



June 30th, 2021

Nahanni National Park Reserve Parks Canada PO Box 348 Fort Simpson NT X0E 0N0

Mark Cliffe-Phillips
Executive Director
Mackenzie Valley Environmental Impact Review Board
200 Scotia Centre
PO BOX 938
Yellowknife NT X1A 2N7

Sent by email

Dear Mark Cliffe-Phillips,

## Implementation of the Canadian Zinc Corporation All-Season Road Environmental Assessment Measures – PCA 2021 Annual Report for EA1415-01:

Parks Canada Agency is submitting *Implementation of the Canadian Zinc Corporation All-Season Road Environmental Assessment Measures – PCA 2021 Annual Report for EA1415-01*, for July 1, 2020 to June 30, 2021. This report is required as per Measure 15-3 in *EA1415-01: Canadian Zinc Corp., Prairie Creek All Season Road Project, Report of Environmental Assessment and Reasons for Decision:* 

Measure 15-3: Annual reporting from government and regulatory authorities

In order to evaluate the effectiveness of mitigation measures for the protection of the environment, each regulatory authority or government that is wholly or partly responsible for implementation of any measure in this Report of EA will prepare an annual Report on Implementation of Measures. The Report will:

- a) describe the actions being undertaken to implement the measures or the part(s) of the measures for which the regulatory authority or government is responsible; and
- b) explain how these actions, including those implemented through adaptive management, fulfill the intent of the EA measures, including consideration of the following questions:
  - i. How are implementation actions addressing a likely significant adverse impact on the environment?
  - ii. How effective are implementation actions at reducing, controlling, or eliminating the impact or its likelihood?







Government and regulators will provide a copy of this annual report to the Review Board by June 30 of each year.

PCA will submit a report each year for the duration of this project. PCA intends to use these reports to support the adaptive management process by a) capturing specific licensing requirements as they evolve to achieve the EA measures and b) provide the board and the public registry a written record of the performance of all parties in completing measures.

PCA will continue to take a coordinated approach and work with resource management boards, GNWT, NorZinc Ltd., and other parties to the Prairie Creek All Season Road Environmental Assessment (EA 1415-01) on measure implementation and reporting. Please contact Allison Stoddart at (819) 661-0283 with any questions or concerns regarding this letter and the attached report.

Sincerely,

Wessa Murtsell
Acting Superintendent, Nahanni National Park Reserve

**Jonathan Tsetso** 

Superintendent, Nahanni National Park Reserve



Implementation of the Canadian Zinc Corporation All-Season Road Environmental Assessment Measures - PCA 2021 Annual Report for EA1415-01

## **Preamble**

Parks Canada (PCA) has prepared this report to address measure 15-3: Annual reporting from government and regulatory authorities from EA1415-01, outlined below for reference. In the interest of consistency PCA is adopting a format similar to that of GNWT. It is PCAs intent that all measures in the report of EA be captured by specific licensing requirements within Water License #PC2014L8-0006 and Land Use Permit # PC2014F0013 (WL and LUP). PCA has included reference to specific licensing requirements as they pertain to achieving specific measures. The LUP, WL and all other pertinent documents can be found on the Mackenzie Valley Land and Water Board public registry: https://mvlwb.com/registry?f%5B0%5D=company\_name%3ACanadian%20Zinc%20Corporation. PCA will add increasing amounts of detail in subsequent reports commensurate with project stage. The ASR project has not yet completed detailed design and construction has not yet begun. PCA intends to use these reports to support the adaptive management process by a) capturing specific licensing requirements as they evolve to achieve the EA measures and b) provide the board and the public registry a written record of the performance of all parties in completing measures.

## Measure 15-3: Annual reporting from government and regulatory authorities

In order to evaluate the effectiveness of mitigation measures for the protection of the environment, each regulatory authority or government that is wholly or partly responsible for implementation of any measure in this Report of EA will prepare an annual Report on Implementation of Measures. The Report will:

- a) describe the actions being undertaken to implement the measures or the part(s) of the measures for which the regulatory authority or government is responsible; and
- b) explain how these actions, including those implemented through adaptive management, fulfill the intent of the EA measures, including consideration of the following questions:
  - i. How are implementation actions addressing a likely significant adverse impact on the environment?
  - ii. How effective are implementation actions at reducing, controlling, or eliminating the impact or its likelihood?

Government and regulators will provide a copy of this annual report to the Review Board by **June 30** of each year.

Table 1. PCA summary of actions undertaken to achieve the intent of EA measures and assessment of their effectiveness to date				
EA1415-01 Report of EA Chapter Reference	Text of Measure	Party Responsible	2021 Detail on Measure Progress	
	Measure 5-1: Independent Technical Review Panel			
Chapter 5. Human Safety	<b>5 -1, Part 1: Introduction</b> In order to prevent significant adverse impacts on people and the environment, CanZinc will establish and fund an independent technical review panel to evaluate and approve the final road design. The developer will follow the final recommendations of the review panel with respect to road design. CanZinc will develop a term of reference for the panel based on the requirements of	CanZinc	WL Part E: 6. WL Part E: 7. WL Part E: 12. LUP Part C: 27. LUP Part C: 32.  Panel is established; Advanced design not yet complete; construction has not yet begun.	
	this measure.  5 -1, Part 2: Panel mandate	CanZinc	WL Part E: 6. WL Part E: 7. WL Part E: 12. LUP Part C: 27. LUP Part C: 32.	

The mandate of the independent technical review panel will be to provide independent expert advice and recommendations on the design and construction of the road to minimize traffic related accidents, road failure or malfunctions, and any resulting significant adverse impacts on human safety or the environment.  The panel will ensure that the road is designed and constructed to an appropriate standard that is highly protective of people and the environment, including consideration of:  i. the number and type of mine and non-mine related vehicles expected to use the road;  ii. two-way traffic;  iii. human safety and minimizing traffic related accidents;  iv. permafrost degradation and impacts on water quality; and,  v. appropriate road design criteria, including but not limited to:  • watercourse crossings;  • right of way clearing width;  • road alignment, grades, subgrade width, and road widening at curves;  • cut and fill slopes, cut and fill slope angles, slope stability; and  • number of, and distance between, pullouts.		Panel is established; Advanced design not yet complete; construction has not yet begun.  To be completed: engagement between Panel and Parks and LWB on the terms "appropriate standard" and "highly protective"
5-1, Part 3: Panel composition At a minimum, the panel will be comprised of three members who are professional engineers and geoscientists. The panel must have expertise in northern road design, including permafrost and mountainous terrain experience. Members of the panel will have knowledge and experience to appropriately address the mandate in Measure 5-1 part 2 and considerations in Measure 5-1 part 5. CanZinc will engage with Parks Canada, the Mackenzie Valley Land and Water Board, the Government of the Northwest Territories, Nahanni Butte Dene Band, Łíídlų Kų́ę First Nation, and Dehcho First Nations on the panel composition. Members of the panel will be independent and will be approved by the Mackenzie Valley Land and Water Board and Parks Canada.	CanZinc	Panel is established; Recently updated with new member. Change approved by PCA.  Approved panel composition (March 2021): Timothy Smith • J.M. (Jim) Owell • Robert E. Johnson • Lee Deslauriers
The panel will be established prior to detailed design of the road. CanZinc will engage with Parks Canada, the Mackenzie Valley Land and Water Board, the Government of the Northwest Territories, Nahanni Butte Dene Band, Łíídl   Kúé First Nation, and Dehcho First Nations on the panel activities. CanZinc will provide the panel's reports to Parks Canada and the Mackenzie Valley Land and Water Board. At a minimum, the panel will complete the activities listed below.  i. Prior to detailed design of the road:  • review and comment on the Panel's terms of reference.  ii. During detailed design of the road:  • work with CanZinc to review updated information, design plans, and detailed design work, including the terrain stability assessments undertaken for the proposed cut and	CanZinc	WL Part E: 6. WL Part E: 7. WL Part E: 12. LUP Part C: 27. LUP Part C: 32.  CZN engaged with PCA on Panel activities. The panel helped to develop / comment on the TOR.  Still to be completed: Panel report to be provided to us. ii. the panel gave preliminary feedback to CZN on their design and plans. Edits were incorporated into current versions of some plans.

fill slopes, and the developer's detailed interpretation of the permafrost conditions at the site upon completion of geotechnical site investigation work; and,  • provides advice and recommendations for improving road design, following the mandate above, and considering construction, operations and maintenance, closure and reclamation, and temporary closure.  iii. Following detailed design of the road:  • review the detailed design documents for the road;  • provide a preliminary report to CanZinc on the panel's findings and conclusions, including any additional or outstanding recommendations;  • review CanZinc's response and justification for any recommendations the developer does not wish to follow;  • prepare and submit a final report to CanZinc that includes the panel's findings and conclusions on the final design.  iv. During construction:  • work with the developer and regulatory authorities to determine the frequency and nature of the panel's activities during construction (at a minimum, the panel will be consulted and have the opportunity to revise its final report if any material changes to		PCA still waiting for submission of updated versions of design plans, detailed design work and management plans. iii. Still to come iv. Still to come
design are made following the panel's report).  5-1, Part 5: Other panel considerations  The independent technical review panel will also consider any relevant information on the record from EA1415-01, information gathered as a result of relevant CanZinc commitments, and the requirements and outcomes of Review Board measures. This includes, but is not limited to:  i. the updated risk assessment (Appendix C, commitment #241); ii. terrain stability assessment reports (Appendix C, commitment #137) and any additional mitigation required to address instability; iii. avalanche related information (Appendix C, commitment #114; Suggestion 5-1); iv. individual detailed borrow site plans and designs (Appendix C, commitment #119); v. geotechnical, geophysical, permafrost, and hydrological investigations (Appendix C, commitments #129, #156, #232, #235; Measure 12-1; Measure 8-1); vi. the Traffic Control Mitigation and Management Plan (Measure 5-2); vii. relevant management plans and proposed mitigations; viii. extreme weather events; ix. climate change; and, x. karst features.	N/A	Through discussions with the Panel and CZN, Parks and LWB ensured that these considerations were captured in the TOR.  Captured throughout WL and LUP and in several related management plans.  PCA reviewed draft plans and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated drafts which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.

5-2, Part 1: Introduction	CanZinc	LUP Part C: 144 Traffic Control Mitigation and
In order to prevent significant adverse impacts from the Project on human safety, water quality, and wildlife from accidents and increased harvest along the road, CanZinc will create a Traffic		Road Operations
Control Mitigation and Management Plan. The purpose of the plan is to manage access control mitigations and all traffic on the road, including mine and non-mine traffic. The plan will consider all Project phases (construction, operation, closure [including temporary closure]) as well as seasonal or weather related closure. This plan will replace Section 7.1 of the Road Operations		PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA
Plan.		once PCA receives the updated plans we will
Prior to construction, the developer will submit this plan to the Mackenzie Valley Land and Water Board and Parks Canada for approval, as a condition of respective land use permits. CanZinc will operate in accordance with the approved plan.		review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.
5-2, Part 2: Managing traffic on the road	CanZinc	LUP Part C: 144. Traffic Control Mitigation and
CanZinc will include all the mitigations it has identified for controlling non-mine traffic on the		Road Operations and Maintenance Plan
road in the Traffic Control Mitigation and Management Plan. The plan will describe roles and		LUDD 1 C 74 WELLS M
responsibilities for non-mine traffic mitigation and monitoring. At a minimum CanZinc will:		LUP Part C: 71. Wildlife Management and Monitoring Plan
i. exercise its right to control access on the lease parcels at the Liard River to control non- mine traffic;		(WMMP)
ii. operate a checkpoint when haul trucks are using the road and document all traffic known to be on the road; and		PCA reviewed draft plans and provided comment to CZN on December 14th 2020. CNZ has not yet
iii. install signs indicating that the road is operated as a mine haul road and any public traffic using the road does so entirely at its own risk.		resubmitted updated drafts which address PCA concerns.
In the Traffic Control Mitigation and Management Plan, CanZinc will also address mitigation and management strategies for all traffic on the road, including how this relates to the Journey		Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for
Management System that CanZinc intends to use for mine traffic. Mitigations to increase safety on the road with both mine and non-mine traffic present should consider:		approval 90 days prior to commencement of any project activities.
a) the independent technical review panel's conclusions on road design and safety; and,		
b) data sources that can provide information about high wildlife collision areas and nonmine traffic presence (such as wildlife camera traps [see Measure 6-3] and the harvest monitoring program[see Suggestion 7-1]).		

	CanZinc will monitor non-mine traffic on the road and establish adaptive management, following the guidance in Appendix B of this Report of EA, within the Traffic Control Mitigation and Management Plan.		
	Measure 6-1: Wildlife Management		
Chapter 6.	6-1, Part 1: Wildlife baseline information collection, monitoring, mitigation and adaptive management program  In order to reduce adverse impacts on wildlife and wildlife habitat so they are no longer significant, the developer will collect additional wildlife baseline information to be integrated with mitigation, focused monitoring, and a systematic approach to adaptive management. In order to accomplish this, CanZinc will:  i. collect baseline data as described in Part 2 of this measure;  ii. monitor wildlife and wildlife habitat during construction and operations as described in Part 3;  iii. incorporate Traditional Knowledge in developing and implementing a monitoring program; and,  iv. develop and implement an adaptive management framework to manage impacts on wildlife.	CanZinc	LUP Part C: 71. Wildlife Management and Monitoring Plan (WMMP)  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.
Wildlife and Wildlife Habitat	6-1, Part 2: Collection of baseline wildlife information for caribou, collared pika and bird species at risk that occur in the area  The purpose of this baseline information collection is to confirm the presence or absence of listed wildlife species in the Project area, their population size, seasons of use and important habitat for species described below in the All Season Road corridor. In order to support Part 1, the developer will:  a) submit a baseline survey plan for review and approval to Parks Canada within the NNPR and to GNWT on territorial lands;  b) conduct baseline surveys for northern mountain caribou, boreal caribou, collared pika, and bird species at risk;  c) use recognized methods and standards approved by Parks Canada within NNPR, by GNWT on territorial lands, and by ECCC for species at risk;  d) conduct surveys at the direction and approval of Parks Canada within NNPR and of the GNWT on territorial lands;  e) complete surveys prior to road construction;	CanZinc	LUP Part C: 71. Wildlife Management and Monitoring Plan (WMMP)  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.  Proposed baseline data collection is reviewed on a case by case basis by PCA. Where baseline work is deemed inadequate PCA provides suggestions to achieve a suitable standard for PCA approval.

Chapter 6. Wildlife and Wildlife Habitat	significant, GNWT will require the developer to prepare and implement a Wildlife Management and Monitoring Plan. The GNWT will:  a) require that the developer prepare a WMMP under the legal authority of Section 95(1) of		
	6-2, Part 1: GNWT to require a WMMP  In order to reduce adverse impacts on wildlife and wildlife habitat so they are no longer  significant. CNWT will require the developer to prepare and implement a Wildlife Management.	GNWT -ENR	See GNWT Annual Measures Report
	Measure 6-2: Wildlife Management Monitoring Plan		
	including NBDB, LKFN and DFN, in a culturally appropriate way.		
	and DFN; and,  h) present the results of its wildlife monitoring programs to Aboriginal organizations,		
	g) share its wildlife monitoring data with Aboriginal organizations including NBDB, LKFN		
	f) provide annual monitoring reports to Parks Canada, GNWT, ECCC, NBDB, LKFN and DFN;		
	e) formalize monitoring programs within the Wildlife Management and Mitigation Plan (Measure 6-2);		
	d) conduct monitoring through all phases of the Project;		
	c) use recognized methods and standards approved by Parks Canada within NNPR, by GNWT on territorial lands, and by ECCC for species at risk;		approval 90 days prior to commencement of any project activities.
	b) focus on monitoring of northern mountain caribou, boreal caribou, collared pika, and bird species at risk;		Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for
	The developer will:  a) submit monitoring program(s) for review and approval to Parks Canada within the NNPR and GNWT on territorial lands;		PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.
	<b>6-1, Part 3: Wildlife monitoring programs</b> In order to reduce adverse impacts on wildlife so they are no longer significant, the developer will prepare and implement a systematic monitoring program(s) for wildlife that may be affected by the Project.	CanZinc	LUP Part C: 71. Wildlife Management and Monitoring Plan (WMMP)
	g) present the results of its baseline information collection with Aboriginal organizations, including NBDB, LKFN and DFN, in a culturally-appropriate way.		
	f) share its baseline wildlife information with Aboriginal organizations, including NBDB, LKFN and DFN; and,		

	b) include opportunity for public review of and comment on the final WMMP prior to construction and on updates to the WMMP throughout the life of the Project.		
	<ul> <li>6-2, Part 2: Parks Canada to require a WMMP In order to reduce adverse impacts on wildlife and wildlife habitat so they are no longer significant, Parks Canada will require the developer to prepare and implement a Wildlife Management and Monitoring Plan. Parks Canada will: <ul> <li>a) require that the developer prepare a WMMP as a condition of an authorization for the portions of the road in its jurisdiction; and</li> <li>b) include opportunity for public review of and comment on the final WMMP prior to construction and on updates to the WMMP throughout the life of the Project.</li> </ul> </li> </ul>	Parks -CZ	LUP Part C: 71. Wildlife Management and Monitoring Plan (WMMP)  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.
	6-2, Part 3: Developer to prepare and implement a WMMP The developer will:	CanZinc	LUP Part C: 71. Wildlife Management and Monitoring Plan (WMMP)
	<ul> <li>a) update its draft WMMP to include all commitments and mitigations agreed to or recommended by its consultants throughout the EA;</li> </ul>		PCA reviewed draft plan and provided comments
	<ul> <li>b) develop an adaptive management framework that links the results of monitoring with adjustments to mitigations as part of the WMMP that satisfies the requirements set out in Appendix B of this report;</li> </ul>		to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns. Once PCA receives the updated plans we will
	c) describe how the monitoring data is linked with adaptive management in the Traffic Control and Management Plan;		review and submit new comments if deficiencies persist. Plans must be submitted to PCA for
	d) submit its updated WMMP to the wildlife regulators described in Parts 1 and 2 for review and approval prior to construction; and		approval 90 days prior to commencement of any project activities.
	e) prepare and submit an annual report to wildlife regulators on the effectiveness of the WMMP that includes a description of how the adaptive management framework was used to address Project impacts.		Construction on the ASR has not started. It is not possible at this time to comment on how implementation actions are addressing impacts to the environment.
Chapter 6.	Measure 6-3 Reducing the risk of vehicle collisions with wildlife		
Wildlife and Wildlife Habitat	6-3: Reducing the risk of vehicle collisions with wildlife	CanZinc	LUP Part C: 144. Traffic Control Mitigation and Road Operations and Maintenance Plan

	In order to reduce the likelihood of significant impacts on wildlife from collisions with vehicles along the road, the developer will identify and communicate wildlife caution zones to road users. The details of this approach will be incorporated into the developer's WMMP (referred to in Measure 6-2) and will include:		LUP Part C: 71. Wildlife Management and Monitoring Plan (WMMP)
	a) a description of how wildlife information from drivers will be collected and recorded to inform the selection of wildlife crossing areas;		PCA reviewed draft plans and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated drafts which address PCA
	<ul> <li>a detailed system for identifying wildlife (specifically big game as defined in the Wildlife Act) caution zones and marking them along the road (such as where sightings or collisions have occurred or where Traditional Knowledge identifies trails);</li> </ul>		concerns. Once PCA receives the updated plans we will review and submit new comments if deficiencies
	<ul> <li>use of a remote camera trap system to identify wildlife road crossing areas and identify non-mine related traffic;</li> </ul>		persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.
	<ul> <li>d) annual reporting of wildlife sightings by drivers that includes vehicle collisions with wildlife, locations of signage for wildlife caution zones and whether they were modified based on operational experience;</li> </ul>		
	<ul> <li>e) annual reporting to regulators of remote camera log results, locations of primary wildlife crossings and how wildlife caution zones were modified based on monitoring results (if applicable); and,</li> </ul>		
	f) annual reporting to regulators on road use by non-mine vehicles using data from remote camera logs.		
	The GNWT will regulate this measure on territorial lands and Parks Canada will regulate this measure within the NNPR. Reporting will be included in the WMMP annual report.		
	Measure 8-1: Water baseline data, mitigation, monitoring, and adaptive management		
	8-1, Part 1: Introduction  To ensure that the road and crossings are designed to an appropriate standard, and constructed and operated in a manner that will be protective of the environment, CanZinc will:	CanZinc	WL Schedule 4: 5. Water Monitoring Plan PCA reviewed draft plan and provided comments
Chapter 8. Water quality and quantity	<ul> <li>i. collect additional baseline data;</li> <li>ii. identify and implement appropriate mitigation to prevent significant adverse impacts;</li> <li>iii. combine monitoring programs and plans to coordinate water monitoring efforts; and</li> <li>iv. incorporate principles of adaptive management into road and crossing design and monitoring.</li> </ul>		to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for
	Parks Canada, Fisheries and Oceans Canada, and the Mackenzie Valley Land and Water Board will (within their respective jurisdictions) review and approve CanZinc's actions to ensure the requirements of this measure are satisfied.		approval 90 days prior to commencement of any project activities.

of watercourse crossings that CanZinc will install hydrome designs. These stations will rand instantaneous flow meast prior to construction of water i. characterize spatial ii. characterize variabiliii. measure conditions consultation with reiv. provide locations for A minimum of one year of the construction of watercourse Measure 8-1 part 4).  CanZinc will work with Parks Land and Water Board to determine the construction of the construction of watercourse described by the construction of watercourse described	ity in watershed size; at Sundog Creek and other key locations (to be determined in	CanZinc	WL Schedule 4: 5. Water Monitoring Plan  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.
management practices, to de detailed design plans for wat The developer will share the	data collected, as well as any other relevant information and best termine appropriate mitigation prior to construction and to revise	CanZinc	WL Schedule 4: 5. Water Monitoring Plan  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.  Construction on the ASR has not started. It is not possible at this time to comment on how implementation actions are addressing impacts to the environment.

	8-1, Part 4: Monitoring CanZinc has identified many different plans, programs, and commitments for monitoring Project effects on water during construction and operation. CanZinc will amalgamate these plans, programs, and commitments, to the extent feasible and practical, so that water monitoring is consolidated and coordinated. The Review Board understands that for operational purposes, CanZinc may wish to keep certain aspects of water monitoring separate. The Review Board encourages the developer to consolidate where it can, in order to simplify the number of plans to create and report on. The Review Board considers that this may be relevant to the following commitments (Appendix C): #55, #93, #94, #211, #212, #217, #218, and #239, among others.  Regarding ongoing monitoring at hydrometric stations, Parks Canada and the Mackenzie Valley Land and Water Board will review and approve monitoring plans, through the water licenses, and determine if and when ongoing monitoring can be phased out.	CanZinc	PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.
	8-1, Part 5: Adaptive management As part of the water monitoring program(s), CanZinc will establish and implement an adaptive management framework that satisfies the requirements of Appendix B. This will include thresholds and actions that will be developed and adapted using all available baseline information, effects monitoring results, and Traditional Knowledge and will consider ways to coordinate or compliment Aboriginal monitoring initiatives (see Measure 15-4).	CanZinc	WL Schedule 4: 5. Water Monitoring Plan  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plans we will review and submit new comments if deficiencies persist. Plans must be submitted to PCA for approval 90 days prior to commencement of any project activities.
	Measure 9-1: Effects mitigation, baseline data, management for the Sundog Creek diversion		
Chapter 9. Fish and Fish Habitat	<ul> <li>9-1 Part 1: Introduction In order to prevent significant adverse impacts on fish and fish habitat, CanZinc will design, construct and operate the Sundog Creek diversion channel in a way that is protective of fish and fish habitat and ensures the ecological and hydraulic effectiveness of the diversion. Toward this end, CanZinc will develop a Sundog Creek Diversion Plan to: </li> <li>a) Mitigate and minimize potential adverse effects on fish and fish habitat from the Sundog Creek diversion through appropriate and protective channel design, and by using all available best practices during construction and operation of the channel. b) Collect baseline data necessary to design, construct and maintain the diversion channel in a way that is protective of fish and fish habitat throughout the life of the Project.</li> </ul>	CanZinc	Sundog Creek Diversion is no longer part of construction plans. Instead roadway will be tucked in along steep valley wall with appropriate hardening. Baseline data requirements and approval of detailed design are same as for other project components and will be included in the appropriate management and design plans.  Detailed design is not yet complete. Construction on the ASR has not started.

<ul> <li>c) Monitor for project-related effects on physical and biological characteristics relevant to the maintenance of effective fish habitat and ecological integrity and to ensure that mitigations are operational and effective.</li> <li>d) Develop and implement an adaptive management framework for Project effects on fish and fish habitat and ecological integrity.</li> </ul>		
Parks Canada and DFO must review and approve this plan prior to the start of construction.  9-1 Part 2: Collect baseline information CanZinc will collect baseline data necessary to design, construct and operate the Sundog Creek diversion so that fish and fish habitat are protected through the life of the Project. This baseline information will also be used to verify EA predictions and inform adaptive management. Prior to commencement of construction of the Sundog Creek diversion, CanZinc will collect a minimum of one year of baseline data for both hydrological and ecological characteristics, including at a minimum, information on:  i. benthic invertebrates; ii. aquatic vegetation; iii. fish use and occupancy; iv. channel morphology; v. flow characteristics; vi. water quality; vii. hydrology (as described in Measure 8-1); and viii. any other variables of concern as deemed appropriate by DFO or Parks Canada.	CanZinc	Sundog Creek Diversion is no longer part of construction plans. Instead roadway will be tucked in along steep valley wall with appropriate hardening. Baseline data requirements and approval of detailed design are same as for other project components and will be included in the appropriate management and design plans.  Detailed design is not yet complete. Construction on the ASR has not started.
9-1 Part 3: Mitigate or minimize potential adverse effects CanZinc will use all available best management practices and all available baseline data (including data requirements in measure 8-1 and 9-1) to design and construct the Sundog Creek diversion channel to avoid and mitigate adverse effects on fish and fish habitat, including both ecological and hydrological considerations.	CanZinc	Sundog Creek Diversion is no longer part of construction plans. Instead roadway will be tucked in along steep valley wall with appropriate hardening. Baseline data requirements and approval of detailed design are same as for other project components and will be included in the appropriate management and design plans.  Detailed design is not yet complete. Construction on the ASR has not started.
9-1 Part 4: Monitor Project effects CanZinc will develop and implement a monitoring plan to detect project-related effects on fish and fish habitat from the Sundog Creek diversion. Monitoring must consider both hydrological and ecological characteristics including, at a minimum:	CanZinc	Sundog Creek Diversion is no longer part of construction plans. Instead roadway will be tucked in along steep valley wall with appropriate hardening. Baseline data requirements and

	<ul> <li>i. benthic invertebrates;</li> <li>ii. aquatic vegetation;</li> <li>iii. fish use and occupancy;</li> <li>iv. channel morphology;</li> <li>v. flow characteristics;</li> <li>vi. water quality;</li> <li>vii. hydrology; and</li> <li>viii. any other variables of concern as deemed appropriate by DFO or Parks Canada.</li> </ul> Monitoring will consider both short and long-term effects of the diversion, and will incorporate appropriate flexibility such that monitoring requirements can be adjusted to reflect the Project stage, past monitoring results, and likely effects. 9-1, Part 5: Adaptive management of Project effects CanZinc will develop and implement an adaptive management framework for effects on fish and	CanZInc	approval of detailed design are same as for other project components and will be included in the appropriate management and design plans.  Detailed design is not yet complete. Construction on the ASR has not started.  Sundog Creek Diversion is no longer part of construction plans. Instead roadway will be tucked
	fish habitat from the Sundog Creek diversion that satisfies the requirements of Appendix B.		in along steep valley wall with appropriate hardening. Baseline data requirements and approval of detailed design are same as for other project components and will be included in the appropriate management and design plans.  Detailed design is not yet complete. Construction on the ASR has not started.
Chapter 10. Culture and Heritage	Measure 10-1: Traditional Knowledge In order to prevent significant adverse impacts on heritage resources, and to support Traditional Knowledge requirements in other measures in this Report of EA, the developer will:  i. engage with potentially-affected Aboriginal groups, including Nahanni Butte Dene Band, Łíídl  Kúd First Nation, and Dehcho First Nations, about ways to avoid impacts from the Project, including impacts on heritage resources;  ii. conduct this engagement prior to the Archaeological Impact Assessment (AIA), so that the resulting information can inform the AIA (see Measure 10-2);	CanZinc	WL Part B: 3. WL Part B: 4. LUP Part C:148. LUP Part C:149.
	iii. thoroughly consider and, where applicable, incorporate Traditional Knowledge into Project design, mitigations, monitoring, and adaptive management; and		

	<ul> <li>iv. submit an updated engagement record and plan in accordance with Mackenzie Valley         Land and Water Board (MVLWB) Engagement Guidelines for review and approval by         Parks Canada and the MVLWB.</li> <li>The developer will do this in a culturally-appropriate way that respects applicable Traditional         Knowledge policies and protocols.</li> </ul>				
	Measure 10-2: Archaeological Impact Assessment				
	10-2: Archaeological Impact Assessment In order to prevent significant adverse impacts on heritage resources, the developer will conduct an Archaeological Impact Assessment to the specifications detailed in commitments #215 and #216 in Appendix C of this Report. The Archaeological Impact Assessment will also:  i. be developed in consultation with Parks Canada, the Government of the Northwest Territories, Nahanni Butte Dene Band, Łíídlų Kų́ę First Nation, and Dehcho First Nations; ii. incorporate all evidence of place names, traditional land use, Traditional Knowledge, cultural and spiritual use, and harvesting in the vicinity of the Project; iii. be conducted along the final alignment of the All Season Road, at borrow site locations, and other areas where ground disturbance is proposed; and iv. be completed prior to any new ground disturbance.	CanZinc	PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.		
	Measure 11-1: Rare plant and rare plant assemblage baseline surveys and management in the Nahanni National Park Reserve				
Chapter 11. Rare plant assemblages, and harvested species	11-1, Part 1: Baseline surveys In order to inform effective mitigations, adaptive management, and reclamation and to prevent significant adverse impacts on vegetation within Nahanni National Park Reserve, the developer will complete vegetation field surveys focused on the presence of rare plants and rare plant assemblages prior to ground disturbance or clearing within Nahanni National Park Reserve. Parks Canada will approve the details of these surveys, including timing, seasonality, and methods. CanZinc will use the results of the baseline surveys to inform the following:  i. understanding impacts on rare plants and rare plant assemblages; ii. identifying appropriate mitigation to prevent significant adverse impacts; iii. monitoring and adaptive management; and iv. closure and reclamation.  The results of the baseline surveys will be submitted to Parks Canada.	CanZinc	LUP Part C: 83 Rare Plant Management Plan LUP Part C: 84 Rare Plant Management Plan  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.		

<ul> <li>11-1, Part 2: Rare Plant Management Plan</li> <li>In order to prevent significant adverse impacts on rare plants as a result of construction and operation, CanZinc will develop a Rare Plant Management Plan prior to construction. This plan will include mitigation, monitoring, and adaptive management for rare plants.</li> <li>Mitigation: CanZinc will use the information gathered in the surveys required by Measure 11-1 part 1, as well as any other relevant information, to identify appropriate mitigation within the plan to minimize significant adverse impacts on rare plants or rare plant assemblages.</li> <li>Effects monitoring: The plan will include details on how rare plants will be identified and monitored during construction and operations activities. The plan will include effects monitoring for any identified rare plants or rare plant assemblages.</li> <li>Adaptive management: The plan will include the principles of adaptive management outlined in Appendix B. This will include identifying the actions that will be taken if rare plants are identified at any time during construction and operation of the Project.</li> <li>The Rare Plant Management Plan will be reviewed and approved by Parks Canada prior to construction. The developer will operate in accordance with the approved plan.</li> <li>Measure 11-2: Invasive Species Management</li> </ul>	CanZinc	LUP Part C: 83 Rare Plant Management Plan LUP Part C: 84 Rare Plant Management Plan PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns. Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
11-2, Part 1: Introduction In order to reduce the likelihood of significant impacts on vegetation through the introduction or spread of invasive species, the developer will survey the right-of-way, mitigate the spread of invasive species, monitor for the presence of invasive species, and incorporate adaptive management, as described in the rest of this measure.	CanZinc	LUP Part C: 85 Invasive Species Management Plan LUP Part C: 86 Invasive Species Management Plan PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns. Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
11-2, Part 2: Baseline CanZinc will survey the entire right-of-way for the presence of invasive species, prior to ground disturbance during construction, focusing on areas with higher likelihood for the establishment of	CanZinc	LUP Part C: 85 Invasive Species Management Plan LUP Part C: 86 Invasive Species Management Plan

the invasive species management framework, the Invasive Species Management Plan, and any individual weed control plans, if or as they are developed.  Prior to the commencement of construction, the Invasive Species Management Plan will be reviewed and approved by Parks Canada and the Mackenzie Valley Land and Water Board, with input from the Government of Northwest Territories where appropriate, as conditions in their respective land use permits. The developer will implement the approved plan(s).		concerns. Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
11-2, Part 4: Invasive Species Management Plan CanZinc will revise the invasive species management framework and create an Invasive Species Management Plan prior to construction, considering off-site as well as on-site prevention and control. CanZinc will include the adaptive management principles set out in Appendix B within	CanZinc	LUP Part C: 85 Invasive Species Management Plan LUP Part C: 86 Invasive Species Management Plan PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA
11-2, Part 3: Mitigation CanZinc will mitigate the potential spread of invasive species by implementing the mitigations it has already identified (e.g., the wheel-wash station). CanZinc will work with the Government of Northwest Territories and Parks Canada to identify additional mitigation that will prevent the spread of invasive species.	CanZinc	LUP Part C: 85 Invasive Species Management Plan LUP Part C: 86 Invasive Species Management Plan PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns. Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
invasive species. CanZinc will use the results of the surveys to inform Parts 3 and 4 of this measure.		PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.

In order to avoid permafrost degradation and prevent associated significant adverse impacts on the environment from the Project during construction, operations, closure, and post-closure, the developer will conduct additional permafrost investigations to inform design and construction of the Project and will develop and implement a permafrost management plan.		WL Part F 7. Permafrost Management and Monitoring Plan WL Schedule 4 (2). Permafrost Management and Monitoring Plan  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
12-1, Part 2: Permafrost investigations  The developer will investigate permafrost and collect baseline permafrost data for the road alignment and borrow pits, provide the data and results to the independent technical review panel and to regulators, and use the information and results to inform detailed and final design.	CanZinc	LUP Part C: 85 Permafrost Management and Monitoring Plan WL Part F 7. Permafrost Management and Monitoring Plan WL Schedule 4 (2). Permafrost Management and Monitoring Plan WL Schedule 4 (2). Permafrost Management and Monitoring Plan  Techincal Panel WL Part E: 6. WL Part E: 7. WL Part E: 12. LUP Part C: 27. LUP Part C: 32.  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns. Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
12-1, Part 3: Design and construction of the Project	CanZinc	LUP Part C: 85 Permafrost Management and Monitoring Plan WL Part F 7. Permafrost Management and Monitoring Plan

	CanZinc will design and construct the road, borrow pits, and other infrastructure in a way that anticipates and avoids permafrost degradation and associated impacts on the surrounding environment during all phases of the Project, including post-closure.		WL Schedule 4 (2). Permafrost Management and Monitoring Plan  Techincal Panel WL Part E: 6. WL Part E: 7. WL Part E: 12. LUP Part C: 27. LUP Part C: 32.  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
	<ul> <li>12-1, Part 4: Permafrost Management Plan The developer will establish and implement a Permafrost Management Plan that includes permafrost monitoring and adaptive management. The Permafrost Management Plan must include: <ul> <li>monitoring to measure the effects of the Project on permafrost (with an emphasis on early detection of any changes in permafrost) and evaluate the effectiveness of Project design and mitigations in preventing or minimizing permafrost degradation; and,</li> <li>an adaptive management framework that satisfies the requirements of Appendix B.</li> </ul> </li> <li>The Permafrost Management Plan will be for review and approval by the Mackenzie Valley Land and Water Board and Parks Canada.</li> </ul>	CanZinc	LUP Part C: 85 Permafrost Management and Monitoring Plan WL Part F 7. Permafrost Management and Monitoring Plan WL Schedule 4 (2). Permafrost Management and Monitoring Plan  PCA reviewed draft plan and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated draft which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
	Measure 15-1: Monitoring by the Developer		
Chapter 15. Follow -up	15-1, Part 1: Objectives	CanZinc	Extensive requirements captured throughout WL and LUP and in several related management plans.

In order to ensure that the measures the developer is responsible for are fully and effectively implemented and to inform adaptive management throughout all phases of the development, the developer will establish and implement monitoring programs that fulfill the following objectives:  i. to measure the effects of the Project on the environment;  ii. to assess the implementation and effectiveness of the measures in this Report of EA for preventing or minimizing impacts on the environment;  iii. to inform the implementation of the adaptive management frameworks required by measures in this Report of EA, so that mitigation can be adjusted to ensure significant adverse impacts do not occur;  iv. to assess the accuracy of the developer's predictions made during the environmental assessment, regarding the impacts of the Project on the environment; and  v. where applicable, to provide relevant data and information to support other monitoring initiatives (such as Aboriginal monitoring initiatives and government monitoring).  These objectives must be incorporated into all monitoring programs that are identified in measures in this Report of EA, either by revising existing programs or creating new programs.		PCA reviewed draft plans and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated drafts which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist.  Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.
15-1, Part 2: Traditional knowledge and inclusion of Aboriginal groups The developer will engage and consider the advice of Nahanni Butte Dene Band, Łíídli Kúę First Nation, and Dehcho First Nations, and consider all available Traditional Knowledge when developing its monitoring programs. To the extent possible, the developer will involve potentially-affected Aboriginal groups, including Nahanni Butte Dene Band, Łíídli Kúę First Nation, and Dehcho First Nations, in the implementation of the developer's monitoring programs.	CanZinc	WL Part B: 3. WL Part B: 4. LUP Part C: 148. LUP Part C: 149.  WL Part B: 20. Engagement Plan WL Part B: 21. Engagement Plan LUP Part C: 130. Engagement Plan LUP Part C: 131. Engagement Plan  PCA reviewed draft plans and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated drafts which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.

15-2: Annual reporting from the developer	CanZinc	Project construction has not commenced
In order to demonstrate how measures are being implemented and to evaluate the effectiveness of the developer's efforts to prevent or minimize impacts on the environment, the developer will, throughout all phases of the development, prepare an annual Report on the Implementation of Measures. The Report will address the measures that the developer is responsible for and will:	<b></b>	
Describe the actions, including actions implemented through adaptive management, being undertaken to implement the measures.		
ii. Evaluate how effective the implementation actions are in controlling, reducing, or eliminating the impact (considering the results of monitoring programs and adaptive management frameworks). Where applicable, provide references to further information contained in other management plans or monitoring reports.		
The developer will provide a copy of this annual report to the Review Board by June 30 of each year, following the commencement of construction of the Project. The developer will also report in person annually, in a culturally appropriate way, to Nahanni Butte Dene Band, Łíídlų Kų́ę First Nation, and Dehcho First Nations.		
Measure 15-3: Annual reporting from government and regulatory authorities		
15-3: Annual reporting from government and regulatory authorities In order to evaluate the effectiveness of mitigation measures for the protection of the environment, each regulatory authority or government that is wholly or partly responsible for implementation of any measure in this Report of EA will prepare an annual Report on Implementation of Measures. The Report will:	PCA	As represented in this table.
a. describe the actions being undertaken to implement the measures or the part(s) of the measures for which the regulatory authority or government is responsible; and		
measures for which the regulatory authority or government is responsible; and b. explain how these actions, including those implemented through adaptive management,		
<ul> <li>measures for which the regulatory authority or government is responsible; and</li> <li>explain how these actions, including those implemented through adaptive management, fulfill the intent of the EA measures, including consideration of the following questions:</li> <li>i. How are implementation actions addressing a likely significant adverse impact on the</li> </ul>		

Measure 15-4: Support Aboriginal monitoring initiatives				
15-4: Support Aboriginal monitoring initiatives	CanZinc &	WL Part B: 3.		
To help prevent significant adverse impacts on the environment and on Aboriginal rights, the	IGO Monitors	WL Part B: 4.		
developer will support, to the greatest extent practicable, independent monitoring of the Project		LUP Part C: 148.		
area through monitoring initiatives undertaken by Nahanni Butte Dene Band, Łíídlįį Kų́ę́ First		LUP Part C: 149.		
Nation, and Dehcho First Nations. The developer will provide access to the All Season Road for				
these Aboriginal groups to conduct their monitoring activities throughout all phases of the		WL Part B : 20. Engagement Plan		
Project, whenever it is safe to do so. The developer will also provide in-kind support for		WL Part B: 21. Engagement Plan		
independent community monitors to conduct their monitoring activities (e.g., accommodations,		LUP Part C: 130. Engagement Plan		
meals, transportation and appropriate safety training to operate on the road).		LUP Part C: 131. Engagement Plan		
		PCA reviewed draft plans and provided comments to CZN on December 14th 2020. CNZ has not yet resubmitted updated drafts which address PCA concerns.  Once PCA receives the updated plan we will review and submit new comments if deficiencies persist. Plan must be submitted to PCA for approval 90 days prior to commencement of any project activities.		