

Independent Technical Review Panel  
Prairie Creek All Season Road Project

December 4, 2019

CanZinc  
Suite 1710 – 650 West Georgia Street,  
Vancouver, BC  
V6B 4N9

Attention: Mr David Harpley Vice President, Environment and Permitting Affairs  
Via email: David.Harpley@norzinc.com

Re: Terms of Reference: Independent Technical Review Panel  
Prairie Creek Mine, NT

Dear Sir:

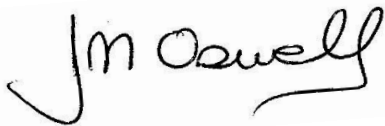
The Independent Technical Review Panel (the Panel) submits the second formal revision of the Terms of Reference (TOR) for the review of the proposed winter access road and all-season road for the above project.

Over the past several months versions of the TOR were reviewed and commented on by CanZinc, Parks Canada (PC) and the Mackenzie Valley Land and Water Board (the Board), as well as other stakeholders. The Panel has thoughtfully considered all comments received from these reviews in preparing this current version.

It is our understanding based on a conference call December 3, 2019 between the Panel (Oswell, Johnson and Watt), CanZinc, PC and the Board that all outstanding issues with the TOR have been resolved.

We trust this version of the TOR is acceptable to you, the Board and Parks Canada.

Yours truly,



J.M.Oswell, Ph.D., P.Eng.  
Chair, Independent Technical Review Panel

cc: Tim Smith, P.Geo.  
David Watt, R.F.P.  
Robert Johnson, P.Eng.

# INDEPENDENT TECHNICAL REVIEW PANEL TERMS OF REFERENCE Canadian Zinc Corp. Prairie Creek All Season Road Project (Dated November 18, 2019)

## 1.0 Introduction and Background

In its Report of Environmental Assessment and Reasons for Decision (EA1415-01) regarding Canadian Zinc Corp.'s (CanZinc) Prairie Creek All Season Road Project, the Mackenzie Valley Environmental Impact Review Board (the Review Board) required the formation of an Independent Technical Review Panel (the Panel), funded by CanZinc, to “*evaluate and approve the final road design*”. The project consists of the design, construction and operation of an all season road (ASR).

The ASR will be 170 km long, extending from the Nahanni Butte Access Road to the Prairie Creek Mine, crossing through the Nahanni National Park Reserve (NNPR). The project is located in the Deh Cho region of the Northwest Territories.

For the purposes of the Panel's involvement, the overall ASR project comprises three phases:

- Phase 1: design, construction and operation of a winter access road (WAR) in 2019/2020, intended to allow completion of the remaining investigations for the design of the ASR and to facilitate transport of supplies to the Prairie Creek Mine.
- Phase 2: construction of the ASR, starting in early 2020.
- Phase 3: operation of the ASR during the life of the mine.

To manage the timely preparation, review and approval burden for development plans, CanZinc have proposed that the designs and management plans may be developed and approved for each phase sequentially. These approvals are the responsibility of the Mackenzie Valley Land and Water Board (the Water Board) and Parks Canada.

Relative to the role of the Panel, this document presents the general terms of reference (TOR) for the Panel, and a specific scope-of-work for Phase 1, along with provisional scopes-of-work for the remaining phases (Schedule A, attached).

## 2.0 Context

The Review Board published EA1415-01 in September 2017. It is evident from this report that fundamental and significant differing opinions were presented to the Review Board by CanZinc and either stakeholders (i.e. Parks Canada, Deh Cho First Nation and others) or the Review

Board's consultants on issues related to risk associated with the design, construction and operation of the ASR. These risks appeared to centre around the environment and human safety.

Given the divergent views, the Review Board mandated the creation of the Panel under Measure 5-1 in EA1415-01.

### **3.0 Mandate and Scope**

As directed by the Review Board in EA1415-01:

- The mandate of the 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 also *“ensure that the road is designed and constructed to an appropriate standard that is highly protective of people and the environment, including consideration of:*
  - a) *the number and type of mine and non-mine related vehicles expected to use the road;*
  - b) *two-way traffic;*
  - c) *human safety and minimizing traffic related accidents;*
  - d) *permafrost degradation and impacts on water quality; and,*
  - e) *appropriate road design criteria, including but not limited to:*
    - *watercourse crossings, including the Liard River ice bridge;*
    - *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, physical size of, and distance between vehicle pullouts.”*

The Panel will engage with CanZinc, Parks Canada and the Board to define “appropriate standard” and “highly protective”.

For the purposes of the TOR, “approve” as stated in Measure 5-1, Part 1 of EA1415-01, shall be defined as “the expression of an opinion by the Panel that the plans and designs of the WAR and ASR meet appropriate standards to minimize traffic related accidents, road failure or malfunctions, and related significant adverse impacts on human safety or the environment”.

Liability for the overall design of the WAR and ASR remains with the responsible design professionals. At no time shall the Panel be responsible for the design, management or supervision of the WAR or ASR, or any activities related thereto during the Design Phase, Construction, Operations, or Closure

To complete its mandate, the Panel will consider information, design documents, reports and data that it considers relevant. This could include, but not be limited to, information from EA1415-01, information gathered as a result of CanZinc commitments, and the requirements and outcomes of Review Board measures. The Panel must be supplied with all information they deem necessary to complete their mandate and scope.

#### **4.0 Guiding Principles**

The following principles shall guide the Panel's work:

- i. The Panel shall remain impartial to the Project, being neither an advocate nor opposed to it.
- ii. The Panel shall be independent of CanZinc, the regulators and Indigenous groups, including consultants engaged by any party to the project, and shall provide their recommendations impartially based solely on their expertise and experience.
- iii. The Panel will work together collaboratively and in a respectful manner, with a willingness to listen and understand all perspectives/opinions and relevant issues.
- iv. The Panel will be transparent, with all review and assessments based only on sound scientific and engineering principles, and with due consideration of traditional knowledge provided through the review process and consultations.
- v. The Panel recognizes that some design and construction activities of the WAR and ASR may be time sensitive; and some of the Panel's tasks may be on the project schedule's critical path. The Panel shall endeavor to meet all reasonable timelines, however this is also dependent on information and requests by the Panel being provided or addressed in a timely manner.
- vi. Panel decisions will generally be based on consensus among members. Where consensus cannot be reached, the majority view on a recommendation as well as the minority views of dissenting members may be presented.
- vii. The Panel will work in an efficient manner to complete its mandate in a timely and cost-effective manner.

#### **5.0 Panel Structure/Governance/Operations**

##### **5.1 Membership**

The Panel shall comprise the following members:

- i. Robert (Bob) Johnson, B.Sc., P.Eng. (AB/NT/NU)
- ii. James (Jim) Oswell, Ph.D., P.Eng. (AB/NT/NU)
- iii. Timothy (Tim) Smith, P.Geo, EngL, P.Geol (AB), LEG (WA), CPESC
- iv. David Watt, B.Sc., R.F.P. (BC)

These members have been nominated by CanZinc and approved by the Water Board and Parks Canada.

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The chair of the panel will be Dr. Jim Oswell, with Tim Smith to act as vice-chair, if needed.

## 5.2 Meetings

Meetings are to be scheduled by the Panel, in consultation with CanZinc.

For all decisions, a quorum of three is required for the Panel.

Minutes may be prepared by the Panel members (or administrative staff within the Panel member's organizations) where and when necessary to document important actions, decisions and opinions.

## 5.3 Selection of Replacement or Additional Members

In the event a Panel member is unable to continue, the remaining members shall identify and nominate a replacement to be approved by CanZinc, the Water Board and Parks Canada. The replacement shall have a similar experience and skills set to the Panel member they are replacing. Replacement members will be hired by CanZinc.

In the event the Panel recommends additional members be added to address specific gaps in the technical expertise, the Panel shall identify and nominate a person(s) to be approved by CanZinc, the Water Board and Parks Canada. Additional members will be hired by CanZinc.

Where administrative support including clerical, auto-CAD, GIS or other services are needed by the Panel, these may be engaged within the individual offices of the Panel members and billed to CanZinc at agreed upon rates.

## 5.4 Panel Member Responsibilities

Each member will:

- i. Become familiar with materials provided for review and comment;
- ii. Participate in Panel reviews, discussions, deliberations and in the development of recommendations and the final report;
- iii. Provide advice and recommendations to be included in the reports and memorandums issued by the Panel;
- iv. Attend and participate in meetings, both in person or through conference call or similar technology, as necessary;
- v. Work in an efficient and time-effective manner to complete the tasks and scope of work before the Panel.
- vi. Panel members will not disclose the substance and nature of internal panel deliberations and discussions leading to a decision, recommendation or report content.

## 5.5 Conflict of Interest

Panel members will declare in writing to CanZinc any conflict of interest that may exist or may be seen to exist. Such conflicts may include, but not be limited to:

- i. Financial interests in CanZinc;
- ii. Immediate family members who work for CanZinc or its consultants, the Water Board, Parks Canada, or other significant stakeholders for this Project, or;
- iii. Immediate family members belonging to, or affiliated with, a First Nation or other significant stakeholder associated with this Project.

Where such a conflict may be present, CanZinc will address the conflict in consultation with the Water Board and Parks Canada.

## 5.6 Confidentiality

The Panel recognizes that some information provided by parties other than CanZinc may be confidential. Each member will hold such information received in strict confidence for the duration of the project and thereafter, except for an Order to the contrary by a Court. Requests for release of confidential information shall be directed through the owner of the information.

The Panel recognizes that all reports and memoranda prepared by the Panel may be made public, unless prior agreement for confidentiality is invoked.

The Panel's internal discussions will be confidential and must not be shared with any non-Panel members. Draft reports, or sections thereof, will also be treated as confidential.

## 6.0 Reporting and Engagement Process

The Panel will report to CanZinc on its activities. The primary point of contact in CanZinc will be David Harpley, VP, Environment and Permitting Affairs.

The Panel will provide a preliminary report for each phase to CanZinc for review. The Panel will then consider comments, suggestions and changes, before submitting a final report for each phase.

Interim reports or memoranda may be prepared by the Panel (and submitted to CanZinc) to address a specific issue independent of the preliminary and final reports.

CanZinc will be responsible to engage with the Water Board and Parks Canada on the Panel's activities.

CanZinc will provide Panel final reports to the Water Board and Parks Canada as specified in Measure 5-1 of EA1415-01.

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The Panel may communicate directly with third parties, including the Review Board, Water Board, Parks Canada and others. CanZinc will be copied on all written communications, and will be advised by email of verbal communications.

Panel members will use their personal/corporate email address for correspondence related to this review. Reports and memoranda prepared by the Panel will carry “Independent Technical Review Panel” letterhead in the upper left corner of each page, as follows:

“Independent Technical Review Panel  
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The attached Schedule A presents the current work plan for the Panel. It is considered a dynamic work plan and scope; some tasks may be amended and additional ones added during the Project.

End of Terms of Reference

## Schedule A

### General Scope of Work

The Panel will complete the following activities:

- (1) Prior to the construction of the ASR:
  - a. Prepare and submit the Panel's terms of reference.
  - b. Review and provide comments on the following:
    - 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. Communications plans for road travel
    - viii. Specific documents, management plans and proposed mitigations, include, but may not be limited to, the following:
      - Oboni Riskope Associates Inc. 2016. EA1415-01-Phase 2 Risk Assessment Technical Report Prairie Creek All Season Road. Prepared for Construction Management Mackenzie Valley Environmental Impact Review Board, dated November 18, 2016. 159 pgs.
      - Oboni Riskope Associates Inc. 2016. Replies to EA1415-01 Notice of proceeding - risk assessment review and response. Prepared for Construction Management Mackenzie Valley Environmental Impact Review Board, dated December 14, 2016. 41 pgs.
      - Canadian Zinc Corporation. 2016. Letter to Mackenzie Valley Environmental Impact Review Board re Oboni Report dated December 5, 2016. 25 pgs.
      - Canadian Zinc Corporation. 2017. Letter to Mackenzie Valley Environmental Impact Review Board re Oboni Report dated February 7, 2017. 68 pgs
      - Arcadis review of Oboni risk assessment, June 18, 2019
      - Arcadis winter road risk assessment, August 2019.
      - Canadian Zinc Corporation. 2019. Post-EA Information Package Including an Updated Project Description and appendices, including winter road designs: All Season Road to Prairie Creek Mine. Submitted to Mackenzie Valley Land and Water Board and Parks Canada. Dated February 2019. 115 pgs.
      - Mackenzie Valley Environmental Impact Review Board. 2017. Report of environmental assessment and reasons for decision. Canadian Zinc Corp.



Prairie Creek All Season Road Project EA1415-01, dated September 12, 2017. pgs. 457.

- Canadian Zinc Corporation Developers Assessment Report for EA1415-01, April 2015.
- Canadian Zinc Corporation Developers Assessment Report Addendum for EA1415-01, September 2015.
- Allnorth. 2019. Prairie Creek Mine All Season Road Phase 1 Winter Road Design and Construction Plan. Prepared for Canadian Zinc Corporation. Project number 18PG0151. Dated October 28, 2019. 84 pgs.
- Alpine Solutions Avalanche Solutions. 2019. Prairie Creek Mine. Avalanche safety plan: Draft. Project No.: V190923. Prepared September 23, 2019. 52 pgs.
- Allnorth. 2019. Prairie Creek All Season Road Construction Management Plan. Prepared for Canadian Zinc Corporation. Project number 18PG0151. Dated October 29, 2019. 27 pgs.
- TetraTech. 2019. Prairie Creek Winter Road: Road Closure and Reclamation Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 72 pgs.
- TetraTech. 2019. Permafrost Management Plan Phase 1 Winter Road Prairie Creek Mine, NT. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated September 20, 2019. 49 pgs.
- Allnorth and TetraTech. 2019. Traffic Control Mitigation, Operations, and Maintenance Plan Phase 1 Winter Road Prairie Creek Mine, NT. Project number 18ED0139 (Allnorth); 704-ENG.EARC03145-01 (TetraTech). Dated September 25, 2019. 38 pgs.
- NorZinc Ltd. 2019. Prairie Creek Mine: All Season Road Project. Phase 1 Emergency Response Plan. Dated October 2019. 45 pgs.
- CanZinc. Not dated. Prairie Creek Mine: Phase 1 Winter Road Engagement Plan. 3 pgs.
- Lifeways of Canada Limited. 2019. Cultural Heritage Protection Plan Phase 1 Winter Road Prairie Creek Mine, NT Prepared for Canadian Zinc Corporation. Dated September 27, 2019. 28 pgs.
- TetraTech. 2019. Prairie Creek Winter Road – Phase 1 Construction. Wildlife Management and Monitoring Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 257 pgs.
- TetraTech. 2019. Prairie Creek Winter Road – Phase 1 Explosives Management Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 38 pgs.
- TetraTech. 2019. Prairie Creek Winter Road – Phase 1 Construction. Invasive Species Management Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 110 pgs.

- TetraTech. 2019. Prairie Creek Winter Road – Phase 1 Construction. Permafrost Management Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 47 pgs.
- TetraTech. 2019. Prairie Creek Winter Road – Phase 1 Construction. Rare Plant Management Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 54 pgs.
- TetraTech and Hatfield Consultants. 2019. Prairie Creek Winter Road – Phase 1 Construction. Sediment and Erosion Control Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 152 pgs.
- TetraTech. 2019. Prairie Creek Winter Road – Phase 1 Construction. Spill Contingency Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 115 pgs.
- TetraTech and Allnorth. 2019. Prairie Creek Winter Road – Phase 1 Construction. Traffic Control Mitigation, Operations, and Maintenance Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 39 pgs.
- TetraTech. 2019. Prairie Creek Winter Road – Phase 1 Construction. Waste Management Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 51 pgs.
- TetraTech and Hatfield Consultants. 2019. Prairie Creek Winter Road – Phase 1 Construction. Water Monitoring Plan. Presented to Canadian Zinc Corporation. File number: 704-ENG.EARC03145-01. Dated October 2019. 45 pgs.
- TetraTech EBA. 2016. Technical memo: Risk analysis – landslide hazards; Proposed Prairie Creek Mine All-season road, NT. Prepared for David Harpley [Canadian Zinc Corporation]. Dated May 4, 2016. 16 pgs.
- TetraTech EBA. 2016. Technical memo: MVEIRB #11 – Terrain Instability (Related to Undertaking #40) Response to Second Round Information Request, EA1415-01 Prairie Creek Mine All-Season Road. Prepared for David Harpley [Canadian Zinc Corporation]. Dated October 24, 2016. 8 pgs.
- TetraTech EBA. July 11, 2016. Technical memo: Response to Undertakings, EA1415-01 Prairie Creek Mine All-Season Road. Prepared for David Harpley [Canadian Zinc Corporation].
- TetraTech EBA. 2016. Technical memo: Magnitude/Frequency Analysis – Landslide Hazards – Rev 02. Proposed Prairie Creek All Season Road, NT. Prepared for David Harpley [Canadian Zinc Corporation]. Dated May 3, 2016. 9 pgs.
- TetraTech EBA. 2016. Technical memo: GNWT #8 – Permafrost Summary Table with Proposed Mitigations Response to Second Round Information Request EA1415-01 Prairie Creek Mine All-Season Road. Prepared for David Harpley [Canadian Zinc Corporation]. Dated October 24, 2016. 20 pgs.

- TetraTech EBA. 2016. Technical memo: GoC – PCA #5 – Borrow Sources – Development and Management Response to Second Round Information Request EA1415-01 Prairie Creek Mine All-Season Road. Prepared for David Harpley [Canadian Zinc Corporation]. Dated October 24, 2016. 10 pgs.
- ix. Specific documents that may be provided by regulators or other parties.
- (2) During detailed design of the ASR:
- a. Assess the appropriate standard for the ASR and levels of acceptable risk.
  - b. Review existing and updated information, work plans, and detailed design documents, including, but not necessarily limited to terrain stability assessments undertaken for the proposed cut and fill slopes, and the CanZinc’s detailed interpretation of the permafrost conditions along the ASR route on completion of geotechnical site investigation work; and,
  - c. Provide recommendations for the design to meet the agreed upon standard defined by the Panel, considering construction, operation, maintenance, closure and reclamation.
- (3) Following detailed design of the ASR:
- a. Review the detailed road design;
  - b. Provide a preliminary report to CanZinc on the Panel’s review including additional or outstanding recommendations
  - c. Review CanZinc’s response and justification for any recommendations CanZinc does not wish to adopt;
  - d. Prepare and submit a final report to CanZinc that includes the Panel’s findings and conclusions on the final road design.
- (4) During construction:
- a. Work with CanZinc and the Board 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 design are made following submission of the Panel’s final report).
  - b. Site visits will be determined by the Panel, in consultation with CanZinc, the Board and Parks Canada.
- (5) Operations:
- a. Assess and comment on the operational plans for the ASR, including but not limited to traffic planning and logistics, journey management, road maintenance and repairs, and emergency response planning.

### **Phase 1 Scope of Work**

For the WAR, the Panel will generally consider the relevant scope items listed in Section 3.0 (a) – (e) of the TOR. In addition, the Panel will consider the following specific items:

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- a. Typical and non-typical WAR sections, including profile and alignment, and how they relate to the ASR alignment.
- b. Review of previous risk assessments and an updated risk assessment for the WAR.
- c. Management plans that relate to WAR construction, operation and maintenance.