance of a *Fisheries Act* authorization.

Future comparisons of fish populations within the Project footprint are not required as these habitats will be destroyed (and compensated for). However, prior to any habitat being destroyed, resident fish will be relocated to other parts of the watershed that will not be affected by the Project (to limit the killing of fish by other means than fishing). Data related to length, weight, condition, and possibly age (depending on structures required) would be collected from each fish within the populations at that time. This will augment the data on fish within the area.

References:

Bradbury, C., A.S. Power and M.M. Roberge. 2001. Standard Methods Guide for the Classification/Quantification of Lacustrine Habitat in Newfoundland and Labrador. Fisheries and Oceans Canada, St. John's, NL. 60 p + app

DFO. 2012. Draft. Standard Methods Guide for the Classification and Quantification of Fish Habitat in Rivers of Newfoundland and Labrador for the Determination of Harmful Alteration, Disruption or Destruction of Fish Habitat. Fisheries and Oceans Canada, St. John's, NL.

2.8.58 Information Request No. NLWD 58

The sampling effort consisted of two fyke net sets and one four hour gill net set. This sampling per pond is considered inadequate and would account for the lack of samples that were collected. A suggested sampling effort would be 100 fish per pond, per species. If this cannot be achieved, a confidence level in net sets (Aprox. +/- 25%) would need to be determined. That is, when the net CUE (fish caught per hour) is averaged together it is known that the precision around the estimate is consistent.

Alderon Response to IR No. NLWD 58

Information Request NLWD 58 is very similar to NLWD 57, related to fish sampling reported within the Fish, Fish Habitat, and Fisheries Baseline Study. It suggests that additional fish should be sampled to provide greater confidence in catch per unit effort (fish caught per hour). Sample collection would be considered low for determination of population parameters, as outlined by NLWD, for a research and/or management program, but was collected for meeting the regulatory requirements associated with *Fisheries Act* authorization. The methods are outlined in DFO guidelines such as those identified in IR response NLWD 57 above. The principle outcome of the sampling is fish species presence and habitat characterization. The data is used to calculate habitat equivalent units (HEU) of the waterbodies and streams determined by DFO to require authorization, and hence fish habitat compensation, under the *Fisheries Act*. In this respect, the HEU values are considered conservative in that the actual number of fish does not affect the value of the habitat, only that they are present.

While it is agreed that greater fish captures and effort would increase data sample sizes and tighten confidence intervals for any population, the requirements of assessment and Authorization, as well as logistics related to these small ponds, was considered during sampling program development. Prior to any habitat being destroyed, resident fish will be relocated to other parts of the watershed that will not be affected by the Project (to limit the killing of fish by other means than fishing). Data related to length, weight, condition, and possibly age (depending on structures required) would be collected from each fish within the populations at that time. This will augment the data on fish within the area.

Additional sampling in key habitats was also completed in 2012, after discussions with DFO. This information is provided in an addendum report to the baseline study (as indicated in the baseline study). Quantitative electrofishing stations throughout stream habitat within the pit, TMF, and waste rock disposal areas were completed as well as population estimates within ponds in the pit and TMF (Schnabel mark-recapture), still considering logistics.

The data from these surveys will be provided to DFO to assist in the HADD determination. Additional baseline data is also being collected at locations of fish habitat compensation for direct comparison to post-compensation enhancements. This data will be included in the required Fish Habitat Compensation Plan, to be submitted to DFO prior to issuance of a *Fisheries Act* authorization.

2.8.59 Information Request No. NLWD 59

Sampling should be conducted in a manner whereby a mean catch per unit of effort (CUE) can be calculated. A randomized sampling design should have been established and discussed in the methods.

Alderon Response to IR No. NLWD 59

Information Request NLWD 59 is very similar to NLWD 57 and NLWD 58, related to fish sampling reported within the Fish, Fish Habitat, and Fisheries Baseline Study. It suggests that sampling effort be conducted in a manner whereby a mean catch per unit effort can be calculated. A randomized sampling design should have been established and discussed in the methods. Similar to responses for IR Nos. NLWD 57 and 58, fish captures were conducted to complete fish habitat characterization and quantification. A mean catch per unit effort is not required for this and sampling is conducted to effectively capture species present.

While it is agreed that greater fish captures and effort would increase data sample sizes and tighten confidence intervals for any population, the requirements of assessment and Authorization, as well as logistics related to these small ponds, was considered during sampling program development. Prior to any habitat being destroyed, resident fish will be relocated to other parts of the watershed that will not be affected by the Project (to limit the killing of fish by other means than fishing). Data related to length, weight, condition, and possibly age (depending on structures required) would be collected from each fish within the populations at that time. This will augment the data on fish within the area.

2.8.60 Information Request No. NLWD 60

A relative standard error among net sets should have been predetermined prior to the commencement of sampling. (net CUE should achieve a relative standard error of +/- 25 % before net sampling is discontinued.). The precision within sampling needs to be quantified in order to sample representatively.

Alderon Response to IR No. NLWD 60

Information Request NLWD 60 is similar to NLWD 59, related to fish sampling reported within the Fish, Fish Habitat, and Fisheries Baseline Study. Similar to the response for IR No. NLWD 59, fish captures were conducted to complete fish habitat characterization and quantification. A mean catch per unit effort is not required for this and sampling is conducted to effectively capture species present.

While it is agreed that greater fish captures and effort would increase data sample sizes and tighten confidence intervals for any population or catch-per-unit effort, the requirements of assessment and Authorization, as well as logistics related to these small ponds, was considered during sampling program development. Prior to any habitat being destroyed, resident fish will be relocated to other parts of the watershed that will not be affected by the Project (to limit the killing of fish by other means than fishing). In addition to the data already collected, measurements of fish length, weight, condition, and possibly age (depending on structures

required) would be collected from each fish within the populations at that time. This will augment the data on fish within the area.

2.8.61 Information Request No. NLWD 61

Sample size: The concern with these small collections is that they cannot be used to properly model growth or year class structure within a population. Effort has been identified as a concern by the proponent in the EIS report where the proponent could not produce graphs due to small sample sizes.

Alderon Response to IR No. NLWD 61

It is agreed that modeling of population growth or year class structure within a population requires additional samples than those collected within most of the ponds within the Alderon study area. Graphing of length-weight relationships of those fish with sufficient samples sizes to do so are provided in the Fish, Fish Habitat, and Fisheries Baseline Study, however, detailed models of growth or year class structure is not a specific requirement related to *Fisheries Act* Authorization where the habitat will be lost as a result of a project. The quantification of the habitat is completed using a conservative approach whereby all habitat is quantified as Habitat Equivalent Units (HEU) using the fish species that are present. The HEU value is the same regardless of the number of fish within the pond. As such, additional effort to collect additional specimens within remote sites is typically not warranted.

However, as stated in previous responses, prior to any habitat being destroyed, resident fish will be relocated to other parts of the watershed that will not be affected by the Project (to limit the killing of fish by other means than fishing). In addition to the data already collected, measurements of fish length, weight, condition, and possibly age (depending on structures required) would be collected from each fish within the populations at that time. This will augment the data on fish within the area.

2.8.62 Information Request No. NLWD 62

Age or year classes were not provided for any of the samples collected. For the purposes of future comparisons it makes the utility of these collections limited.

Alderon Response to IR No. NLWD 62

Accurate age / year classes of fish samples typically requires collection of bony structures or scales. Bony structures used to age fish such as northern pike, burbot, and sucker species involves the sacrificing of the animal. In remote locations within small waterbodies, large populations of fish are not anticipated and killing many samples for age determination is not preferred, since the habitat compensation process does not typically require this information. In order to limit effects on the existing fish populations, most measurements are collected on fish that are kept alive and successfully released. Should this information be required at a later date, it can be collected during fish relocations (if sacrificing of fish is permitted). Typically scales are collected from most fish captured during baseline programs and stored for later use, if required.

Bony structures are also collected from any mortalities during all sampling programs, but these are generally low in number.

Since the habitat within the Project footprint, consisting of small waterbodies and streams, will be permanently lost, future comparisons of these will not be required.

2.8.63 Information Request No. NLWD 63

The use of Foulton's condition factor (*K*) is based on the assumption that the slope of the weight-length relationship for a particular species is 3.0. Before proceeding with the calculations of condition indices the proponents did not demonstrate this relationship for each of the species sampled. It is suggested that the proponents read Cone (1989) published in the *Transactions of the American Fisheries Society* before they propose the use of condition indices as an appropriate treatment for length-weight data.

Alderon Response to IR No. NLWD 63

It is agreed that a slope of 3.0 was assumed for all species weight-length relationships without verifying this relationship. This calculation within the dataset provided in Appendix C of the Fish, Fish Habitat and Fisheries Baseline Study was calculated to provide a relative indication of condition and should not be considered; this column may be disregarded.

2.8.64 Information Request No. NLWD 64

Appendix H: Figures 5.16, 5.17, 5.21, 5.22, etc: Sample size, confidence limits, and equations describing the length – weight relationship should all be included in these graphs. Growth should be modeled, separated by sex.

Alderon Response to IR No. NLWD 64

Figures 5.16, 5.17, 5.21, 5.22, etc. are provided in the Fish, Fish Habitat and Fisheries Baseline Study but while equations of growth could be generated, were not. These are provided to show the general size and weight range of species captured within each sample location, as well as the general relationship only. If required for future monitoring, these relationships will be generated. Additional data could also be added from fish relocation activities. Since sex determination for most fish species would require them to be sacrificed, this would not be possible with the available dataset, as all fish are measured and released alive.

2.8.65 Information Request No. NLWD 65

Age distribution data and mortality estimates need to be included.

Alderon Response to IR No. NLWD 65

As stated in response to IR No. NLWD 62 above, accurate age / year classes of fish samples typically requires collection of bony structures or scales. Bony structures used to age fish such as northern pike, burbot, and sucker species involves the sacrificing of the animal. In remote

locations within small waterbodies, large populations of fish are not anticipated and killing many samples for age determination is not preferred since the habitat compensation process does not typically require this information. In order to limit effects on the existing fish populations, most measurements are collected on fish that are kept alive and successfully released. Should this information be required at a later date, it can be collected during fish relocations (if sacrificing of fish is permitted). Typically scales are collected from most fish captured during baseline programs and stored for later use, if required. Bony structures are also collected from any mortalities during all sampling programs but these are generally low in number. Similar to age estimates, estimates of mortality are also not required (which use age data).

2.8.66 Information Request No. NLWD 66

The inclusion of control lakes, sampled lakes that fall outside the projects foot print, are needed. Normally, control lakes would be selected for sampling and would fall outside the affected watersheds. Thereby, in the event that the entire watershed is altered by the project, the control lakes would eliminate the possibility that a large scale environmental perturbation has influenced the witnessed changes.

Alderon Response to IR No. NLWD 66

Control lakes are not necessarily required for assessment of ponds that will be affected. For example, the loss of ponds within the TMF and the open pit footprints do not need control ponds for future monitoring, as they will be permanently lost and compensated with enhanced / created fish habitat in another location. Monitoring of fish populations within areas of compensation typically involve monitoring before and after treatment design. Any requirement for control ponds as part of monitoring programs will be determined through the permitting process. It should be noted, however, that habitat characterization and preliminary baseline fish population data of ponds outside the direct footprint have been collected and could be continued if warranted.

2.8.67 Information Request No. NLWD 67

Differentiation is needed between “migratory birds” and birds included under the *Migratory Birds Convention Act*. Several species not included under the MBCA are migratory.

Alderon Response to IR No. NLWD 67

It is acknowledged that there are migratory species of avifauna that are not included under the *Migratory Birds Convention Ac*t, but will be considered within the Avifauna Management Plan.

2.8.68 Information Request No. NLWD 68

Table 19.1 Clarify: Were waterfowl surveys done to capture both breeding birds and migrating birds?

Alderon Response to IR No. NLWD 68

Nine aerial waterfowl surveys were conducted in 2011 during migration and staging periods in spring (May 20th and May 31st) and in fall (August 17 and 24-25 and September 8 and 14-15). There were also surveys during the breeding (June 8-9) and brood seasons (July 12 and 27). The results of these surveys are provided in Appendix D.

2.8.69 Information Request No. NLWD 69

Section 19.2.1: How was the RSA determined (i.e. what factors were examined to determine the potential scope of impact?

Alderon Response to IR No. NLWD 69

The RSA is defined to capture the farthest measurable effect of the Project on Birds, Other Wildlife and Their Habitat and Protected Areas. The goal of the RSA is to be large enough to encompass anthropogenic influences on birds, other wildlife and their habitat and protected areas, but not too large to mask the effects on local populations.

The farthest measurable effect of the Project on Birds was obtained in consideration of a number of factors including the definition of the LSA (Local Study Area) and the RSA (Regional Study Area). The LSA is comprised of the Project Development Area (PDA) where potential direct effects (physical site disturbance) and an allowance for indirect effects (e.g., noise, visual, behavioural avoidance) plus an additional 500 m that was based on the results of physical parameter modelling (e.g., air emissions or particulates, dust). The LSA is estimated to be 71 km^2. This area was then compared to an RSA that provides regional context as to the extent of the direct and indirect effects. The RSA is defined to capture the farthest measurable effect of the Project on “Birds, Other Wildlife and Their Habitat and Protected Areas”. The RSA estimated area of influence is approximately 1,193 km^2, and is the area within which cumulative effects may occur.

The RSA used to capture the farthest measurable effect of the Project on birds was determined with the consideration of the following baseline data sources, used to determine the known or likely presence of wildlife species in the RSA, LSA or PDA:

- Reviews of the peer-reviewed literature and other information sources, wildlife field surveys (wildlife surveys included under the VEC of Birds, Other Wildlife, and their Habitats and Protected Areas in Section 19 of Volume 1 of the EIS which have been appended to these responses); and
- An ecological land classification.

Data from citizen initiative data sources such as Breeding Bird Survey (BBS) routes, Christmas Bird Counts, and eBird, as well as published and unpublished literature by the Study Team, including peer-reviewed academic journals, research project reports, and government publications, were used to summarize life history information (including habitat use) and determine the likelihood of presence for various wildlife species within the RSA. These

considerations allowed the determination of the extent of the LSA and RSA (Figure 13.16 on page 13-54 of Volume 1 of the EIS for the LSA and Figure 13.17 on page 13-55 for the RSA) for Birds, Other Wildlife and their Habitats and Protected Areas. The extent of the LSA and RSA delineated the area used to evaluate the farthest measurable effect of the Project on birds.

2.8.70 Information Request No. NLWD 70

Section 19.2.3: Add from the *Wildlife Act*

Section 81(1): A person shall not hunt, take or kill or have in his or her possession an eagle, falcon, hawk, osprey or owl of any species.

Section 89: In relation to any wild life species that is not named in the annual hunting or trapping orders, there is no open season.

Alderon Response to IR No. NLWD 70

Section 19, page 19-11, paragraph 2 of Volume 1 of the EIS should read:

In addition, Section 75 states that:

(1) A person shall not hunt, take or kill small game except during the open season prescribed under these regulations or the Migratory Birds Regulations (Canada).

(2) A person shall not take or destroy the nests or eggs of any wild birds except when authorized under the provisions of the Migratory Birds Convention Act (Canada) and the regulations.

"Also:

Section 81(1): A person shall not hunt, take or kill or have in his or her possession an eagle, falcon, hawk, osprey or owl of any species.

Section 89: In relation to any wild life species that is not named in the annual hunting or trapping orders, there is no open season."

2.8.71 Information Request No. NLWD 71

Table 19.2: Some of these classifications of potential environmental effects are likely conservative; more detail should be included on how these numbers were reached and what information was considered.

Alderon Response to IR No. NLWD 71

EIS, Volume 1, Section 19, page 19-14, paragraph 2 has been modified to reference additional information on the assessment approach which is found in EIS, Volume 1, Section 4.4:

"Table 19.2 provides a list of Project activities and physical works and whether or not an interaction is expected to occur with each identified potential environmental effect. The interactions are ranked either as a 0, no interaction occurs, 1, interaction occurs however the resulting effect can be managed through proven mitigation and codified practice, or as a 2, an interaction occurs and requires further assessment. More detail on how the Environmental Effects were assessed can be found in the EIS Chapter 4, Section 4.4 Methods for Assessing Environmental Effects."

2.8.72 Information Request No. NLWD 72

Table 19.3: Measurable parameters have been identified but details on how, when and how often they will be monitored and the associated schedule for reporting is important in determining if they are adequate. Monitoring at each stage, with very prompt reporting is very important so that changes can be made if required.

Alderon Response to IR No. NLWD 72

Alderon is proposing to develop a Sustainability Management Framework (SMF) which will include an Environmental Management System (EMS) that will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. As described in Section 8.3 of the EIS, a follow-up and monitoring program will be designed and conducted in consultation with appropriate regulatory agencies, as appropriate during all phases of the Project. Compliance monitoring will be conducted to confirm that mitigation measures are appropriately implemented. Any monitoring commitment for Birds, Other Wildlife and their Habitats and Protected Areas will proceed with consultation with the appropriate regulatory agency.

2.8.73 Information Request No. NLWD 73

Table 19.4: Please explain what is meant by a "diver".

Alderon Response to IR No. NLWD 73

The reference to "diver" in EIS, Volume 1, Table 19.4 should read "*diving ducks*".

2.8.74 Information Request No. NLWD 74

Note: A number of bat species were recently identified through an emergency assessment by COSEWIC and should be considered in any development plans where they occur. As such, bats should be included in the SAR/SOCC Section because of this assessment and also considered in the EPP. Limiting mortality from any cause for bats has been highlighted as an important goal in Canada because of the significant threat posed by White Nose Syndrome.

Alderon Response to IR No. NLWD 74

Little Brown Bat (*Myotis lucifugus*) and Northern Long-eared Bat (*Myotis septentrionalis*) are listed as Endangered by COSEWIC and will be included in the EPP.

Little brown bat habitat is not amenable for modelling given the nature of the ELC ecotype mapping. The most critical habitat for little brown bat is suitable hibernaculum and maternal roosting sites. Hibernacula for little brown bats consists of solution caves or abandoned mine shafts that are deep enough to maintain a stable temperature greater than freezing. Maternal roosting sites may consist of abandoned anthropogenic structures. Existing cabins in the RSA have been identified during various surveys related to the Project and public consultation meetings. These sites are rare landscape features and as such tend to concentrate bats into a relatively small number of locations. These sites also play an important role as rendezvous sites for mating. The ELC mapping is not designed to capture potential hibernacula limiting the usefulness of habitat modelling for this species.

Cabins and caves will be surveyed prior to construction activity as part of the EPP. If colonies are identified, they will be dealt with according to guidelines set out by provincial regulators.

2.8.75 Information Request No. NLWD 75

Section 19.3: What is meant by “substantially reduced”? This should be a quantifiable measure in order to assess relevance.

Alderon Response to IR No. NLWD 75

The term “substantially reduced” in the EIS, Volume 1, Section 19.3 is in context of the significance criteria:

“A significant adverse residual environmental effect for Birds, Other Wildlife and their Habitat, and Protected Areas is defined as a Project-related environmental effect on fauna species that:

- *Results in the degradation, alteration or loss of critical or important habitat (physical loss, noise, light and other stimuli), either physically, chemically, or biologically; in quality or extent, in such a way as to cause a change or decline in the distribution or abundance of a species that is dependent upon that habitat, such that the likelihood of the long-term viability or survival of the population within the RSA is substantially reduced as a result;”*

An environmental effect would be significant if there is a low likelihood of the long-term viability (or survival) of a population (in other words, substantially reduced). The determination of significance is based on the direction, magnitude, geographic extent, frequency, duration, reversibility and ecological context.

2.8.76 Information Request No. NLWD 76

Section 19.4: Because an area is already disturbed habitat does not mean there may not be significant effects on species/habitat with an increase or change in the type of disturbance.

Alderon Response to IR No. NLWD 76

The relevant text explaining how various effects were categorized and assessed is found in EIS, Volume 1, Section 19.4 regarding the rationale for Interactions ranked as "1" in Table 19.2 (Potential Project Environmental Effects to Birds, Other Wildlife and their Habitat, and Protected Areas):

"There are several Project activities that will have interactions with change in habitat that can be easily limited to acceptable levels. Construction of site buildings and associated infrastructure, onsite vehicle / equipment operation, waste management, and transportation of personnel and goods to site are expected to be within the area already cleared (i.e., no additional clearing required)." The environmental effect "Change in Habitat" specifically addresses the physical loss in habitat. Indirect effects of an activity resulting in noise or other indirect effects are addressed as a "Change in Distribution and Movement". The key and most substantive environmental effect of the physical loss of habitat is already associated with the site preparation and road construction activities, assessed as a "2" interaction. The four construction activities ranked "1" are less invasive physically to habitat. The environmental effect of Change in Distribution and Movement, which address the indirect effects on habitat associated with relevant activities, are assigned a rank of "2". During operation and maintenance, any activity that does not result in a physical loss of habitat is ranked a 1 for Change in Habitat."

2.8.77 Information Request No. NLWD 77

Please clarify what is an "acceptable" level of mortality and how it is determined for different species and/or populations. This should be a quantifiable measure so that significance can be assessed.

Alderon Response to IR No. NLWD 77

An "acceptable" level of mortality would be a situation where all reasonable precautions would be applied for that activity in the form of mitigation and Project design, such that any mortality, if it were to occur, would not cause a decline in population, or otherwise affect the sustainability of the population at risk. This term is used in the case of rationalizing the application of a "1" interaction of a Project activity and a Change in Mortality for Birds, Other Wildlife and their Habitats, and Protected Areas. The acceptability of the magnitude of mortality has been considered for all relevant bird and wildlife species.

2.8.78 Information Request No. NLWD 78

Given that a significant portion of the area is covered in wetland, the potential effect of spills of fuel, etc could have significant effects and should be considered in this document.

Alderon Response to IR No. NLWD 78

The assessment of fuel spills is addressed under the Accidents and Malfunctions scenario "Train derailment and consequent spill of materials or contaminants" (Sections 19.8 and 19.9.3

of Volume 1 of the EIS). Spills from routine fueling and fuel storage activities are addressed under the Fuel Storage and Dispensing activity of operation and maintenance.

2.8.79 Information Request No. NLWD 79

Section 19.5.1: Please clarify if amphibian surveying addressed timing and methodology issues of certain species (e.g., spring peepers, salamanders). If not, the survey must be considered selective rather than inclusive. Please reference where the survey methodology may be reviewed.

Alderon Response to IR No. NLWD 79

Amphibians were surveyed in July, 2012.. The surveys were conducted in early July, which is a good time to detect the amphibian species that are potentially present in western Labrador. At this time of year amphibian species that breed early, such as northern spring peeper (*Pseudacris crucifer*), wood frog (*Rana (Lithobates) sylvatica*), American toad (*Bufo americanus*), northern two-lined salamander (*Eurycea bislineata*), and blue-spotted salamander (*Ambystoma laterale*), can be detected during daylight hours by searching for or netting larvae in suitable waterbodies. Late breeding species, such as the mink frog (*Rana (Lithobates) septentrionalis*) would be vocal at this time, and their multi-year larvae can be observed or netted in waterbodies.

Wood frog and American toad were the only amphibians noted within the LSA during these or other surveys. Wood frog were prevalent in all appropriate habitats. Three adult American toads and two ponds supporting American toad tadpoles were noted within the surveyed areas. It is expected that the surveyed area is representative of the remainder of the LSA. Two northern two-lined salamanders were noted in the greater RSA in Walsh River, downstream of the Trans-Labrador Highway; however, this species is not expected within the LSA, as there is no similar, appropriate habitat.

The methods used to conduct the amphibian surveys are presented in the Amphibian Baseline Survey Report (Appendix G).

2.8.80 Information Request No. NLWD 80

Section 19.5.2: Are the 42 species identified in the BBS route/Christmas Bird Count as migratory the only migratory species or are they only those included under the *Migratory Birds Convention Act*?

Alderon Response to IR No. NLWD 80

The 42 species identified in the BBS / Christmas Bird Cound are protected under the MBCA. In total, 51 species were observed including other migratory species. There is only one Breeding Bird Survey route (NL 57-041) near the Project, extending nearly 40 km along the Trans-Labrador Highway, east of Labrador City. It was surveyed annually from 2008 to 2011, with 51 species observed, and a range of 29 to 36 per year. Of these, 42 species are protected under the MBCA. The most numerous species were Ruby-crowned Kinglet (annual mean 57),

White-throated Sparrow (31), Dark-eyed Junco (28), Gray Jay (17), and American Robin (16) (*U.S. Department of the Interior 2012*).

A Christmas Bird Count was conducted annually between 1998 and 2009 in a 12 km radius around Wabush, with 38 species observed, and an annual count ranging from 8 to 22. Of these, 29 species overall are considered migratory birds. Not all of these are included under the MBCA. Only five species [Gray Jay (*Perisoreus canadensis*), Common Raven (*Corvus corax*), Boreal Chickadee (*Poecile hudsonicus*), Pine Grosbeak (*Pinicola enucleator*), and Common Redpoll (*Carduelis flammea*)] have been observed on all counts, while another 11 have been observed just once [Lesser Scaup (*Aythya affinis*), Common Merganser (*Mergus merganser*), Rough-legged Hawk (*Buteo lagopus*), Downy Woodpecker (*Picoides pubescens*), Northern Shrike (*Lanius excubitor*), Chipping Sparrow (*Spizella passerina*), White-crowned Sparrow (*Zonotrichia leucophrys*), Fox Sparrow (*Passerella iliaca*), Rose-breasted Grosbeak (*Pheucticus ludovicianus*), Red-winged Blackbird (*Agelaius phoeniceus*), and Common Grackle (*Quiscalus quiscula*)]. The most numerous species were Common Redpoll (annual mean 266 individuals), Bohemian Waxwing (*Bombycilla garrulous;* 122), Common Raven (82), Pine Grosbeak (50), and Willow Ptarmigan (*Lagopus lagopus*; 44) (National Audubon Society 2010).

The first Québec Breeding Bird Atlas was limited to southern Québec and therefore does not have any data relevant to the Project. However, the second iteration that is ongoing, is targeting the entire province. A 10 x 10 km square is situated near Fermont, but the effort to date has not been sufficient for meaningful results.

Observations from Wabush-Labrador City throughout the year have also been submitted to eBird. Overall, 163 species have been observed, of which 138 are listed under the MBCA. Many of these species are considered uncommon in the area, including 24 that have been recorded on just one occasion (Sullivan et al. 2009).

References:

U.S. Department of the Interior | U.S. Geological Survey Patuxent Wildlife Research Center Laurel, MD, USA 20708-4038 http://www.pwrc.usgs.gov/bbs

2.8.81 Information Request No. NLWD 81

USGS is not the proper citation for the BBS survey data (see USGS Patuxent website: https://www.pwrc.usgs.gov/bbs/index.cfm?CFID=1827137&CFTOKEN=98431275.

Alderon Response to IR No. NLWD 81

The fourth paragraph of Section 19 of Volumne 1 of the EIS, Volume 1, Section 19, page 19-23, paragraph 4 should read:

"There is only one Breeding Bird Survey route (NL 57-041) near the Project, extending nearly 40 km along the Trans-Labrador Highway, east of Labrador City. It was surveyed annually from 2008 to 2011, with 51 species observed, and a range of 29 to 36 per year. Of these, 42 species overall are considered migratory birds. The most numerous species were Ruby-crowned Kinglet

(Regulus calendula; annual mean 57), White-throated Sparrow (Zonotrichia albicollis; 31), Dark-eyed Junco (Junco hyemalis; 28), Gray Jay (Perisoreus canadensis; 17), and American Robin (Turdus migratorius; 16) (U.S. Department of the Interior 2012).”

The citation in Literature Cited Section is changed from USGS 2012 to:

“U.S. Department of the Interior | U.S. Geological Survey Patuxent Wildlife Research Center Laurel, MD, USA 20708-4038 http://www.pwrc.usgs.gov/bbs”.

2.8.82 Information Request No. NLWD 82

For the 24 species that were only recorded once and other very uncommon species, it is important to highlight whether any of those species are likely to be vagrants or if they are more likely rare birds or rarely sighted birds that do use the area for breeding or migration.

Alderon Response to IR No. NLWD 82

The Forest Songbird Report (Appendix C) describes evidence of breeding or other for each species observed.

2.8.83 Information Request No. NLWD 83

Maps of the locations of point count transects would be helpful for visualizing the layout relative to the project.

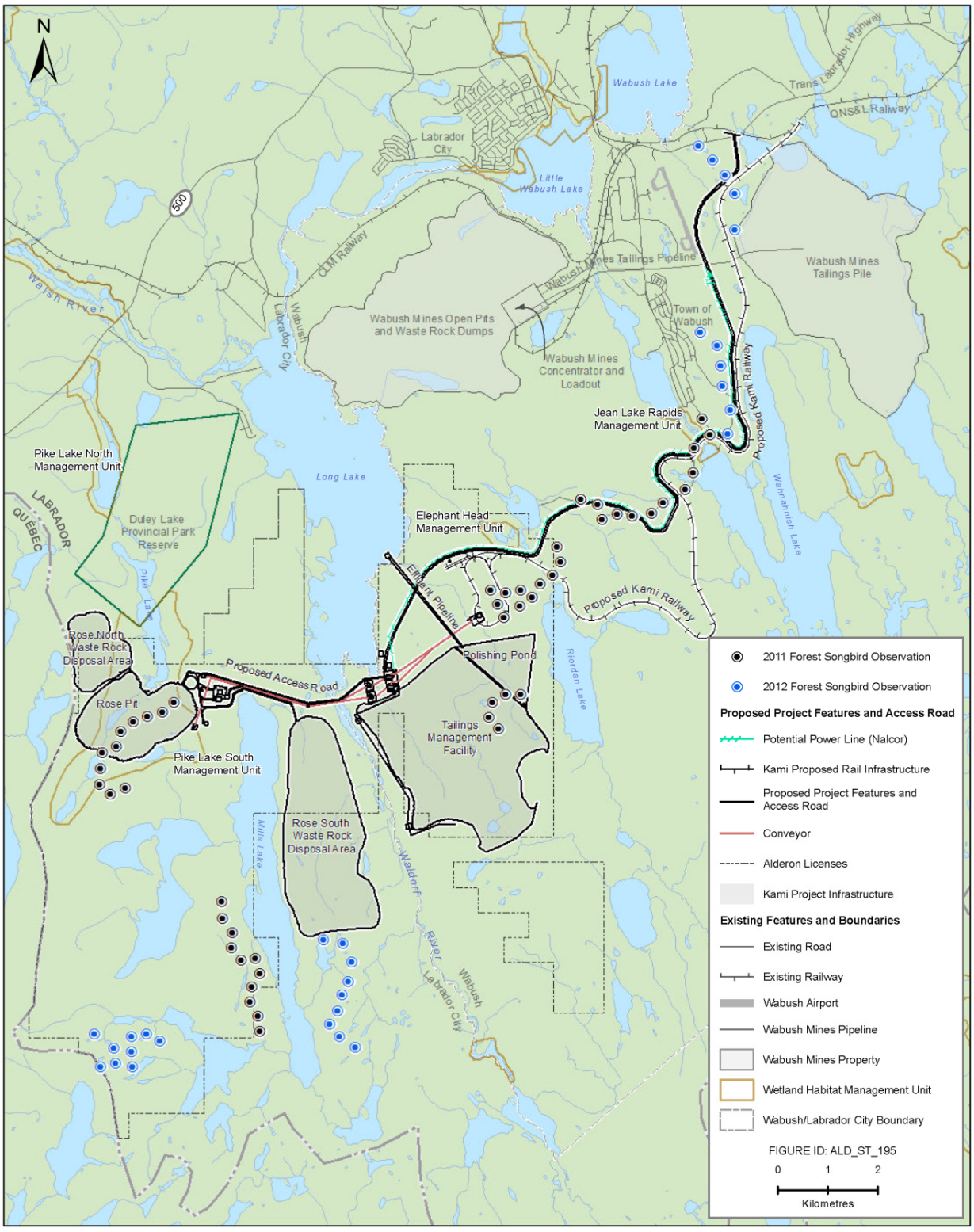
Alderon Response to IR No. NLWD 83

Point count locations for songbird surveys are provided in Figure 2.8.1.

Reference:

Stassinu Stantec Limited Partnership. 2012a. Forest Songbird Survey Report Kami Iron Ore Mine and Rail Infrastructure Project. Prepared for Alderon Iron Ore Corp. File No. 121614000.402.

Figure 2.8.1 Point Count Locations surveyed during Forest Songbird Surveys in 2011 and 2012



2.8.84 Information Request No. NLWD 84

It is not surprising that Rusty Blackbird (RUBL) were not seen during avifauna surveys but were found during other work. This species is often not well-detected during traditional point counts because of timing. Due to the difficulty in detecting this species, a survey would need to be undertaken to specifically look for rusty blackbird and would require more on the ground time built into the survey, as opposed to the short time spent at each point location for general avifauna surveys.

Alderon Response to IR No. NLWD 84

Although targeted surveys for Rusty Blackbird (*Euphagus carolinus*) were not conducted, this species was identified in the region during other work in support of the Project. Data provided by the AC CDC identifies seven listed avian species, two of which are forest songbirds (Chimney Swift (*Chaetura pelagic*) and Rusty Blackbird) recorded in the area proximate to Labrador City and the Town of Wabush in recent years between 1999 and 2007 (AC CDC 2011). The other listed avian species are comprised of raptors, waterfowl and shore birds. Another source of bird data for the Labrador City area is the North American Breeding Bird Survey (BBS) route 41, located more than 25 km northeast of Labrador City. Data from this survey route includes 36 bird species, with three listed species (Gray-cheeked Thrush (*Cathatus minimus*), Olive-sided Flycatcher and Rusty Blackbird; USGS 2012). Alderon is developing a Sustainability Management Framework (SMF) that will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. An Environmental Management System (EMS) will be prepared as part of the SMF. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Environmental Management Plans, including an Avifauna Management Plan will be developed in consultation with relevant regulatory agencies and stakeholder groups. The implementation of an Avifauna Management Plan will restrict clearing activities to the period outside of the bird breeding bird season, whenever feasible; and address incidental take. Additional surveys for difficult-to-detect species such as Common Nighthawk will be completed prior to construction with the results incorporated into the Avifauna Management Plan.

2.8.85 Information Request No. NLWD 85

Table 19.6: Note that several scientific names are not italicized.

Alderon Response to IR No. NLWD 85

EIS, Volume 1, Table 19.6 has been updated as follows:

Table 2.8.4 Predicted Maximum 1-hour Ambient Concentration Levels for Regulated VOCs and Metals from Kami Mine Operations (Updated EIS Table 19.6, Volume 1)

Common Name	Scientific Name
Alder Flycatcher	*Empidonax alnorum*
American Robin	*Turdus migratorius*
Black-and-white Warbler	*Mniotilta varia*
Blackpoll Warbler	*Setophaga striata*
Boreal Chickadee	*Poecile hudsonicus*
Chipping Sparrow	*Spizella passerine*
Fox Sparrow	*Passerella iliaca*
Gray Jay	*Perisoreus canadensis*
Hermit Thrush	*Catharus guttatus*
Lincoln's Sparrow	*Melospiza lincolnii*
Nashville Warbler	*Oreothlypis ruficapilla*
Northern Flicker	*Colaptes auratus*
Northern Waterthrush	*Parkesia noveboracensis*
Olive-sided Flycatcher	*Contopus cooperi*
Orange-crowned Warbler	*Oreothlypis celata*
Palm Warbler	*Setophaga palmarum*
Pine Grosbeak	*Pinicola enucleator*
Pine Siskin	*Oreothlypis pinus*
Pine Warbler	*Setophaga pinus*
Ruby-crowned Kinglet	*Regulus calendula*
Dark-eyed Junco	*Junco hyemalis*
Swainson's Thrush	*Catharus ustulatus*
Tennessee Warbler	*Oreothlypis peregrine*
Tree Swallow	*Tachycineta bicolor*
White-crowned Sparrow	*Zonotrichia leucophrys*
White-throated Sparrow	*Zonotrichia albicollis*
White-winged Crossbill	*Loxia leucoptera*
Wilson's Warbler	*Cardellina pusilla*
Yellow-bellied Flycatcher	*Empidonax flaviventris*
Yellow-rumped Warbler	*Setophaga coronate*

2.8.86 Information Request No. NLWD 86

Section 19.5.3: Some of these species are migratory but are not covered under the *Migratory Birds Convention Act* (references to migratory vs. non-migratory species throughout this section).

Alderon Response to IR No. NLWD 86

Other wildlife includes birds listed under the MBCA and not listed under the MBCA (primarily gamebirds, cormorants, raptors, kingfishers, corvids, and blackbirds), mammals (including ungulates such as caribou and moose, and furbearers such as black bear, wolf (*Canis lupus*), red fox (*Vulpes vulpes*), American marten, beaver, and otter and small mammals), and amphibians.

In most sources of bird data for western Labrador, bird species not protected by the MBCA account for less than 20 percent of species reported. Data from the Breeding Bird Survey, Christmas Bird Count, and eBird indicate the occurrence of 25 bird species not listed under the MBCA in the RSA, including four gamebirds (Ruffed Grouse (*Bonasa umbellus*), Spruce Grouse, Willow Ptarmigan (*Lagopus lagopus*), and Rock Ptarmigan (*L. muta*)), Double-crested Cormorant (*Phalacrocorax auritus*), 12 raptors (Osprey, Bald Eagle (*Haliaeetus leucocephalus*), Northern Harrier, Sharp-shinned Hawk (*Accipiter striatus*), Northern Goshawk (*Accipiter gentilis*), Red-tailed Hawk (*Buteo jamaicensis*), Rough-legged Hawk (*Buteo lagopus*), Golden Eagle (*Aquila chrysaetos*), American Kestrel (*Falco sparverius*), Merlin (*Falco columbarius*), Gyrfalcon (*Falco rusticolus*), and Peregrine Falcon (*Falco peregrinus*)), Belted Kingfisher (*Megaceryle alcyon*), three corvids (Gray Jay, American Crow (*Corvus brachyrhynchos*), and Common Raven (*Corvus corax*)), and four blackbirds (Red-winged Blackbird (*Agelaius phoeniceus*), Rusty Blackbird, Common Grackle (*Quiscalus quiscula*), and Brown-headed Cowbird (*Molothrus ater*)). Of these species, seven were recorded during field surveys conducted in support of the Project, including the three corvids, Spruce Grouse, Northern Raven, Osprey, and Rusty Blackbird. Incidental observations of all wildlife were noted during field surveys, whether or not the particular species observed were specifically targeted.

2.8.87 Information Request No. NLWD 87

It is not clear what is meant by paragraph 2 “the occurrence of birds is largely summarized in this section”. Why? Were these species not identified through surveys despite the fact that there is often crossover between species identified during MBCA-listed species surveys and those targeted at other species (e.g., osprey during waterfowl surveys)?

Alderon Response to IR No. NLWD 87

The statement has been removed, and species that were recorded during field surveys for the Project are noted. The EIS, Volume 1, Section 19.5.3, paragraph 2 should read:

“In most sources of bird data for western Labrador, bird species not protected by the MBCA account for less than 20 percent of species reported. Data from the Breeding Bird Survey,

Christmas Bird Count, and eBird indicate the occurrence of 25 bird species not protected by the MBCA, in the RSA, including four gamebirds (Ruffed Grouse (Bonasa umbellus), Spruce Grouse (Falcipennis canadensis), Willow Ptarmigan (Lagopus lagopus), and Rock Ptarmgian (L. muta)), Double-crested Cormorant (Phalacrocorax auritus), 12 raptors [Osprey (Pandion haliaetus), Bald Eagle (Haliaeetus leucocephalus), Northern Harrier (Circus cyaneus), Sharp-shinned Hawk (Accipiter striatus), Northern Goshawk (Accipiter gentilis), Red-tailed Hawk (Buteo jamaicensis), Rough-legged Hawk (Buteo lagopus), Golden Eagle (Aquila chrysaetos), American Kestrel (Falco sparverius), Merlin (Falco columbarius), Gyrfalcon (Falco rusticolus), and Peregrine Falcon (Falco peregrinus)], Belted Kingfisher (Megaceryle alcyon), three corvids [Gray Jay (Perisoreus canadensis), American Crow (Corvus brachyrhynchos), and Common Raven (Corvus corax)], and four blackbirds [Red-winged Blackbird (Agelaius phoeniceus), Rusty Blackbird (Euphagus carolinus), Common Grackle (Quiscalus quiscula), and Brown-headed Cowbird (Molothrus ater)]. Of these species, seven were recorded during field surveys conducted in support of the Project, including the three corvids, Spruce Grouse, Northern Raven, Osprey, and Rusty Blackbird. Incidental observations of all wildlife were noted during field surveys, whether or not the particular species observed were specifically targeted."

2.8.88 Information Request No. NLWD 88

Restriction of amphibian surveys to one season and one month likely resulted in exclusion or limited data on certain species. Please provide specifics of survey protocol so the likelihood of limited results may be determined.

Alderon Response to IR No. NLWD 88

Amphibians were surveyed in July 2012.. The surveys were conducted in early July which is a good time to detect the amphibian species that are potentially present in western Labrador. At this time of year amphibian species that breed early, such as northern spring peeper, wood frog, American toad, northern two-lined salamander and blue-spotted salamander, can be detected during daylight hours by searching for or netting larvae in suitable waterbodies. Late breeding species such as the mink frog would be vocal at this time, and their multi-year larvae can be observed or netted in waterbodies.

The survey methods used to conduct the amphibian surveys are detailed in the Amphibian Baseline Survey Report (Appendix G).

2.8.89 Information Request No. NLWD 89

Please explain which species were chosen as indicator species because they were representative of taxonomic groups and which were chosen for their habitat specificity (and include their specific habitat).

Alderon Response to IR No. NLWD 89

The following indicator species were selected according to one or more of the following factors: species group, habitat association, niche specialists, and presence (confirmed or suspected to occur) within the RSA.

Table 2.8.5 Indicators Species and their Rationale for Inclusion in the EIS

Species	Rationale for Choice as an Indicator Species
Greater Yellowlegs	A common breeding shorebird associated with wetland habitats. Recorded in the RSA.
Northern Harrier	A raptor species associated with grassy wetlands and disturbed areas. Raptors typically have low population densities and are often intolerant of human activities. Recorded in the RSA.
Osprey	A raptor species associated with fish bearing waters and mature coniferous forest. Raptors typically have low population densities and are often intolerant of human activities. Recorded in the RSA.
Gray Jay	A common resident song bird characteristic of coniferous forested areas. Recorded in the RSA.
Boreal Chickadee	A common resident song bird characteristic of coniferous forested areas. Recorded in the RSA.
Common Loon	A piscivorus waterbird that occurs at relatively low densities on the landscape. Recorded in the RSA.
Common Goldeneye	A relatively common waterfowl species that requires an interspersion of small lakes and mature forest. Utilized as a food source. Recorded in the RSA.
Barrow's Goldeneye	A waterfowl species at risk that requires an interspersion of small lakes and mature forest. Not recorded in the RSA but potentially present.
Olive-sided Flycatcher	A song bird species at risk that is associated with sparsely treed wetlands and burns. Recorded in the RSA.
Common Nighthawk	A species at risk. This aerial insectivore is associated with open habitats such as burns and disturbed areas. Recorded in the RSA.
Rusty Blackbird	A songbird species at risk that is associated with wetlands and adjacent coniferous forest. Recorded in the RSA.
Gray-cheeked Thrush	A songbird species at risk that is associated with dense stands of conifers. Not recorded in the RSA but suitable habitat is present.
Short-eared Owl	A species of conservation concern. This species is associated with open grassy habitats and grassy disturbed areas. Recorded in the RSA.
Lincoln's Sparrow	A common omnivorous song bird characteristic of shrubby wetlands. Recorded in the RSA.
Tennessee Warbler	A common insectivorous song bird characteristic of coniferous forest with dense understories. Recorded in the RSA.
Spruce Grouse	A common gallinacous bird characteristic of coniferous forest. An important game bird. Recorded in the RSA.
Canada Goose	A common waterfowl species that is characteristic of grassy fens and bogs. An important game bird. Recorded in the RSA.
Snowshoe Hare	A common small mammal characteristic of forested areas, regenerating burns and shrubby wetlands. An important game animal and an important food source for carnivores such as lynx and American marten. Recorded in RSA.
Porcupine	A fairly common small mammal characteristic of a variety of ecotypes. An important game animal in Labrador. Recorded in the RSA.
Lynx	An important furbearer that is characteristic of forested ecotypes. Recorded in the RSA.
Red Squirrel	A common small mammal characteristic of coniferous forest. A minor furbearer and an important food source for carnivores such as American marten. Recorded in the RSA.
American Marten	An important furbearer that is dependent on mature coniferous forest. Recorded in the RSA.
Moose	A large ungulate that makes use of a wide range of ecotypes. An important game animal and food source for large carnivores such as wolves. Recorded in the RSA.
Beaver	A fairly common mammal associated with streams and lakes. An important furbearer. Recorded in the RSA.
Wood Frog	The most abundant and widespread amphibian in the RSA.

2.8.90 Information Request No. NLWD 90

Section 19.6.1: Mitigative measures should be identified through an EPP that should be reviewed and approved by ENVC. This is especially important when considering SAR because of legislation associated with these species (and potentially their habitat/residence).

Alderon Response to IR No. NLWD 90

Prior to initiation of Project activities, a detailed Environmental Protection Plan (EPP) and follow-up program will be developed by Alderon and submitted to appropriate regulatory agencies for review prior to the initiation of Project activities. A table of contents for the EPP is provided in Chapter 5 of Volume 1 of the EIS. The EPP will be updated and modified regularly according to the Project phase and as determined by site-specific conditions.

In addition, an Avifauna Management Plan will be completed prior to construction and submitted to Environment Canada (Canadian Wildlife Service) for review, and will identify specific measures that will be implemented in order to avoid the harassment of avifauna, or destruction of their nests and eggs. A draft table of contents for this plan is presented in Appendix I.

2.8.91 Information Request No. NLWD 91

It is important to note that, as activities cease, re-habilitation will not replace primary habitat; this could be a very long process and span many decades, and the habitat still may not represent pre- project conditions. Species that have very specific habitat needs may experience extended periods of recovery from the time of reclamation to development and into primary habitat. In some instances, impacted habitat may not recovery to pre development conditions.

Alderon Response to IR No. NLWD 91

Disturbance-related construction effects are anticipated to be long term. It is recognized that removal of habitat from some areas of the PDA (e.g., open pit) will be permanent and will not recover to pre-development conditions. Removal of habitat for other areas (e.g., access roads) will be medium term as these areas will be rehabilitated. The rehabilitation of altered habitat into suitable habitat or pre-development conditions will vary in terms of the required recovery period.

2.8.92 Information Request No. NLWD 92

Explanation as to why 5% of the RSA is the cutoff for determining if habitat loss is significant would be helpful. Why is this measured as 5% of the RSA and not 5% of available primary habitat?

Alderon Response to IR No. NLWD 92

The 5 percent threshold is considered a conservative value representing the magnitude of the interaction such as the alteration or loss of known (within the extent of the Ecological Land Classification) primary habitat or percentage of individuals exposed to the potential effects of the

Project. Exceeding this value does not infer a significant effect but does serve to inform the assessment and ensure such interactions are considered when evaluating significance.

2.8.93 Information Request No. NLWD 93

Section 19.6.2: How was the measurement of residual effects completed, i.e. how is it known that less than 5% of the local population will be lost? Clarification is needed on the definition of "local". This comment is also applicable to Section 19.6.4 and 19.7.

Alderon Response to IR No. NLWD 93

Less than 5 percent of the local population being lost refers to the magnitude that was calculated using the Ecological Land Classification (ELC; which describe the amount and variety of ecotypes available on a given landscape) and the Project Development Area (PDA) (which overlaps a portion of the landscape identified in the ELC). The magnitude of the effect is based on the percentage / proportion of the measurable parameters (e.g., number of nest sites, percentage of primary habitat, number of colonies) that would be lost / altered / displaced within the Local Study Area (LSA) as a percentage / proportion of what exists within the Regional Study Area (RSA). The local population is those individuals of the same species occurring within the RSA. The 5 percent threshold is considered a conservative value representing the magnitude of the interaction, such as the alteration of loss of habitat or percentage of individuals exposed to the potential effects of the Project.

2.8.94 Information Request No. NLWD 94

Section 19.6.3: Several differences in lighting are highlighted that affect the attractiveness of a given area. What mitigations will be used that take advantage of the knowledge of these preferences? In the mitigations section it is highlighted that limiting lights and shielding lights from above will be implemented. The proponent should also consider implementing other options such as a different colour of light.

Alderon Response to IR No. NLWD 94

There are several factors that may limit the potential to use colored lighting. Firstly, it must be determined if these lights can be used safely. Poot et al. (2008) note that blue lighting is not attractive to birds but is also not safe for humans to work under. They noted that green lighting provided good visibility for humans and was minimally attractive to birds. Before green lighting is potentially adopted for site lighting, the possible implications for worker safety must be assessed. Secondly, it may not be currently, technically feasible to switch to colored lighting, since the lights may not be commercially available. The lights used in the study by Poot et al. (2008) were specially manufactured for their study.

References:

Poot, H., B.J. Ens, H. de Vries, M.A.H. Donners, M.R. Wernand and J.M. Marquenie. 2008. Green light for nocturnally migrating birds. Ecology and Society 13(2): 47. Available online: http://www.ecologyandsociety.org/vol13/iss2/art47/.

2.8.95 Information Request No. NLWD 95

Section 19.6.4: How will clearing by mulching and mechanized forestry equipment mitigate for changes in animal health?

Alderon Response to IR No. NLWD 95

The mitigation "Consider clearing by mulching and mechanized forestry equipment" is not relevant to Change in Health, and therefore should be removed from the bulleted list under EIS, Volume 1, Section 19.6.4, Subheading "Mitigation of Project Environmental Effects", and in Tables 19.10 and 27.1 of Volume 1. The mitigation "Use best practices for fuels and other hazardous materials, e.g., herbicides" provides mitigation for the potential effects of herbicide storage and use in vegetation control on Change in Health for birds. Details regarding the storage and use of herbicides will be included in the EPP.

2.8.96 Information Request No. NLWD 96

Section 19.7: Potential cumulative effects are much more likely for species that have specific habitat needs or which are considered at risk. Cumulative effects for most species are likely limited but there may be habitat specialists that should be considered more closely (e.g., some indicator species).

Alderon Response to IR No. NLWD 96

Consistent with CEAA guidance, the assessment of cumulative effects is designed to understand the effects of the proposed Project within the context of other existing and likely foreseeable anthropogenic activities. Often, as is the case for this Project, other activities have been ongoing for an extended period of time, and it is therefore difficult to describe pre-disturbance conditions within the Regional Study Area. Mining in western Labrador and in the vicinity of Fermont has been ongoing for decades. The flora and fauna of the region are a reflection of this previous activity.

The loss of approximately 22 km^2 of habitat will cause the displacement of flora and fauna within the Local Study Area; based on the significance criteria, it was determined that the sustainability of the species being assessed would not be compromised by the Project and the existing biological diversity would be maintained. No unique or otherwise limiting habitats were identified within the area of proposed disturbance that would compromise the sustainability of flora or fauna species that such areas support. As a result, the cumulative environmental effects on these species were determined to be not significant.

2.8.97 Information Request No. NLWD 97

Section 19.11: The Avifauna Management Plan must include all bird species (not just MBCA-listed) because of implications of the *Wildlife Act*, *Species at Risk Act* and *Endangered Species Act*.

Alderon Response to IR No. NLWD 97

Section 19.11 of the EIS, Volume 1, should read:

"Environmental protection measures for Birds, Other Wildlife and their Habitat, and Protected Areas will be incorporated into the EPP prior to construction. Alderon is proposing to develop a Sustainability Management Framework which will include an Environmental Management System (EMS) that will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Environmental Management Plans will be developed in consultation with relevant regulatory agencies and stakeholder groups. An Avifauna Management Plan will be prepared to mitigate adverse effects on birds. Alderon is in the process of pursuing a Corporate Stewardship Agreement with the municipalities and NLDOEC (through the EHJV) to address the effects of the Project on Management Units, including the Pike Lake South Management Unit.""

2.8.98 Information Request No. NLWD 98

Table 27.1 Clearing should be done outside of breeding season to avoid destruction of eggs, individuals, and nests as prohibited under the *Migratory Birds Convention Act*.

How will situations leading to potential collisions be limited?

Alderon Response to IR No. NLWD 98

The statement "Clearing should be done outside of breeding season to avoid destruction of eggs, individuals, and nests as prohibited under the *Migratory Birds Convention Act*." refers to the identified mitigation for construction of "Restrict clearing activities to outside of the bird breeding season, whenever feasible."

The mitigation measure identified in EIS, Volume 1, Table 27.1 stating "Limit situations leading to potential collisions" will be elaborated upon in the Environmental Protection Plan for the Project. It is likely to include measure such as limiting off-road vehicle travel, and having speed limits for trains and vehicles.

2.8.99 Information Request No. NLWD 99

Species that have been assessed by the Species Status Advisory Committee (SSAC) as at risk (Vulnerable, Threatened, Endangered), but which are still under consideration for listing under the NL *Endangered Species Act* (NL ESA) should be included as Species of Conservation Concern.

Species are often noted for their listing under SARA without acknowledging their listing under the NL ESA. Listing status under NL ESA should be included.

Alderon Response to IR No. NLWD 99

Comment acknowledged. The following criterion for the definition of SOCC has been added to the EIS, Volume 1, Section 20, bulleted list on page 20-1:

- *A species that has been assessed by the Species Status Advisory Committee (SSAC) as at risk (Vulnerable, Threatened, Endangered), but which is still under consideration for listing under the NL ESA*

Species assessed by the Species Status Advisory Committee (SSAC) as at risk (Vulnerable, Threatened, Endangered), but which are still under consideration for listing under the NL *Endangered Species Act* include mountain bladder fern (*Cystopteris montana*), ranked S1S2 and May be at Risk (SSAC status report pending). Mountain bladder fern, considered to be of conservation concern to the Province, has potential to occur regionally based on historic records (1967) for western Labrador. As listed in the revised Table 20.9, presented below, it is considered to have a low likelihood of occurrence within the PDA.

The Reviewer's second comment is acknowledged. Both federal and provincial species, listed under SARA and NLESA, were considered in the EIS and provincial status of species is included in EIS, Volume 1, Chapter 20, Table 20.9. Table 20.9 is updated and presented below including mountain bladder fern.

Table 2.8.6 'At Risk' Species Included on Schedule 1 of SARA or Ranked S1, S2, or Combinations Thereof (ACCDC) that have Potential to Interact with the Project (Updated Table 20.9, EIS Chapter 20, Volume 1)

Scientific Name	Common Name	Status (SARA Schedule 1/ COSEWIC / ACCDC / NLESA General Status)	Habitat	ELC Ecotype	Occurrence in Relation to Project (i.e., RSA, LSA, PDA)	Likelihood of Occurrence
Mammals						
Myotis lucifugus	Little Brown Bat	Endangered by COSEWIC	Cabins and caves may provide summer maternal colony habitat		Within RSA	Moderate to High
Myotis septentrionalis	Northern Long-eard Bat	Endangered by COSEWIC	Cabins and caves may provide summer maternal colony habitat		Within RSA	Low
Rangifer tarandus caribou	Sedentary Woodland Caribou	Threatened under SARA and NLESA			Adjacent to RSA	Low
Gulo gulo	Wolverine	Endangered under SARA and NLESA			Not observed	Low
Birds and Other Wildlife						
Contopus cooperi	Olive-sided Flycatcher	Threatened under SARA and NLESA	Open areas containing tall live trees or snags for perching. Open areas include forest clearings, forest edges located near natural openings (such as wetlands, rivers or streams), burned forest or openings within old-growth forest stands characterized by mature trees and large numbers of dead trees or human-made openings (such as logged		Species documented in the RSA (observed during field studies conducted between July 25 and August 4, 2011) and has been documented as potentially occurring within the surrounding regions based on presence of habitat and known ACCDC occurrences. Suitable habitat may be present in the PDA.	High

Scientific Name	Common Name	Status (SARA Schedule 1/ COSEWIC / ACCDC / NLESA General Status)	Habitat	ELC Ecotype	Occurrence in Relation to Project (i.e., RSA, LSA, PDA)	Likelihood of Occurrence
			areas).			
Euphagus carolinus	Rusty Blackbird	Special Concern under SARA, Vulnerable under NLESA	Breeding habitat corresponds closely to with the boreal forest. Primarily occupies forest wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps, beaver ponds and pasture edges.		Species documented in the RSA (observed during field studies conducted between July 25 and August 4, 2011) and has been is documented as potentially occurring within the surrounding regions based on presence of habitat and/or known ACCDC occurrences. Suitable habitat may be present in the PDA.	High
Chordeiles minor	Common Nighthawk	Threatened under SARA and NLESA			Not observed.	Moderate
Histrionicus histrionicus	Harlequin Duck	Special Concern under SARA, Vulnerable under NLESA			Observed in Jean Lake Rapids in recent years.	Low
Bucephala islandica	Barrows Goldeneye	Special Concern under SARA, Vulnerable under NLESA			Not observed.	Low
Catharus minimus	Gray-cheeked Thrush	Vulnerable under NLESA			Not observed.	Moderate

Scientific Name	Common Name	Status (SARA Schedule 1/ COSEWIC / ACCDC / NLESA General Status)	Habitat	ELC Ecotype	Occurrence in Relation to Project (i.e., RSA, LSA, PDA)	Likelihood of Occurrence
Vascular Plants						
Muhlenbergia glomerata (Willd.) Trin.	Spike muhly	Not Ranked	Open wetlands on wet, peaty soils.	Non-Patterned Shrub Fen	Species documented in the PDA (i.e., Rose Pit, rail-line), LSA and RSA, as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to 26, 2012. Suitable habitat present in the LSA and RSA.	Moderate
Veratrum viride Aiton var. viride	Green false hellebore	S1 / May be at Risk	Calcareous or basic substrates (calciphile); woodland habitats; on subhygric soils.	Black Spruce-Labrador Tea-Feathermoss, Black Spruce / Tamarack-Sphagnum Woodland, Tamarack / Black Spruce-Feathermoss (Water Track) and Non-Patterned Shrub Fen	Species documented in the PDA (i.e., Rose Pit, TMF, Rose South Waste Disposal, access road and rail-line), LSA and RSA, as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to 26, 2012. Suitable habitat present in the LSA and RSA.	High

Scientific Name	Common Name	Status (SARA Schedule 1/ COSEWIC / ACCDC / NLESA General Status)	Habitat	ELC Ecotype	Occurrence in Relation to Project (i.e., RSA, LSA, PDA)	Likelihood of Occurrence
Carex castanea Wahlenb.	Chestunut sedge	S1S2 / May be at Risk	Wet meadows; calcareous or basic substrates (calciphile).	Larch Woodland	No observations within suitable habitats surveyed within the PDA. Species documented in the LSA and RSA as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to 26, 2012. Suitable habitat present in the LSA and RSA.	High
Valeriana dioica subsp. sylvatica (S.Watson) F.G.Mey.	Northern valerian	S1	Floodplains of small rivers and stream, in seepage areas, on subhygric soils; calcareous or basic substrates (calciphile).	Tamarack / Black Spruce-Feathermoss (Water Track)	Species documented in the PDA (i.e., Rose South Waste Disposal and TMF), LSA and RSA, as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to 26, 2012. Suitable habitat present in the LSA and RSA.	High
Potamogeton praelongus Wulfén	Whitestem pondweed	S2S4 / Undetermined	Submerged in shallow wetland pool (halophytic); often from calcareous or basic substrates (calciphile).	Non-Patterned Shrub Fen	Species documented in the PDA (i.e., Rose Pit, rail infrastructure), LSA and RSA, as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to 26, 2012. Suitable habitat present in the LSA and RSA.	High
Carex diandra Schrank	Lesser panicled sedge	S2S4 / Undetermined	Open wetlands and seepage areas.	Non-Patterned Shrub Fen and Riparian	Species documented in the PDA (i.e., Rose Pit, Rose South Waste Disposal), LSA and RSA, as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to	High

Scientific Name	Common Name	Status (SARA Schedule 1/ COSEWIC / ACCDC / NLESA General Status)	Habitat	ELC Ecotype	Occurrence in Relation to Project (i.e., RSA, LSA, PDA)	Likelihood of Occurrence
				Marsh (Fen)	26, 2012. Suitable habitat present in the LSA and RSA.	
Platanthera aquilonis Sheviak	Tall northern green orchid	S2S3 / May be at Risk	Open wetlands.	Non-Patterned Shrub Fen	Species documented in the PDA (i.e., Rose South Waste Disposal and TMF), LSA and RSA, as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to 26, 2012. Suitable habitat present in the LSA and RSA.	High
Carex flava L.	Yellow sedge	Not Ranked / Not Ranked	Open wetlands on wet, peaty soils.	Non-Patterned Shrub Fen	Species documented in the PDA (i.e., Rose Pit, Rose South Waste Disposal, and rail infrastructure), LSA and RSA, as observed during field studies conducted between July 25 and August 4, 2011 and July 17 to 26, 2012. Suitable habitat present in the LSA and RSA.	Moderate
Carex concinna R. Brown	Beautiful sedge	S1S2 / May be at Risk	Moderately open, mesic woods on outcrops, cliff tops; on semi-acidic to neutral soils;	mature Balsam Fir / White Spruce Forest	Species documented in the PDA (i.e., Rose South Waste Disposal), as observed during field studies conducted from July 17 to 26, 2012. Availability of suitable habitat in the LSA and RSA – “to be determined”	Moderate

Scientific Name	Common Name	Status (SARA Schedule 1/ COSEWIC / ACCDC / NLESA General Status)	Habitat	ELC Ecotype	Occurrence in Relation to Project (i.e., RSA, LSA, PDA)	Likelihood of Occurrence
Cypripedium parviflorum Salisb.	Small yellow lady-slipper	Not Ranked / Not Ranked	Moderately open, mesic woods on outcrops, cliff tops; on semi-acidic to neutral soils;	mature Balsam Fir / White Spruce Forest	Species documented in the PDA (i.e., Rose South Waste Disposal), as observed during field studies conducted from July 17 to 26, 2012. Availability of suitable habitat in the LSA and RSA – "to be determined"	Moderate
Erigeron hyssopifolius Michx.	Hyssop-leaf fleabane	Not Ranked / Not Ranked	Floodplains of small rivers and stream, in seepage areas, on subhygric soils	Tamarack / Black Spruce-Feathermoss (Water Track)	Species documented in the PDA (i.e., Rose South Waste Disposal), as observed during field studies conducted from July 17 to 26, 2012. Availability of suitable habitat in the LSA and RSA – "to be determined"	Moderate
*Cystopteris montana**	Mountain bladder fern	S1S2 / May be at Risk /	Cool, damp woodland habitats; on subhygric soils. Prefers calcareous or basic substrates	Black Spruce-Labrador Tea-Feathermoss andTamarack / Black Spruce-Feathermoss (Water Track)	Species potentially occurring in RSA, as noted through historic occurrence (1967) near Labrador City (ACCDC 2010)	Low

Notes:
* Species currently being assessed by Species Status Advisory Committee (SSAC).

2.8.100 Information Request No. NLWD 100

Species are often noted for their listing under SARA without acknowledging their listing under the NL ESA. Listing status under NL ESA should be included.

Alderon Response to IR No. NLWD 100

The Reviewer's comment is acknowledged. Both federal and provincial species, listed under SARA and NLESA, were considered in the EIS and provincial status of species is included in EIS, Volume 1, Chapter 20, Table 20.9.

2.8.101 Information Request No. NLWD 101

In several areas, it is stated that less than a certain percentage of the habitat area in the RSA was affected. This is not necessarily stratified as appropriate based on characteristics of the habitat within the RSA. For instance, plant occurrences should be classed by bedrock type or ELC classes (preferably both) and percentage analysis done on the resulting output. This may not be possible for all species as microhabitats may be too small to be classed properly by the ELC.

Alderon Response to IR No. NLWD 101

A summary of the rare plant species found, and their global, national and provincial status, the ecotype in which they were found, and their observed habitat is presented in Table 5.2 of the environmental report for rare plants (Appendix G). For this assessment, SH, S1, S2 and potentially SNA ranked species are considered rare plant species in Newfoundland and Labrador. None of the rare species found are on COSEWIC's list (COSEWIC 2011), neither are they on the *Species at Risk Act* Registry (Sara Registry 2011).

Details associated with these studies are provided, in part, in a separate environmental report completed for the Project, entitled R*are Plant Survey of the Kamistiatusset (Kami) Iron Ore Mine and Rail Infrastructure Project* (Appendix H).

2.8.102 Information Request No. NLWD 102

Mapping of survey effort (e.g., survey tracks and where rare species were or were not found) would be very beneficial for the analysis of effort and in assessing which areas are of greatest concern and least concern with respect to SAR/SOCC.

Alderon Response to IR No. NLWD 102

The rare plant survey was performed in accordance with Alberta Native Plant Council (ANPC) guidelines (2000). Rare plant survey locations were investigated using a floristic survey method with meander searches. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. A meander search is when the surveyor walks in a spiral pattern, in order to cover a greater area more thoroughly. The surveyor searches until no more new species are found, or an entirely different habitat is

entered. Unique or special landscape features such as microhabitats, ephemeral habitats, wet areas or transition zones are typically given special attention. These areas are often important habitats for rare plants.

During the five field days completed for the 2011 Rare Plant Survey (RPS), the Study Team expended approximately five crew days, or 100 person-hours in the field searching. In total, in excess of 87 locations (56 ELC and 31 focused RPSs) were examined for occurrences of rare vascular plant species within the proposed Project footprint. Additional focused RPS of the proposed Project footprint and regional area (RSA) were conducted in early to mid-summer 2012. Included in these studies were targeted searches for those rare vascular plant species deemed to be "of conservation concern" to the Province, as identified by NLDOEC Wildlife Division, June 7, 2012 (S. Pardy-Moores, pers. comm.) based on the results of the 2011 surveys. As in 2011, the 2012 field surveys were performed by two botanists over a five day period, averaging approximately 10 hours per day; therefore the entire survey effort (2011 and 2012) totalled approximately 10 crew days or 200 person-hours, including mobilization between sites.

Additional details, including maps, associated with these studies are provided in a separate environmental report completed for the Project, entitled R*are Plant Survey of the Kamistiatusset (Kami) Iron Ore Mine and Rail Infrastructure Project* (Appendix H)

References:

ANPC (Alberta Native Plant Council). 2000. Guidelines for Rare Plant Surveys. Alberta Native Plant Council. Edmonton, AB.

Pardy-Moores, S. Senior Manager-Endangered Species and Biodiversity – Wildlife Division (Newfoundland and Labrador Department of Environment and Conservation). (Correspondence June 7, 2012), 2012.

2.8.103 Information Request No. NLWD 103

Section 20.1: This list should also include species under consideration for legislative protection as assessed by the provincial SSAC.

General status rankings are not included here but seem to be used in the EIS.

Alderon Response to IR No. NLWD 103

The following criteria for the definition of SOCC have been added to the EIS, Volume 1, Section 20, bulleted list on page 20-1:

- A species that has been assessed by the Species Status Advisory Committee (SSAC) as at risk (Vulnerable, Threatened, Endangered), but which is still under consideration for listing under the NLESA

- A species with a General Status Rank of "At Risk", "May be at Risk", or "Sensitive", in Labrador as determined by NLDOEC.

2.8.104 Information Request No. NLWD 104

Section 20.1.1: Should also include SSAC status reports and COSEWIC status reports.

Alderon Response to IR No. NLWD 104

Note that SARA, NLESA, COSEWIC and SSAC Status Reports, Recovery and Management Plans (if available) were used throughout the assessment.

2.8.105 Information Request No. NLWD 105

Table 20.1: Note timing of Harlequin Duck surveys. Greater likelihood of observing ducks during migration. The Canadian Wildlife Service likely has data on Harlequin ducks in this area; check also with the Wildlife Division's Eastern Habitat Joint Venture biologists re: waterfowl in Management Units. There are suggestions of presence of Harlequin Duck (HADU) during migration from local sources.

Alderon Response to IR No. NLWD 105

Regarding the presence of Harlequin Duck, this species is known to occur in fast-water streams in Labrador (Trimper et al. 2008), and has been observed in the Study Area (at the Jean Lake Rapids Management Unit [Wabush 2009]) on at least one occasion in recent years (C. Porter, pers. comm.) and 10 additional observations have been recorded in the western Labrador region between 2000 and 2009 (G. Parsons, pers. comm.). This species of special concern was not observed during any of the 2011 surveys.

Section 20 of Volume 1 of the EIS, Table 20.1, row 1 has been updated to reflect observations referenced by the Reviewer:

Table 2.8.7 Issues Raised by Aboriginal Groups and Stakeholders (Updated Table 20.1, EIS Section 20, Volume 1)

Issue	Community / Organization	Summary of Comments Raised During Consultation and Engagement Activities	Response / Location in the EIS
Potential Effects on Species at Risk	Labrador City / Wabush	Specific wildlife sightings reported by community members: Harlequin duck are in Jean Lake Rapids Management Unit (C. Porter, pers. comm.) and Wabush Pond during migration bird count; and Gray-cheeked thrush (sightings to the east).	A description of existing wildlife is provided in Section 19.5. Baseline data collection for the EIS included aerial surveys for waterfowl completed in 2011, songbird survey completed in 2011 and 2012, and winter aerial surveys in 2012. Harlequin Duck was not observed during these surveys but was reported at Jean Lake Rapids by a stakeholder.

Issue	Community / Organization	Summary of Comments Raised During Consultation and Engagement Activities	Response / Location in the EIS
			Section 20.5 includes a description of species at risk and of conservation concern within the Project area. Potential effects to species at risk and mitigation measures are identified in Section 20.6.
Potential Effects on Caribou	Innu Nation	Alderon should put a fence around the tailings and the pit to prevent wildlife (e.g., caribou and partridge) that go in these areas from eating the tailings.	The TMF will be contained by a series of natural ridges and containment dams/dykes. Key consideration in the design and planning of the TMF are described in Section 2.5.4. Sedentary herds of caribou are not present within the Project area and are therefore not anticipated to be affected by the Project. Section 20.5 includes a description of existing species at risk and of conservation concern that are found within the Project area.
	NNK	Community members have followed caribou into Labrador in the past and may again in the future. The caribou once came through the community but not anymore (there were 900,000 caribou, now there are around 80,000). One caribou come into the community over Christmas, and this was the first in 6 years.	Sedentary herds of caribou are not present within the Project area and are therefore not anticipated to be affected by the Project. Section 20.5 includes a description of existing species at risk and of conservation concern that are found within the Project area.
	NNK	There is a third herd of caribou that has been identified by a Québec biologist Natalie d'Astous near the Québec -Labrador border. This herd could be affected by the Project.	

Both the sedentary (considered as a SAR / SOCC) and migratory ecotypes of caribou were considered in the scope of the assessment.

References:

Parsons, G. Naturalist in Labrador West, Newfoundland and Labrador. Correspondence in 2011-2012.

Porter, C. Conservation Officer, Newfoundland and Labrador Department of Natural Resources, Wabush, Newfoundland and Labrador. Correspondence in September 2011.

Town of Wabush. 2009. Habitat Conservation Plan for the Town of Wabush. Prepared with the assistance of the staff of the Eastern Habitat Joint Venture. 57 pp.

Trimper, P.G., P.W. Thomas and T.E. Chubbs. 2008. Harlequin Ducks in Labrador. Waterbirds 31 (Special Publication 2): 32-43.

2.8.106 Information Request No. NLWD 106

Potential Effects on Caribou: Note that the response column is restricted to sedentary caribou in this table because SAR/SOCC are being considered. However, many of the comments are likely to be referring to migratory caribou.

Alderon Response to IR No. NLWD 106

A description of existing wildlife in the vicinity of the Project is provided in Volume 1, Section 19.5 of the EIS. Both the sedentary (considered as a SAR / SOCC) and migratory ecotypes of caribou were considered in the scope of the assessment. As described in Section 19.5.3, the range of both the sedentary (woodland) Lac Joseph caribou herd and the migratory George River caribou herd do not currently overlap the Project area. Therefore, Project effects on caribou are not anticipated.

In addition, Section 20.5 in Volume 1 of the EIS includes a description of existing SAR / SOCC that are found in the vicinity of the Project. Woodland caribou were not observed during winter and other baseline surveys in the RSA, which encompasses an area of approximately 1,193 km^2 around the Project. As summarized by Table 20.9 of the EIS, the occurrence of woodland caribou in relation to the Project is limited to areas adjacent to the RSA and, therefore, there is a low likelihood that this species will interact with the Project.

2.8.107 Information Request No. NLWD 107

Section 20.2.3: The provincial policy on species at risk should be included in list of applicable government policies.

Alderon Response to IR No. NLWD 107

Section 20.2.3 of the EIS, Volume 1, should read:

"SAR / SOCC are protected under federal and provincial legislation, regulations, policies, and guidelines. A thorough assessment of Project-related effects on SAR / SOCC, and their significance, is required under CEAA, and all appropriate mitigation measures will be identified. This SAR / SOCC VEC will be developed in accordance with applicable provincial and federal acts and associated regulations and may include the following:

- *Newfoundland and Labrador Environmental Protection Act;*
- *Newfoundland and Labrador Endangered Species Act;*

- *Newfoundland and Labrador Species at Risk: A Policy Regarding the Conservation of Species at Risk;*
- *Newfoundland and Labrador Wildlife Act;*
- *Canadian Environmental Assessment Act (CEAA);*
- *Species at Risk Act (SARA); and*
- *Canada Wildlife Act."*

2.8.108 Information Request No. NLWD 108

Note that COSEWIC does not prepare management and recovery strategies; these are prepared by Environment Canada under SARA. COSEWIC completes status reports and assessments only.

Provincial recovery and management plans should be included in this list.

Alderon Response to IR No. NLWD 108

Paragraph 5 of Section 20 of the EIS, Volume 1, should read:

In addition to regulatory requirements, the Project will also be subject to the applicable federal, provincial and non-governmental policy and guidelines:

- *Management and recovery plans;*
- *Species Status Advisory Committee (SSAC);*
- *Accord for the Protection of Species at Risk; and,*
- *Wild Species: The General Status of Wild Species in Canada; and*
- *Provincial recovery and management plans.*

2.8.109 Information Request No. NLWD 109

Section 20.2.3.1 (Newfoundland and Labrador): Species can also be listed as Extirpated or Extinct under the NL ESA. (Note that data deficient and not at risk are also categories under NL ESA.)

Alderon Response to IR No. NLWD 109

Section 20.2.3.1 of Volume 1 of the EIS, page 20-10, paragraph 2, under subheading Newfoundland and Labrador, should read:

Provincially, there are seven designations:

- **Endangered:** a wildlife species that is facing imminent extirpation or extinction;
- **Threatened:** a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction; and

- **Vulnerable:** a wildlife species that has characteristics which make it particularly sensitive to human activities or natural events.
- **Extirpated:** No longer exists in the wild, but exists elsewhere (e.g., exists in another province, a zoo, or a botanical garden).
- **Extinct:** No longer exists.
- **Not at Risk:** Generally applied to widespread and abundant taxa unlikely to fit the criteria for vulnerable, threatened or endangered in the near future.
- **Data Deficient:** All sources of available information have been investigated but the information in the status report is insufficient to determine risk of extinction based on distribution and/or population status. Listing in this category indicates that more information is required and future research may show other classification is appropriate.

2.8.110 Information Request No. NLWD 110

Section 20.3: Species listed as 'Special Concern' under SARA are also considered to be species at risk and should be treated as such when determining significant adverse residual environmental effects.

Alderon Response to IR No. NLWD 110

Significance criteria for SAR as provided in EIS, Volume 1, Section 20.2.3.1, page 20-15 should include species listed as "Special Concern" in Schedule 1 of *SARA* as Species at Risk (SAR) and should read:

"A significant adverse residual environmental effect for flora or fauna Species at Risk is one that affects a species federally listed under Schedule 1 of SARA as "Endangered", "Threatened" or "Special Concern" or provincially listed under Newfoundland and Labrador Endangered Species Act (NLESA) as "Endangered", "Threatened" or "Vulnerable" and results in a non-permitted contravention of any of the prohibitions stated in Sections 32-36 of SARA, or in contravention of any of the prohibitions stated in Section 3 of the NLESA."

The only Special Concern species that this change potentially affects is Rusty Blackbird. Rusty Blackbird was fully assessed in the EIS as a Species of Special Concern and its change to a Species at Risk was based on the revised significance criteria definitions, does not result in any changes to conclusions regarding the significance of potential environmental effects of the Project on Rusty Blackbird.

2.8.111 Information Request No. NLWD 111

What does 'substantially reduced' mean in the context of reduction in long-term viability or survival of a population? This should be a measurable amount in order for the term to be useful.

Alderon Response to IR No. NLWD 111

The term "substantially reduced" in Section 19.3 of Volume 1 of the EIS is in context of the significance criteria:

"A significant adverse residual environmental effect for Birds, Other Wildlife and their Habitat, and Protected Areas is defined as a Project-related environmental effect on fauna species that:

- *Results in the degradation, alteration or loss of critical or important habitat (physical loss, noise, light and other stimuli), either physically, chemically, or biologically; in quality or extent, in such a way as to cause a change or decline in the distribution or abundance of a species that is dependent upon that habitat, such that the likelihood of the long-term viability or survival of the population within the RSA is substantially reduced as a result;"*

An environmental effect would be significant if there is a low likelihood of the long-term viability (or survival) of a population (in other words, substantially reduced). The determination of significance is based on the direction, magnitude, geographic extent, frequency, duration, reversibility and ecological context.

2.8.112 Information Request No. NLWD 112

The loss of a listed species, even at less than 5%, may be considered as being very significant for some species and may make a difference to the viability of any given population if loss is concentrated in one area. Use of 5% is not necessarily based on requirements for low loss needed by SAR.

Alderon Response to IR No. NLWD 112

The 5 percent threshold is considered a conservative value representing the magnitude of the interaction such as the alteration or loss of habitat or percentage of individuals exposed to the potential effects of the Project. Exceeding this value does not infer a significant effect, but does serve to inform the assessment and ensure such interactions are considered when evaluating significance. Where species at risk are determined to interact with the Project, recovery team experts and species authorities would be consulted and asked to make recommendations based on the spirit of the prohibitions defined in *SARA* and *NLESA*, especially with respect to the potential loss of a listed species or their critical habitat.

2.8.113 Information Request No. NLWD 113

Species with a rank of SNR should also be included, if there are five or fewer Labrador records, as they have a high potential to be rare.

Alderon Response to IR No. NLWD 113

The Reviewer's comment is consistent with discussions held between NLDOEC, Wildlife Division, Alderon, and Stassinu Stantec upon completion of the 2011 rare plant surveys and in the period preceding 2012 surveys. On June 7, 2012, NLDOEC (S. Pardy-Moores, Senior

Manager-Endangered Species and Biodiversity, Wildlife Division) provided Alderon with a list of rare vascular plant species ranked SNR, and with potential of occurring in Labrador. As such, species with a rank of SNR and with the potential of occurring within western Labrador or within habitats interacting with the Project were considered in the analysis of SAR / SOCC.

References:

Pardy-Moores, S. Senior Manager-Endangered Species and Biodiversity – Wildlife Division (Newfoundland and Labrador Department of Environment and Conservation). (Correspondence June 7, 2012), 2012.

2.8.114 Information Request No. NLWD 114

Table 20.5: This is the old ranking system and should be updated to the new NatureServe ranking system, which can be found at the following website: http://www.natureserve.org/explorer/ranking.htm.

Alderon Response to IR No. NLWD 114

Section 20.2.3.1 of Volume 1 of the EIS, page 20-12, final paragraph is updated to reflect use of NatureServe National (N) and Subnational (S) Conservation Status Ranks as recommended by Reviewer (note that updating the status ranks does not result in a change to the identified list of plant species of conservation concern considered within the EIS):

"The NLDOEC Wildlife Division, in conjunction with the ACCDC, maintains a comprehensive list of vascular plant species which it considers to be rare (i.e., species of special conservation concern). The ACCDC ranks species on the basis of their global (G), national (N) and provincial status (S) a system developed by the NatureServe (NatureServe 2012) and used by all Conservation Data Centres and Natural Heritage Programs throughout North America. These ranks are used to determine species protection and are assigned a numeric rank ranging from 1 (extremely rare) to 5 (demonstrably secure) for each species. This reflects the species' relative endangerment and is based on the number of occurrences of that species globally or within the province (ACCDC 2010). Plant species considered rare, uncommon, unique or unusual, either locally or regionally, by the NLDOEC Wildlife Division as recorded by the ACCDC include all SH, S1 and S2 species. A combined rank (e.g., S1/S2) is given for species whose status is uncertain; the first rank indicates the rarity status given current documentation, and the second rank indicates the rarity status that will most likely be assigned after all historical data and likely habitats have been checked. While S3 species are of concern from a provincial biodiversity perspective, they have not been included as their populations are considered less sensitive. Status ranks for Labrador were used to identify species of special conservation concern within the PDA, LSA and RSA. Definitions of the NatureServe National (N) and Subnational (S) Conservation Status Ranks are provided in Table 2.8.7 below."

Table 20.5 of Volume 1 of the EIS is updated to include the new ranking system:

Table 2.8.8 Definitions of the National (N) and Subnational (S) Conservation Status Ranks (Updated EIS Table 20.5, Volume 1)

Provincial Ranking	Frequency / Comments
NH SH	**Possibly Extirpated**— Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction
N1S1	**Critically Imperiled —** Critically imperiled in the jurisdiction because of extreme rarity or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the jurisdiction.
N2S2	**Imperiled** — Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction.
N3S3	**Vulnerable** — Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.
N4S4	**Apparently Secure** — Uncommon but not rare; some cause for long-term concern due to declines or other factors
N5S5	**Secure** — Common, widespread, and abundant in the jurisdiction.
N#N# S#S#	**Range Rank** — A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).
NU SU	**Unrankable** — Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
NNR SNR	**Unranked**—National or subnational conservation status not yet assessed.
NNA SNA	Not Applicable —A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities.[1]
Not Provided	Species or ecosystem is known to occur in this nation or state/province. Contact the relevant NatureServe network program (i.e., ACCDC / CDPNQ) for assignment of conservation status.
?	Inexact or uncertain: for numeric ranks, denotes inexactness (e.g., SE? denotes uncertainty of exotic status). (The? Qualifies the character immediately preceding it in the S Rank).

Source: NatureServe 2012

[1] A conservation status rank may be not applicable for some species, including long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems, for several reasons, described below.

2.8.115 Information Request No. NLWD 115

Table 20.6: It is not clear how each of these rankings was reached, particularly many of the '1' rankings. For example, it is unclear how can open pit mining category and tailings disposal in TMF category be ranked as '1' and therefore not warranting further assessment? The rationale should be clearly explained and provided in the EIS document.

Alderon Response to IR No. NLWD 115

Alderon has taken a conservative approach to the classification of potential environmental effects for those Project activities (i.e., construction, operation and maintenance, and decommissioning and reclamation) with potential to affect wetland quality and quantity. With respect to the Newfoundland and Labrador Department of Environment and Conservation Wildlife Divisions request for additional detail, the Reviewer is referred to the rationale as provided for each Project activity with interactions ranked as 0 or 1 (0 - no interaction occurs and 1 - interaction occurs however the resulting effect can be managed through proven mitigation and codified practice) in EIS, Volume 1, Chapter 20, Section 20.4, pages 20-16 to 20-19.

The primary effects of the Project on SAR / SOCC associated with the mining of ore and disposal / management of waste rock and tailings include the potential for loss of rare species that may occur during construction. These effects are considered further in EIS, Volume 1, Section 20.6. During operations phase of the Project, open pit mining, tailings disposal in the TMF and waste rock disposal on surface are not anticipated to involve further ground disturbance activities in previously undisturbed areas or the addition of Project-related infrastructure in areas within or directly adjacent to known occurrences of SAR / SOCC. Thus, these activities have limited potential to cause direct adverse environmental effects to these resources. The environmental effects as a result of loss of habitat within the footprint of the open pit mine, TMF and waste rock disposal area on SAR / SOCC is addressed fully in the construction phase, where a conservative approach is taken to assess the complete footprint of the mine site. As such, open pit mining, tailings disposal in TMF and waste rock disposal during the operations phase, as identified in the Reviewer's example, is not anticipated to result in any additional environmental effects to SAR / SOCC beyond that identified during construction, has been appropriately ranked as '1' and its resulting effects limited to acceptable levels.

2.8.116 Information Request No. NLWD 116

How are acceptable levels defined? Please provide how these are measured and considered.

Alderon Response to IR No. NLWD 116

An "acceptable level" of an effect would be a situation where all reasonable precautions would be applied for that activity in the form of mitigation and Project design, such that any effect, if it were to occur, would not cause a decline in population, or otherwise affect the sustainability of the population at risk. This term is used in the case of rationalizing the application of a "1" interaction of a Project activity and a particular effect for Species at Risk and Species of Conservation Concern. The acceptability of the magnitude of effects has been considered for all relevant SAR and SOCC, in a qualitative way.

2.8.117 Information Request No. NLWD 117

Section 20.4: Please clarify what is meant by 'primary habitat' and how it is characterized.

Alderon Response to IR No. NLWD 117

Depending on what it can provide for a particular species, habitat can generally be classified as primary, secondary, or tertiary. Primary habitat is defined in the EIS, Volume 1, Section 20, page 20-22 as habitat that a species may be dependent on or strongly prefers, and which provides the main requirements for a species, such as breeding (nesting), foraging, protection, and resting opportunities.

2.8.118 Information Request No. NLWD 118

It is difficult to measure the cumulative effects of years of exploratory mining - most likely the habitat disturbance has already been very large scale. However, given that exploration does not require as intensive review as the current proposed development; past alteration of habitat should not be used as support for why this project should proceed. All cumulative impacts (past and present) of the project should be incorporated when assessing total impacts.

Alderon Response to IR No. NLWD 118

The approach to the assessment of cumulative effects follows CEAA guidance and is designed to understand the effects of the proposed Project within the context of other existing and likely foreseeable anthropogenic activities. Often, as is the case for this Project, other activities have been ongoing for an extended period of time and therefore the description of the existing environment (i.e., the baseline) reflects current conditions within the Regional Study Area (RSA). Mining in western Labrador and in the vicinity of Fermont has been ongoing for decades. The flora and fauna of the region are a reflection of this past activity.

Ongoing and future activities which could overlap with the Project have been identified and assessed within the RSA. Based on the significance criteria, it was determined that the sustainability of the identified species would not be compromised by the Project and the existing biological diversity would be maintained. As a result, the cumulative environmental effects were determined to be not significant.

2.8.119 Information Request No. NLWD 119

What is an “acceptable” level of mortality? How is this determined in relation to population size, distribution, and other management concerns? Many of the listed developments are likely to result in relatively large-scale habitat loss and have the potential to result in mortality that may not be considered “acceptable” depending on the species and population. The activities that are likely to result in a “minor” increase in mortality need to be re-examined and an explanation as to what constitutes a “minor” increase in mortality needs to be fully described and justified.

Animals are only being considered during this assessment of mortality. Plants will be very vulnerable to increases in mortality as a result of these activities.

Alderon Response to IR No. NLWD 119

An “acceptable” level of mortality is one whereby, if it were to occur, would not result in a decline in population, or otherwise affect the sustainability of the population at risk. This term is used in the case of rationalizing the application of a class “1” interaction of a Project activity and a Change in Mortality for Species at Risk and Species of Conservation Concern. The acceptability of the magnitude of mortality has been considered for all relevant SAR and SOCC, in a qualitative way.

“Relatively large-scale habitat loss” will not likely equate to unacceptable mortality, especially for the largely mobile wildlife SAR and SOCC identified in the EIS.

In the context of the rationale for the determination of “1” interactions, the term “minor” can be interchanged with “acceptable” as explained above. The rationale is explained, as follows: “…all these activities have potential to cause mortality through collisions or other direct effects, but few species of wildlife are expected to be present in proximity to these activities due to previous displacement and ongoing sensory disturbance.”

Similarly for that of rare plants, activities during construction, operation and decommissioning of the Project will result in increases in rare plant mortality within the Project footprint. For the purposes of this assessment, the majority of Project effects will occur primarily as a result of site preparation during the construction phase. Specifically, observances of nine SOCC were made within the Project footprint and are therefore vulnerable to increases in mortality as a result of these activities.

As S-ranks are largely determined by the number of times a species is detected in the province, low profile and hard-to-identify species, in addition to those occupying remote locations, are more likely to be listed as rare or uncommon. Consequently, it is often difficult to determine if some species are in fact rare, are at the edge of their range and only appear to be rare, or are taxonomically uncertain having been previously misidentified. Through additional rare plant surveys of the LSA and RSA in 2012 several SOCC plant species were found a number of times outside the Project footprint (PDA). Multiple occurrences of several of these species may support the conclusion that many of these species may in fact not be rare.

Modification of the Project footprint is not practical and subsequent rare plant searches would likely find more examples of these seemingly inconspicuous and underreported species. Alternatively, decommissioning and reclamation activities within the Project footprint will focus on the re-establishment of equivalent land capability, with some ecotypes where rare plant occurrences were noted, being created. In time, as these reclaimed landscapes begin to function like mature ecotypes, it is expected that the potential for these sites to support rare plants will increase.

2.8.120 Information Request No. NLWD 120

Impacts on health are not expected, however dust is not the only potential pollutant that should be considered. Contamination via fuel spills are not uncommon and should also be considered.

Alderon Response to IR No. NLWD 120

Contamination via fuel spills is addressed as an accidental event (i.e., Train Derailment; EIS, Volume 1, Section 20.8), and as part of the assessment of the Fuel Storage and Dispensing activity. Mitigation associated with spills of fuel and other hazardous materials will be addressed in the EPP and Emergency Response and Spill Response Plan.

2.8.121 Information Request No. NLWD 121

Table 20.7: What is meant by “contamination” (changes in health)? Contamination by what types of material (water, soil, air)?

Alderon Response to IR No. NLWD 121

In the context of the EIS for this Project, contamination would refer to examples such as the introduction of dust associated with site clearing or operation of the mine, or an accidental spill of hydrocarbons.

2.8.122 Information Request No. NLWD 122

Section 20.5.1: A number of plant species may have been missed by surveying only in mid-summer (i.e., early and late-flowering species).

Alderon Response to IR No. NLWD 122

In general, timing of rare plant surveys coincided with a period when the probability of encountering both cool and warm season perennials was highest, and when potential species of interest (i.e., rare vascular plants) including diagnostic features were most identifiable and the detectability of the majority of species maximized (S. Meades, pers. comm. 2011). The timing and number of site visits were determined using geographic location, habitats present, and weather patterns in the area in which the surveys were conducted. Field results in 2011 indicated that mid to late July presented the optimum sampling period (most species in flower) from which to conduct future surveys. As such, the 2012 field schedule was adjusted accordingly. Field time in 2012 was used to search for additional rare vascular plant species from within the proposed Project footprint and to better determine the range (presence / absence in the RSA) of those rare plant species observed in 2011 and deemed of conservation concern to the Province. Targeted habitats included wetlands (fens), flood plains of slow-moving rivers and streams, and unique rock outcrops and landforms.

References:

Meades, S. J. Independent Consultant (Field Botanist). (Correspondence January / February, 2012), 2012.

2.8.123 Information Request No. NLWD 123

Rusty Blackbird, Harlequin Duck, and Common Nighthawk are all listed under the NL ESA as well as SARA. Common Nighthawk is quite likely to occur in this area and local birders (Gordon Parsons) may be able to provide additional information (e.g., sightings around Lab West and possible nest near Wabush.

Alderon Response to IR No. NLWD 123

Data from citizen initiative data sources such as Breeding Bird Survey (BBS) routes, Christmas Bird Counts, and eBird, as well as published and unpublished literature by the Study Team, including peer-reviewed academic journals, research project reports, and government publications, were used to summarize life history information (including habitat use) and determine the likelihood of presence for various wildlife species within the RSA. In response to Reviewer's comments, EIS, Volume 1, Section 20.5.2, page 20-23, paragraph 3 should read:

"*Rusty Blackbird (Euphagus carolinus) and Olive-side Flycatcher (Contopus borealis), both species of special concern under SARA and listed as Vulnerable under NLESA, were observed during baseline surveys associated with the ELC. Harlequin Duck (Histrionicus histrionicus), also a species of special concern under SARA and listed as Vulnerable under NLESA, has been observed in the Study Area (at the Jean Lake Rapids Management Unit [Wabush 2009]) on at least one occasion in recent years (C. Porter, pers. comm.) and 10 additional observations have been recorded in the western Labrador region between 2000 and 2009 (G. Parsons, pers. comm.). This species of special concern was not observed during any of the 2011 surveys. There are three documented local records of individual Common Nighthawk (Chordeiles minor), a threatened species under SARA and under NLESA, in each of 2003, 2006 and 2011 (G. Parsons, http://ebird.org/ebird/map/).*"

Reference:

eBird. 2012. Labrador West Observations by G. Parsons. National Audobon Society and Cornell Lab of Ornithology. Accessed: December 2012.

Parsons, G. Naturalist in Labrador West, Newfoundland and Labrador. Correspondence in 2011-2012.

Porter, C. Conservation Officer, Newfoundland and Labrador Department of Natural Resources, Wabush, Newfoundland and Labrador. Correspondence in September 2011.

Town of Wabush. 2009. Habitat Conservation Plan for the Town of Wabush. Prepared with the assistance of the staff of the Eastern Habitat Joint Venture. 57 pp.

2.8.124 Information Request No. NLWD 124

ELCs are relatively coarse-scale and may not be able to capture the nuance of habitat needs for some species, in particular specialist species. Analysis of the impact of the project may underestimate the effect on habitat for specific species.

Alderon Response to IR No. NLWD 124

Alderon acknowledges that ELCs are relatively coarse-scale and may not capture the nuance of habitat needs for some species, in particular specialist species. As a result, analysis of the effect of the Project may underestimate (or overestimate) the effect on habitat for specific species.

Very little data currently exists concerning the location and habitat preference of rare plants in western Labrador (ACCDC 2010). With habitat requirements and conditions not fully understood in this part of the province the ability to predict where a species might occur is therefore limited. To better understand the current distribution, abundance and habitat requirements of “specialist species” a rare vascular plant survey was performed in accordance with Alberta Native Plant Council (ANPC) guidelines (2000).

Rare vascular plant survey locations were investigated using a floristic survey method. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. Rare plant surveys were completed within a wide range of ecotypes and plant communities. Greater effort was focused on inspecting those habitats with the highest potential to support rare plant species. Within key habitats, surveyors searched for rare plant species using a random meander search technique, focusing search effort on as many unique or special landscape features such as microhabitats, ephemeral habitats, wet areas or transition zones as possible. These areas are often considered important habitats for rare plants. The length of survey varied according to complexity, number of unique or special landscape features at each location and abundance of potential rare plant species or plant species “of conservation concern” to the Province.

2.8.125 Information Request No. NLWD 125

Section 20.5.2: Local reports from birders and others should be considered similarly to field surveys conducted for the project. This is especially true of species such as Rusty Blackbird (RUBL) and Common Nighthawk which may be hard to detect using typical survey methods. Targeted surveys for hard to detect species should be completed within the study area.

Alderon Response to IR No. NLWD 125

Data from citizen initiative data sources such as Breeding Bird Survey (BBS) routes, Christmas Bird Counts, and eBird, as well as published and unpublished literature by the Study Team, including peer-reviewed academic journals, research project reports, and government publications, were used to summarize life history information (including habitat use) and determine the likelihood of presence for various wildlife species within the RSA. In response to Reviewer’s comments, EIS, Volume 1, Section 20.5.2, page 20-23 should read:

*"**Species at Risk***

"There were no observations of any vascular plant species listed under Schedule 1 of SARA or pursuant to the NLESA during surveys of the PDA. Observations of fauna species listed under Schedule 1 of SARA or pursuant to the NLESA during the field surveys were of two species, Olive-sided Flycatcher and Rusty Blackbird. Thirteen Rusty Blackbird individuals have been observed over three years (2008, 2010 and 2011) on BBS route 41 (U.S. Department of the Interior 2013). Other avian Species at Risk are considered to have potential to be within the LSA, though they were not directly observed during recent field surveys conducted in support of the Project, including Harlequin Duck and Common Nighthawk. Harlequin Duck observations have been reported in the Study Area, at the Jean Lake Rapids Management Unit (Wabush 2009) on at least one occasion in recent years (C. Porter, pers. comm.), and ten additional observations recorded in the western Labrador region between 2000 and 2009 (G. Parsons, pers. comm.).Individual Common Nighthawk have been documented locally in each of 2003, 2006 and 2011 (G. Parsons, http://ebird.org/ebird/map/). Incidental observations of Common Nighthawk were made between point count locations in the Churchill River Valley in 2006 (Nalcor 2009). Additional surveys for difficult-to-detect species such as Common Nighthawk will be completed prior to construction with the results incorporated into the Avifauna Management Plan."

References:

eBird. 2012. Labrador West Observations by G. Parsons. National Audobon Society and Cornell Lab of Ornithology. Accessed: December 2012.

Nalcor Energy 2009. Lower Churchill Hydroelectric Generation Project Environmental Impact Statement. St. John's, NL.

Parsons, G. Naturalist in Labrador West, Newfoundland and Labrador. Correspondence in 2011-2012.

Porter, C. Conservation Officer, Newfoundland and Labrador Department of Natural Resources, Wabush, Newfoundland and Labrador. Correspondence in September 2011.

U.S. Department of the Interior U.S. Geological Survey Patuxent Wildlife Research Center Laurel, MD, USA 20708-4038 http://www.pwrc.usgs.gov/bbs.

Town of Wabush. 2009. Habitat Conservation Plan for the Town of Wabush. Prepared with the assistance of the staff of the Eastern Habitat Joint Venture. 57 pp.

2.8.126 Information Request No. NLWD 126

Section 20.5.3: It is not clear why or how the 37 species found within the area were reduced to only 8 SOCC. Why were the other 29 species not considered?

How are the species ranked in order of importance (i.e. please clarify what makes one more "important" than another).

Alderon Response to IR No. NLWD 126

Discussions were held between NLDOEC, Wildlife Division and Alderon representatives (S. Bennett) upon completion of the 2011 rare plant surveys and in the period preceding the 2012 surveys. With the results of surveys (e.g., ELC, wetlands, rare plants) of the Kami Project conducted in 2011 compiled, a substantive list of potential rare species with occurrences within or in proximity to the Project footprint was developed, encompassing some 37 species. In April 2012, Alderon consulted with NLDOEC (S. Pardy-Moores, Senior Manager-Endangered Species and Biodiversity, Wildlife Division) in an attempt to better understand those species considered truly "rare" or "of conservation concern" (Labrador) to the Province. On June 7, 2012, NLDOEC provided Alderon with a priority list of rare vascular plant species considered to be "of conservation concern" to the Province. This collaboration, along with a similar exercise completed for surveys completed of the proposed Project footprint and regionally in summer 2012 resulted in the finalization of a list of SAR / SOCC as used in the assessment.

References:

Pardy-Moores, S. Senior Manager-Endangered Species and Biodiversity – Wildlife Division (Newfoundland and Labrador Department of Environment and Conservation). (Correspondence June 7, 2012), 2012.

2.8.127 Information Request No. NLWD 127

It is unclear whether the provincial General Status ranks were used or the ones specific to Labrador.

Alderon Response to IR No. NLWD 127

Section 20 of Volume 1 of the EIS, page 20-12, paragraph 3 should read:

"Although species listed under this process are not granted legislative protection, the presence of species whose populations are considered to be At Risk, May be at Risk, or Sensitive are an issue of concern for provincial regulators. They are different from status designations assigned after detailed assessments done by some provincial committees (i.e., SSAC) on Species at Risk or by COSEWIC and this difference is reflected in the ranks' names and in their definition. The General Status ranks used to identify species of special conservation concern within the LSA and RSA are those specific to Labrador (ACCDC 2010 Provisional Plant List). Definitions of the General Status rankings are provided in Table 20.4."

2.8.128 Information Request No. NLWD 128

Several new potentially rare plant species were discovered in the area in summer 2012. Three were highlighted with Stantec as important to include in this report: *Cypripedium parviflorum*, *Erigeron hyssopifolius*, and *Carex concinna*. For the first two, these are the first records ever from Labrador. *Erigeron hyssopifolius* appears to be more widespread, but the *Cypripedium* was found only in the proposed Rose South waste rock area. More surveys might be needed to target the specific habitat (a rock outcrop, which is fairly rare in the area).

A report has not been submitted on this field survey or these findings. This report should be included for comment and to address concerns with these species.

Alderon Response to IR No. NLWD 128

The Rare Plant Survey report is attached as Appendix H. A description of the species listed by the reviewer, including an overview of field survey results, is presented below. In consultation with the appropriate regulatory agencies, Alderon will identify specific mitigation and/or monitoring measures that will be undertaken to minimize the loss or disturbance of these species prior to construction.

Cypripedium parviflorum Salisb. – small yellow lady-slipper

Small yellow lady-slipper is a boreal North American perennial species, with a distribution that extends across continental North America (FNA 2002) and a range that includes western and northwestern Newfoundland (Meades et al. 2000). It is listed as status “Unranked” by DOEC, and as it has not been previously reported from Labrador, it has not been assessed (ranked) by the ACCDC. Within the Rare Plants Study Area, small yellow lady-slipper was observed from a single location, clustered (approx. 101 plants) in a small vegetated area of a potentially calcareous rock outcrop within the Rose South Waste Rock Disposal Area (Figure 5.1 of Appendix H).

Erigeron hyssopifolius Michx. - hyssop-leaf fleabane

Hyssop-leaf fleabane is a small, erect perennial herb growing from slender rootstocks. It is a boreal North American species with a range that includes central, western and northern Newfoundland, extending north to central Labrador (FNA 2006; Meades et al. 2010). reported to occur in areas underlain by limestone or other basic substrates and may be found growing in open woods, rock ledges and crevices, gravel barrens, river gravel, and along the shores of rivers and lakes and roadside ditches.

Hyssop-leaf fleabane is ranked as G5 and N5 (NatureServe 2011), indicating a taxon that is widespread, abundant and secure globally, though it may be quite rare in parts of its range, especially at the periphery. It is listed as status “Unranked” by DOEC, and as it has not been previously reported from Labrador, it has not been assessed (ranked) by the ACCDC. A review of ACCDC records reveals no prior recorded occurrences of hyssop-leaf fleabane from within or adjacent to the Rare Plants Study Area. Occurrences of hyssop-leaf fleabane were encountered within the floodplain of small, slow-moving rivers and streams at three locations proximate to the PDA (Figure 5.1 of Appendix H).

Carex concinna R. Br. - beautiful sedge

Beautiful sedge is a boreal North American species with a range that includes western and northwestern Newfoundland, extending north to western Labrador (Labrador City) (Meades et al. 2000). Classified as rare on the Island of Newfoundland, beautiful sedge is found on limestone barrens and ledges on the Great Northern and Port au Port Peninsulas (Bouchard *et*

*al.*1991). A slender, low-growing graminoid, with stems 5-15 cm tall, arising singly or a few together from a creeping rhizome, Hultén (1968) emphasized that dry conferous forests in calcareous soils were its typical habitats.

Beautiful sedge is considered “May be at risk” by DOEC and is ranked as “S1S2” by the ACCDC. It is ranked as G5 and N5 (NatureServe 2011), indicating a taxon that is widespread, abundant, and secure globally though it may be quite rare in parts of its range, especially at the periphery. This species was observed from a single location (approx. 20 culms), scattered along the face of a potentially calcareous rock outcrop in the area of the Rose South Waste Rock Disposal Area (Figure 5.1 of Appendix H).

2.8.129 Information Request No. NLWD 129

Presence of rare species in the Fermont area of Québec should also be a factor to consider. It seems that the limestone area extends into Québec; hence a data search for these species should be done around Fermont (recommended 50 km radius).

Alderon Response to IR No. NLWD 129

Rare plant surveys (RPS) for the Project were completed with the primary goal of identifying locations of rare plants in the Project area. In 2011, detailed rare plant surveys were conducted where the Project footprint (the PDA) was reasonably well defined. This information is required to assess the potential effects of the Project to terrestrial resources within or in proximity to the Project (a 500 m buffer placed around these Project components comprising the LSA) on a site specific bases, and plan strategies to minimize or avoid effects to sensitive or valued terrestrial features (e.g., rare plant species) resulting from the Project. Recognizing that detailed Project design information was still being developed, Alderon undertook additional RPSs of the LSA and more far reaching RSA (including Fermont) in 2012 to capture the farthest measurable effect of the Project on SAR / SOCC.

The Québec – Labrador border is defined by the existing watershed boundaries between the two provinces. Effects on topography, local hydrology, and surface water (including wetland habitats), and thus habitats for rare plant species associated with the Project are located east of this topographic divide and therefore primarily restricted to Newfoundland and Labrador. Direct effects on rare plant species in the area of Lac Davault, Fermont and beyond are not anticipated. Additionally, indirect effects, including the potential for dust generation from the Project, will mostly occur east of the Project due to prevailing winds and will be mitigated through the use of accepted dust control measures.

As indicated in the Environmental Impact Statement Guidelines, the Project is not subject to environmental assessment under Québec laws because the Project is located entirely in Newfoundland and Labrador. Regardless, the Québec Loi sur les especes menaces ou vulnerables (LEMV) was indicated as a source to be consulted for species at risk and species of conservation concern. As suggested by NLWD, a data search of the Centre de données sur le patrimoine naturel du Québec (CDPNQ) has the potential of providing additional supplementary information related to the element occurrence of rare species, designated threatened or

vulnerable, in proximity to Fermont (approximately 50 km radius). Of the listed species in this area of Québec, none were found during rare plant surveys in 2011 and 2012 within the RSA. This information would be in addition to that currently being tracked in the database of rare plants in Newfoundland and Labrador, as managed by the Atlantic Canada Conservation Data Centre (ACCDC 2010) and obtained by Alderon. Field surveys performed by Alderon in 2012 were also designed to identify habitats where rare plants may occur and to locate additional rare plant populations present in the RSA, LSA and Project footprint. These data will be used to inform Project design, construction, and operations planning.

Details associated with these studies are provided, in part, in a separate environmental report completed for the Project, entitled *Rare Plant Survey of the Kamistiatusset (Kami) Iron Ore Mine and Rail Infrastructure Project* (Appendix H).

References:

ACCDC (Atlantic Canada Conservation Data Centre). 2010. Provisional list of all vascular plant elements.

2.8.130 Information Request No. NLWD 130

Table 20.9: Olive-sided Flycatcher (OSFL) is also listed as Threatened under the NL ESA. Likelihood of occurrence should probably be high for OSFL and RUBL.

Alderon Response to IR No. NLWD 130

Comment acknowledged. Reference to Olive-sided Flycatcher in the EIS, Volume 1, Table 20.9 has been updated to include its Threatened status under NLESA, as well as its status of Threatened under SARA (refer to revised table in response to IR No. NLWD 99). Rusty Blackbird and Olive-sided Flycatcher occur within the RSA and have a high likelihood of occurrence within the PDA. As such, these species were fully considered and assessed within the EIS.

2.8.131 Information Request No. NLWD 131

Common Nighthawk has been reported in Lab West, with a possible nest located near Wabush (Gordon Parsons). Likelihood of occurrence should probably be moderate to high based on local reports and habitat; same for Gray-cheeked Thrush (GCTH) (moderate).

Alderon Response to IR No. NLWD 131

Observations of individual Common Nighthawks were made in 2003, 2006 and 2011 proximate to the Town of Labrador City and the Trans Labrador Highway (G. Parsons, http://ebird.org/ebird/map/). Although there are few sightings, there is potential habitat, and the rating could be increased to moderate. There has been one report of Gray-cheeked Thrush (one individual in 2010) to the east of the Project area (G. Parsons, http://ebird.org/ebird/map/). Similarly with Common Nighthawk, as there have been few sightings a lower rating had been assigned, although it could be increased to moderate as

requested. Regardless, an Avifauna Management Plan will be developed in consultation with relevant regulatory agencies prior to initiation of Project construction and will address species at risk.

References:

eBird. 2012. Labrador West Observations by G. Parsons. National Audobon Society and Cornell Lab of Ornithology. Accessed: December 2012.

Parsons, G. Naturalist in Labrador West, Newfoundland and Labrador. Correspondence in 2011-2012.

U.S. Department of the Interior U.S. Geological Survey Patuxent Wildlife Research Center Laurel, MD, USA 20708-4038 http://www.pwrc.usgs.gov/bbs.

2.8.132 Information Request No. NLWD 132

Why are SAR identified by the SSAC not included?

Alderon Response to IR No. NLWD 132

No wildlife species identified by the SSAC as Endangered, Threatened, or Vulnerable that are not already included in the NLESA are likely to be found in the vicinity of the Project, based on a review of SSAC Status Reports (http://www.env.gov.nl.ca/env/publications/wildlife/index.html#status). Only one plant species (Mountain bladder fern (*Cystopteris montana;* status report is pending) identified by the SSAC as Endangered, Threatened, or Vulnerable has historically been reported in the vicinity of the Project, but additional occurrences did not result from the 2011 and 2012 field surveys.

2.8.133 Information Request No. NLWD 133

Section 20.5.2: Primary habitat may be overestimated for species with more specific habitat requirements by using the ELC approach (e.g., OSFL).

Alderon Response to IR No. NLWD 133

The Ecological Land Classification (ELC) approach examines known habitat relationships that are supplemented through field surveys, and portrayed at the scale of the ELC (i.e., where habitat preferences can be discussed in relation to the ecotypes that are present in the study area). The ELC mapping thus is limited to the scale of the ecotypes identified in the ELC. Note that for the example provided by the Reviewer, several observations of Olive-sided Flycatcher were recorded during baseline surveys in 2011 and 2012. Olive-sided Flycatcher were detected in both the Hardwood and Softwood Burn / Regeneration ecotypes, and in non-forested wetland (fen) ecotypes described as primary habitat and in Black Spruce-Lichen ecotype described as secondary habitat in Appendix Y of the EIS, Volume 1.

2.8.134 Information Request No. NLWD 134

Please restate which species an ELC-based habitat analysis was completed for (other then OSFL).

Alderon Response to IR No. NLWD 134

An ELC habitat analysis approach was taken to qualify ELC ecotypes and assign them as constituting primary, secondary, or tertiary habitat for each avifauna SAR or SOCC with potential to be found in the PDA. These included Olive-sided Flycatcher, Gray-cheeked Thrush, Rusty Blackbird, Common Nighthawk, Barrow's Goldeneye, and Short-eared Owl. Harlequin Duck was not included in this exercise as the parameters of its preferred habitat are not discernible within the ELC. The ELC habitat analysis was completed using a summary of original field data collected through the baseline program, literature review, and professional experience. Primary, secondary and tertiary habitat within the RSA was then displayed in a GIS to describe habitat potential within the RSA (Table 20.10 of Volume 1 of the EIS, and ; Appendix Y of Volume 1 of the EIS).

2.8.135 Information Request No. NLWD 135

Loss of habitat should be referred to in relation to overall habitat composition (i.e., x% of identified primary habitat) and total area of habitat lost, as opposed to a percentage of the study areas.

The interest is in how the project will affect habitat availability rather than how much of the study area is covered in that habitat.

Alderon Response to IR No. NLWD 135

Table 20.10 of Volume 1 of the EIS is a summary of detailed habitat quality analysis provided in Appendix Y of the EIS and has been updated to include the amount of habitat (in hectares) within the PDA.

Table 2.8.9 Percentage of Primary, Secondary, and Tertiary Habitat of the RSA within the PDA for Wildlife (Updated Table 20.10, EIS Volume 1)

Species	Primary % (ha)	Secondary % (ha)	Tertiary % (ha)
Olive-sided Flycatcher	8.4 (953.3-1096.3)	2.2 (806.3)	2.0(268.4-411.4)
Gray-cheeked Thrush	.75 (4.5)	3.3 (1097.1)	3.4 (1092.4)
Rusty Blackbird	6.0 (317.6)	3.8 (493.5)	2.9 (1502.9)
Common Nighthawk	5.0 (971.6)	.75 (4.5)	2.7 (1337.9)
Barrow's Goldeneye	0	1.8 (825.7)	5.9 (1488.3)
Short-eared Owl	3.2 (203.1)	8.2 (912.8)	2.3 (1198.1)

Species	Primary % (ha)	Secondary % (ha)	Tertiary % (ha)

Notes:
1. ( ) Indicates total amount of habitat lost or altered in the PDA, in hectares.
2. The ELC Ecotype "Non-Patterned Shrub/Graminoid Fen" could not be distinguished at the scale used in the analysis; as such ranges are provided for Primary and Tertiary habitat for Olive-sided Flycatcher.

2.8.136 Information Request No. NLWD 136

Section 20.6.1: Does the Rose Pit area support a large proportion of the local population of Spike Muhly, Whitestem Pondweed, Lesser Panicled Sedge and Yellow Sedge or are there other occurrences? If there are no populations found in adjacent wetlands, then maintenance of those wetlands will in no way mitigate for the loss of wetlands through the excavation of Rose Pit.

Alderon Response to IR No. NLWD 136

Wetlands located within the immediate area of Rose Pit were found to support individual plants or populations of spike muhly (*Muhlenbergia glomerata*), whitestem pondweed (*Potamogeton praelongus*), lesser panicled sedge (*Carex diandra*), and yellow sedge (*Carex flava*).

However, as with other species considered to be of conservation concern to the NLDOEC, in areas where rare species were found within the Project footprint, similar habitats outside the footprint (i.e., in the area of the LSA and RSA) were investigated to determine if those habitats also support populations of these plants. The intent of these surveys was to assess the potential effects of the Project on local populations of these species. The locations of any rare plants were documented using a Trimble Nomad® Global Positioning System (GPS) receiver. Appropriate ecological and biological information regarding proximate population size, current condition, associated species, habitat characteristics, and surrounding land use was recorded. Photographs were taken as appropriate, which can be made available.

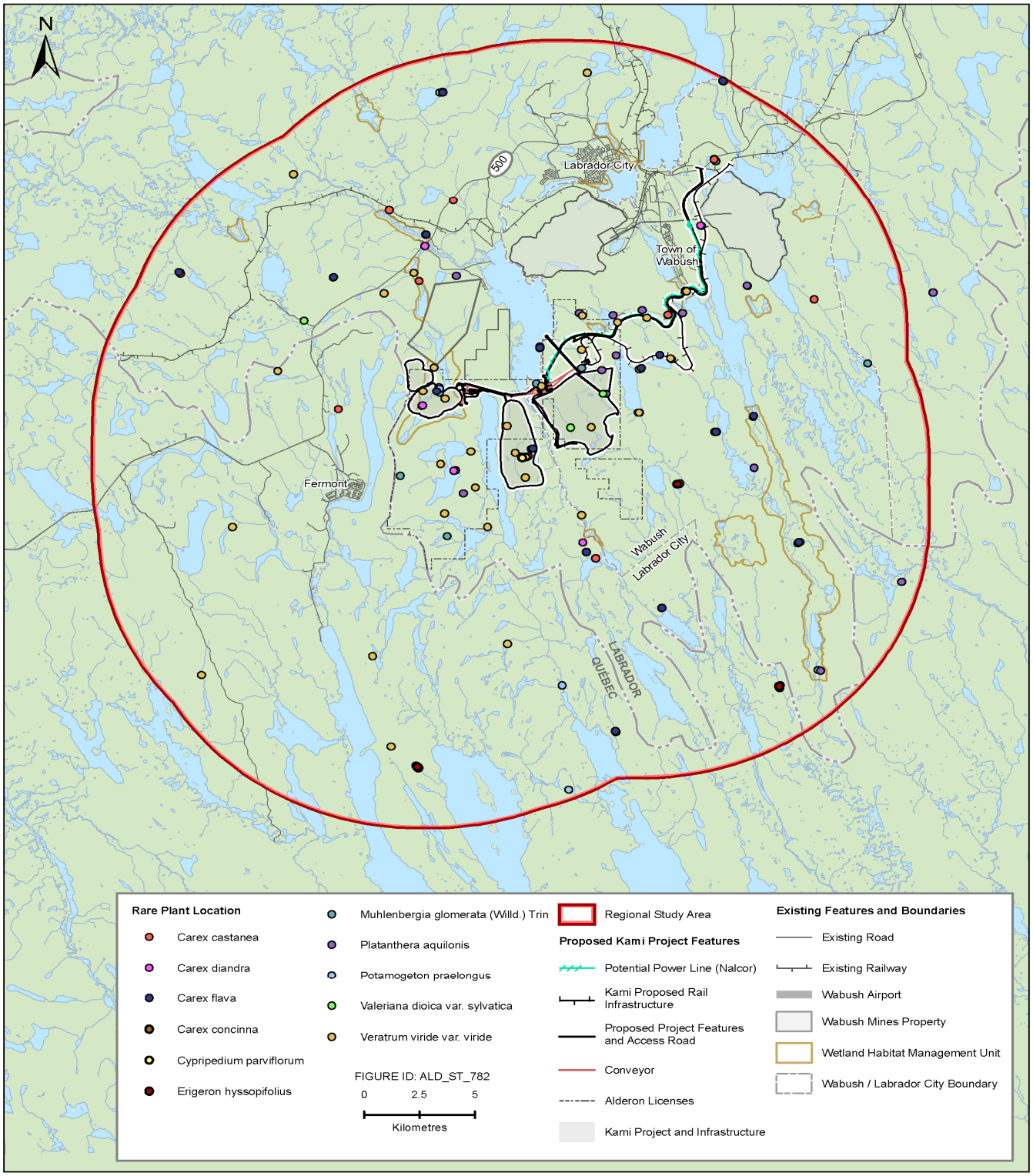
The distribution and abundance (in excess of 5 populations) of spike muhly, whitestem pondweed, lesser panicled sedge, and yellow sedge has been verified from widely separated occurrences located throughout the LSA and RSA.

A map depicting those areas of the RSA and LSA surveyed which are outside the Project footprint, in addition to those occurrences within or in immediate proximity to the PDA, is provided below in Figure 2.8.2.

For the purposes of this EIS, an occurrence is "an area of land or water in which a species is, or was present". According to NatureServe, the default separation distance between plant occurrences is 1 km, therefore for the purposes of this EIS sites less than 1 km apart have been considered as the same occurrence.

Details associated with these studies are provided in a separate environmental report completed for the Project and included in Appendix H.

Figure 2.8.2 Locations of Plant SOCC within the RSA, LSA, and in Proximity to the PDA



2.8.137 Information Request No. NLWD 137

Sentence is not complete: “avoidance of SOCC along the ??? is not possible.

Alderon Response to IR No. NLWD 137

Section 20.7 of Volume 1 of the EIS - Assessment of Cumulative Effects, page 20-55, final paragraph should read:

“Alternatively, transitional and upland areas across the LSA and in association with various Project components, including the TMF, polishing pond, access road, and rail infrastructure provide habitat for a number of populations of green false hellebore, northern valerian and chestnut sedge. Due to the location of the various Project components, avoidance of some SOCC within the Project footprint is not possible. However, as environmental requirements (particularly substrate type and moisture levels) adjacent to and/or in the general vicinity of the PDA are very similar, it is very likely that habitats and thus occurrences of these species of conservation concern outside the LSA, in the area of the RSA. In the majority of instances the distribution and abundance (in excess of 5 populations) of SOCC has been verified from widely separated occurrences located throughout the LSA and RSA.”

2.8.138 Information Request No. NLWD 138

The suggestion that because environmental properties of adjacent areas are similar to those that will be lost means that there are likely SOCC supported in those areas needs to be examined through surveys or other work that can identify that they are in fact there. Without further examination, the assertion that SOCC that will be lost are not as important because they are found elsewhere is not supported.

Alderon Response to IR No. NLWD 138

The Project is being designed, and will be constructed and operated to minimize potential environmental effects on SAR / SOCC that could result during the normal course of the Project as well as those that could result from accidents and malfunctions. The implementation of an EPP and an Emergency Response and Spill Response Plan will minimize the likelihood, extent, and magnitude of potential effects.

Since the submission of the EIS, additional focused rare plant surveys of the proposed Project footprint and regional area (RSA) were conducted in early to mid-summer 2012. Included in these studies were targeted searches for those rare vascular plant species deemed to be “of conservation concern” to the Province, as identified by NLDOEC, Wildlife Division, June 7, 2012 (S. Pardy-Moores, pers. comm.) based on the results of the 2011 surveys.

Vascular plant SOCC interacting with the Project with the potential to be directly affected (i.e., reduction in distribution and abundance) and/or permanently lost as a result of the Project include: spike muhly, green false hellebore, northern valerian, whitestem pondweed, lesser panicled sedge, tall northern green orchid, yellow sedge, small yellow lady-slipper, and beautiful sedge. A number of these species occupy a rather narrow ecological niche, occurring almost

entirely in areas characterized by calcareous substrates (calciphiles), however, their distribution and abundance (in excess of five populations) has been verified (2012) from widely separated occurrences located throughout the LSA and RSA. As such, the Project is not anticipated to affect habitat types considered limiting for these species, will not result in the loss of any individual species, and standard mitigation used to assess plant statuses on a regional basis have been deemed successful.

References:

Pardy-Moores, S. Senior Manager-Endangered Species and Biodiversity – Wildlife Division (Newfoundland and Labrador Department of Environment and Conservation). (Correspondence June 7, 2012), 2012.

2.8.139 Information Request No. NLWD 139

Page 35: Mitigative measures should be identified through an EPP that should be reviewed and approved by ENVC.

Alderon Response to IR No. NLWD 139

Prior to initiation of Project activities, a detailed Environmental Protection Plan (EPP) and follow-up program will be developed by Alderon and submitted to appropriate regulatory agencies for review prior to the initiation of Project activities. A table of contents for the EPP is provided in Chapter 5 of Volume 1 of the EIS. The EPP will be updated and modified regularly according to the Project phase and as determined by site-specific conditions.

Avoidance of rare plant species, where identified, will be implemented where feasible. As indicated in the EIS (Section 20.10), if avoidance is not feasible, where necessary, and through consultation with the NLDOEC, Alderon will investigate possible mitigation options (i.e., transplanting) in those instances where a significant percentage of a specific rare plant species or population may be removed by the Project, or fragmented by the disturbance footprint.

2.8.140 Information Request No. NLWD 140

Page 37 3 §: It should be clear from the start of this paragraph that this refers to Olive-sided Flycatcher (OSFL) primary habitat.

Alderon Response to IR No. NLWD 140

Chapter 20 of Volume 1 of the EIS, page 37, paragraph 3 should read:

"Although the initial estimated loss of primary habitat for Olive-sided Flycatcher, is 8.4 percent, additional primary habitat (hardwood forest burn / regeneration, mixedwood forest burn / regeneration and softwood forest burn / regeneration) will be created following decommissioning and reclamation of the Project. Given its association with edge habitat, the initial estimation of change or loss of primary habitat for Olive-sided Flycatcher is likely an overestimate. In addition,

because Olive-sided Flycatcher is so uncommon in the region and its primary habitat represents such a large proportion of both the PDA and RSA, it is unlikely that all of the primary habitat for this species is currently occupied. Loss of primary habitat is therefore not believed to represent a similar potential loss to the population. This species is experiencing declines throughout its range, and although factors influencing population declines are not well understood, loss of habitat in southern wintering grounds, not northern breeding grounds, is believed to be a major contributing factor (COSEWIC 2007)."

2.8.141 Information Request No. NLWD 141

Loss of primary habitat for OSFL may not mean a direct loss of individuals on a one to one basis (i.e., 1 pair loss for every breeding territory lost) because habitat is not fully occupied. However, this species is threatened and loss of unoccupied habitat may result in reduced ability for the species to recover.

It should be noted that some research suggests that the type of edge habitat is likely important in determining the quality of habitat for OSFL in particular. This is important because edge habitat created by development/clearing may in fact be detrimental for OSFL productivity.

Alderon Response to IR No. NLWD 141

Although the initial estimated loss of primary habitat, is 7 percent, additional primary habitat (hardwood forest burn / regeneration, mixedwood forest burn / regeneration and softwood forest burn / regeneration) will be created following decommissioning and reclamation of the Project. Given its association with edge habitat, the initial estimation of change or loss of primary habitat for Olive-sided Flycatcher is likely an overestimate since only a small subset of the primary habitat that can be mapped from the ELC mapping contains the microhabitat features such as interspersion of open habitat with foraging perches and suitable nesting cover that is attractive to Olive-sided Flycatchers. In addition, because Olive-sided Flycatcher is so uncommon in the region and its primary habitat represents such a large proportion of both the PDA and RSA, it is unlikely that all of the primary habitat for this species is currently occupied. Loss of primary habitat is therefore not believed to represent a similar potential loss to the population. This species is experiencing declines throughout its range, and although factors influencing population declines are not well understood, loss of habitat in southern wintering grounds, not northern breeding grounds, is believed to be a major contributing factor (COSEWIC 2007).

Nevertheless, the availability of suitable unoccupied habitat is important to the long term recovery of the species. Although, this species requires canopy openings for breeding habitat, there is some evidence to indicate that Olive-sided Flycatchers nesting in habitat created as a result of forest harvesting had only half the breeding success of Olive-sided Flycatchers that nested in natural openings (Robertson and Hutto 2007). These harvested areas may act as reproductive sinks for Olive-sided Flycatchers. The reason for the reduced breeding success in these harvested areas may relate to a greater presence of nest predators in these areas.

References:

Robertson, B.A. and R.L. Hutto, 2007. Is selectively harvested forest an ecological trap for Olive-sided Flycatchers? The Condor 109:109-121.

2.8.142 Information Request No. NLWD 142

It is important to note that, as activities cease, re-habilitation will not replace primary habitat; this could be a very long process and span many decades, and the habitat still may not represent pre- project conditions. Species that have very specific habitat needs may experience extended periods of recovery from the time of reclamation to development and into primary habitat. In some instances, impacted habitat may not recovery to pre development conditions.

Alderon Response to IR No. NLWD 142

Disturbance-related construction effects are anticipated to be long term. It is recognized that removal of habitat from some areas of the PDA (e.g., open pit) will be permanent and will not recover to pre-development conditions. Removal of habitat for other areas (e.g., access roads) will be medium term as these areas will be rehabilitated. The rehabilitation of altered habitat into suitable habitat or pre-development conditions will vary in terms of the required recovery period.

2.8.143 Information Request No. NLWD 143

Re-vegetation should be managed so as to make sure areas are not open to invasive/exotic species, which would result in further issues for rare species in the future. Re-vegetation should focus on native local species.

Alderon Response to IR No. NLWD 143

Efforts will be made to minimize the effects of invasive and/or exotic species on natural biodiversity values. A commitment to participate in “invasive species management” is identified in the mitigation summary within Volume 1 of the EIS, Table 20.12 of the Species at Risk and Species of Conservation Concern VEC, as well as in Table 17.11 (Wetlands) and Table 19.12 (Birds, Other Wildlife and their Habitat, and Protected Areas). Details of the mitigative measures used to manage invasive and exotic species will be identified in the Project-specific EPP, and will include the use of native species during re-vegetation efforts to the extent that is practical provided that they are effective in preventing dust lift and erosion.

2.8.144 Information Request No. NLWD 144

Section 20.6.3: Potential ways to discourage nesting by these species (without harming or significantly harassing individuals) should be investigated. Destruction of the nests, eggs, or young of listed bird species is prohibited by several pieces of legislation so construction needs to be completed in a way that avoids this outcome.

Alderon Response to IR No. NLWD 144

Alderon is proposing to develop a Sustainability Management Framework (Appendix J) which will include an Environmental Management System (EMS) that will provide detailed management of regulatory and permit requirements and includes environmental protection plans and procedures. The EMS will include environmental monitoring and reporting on specific construction and operational activities. Environmental Management Plans will be developed in consultation with relevant regulatory agencies and stakeholder groups. An Avifauna Management Plan (Appendix I) will be developed and will be implemented during the nesting period of 1 May through 31 July to reduce the risk and to mitigate disturbance to nests and eggs. The Avifauna Management Plan will identify specific measures that will be undertaken to avoid the harassment of avifauna, nests, and eggs. Potential methods of discouraging nesting individuals (without harming or harassing any avifauna) will be investigated during the development of the Avifauna Management Plan. Appropriate regulatory agencies will be given the opportunity to participate in the review of the Avifauna Management Plan before implementation.

2.8.145 Information Request No. NLWD 145

Use of green/blue lights has been suggested as a mitigative measure. Are they to be used? Why or why not?

Alderon Response to IR No. NLWD 145

There are several factors that may limit the potential to use colored lighting. Poot et al. (2008) note that blue lighting, which is not attractive to birds, is also not safe for humans to work under. They noted that green lighting provided good visibility for humans and was minimally attractive to birds. Before green lighting is potentially adopted for site lighting, the possible implications for worker safety must be assessed. Secondly, it may not be currently, technically feasible to switch to colored lighting since the lights may not be commercially available. The main mitigation is a design element that calls for the use of horizontal cutoff lighting that direct all light downward, and not upward to the sky. This kind of lighting can greatly reduce the skyglow that is associated with industrial development, and the glare and light trespass due to the horizontal transmission of light. The site lighting plan has not yet been developed, as this will be part of the detailed design.

References:

Poot, H., B.J. Ens, H. de Vries, M.A.H. Donners, M.R. Wernand and J.M. Marquenie. 2008. Green light for nocturnally migrating birds. Ecology and Society 13(2): 47. Available online: http://www.ecologyandsociety.org/vol13/iss2/art47/.

2.8.146 Information Request No. NLWD 146

Section 20.7 Pg 55: There is a potential for loss of OSFL and RUBL due to this project, especially if there are reasons why clearing or construction cannot be limited to times outside the breeding season. It should be clarified as to what conditions would make it unfeasible to

clear outside those times and what mitigations will be put in place to remove chance of loss if determined to be unfeasible. Common Nighthawk (CONI) and Grey-cheeked Thrush (GCTH) are also quite likely to be present in the area and the impact on them should be considered. Other important plant species identified by ENVC have not been included in this assessment.

Alderon Response to IR No. NLWD 146

An Avifauna Management Plan will be developed in consultation with the appropriate regulatory agencies prior to construction and will address SAR / SOCC including Common Nighthawk and Grey-cheeked Thrush. The Avifauna Management Plan will identify specific measures that will be undertaken to avoid the harassment of avifauna, nests, and eggs, particularly during the 1 may through 31 July period

Additional regional rare plant surveys for small yellow lady-slipper and beautiful sedge might be needed in 2013 to confirm the presence of these two SOCC outside of the Project footprint and provide information to further refine their regional conservation status. As per surveys for SOCC completed in 2012, surveys are intended to confirm the distribution and abundance (in excess of five populations) of these two species from widely separated occurrences located throughout the LSA and RSA. Where this is not possible, Alderon in consultation with the appropriate regulatory agencies, will identify specific measures that will be undertaken to avoid the loss or disturbance of these species prior to construction. Details associated with these studies are provided in a separate environmental report completed for the Project, entitled Rare Plant Survey of the Kamistiatusset (Kami) Iron Ore Mine and Rail Infrastructure Project (Appendix H).

2.8.147 Information Request No. NLWD 147

Page 56: The assessment of potential cumulative effects on SAR/SOCC is limited. There is a high likelihood that the effects of all projects to be undertaken in the area may have significant effects on the populations and habitat of these species. Non-mobile species are likely to see a greater impact but the impact on mobile species is likely to be present as well.

Alderon Response to IR No. NLWD 147

The approach to the assessment of cumulative effects follows CEAA guidance and is designed to understand the effects of the proposed Project within the context of other existing and likely foreseeable anthropogenic activities. Often, as is the case for this Project, other activities have been ongoing for an extended period of time and therefore the description of the existing environment (i.e., the baseline) reflects current conditions within the Regional Study Area (RSA). Mining in western Labrador and in the vicinity of Fermont has been ongoing for decades. The flora and fauna of the region are a reflection of this past activity.

Ongoing and future activities which could overlap with the Project have been identified and assessed within the RSA. Based on the significance criteria, it was determined that the sustainability of the identified species would not be compromised by the Project and the existing biological diversity would be maintained. As a result, the cumulative environmental effects were determined to be not significant.

2.8.148 Information Request No. NLWD 148

Table 20.13: RUBL and OSFL are both listed under the NL ESA.

Alderon Response to IR No. NLWD 148

Comment acknowledged. Reference to Rusty Blackbird and Olive-sided Flycatcher within Table 20.13 should have indicated that Rusty Blackbird, in addition to being listed under Schedule 1 SARA, Special Concern, is also listed as vulnerable under NLESA. Olive-sided Flycatcher, in addition to being listed under Schedule 1 SARA as Threatened is listed under NLESA as threatened. Both species occur within the RSA and have a high likelihood of occurrence within the PDA and were fully assessed within the existing cumulative effects assessment.

2.8.149 Information Request No. NLWD 149

Section 20.9.2: Similar comments to 20.7. The assessment on whether there is likely to be a significant impact is not adequately supported by this EIS and there are several indicators throughout this chapter that suggest there is potential for negative results for populations of both plant and animal SAR/SOCC (likely plants in particular – see below).

Alderon Response to IR No. NLWD 149

The assessment of potential effects of the proposed Project and determination of significance examines whether the sustainability of the identified species would be compromised by the Project and the existing biological diversity maintained. While these effects will be adverse for populations of flora and fauna within the area of disturbance (LSA), Alderon did not identify situations where a majority or all of the individuals or important supporting habitat quantity or quality at the regional level (i.e., the RSA) would be at risk from the Project.

2.8.150 Information Request No. NLWD 150

Cumulative effects should examine what proportion of the dolomite area of Western Labrador will be affected by the mine and how much has been lost as a result of preceding projects (e.g., Wabush mines, quarries, other development, etc.). Current analysis of cumulative effects does not take into account the potential impact on rare habitat adequately.

Alderon Response to IR No. NLWD 150

In general, the composition of the glacial deposits (till) reflects the composition of the underlying bedrock. Bedrock geology of the area is referred to as the Knob Lake Group of rocks. Within the area of interest are three main categories known as the Denault, Sokoman and Menihek Formations. Within the Project area, the Denault Formation contains dolomitic and calcitic marble with varying amounts of quartz; the Sokoman Formation contains ferriginous quartzite and the Menihek Formation contains quartzofeldspathic schist and gneiss (T. Rivers, et. al. 1985).

The composition of the glacial deposits reflects the dolomitic and calcitic composition of the bedrock, so the soil or growing medium is also calcareous. The calcareous, basic (higher pH) conditions of the rocks, soils and associated groundwater associated with portions of the Project area creates difficult conditions for many plants to grow. Those plants that survive are calciphile plants, tolerant of calcareous conditions - including small yellow lady's slipper (*Cypripedium parviflorum*), green false hellebore (*Veratrum viride* var. viride), and whitestem pondweed (*Potamogeton praelongus*)

Additional details associated with rare plant studies are provided, in a separate environmental report completed for the Project, entitled Rare Plant Survey of the Kamistiatusset (Kami) Iron Ore Mine and Rail Infrastructure Project (Appendix H).

The Project footprint (including Rose Pit, Rose South Waste Rock Disposal Area, Rose North Waste Rock Disposal Area, TMF, rail infrastructure, associated facilities, roads, powerlines and pipelines) is estimated to cover approximately 2 percent of the 119,347 ha RSA. Within the RSA, rare plant habitats with limited distribution in western Labrador, particularly those dominated by underlying bedrock geology comprised of dolomitic and calcitic marble, account for approximately 15,730 ha. In total, rare plant habitats in the PDA with limited distribution (i.e., calcareous, basic conditions of the rocks, soils and associated groundwater) currently occupy approximately 1,500 ha of the RSA. The removal of rare plant habitat for the construction of Project will result in less than 10 percent change within the RSA.

The Cliffs Natural Resources Wabush Mines Project and IOC Labrador Operations are also located within the RSA; consequently, rare plant habitats with limited distribution may have been removed from the respective project footprints.

Cumulatively, the two projects (Cliffs Wabush Mines and IOC Labrador Operations) have removed approximately 3,600 ha of terrestrial habitat, which is approximately 3 percent of the RSA. Of that area, approximately 850 ha or 5 percent had previously occupied an ecological landscape deemed to be of limited distribution in the RSA.

In total, the three projects have a cumulative footprint of approximately 6,000 ha which equates to approximately 5 percent of the RSA, of which approximately 2,400 ha (15 percent of dolomitic and calcitic marble in the RSA) overlies a habitat characterized by bedrock geology of dolomitic and calcitic marble in limited distribution on the ecological landscape.

Incremental losses of habitat will be result from the any future expansion of the existing Cliffs Wabush Mines project and IOC Labrador Operations.

2.8.151 Information Request No. NLWD 151

Methodology about how the ecological land classification was derived should be provided in this document, as it used as a base for species habitat evaluation. Some of the methodology has been explained in Appendix I for wetland classification and an overview map has been presented in Chapter 3 (Figure 3.4). However, ELC methodologies range widely depending on

the scale at which habitat is being considered for particular species. The approach taken should be documented.

Alderon Response to IR No. NLWD 151

The Ecological Land Classification (ELC) was derived through a combination of field surveys and remote sensing techniques. Details associated with the approach are provided, in part, in a separate environmental study completed for the Project, entitled *Ecological Land Classification (ELC) of the Kamistiatusset (Kami) Iron Ore Mine and Rail Infrastructure Project* (Appendix B).

Baseline vegetation studies were completed to investigate and document existing characteristics of vegetation, wetlands and forest cover types within and around the Project. Baseline vegetation information provides context for the environmental assessment and identifies potential landscapes, vegetation communities and species at risk / species of conservation concern with potential to interact with the Project. Vegetation information has been collected at a sufficient level of detail within the Project area to allow for an assessment of Project-related effects on vegetation resources, including wildlife and their habitats.

The ELC for the Project, encompassing the RSA, LSA and PDA, is based on a regional land cover classification. A variety of data formats including satellite imagery (RapidEye 5m multispectral), aerial ortho-photos, elevation and field survey data were utilized during completion of the ELC, resulting in as accurate a classification as possible. This combination of data formats resulted in a field survey program designed to support a systematic remote-sensing-based mapping program. A detailed description of methodology used in completion of the ELC is provided in Section 5.0 of the aforementioned ELC report (Appendix B).

Field surveys were used to gather quantitative information on vegetation communities, to “train” the computer-based supervised classification algorithm and to provide a basis for assessing vegetation. Vegetation data were collected during two separate field programs in 2011, coinciding with the early to mid-summer and late summer phenology for most plants, respectively:

- July 25 to July 31, 2011; and
- September 28 to October 4, 2011.

In total, 64 survey locations were established and described in and around the RSA, LSA and PDA in 2011. Baseline 2011 survey site location information is presented in Figure 5.1 of the ELC report (Appendix B), with detailed descriptions of the various vegetation communities provided in Section 6.2. All sites examined were located in the field using a GPS. An additional 36 were identified independently using existing aerial photography.

Upon completion of the ELC map, the accuracy of the map was tested by comparing classified categories to ground-truthed sites, in addition to using high resolution ortho-corrected air photos to verify and adjust the algorithm for areas of specific interest. This is an accepted approach with regulators for conducting vegetation classifications of this nature, and has precedence in other EISs that have gone through the regulatory process.

2.8.152 Information Request No. NLWD 152

To validate the assumptions of habitat use for each species, wildlife and bird surveys should have been done in an ELC specific manner. If species specific habitat use from other regions is being applied to this area, it requires ground truthing to validate these assumptions as well as the inclusion of references to these sources.

Alderon Response to IR No. NLWD 152

Several of the wildlife species used in the analysis (i.e., seventeen bird, seven mammal and one amphibian species) were completed in an Ecological Land Classification (ELC) specific manner. This approach was used where habitat relationships were known, could be confirmed through field surveys, and could be portrayed at the scale of the ELC (i.e., where habitat preferences could be discussed in relation to the ecotypes that are present in the study area). The wildlife surveys conducted in the study area used the ELC mapping to identify relationships between the ecotypes and the wildlife species present in the ELC study area.

2.8.153 Information Request No. NLWD 153

Little Brown Bat should be included in the list, given that there is no other animal that can represent their ecotype and recent concerns of population declines in other regions.

Alderon Response to IR No. NLWD 153

The most critical habitat for little brown bat is suitable hibernaculum and maternal roosting sites. Hibernacula for little brown bats consists of solution caves or abandoned mine shafts that are deep enough to maintain a stable temperature greater than freezing. Maternal roosting sites may consist of abandoned anthropogenic structures. Existing cabins in the RSA have been identified during various surveys related to the Project and public consultation meetings. These sites are rare landscape features and as such tend to concentrate bats into a relatively small number of locations. These sites also play an important role as sites for mating. The ELC mapping is not designed to capture potential hibernacula limiting the usefulness of habitat modelling for this species.

2.8.154 Information Request No. NLWD 154

How were indicator species chosen? A matrix of reasoning as to why each particular species was/was not chosen as an indicator species that warrants monitoring/mitigation would be helpful.

Alderon Response to IR No. NLWD 154

The following indicator species were selected according to one or more of the following factors: species group, habitat association, niche specialists, and presence (confirmed or suspected to occur) within the RSA.

Table 2.8.10 Indicators Species and their Rationale for Inclusion in the EIS

Species	Rationale for Choice as an Indicator Species
Greater Yellowlegs	A common breeding shorebird associated with wetland habitats. Recorded in the RSA.
Northern Harrier	A raptor species associated with grassy wetlands and disturbed areas. Raptors typically have low population densities and are often intolerant of human activities. Recorded in the RSA.
Osprey	A raptor species associated with fish bearing waters and mature coniferous forest. Raptors typically have low population densities and are often intolerant of human activities. Recorded in the RSA.
Gray Jay	A common resident song bird characteristic of coniferous forested areas. Recorded in the RSA.
Boreal Chickadee	A common resident song bird characteristic of coniferous forested areas. Recorded in the RSA.
Common Loon	A piscivorus waterbird that occurs at relatively low densities on the landscape. Recorded in the RSA.
Common Goldeneye	A relatively common waterfowl species that requires an interspersion of small lakes and mature forest. Utilized as a food source. Recorded in the RSA.
Barrow's Goldeneye	A waterfowl species at risk that requires an interspersion of small lakes and mature forest. Not recorded in the RSA but potentially present.
Olive-sided Flycatcher	A song bird species at risk that is associated with sparsely treed wetlands and burns. Recorded in the RSA.
Common Nighthawk	A species at risk. This aerial insectivore is associated with open habitats such as burns and disturbed areas. Recorded in the RSA.
Rusty Blackbird	A songbird species at risk that is associated with wetlands and adjacent coniferous forest. Recorded in the RSA.
Gray-cheeked Thrush	A songbird species at risk that is associated with dense stands of conifers. Not recorded in the RSA but suitable habitat is present.
Short-eared Owl	A species of conservation concern. This species is associated with open grassy habitats and grassy disturbed areas. Recorded in the RSA.
Lincoln's Sparrow	A common omnivorous song bird characteristic of shrubby wetlands. Recorded in the RSA.
Tennessee Warbler	A common insectivorous song bird characteristic of coniferous forest with dense understories. Recorded in the RSA.
Spruce Grouse	A common gallinacous bird characteristic of coniferous forest. An important game bird. Recorded in the RSA.
Canada Goose	A common waterfowl species that is characteristic of grassy fens and bogs. An important game bird. Recorded in the RSA.
Snowshoe Hare	A common small mammal characteristic of forested areas, regenerating burns and shrubby wetlands. An important game animal and an important food source for carnivores such as lynx and American marten. Recorded in RSA.
Porcupine	A fairly common small mammal characteristic of a variety of ecotypes. An important game animal in Labrador. Recorded in the RSA.
Lynx	An important furbearer that is characteristic of forested ecotypes. Recorded in the RSA.
Red Squirrel	A common small mammal characteristic of coniferous forest. A minor furbearer and an important food source for carnivores such as American marten. Recorded in the RSA.

Species	Rationale for Choice as an Indicator Species
American Marten	An important furbearer that is dependent on mature coniferous forest. Recorded in the RSA.
Moose	A large ungulate that makes use of a wide range of ecotypes. An important game animal and food source for large carnivores such as wolves. Recorded in the RSA.
Beaver	A fairly common mammal associated with streams and lakes. An important furbearer. Recorded in the RSA.
Wood Frog	The most abundant and widespread amphibian in the RSA.

2.8.155 Information Request No. NLWD 155

Osprey

Consider using nesting habitat that has adjacent (within a reasonable distance for foraging) foraging habitat as primary habitat. In a case like this, the two ecotypes are inseparable and should be considered together in determining primary habitat. Otherwise classifying separately as secondary habitat diminishes the fact that the species requires both.

The function of these ecotypes is still primarily important to the survival of individuals. This should not be a particularly difficult GIS exercise using the ELC that has been created.

Alderon Response to IR No. NLWD 155

Osprey nesting and feeding habitat are spatially separate; consequently, no one ecotype can provide primary habitat. Foraging occurs in open water areas occupied by fish. As such, the Open Water and Shallow Open Water with Vegetation ecotypes are listed as secondary habitat. Nests are constructed in the tops of trees and large snags that provide a commanding view of the surrounding area. Artificial nest sites, such as power poles or towers are readily used as nesting sites. Ecotypes containing mature trees are capable of providing suitable nesting sites and are considered to be secondary habitat. These include the Hardwood Forest, Mixedwood Forest, Black Spruce-Labrador Tea-Feathermoss, Black Spruce-Lichen, and Black Spruce / Tamarack-Sphagnum Woodland ecotypes. An amalgamation of nesting and foraging habitat was used to identify primary habitat for Osprey. An Osprey habitat model developed by the United States Fish and Wildlife Service (USFWS 2000) for the state of Maine determined that 87 percent of Osprey nests were located within 1 km of lakes greater than 30 ha in size or large rivers. As such, primary habitat was defined as any Black Spruce – Labrador Tea – Feathermoss or Black Spruce / Tamarack – Sphagnum Woodland Ecotype located within 1 km of any lake greater than or equal to 30 ha in size or any large river.

References:

United States Fish and Wildlife Service 2000. Osprey Habitat Model. http://www.fws.gov/r5gomp /gom/habitatstudy/metadata/osprey_model.htm.

2.8.156 Information Request No. NLWD 156

Common Loon

While the inclusion of large lake size and lack of fish in Open Water ecotype are emphasized for an overestimation of primary habitat for Common Goldeneye (COGO) and Barrow's Goldeneye (BAGO), similar criteria could be applied to a habitat assessment of the loon: they prefer larger lakes and also require lakes with fish. For consistency the same point should be made for loons.

Alderon Response to IR No. NLWD 156

Common Loons are almost entirely aquatic birds and utilize terrestrial habitats only as nesting sites. The Common Loons legs are set far back on the body to optimize swimming; however, this makes it very difficult for Common Loons to move on land. As a result, nest sites are located near the edge of the water where loons can easily slip into the water. Islands, the tips of points, floating vegetation mats and muskrat houses are used as nest sites. The Open Water and Shallow Open Water with Vegetation ecotypes are the only ecotypes that provide primary habitat for this species. Common Loons prefer to nest on larger lakes and lakes that are fish bearing. Since there are many small lakes in the study area which would be unsuitable as Common Loon habitat, the model overestimates the amount of primary Common Loon habitat.

2.8.157 Information Request No. NLWD 157

Common Goldeneye

Although no one ecotype can provide both feeding and nesting requirements for this species, its feeding and nesting ecotypes should be classified as primary habitat, not secondary. The function of these ecotypes is still primarily important to the survival of individuals.

Primary habitat should be characterized as suitable nesting habitat within 3 km of open water habitat (foraging habitat).

Note: literature suggests about 1.6 km is the upper limit of nesting sites from water.

Alderon Response to IR No. NLWD 157

Common Goldeneyes nest in tree cavities, but forage entirely in open water habitats. As such, no one ecotype provides primary habitat for this species. Given the relatively large size of this bird, large tree cavities are required for nesting. This limits nesting to mature stands located within 1.6 km of open water. Ecotypes that could provide suitable nesting habitat include Black Spruce-Labrador Tea-Feathermoss, Black Spruce / Tamarack-Sphagnum Woodland, Hardwood Forest, and Mixedwood Forest. Brood rearing and foraging occur mainly in small lakes that are generally unoccupied by fish and have little emergent vegetation. The only ecotype that would match this requirement would be the Open Water ecotype. This ecotype will overestimate the distribution of this species since it includes both large and small lakes and does not differentiate between waters containing fish and those that do not. An amalgamation of nesting and foraging habitat was used to identify primary habitat for Common Goldeneye. Primary habitat was

defined as any Black Spruce – Labrador Tea – Feathermoss, Black Spruce / Tamarack – Sphagnum Woodland, Hardwood Forest, or Mixedwood Forest Ecotype located within 1.6 km of any Open Water ecotype.

2.8.158 Information Request No. NLWD 158

Barrow's Goldeneye

Primary habitat should be characterized as suitable nesting habitat within 2 km of open water foraging habitat.

Alderon Response to IR No. NLWD 158

Barrow's Goldeneyes nest in tree cavities, but forage entirely in open water habitats. As such, no one ecotype provides primary habitat for this species. Given the relatively large size of this bird, large tree cavities are required for nesting. This limits nesting to mature stands located within 2 km of open water. Ecotypes that could provide suitable nesting habitat include Black Spruce- Labrador Tea-Feathermoss, Black Spruce / Tamarack-Sphagnum Woodland, Hardwood Forest, and Mixedwood Forest. Brood rearing and foraging occur mainly in small lakes that are generally unoccupied by fish and have little emergent vegetation. The only ecotype that would match this requirement would be the Open Water ecotype. This ecotype will overestimate the distribution of this species since it includes both large and small lakes and does not differentiate between waters containing fish and those that do not. An amalgamation of nesting and foraging habitat was used to identify primary habitat for Barrow's Goldeneye. Primary habitat was defined as any Black Spruce – Labrador Tea – Feathermoss, Black Spruce / Tamarack – Sphagnum Woodland, Hardwood Forest, or Mixedwood Forest Ecotype located within 1.6 km of any Open Water ecotype.

2.8.159 Information Request No. NLWD 159

Rusty Blackbird

Studies of habitat use by Rusty Blackbirds during the breeding season have shown that forest adjacent to forest wetlands is important for foraging; hence margins of several ecotypes can provide both foraging and nesting sites. The current focus underestimates the amount of primary habitat and should be adjusted to reflect actual habitat use (e.g., buffer forest wetlands with 100 m to determine primary habitat).

Alderon Response to IR No. NLWD 159

Rusty Blackbirds are typically associated with coniferous treed wetlands or at the interface between coniferous forest and wetland habitat. Nests are typically constructed in conifers, shrubs or on stumps near areas of open water. Edge habitats are preferred. The Riparian Thicket and Tamarack / Black Spruce-Feathermoss ecotypes are the only ecotypes that are considered to provide primary habitat for Rusty Blackbird. Non-patterned Shrub Fen, Patterned Shrub Fen, Riparian Marsh / Fen, and Graminoid Fen as well as Black Spruce / Tamarack-Sphagnum Woodland situated adjacent to these ecotypes are considered to be secondary

habitat since nesting and foraging may occur around the margins of these ecotypes. Studies have shown that coniferous forest adjacent to wetland nesting sites are important foraging areas for nesting Rusty Blackbirds and can be considered as primary habitat. In order to capture this primary habitat in the model, all Black Spruce – Labrador Tea – Feathermoss and Black Spruce / Tamarack – Sphagnum Woodland ecotype found within 100 m of Riparian Thicket and Tamarack / Black Spruce – Feathermoss ecotypes are considered to be primary habitat.

2.8.160 Information Request No. NLWD 160

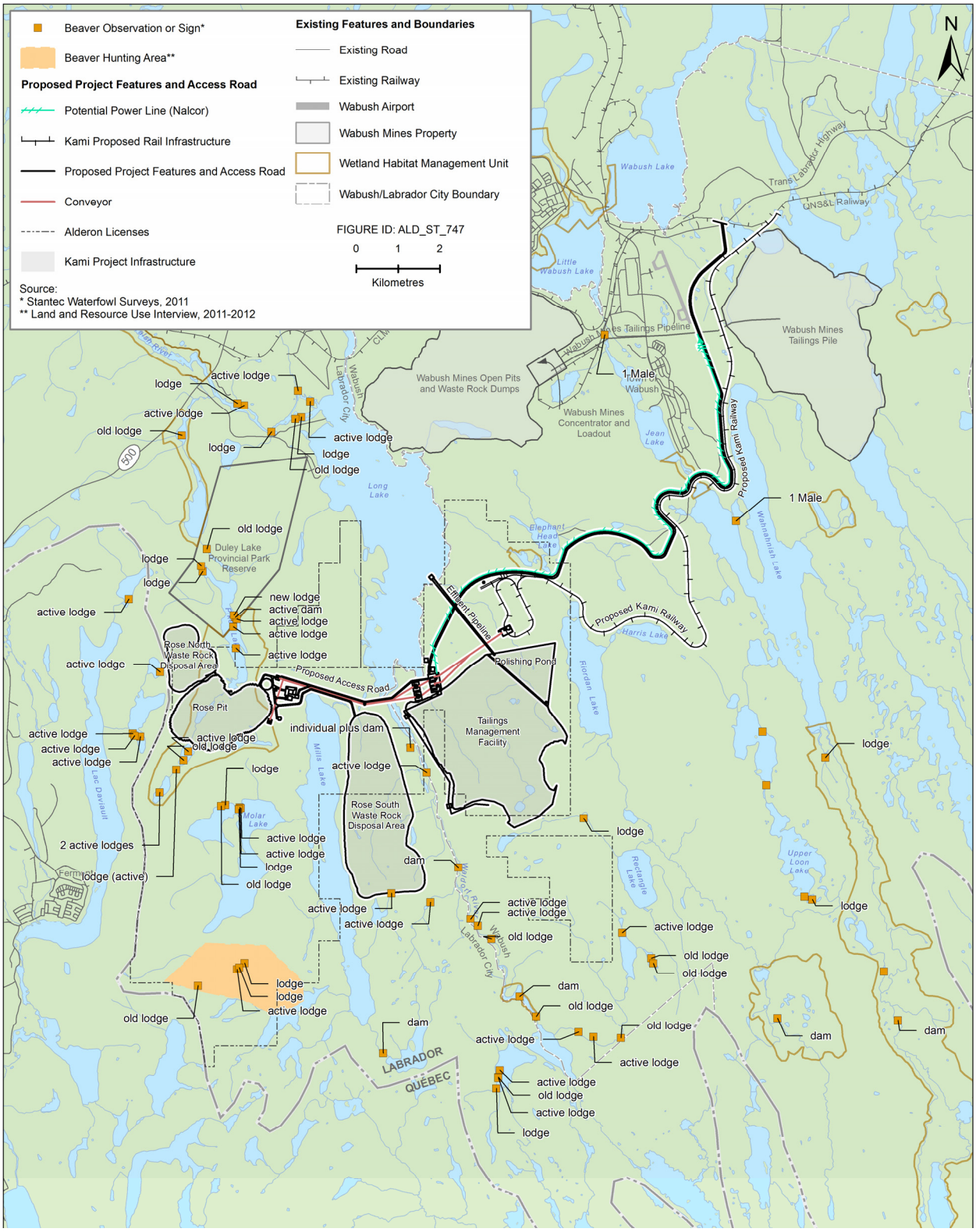
Beaver

Riparian thicket (willows) was considered primary habitat for beavers but it constitutes just one element; food source. According to definition should be secondary.

Alderon Response to IR No. NLWD 160

Beavers are closely associated with streams, ponds and lakes which provide escape cover, den sites (lodges or bank burrows) and food storage areas. These areas also provide summer food sources such as water lilies. As such, Open Water and Shallow Open Water with Vegetation are listed as primary habitat for beaver. Willows are an important food item for beavers in Labrador, particularly during the winter months. Willows are abundant in the Riparian Thicket ecotype, consequently, this ecotype is considered to be secondary habitat for beaver. Riparian Marsh / Fen provides summer foods such as sedges and is also considered to be secondary habitat. Although other ecotypes such as Hardwood Burn / Regeneration also produce abundant winter food in the form of willows, beavers typically do not forage far from water. In areas where terrestrial predators such as wolves and lynx are present, beaver may only forage up to 25 m from water. As such, only a small proportion of these potential sources of food are utilized. Therefore this ecotype is listed as a tertiary habitat. Note that observations of beaver activity were recorded throughout areas of potential habitat during baseline surveys in 2011 and 2012 (Figure 2.8.3).

Figure 2.8.3 Beaver Observations, 2011 and 2012



2.8.161 Information Request No. NLWD 161

Hare

Denning habitat should be addressed.

Alderon Response to IR No. NLWD 161

Snowshoe hares feed on a wide variety of herbaceous and woody plants. These plants must be located near ground level to allow snowshoe hares to feed on them although vegetation several metres tall can be browsed in the winter depending on snow depth. Dense vegetation cover is also required to provide cover from terrestrial and aerial predators as well as natal forms. Ecotypes that can be expected to provide primary habitat for snowshoe hare include Hardwood Forest, Mixedwood Forest, Black Spruce-Labrador Tea-Feathermoss, Black Spruce / Tamarack-Sphagnum Woodland, Tamarack / Black Spruce-Feathermoss, Riparian Thicket, and Hardwood Burn / Regeneration. These ecotypes provide both food and cover. Alpine Heath, Softwood Burn / Regeneration and Black Spruce-Lichen ecotypes are classed as secondary habitat since they provide food resources but tend to have a limited amount of escape cover.

2.8.162 Information Request No. NLWD 162

Lynx

Denning habitat should be addressed. A reference showing protection from predators being important in selection of primary habitat for lynx may be helpful.

Alderon Response to IR No. NLWD 162

Meon and Burdett (2009) described lynx dens under naturally occurring structures such as downed logs, root wads, or rock piles. In particular, lynx select den sites with large amounts of downed woody debris in forest stands with higher horizontal cover than elsewhere in the animal's home range. Lynx also den along the edges of regenerating forests where trees have blown down into piles of woody debris. These types of naturally occurring structures can occur in the primary habitat ecotypes identified in Appendix Y of the EIS for lynx.

References:

Meon, R and Burdett, C.L. 2009. Den sites of radiocollareed Canada Lynx in Minnesota 2004-2007. Available: http://www.nrri.umn.edu/lynx/publications/Moen_Burdett_NRRI_TR_2009_07.pdf Accessed: 8 January, 2013.