



June 16, 2015

Ms. JoAnne Deneron  
Chairperson  
Mackenzie Valley Environmental Impact Review Board  
5102 50<sup>th</sup> Avenue,  
Yellowknife, NT  
X1A 2N7

Dear Ms. Deneron

**RE: Environmental Assessment EA1415-001, Prairie Creek Mine**  
**All Season Access Road DAR Adequacy Review**

We refer to the Adequacy Review (AR), dated May 22, 2015, of the Developer's Assessment Report (DAR) submitted by Canadian Zinc Corporation (CZN) in support of environmental assessment (EA1415-001) of the proposed all season access road to the Prairie Creek Mine.

An "Adequacy Review" is a new step in the environmental assessment process, and we hope that this new step will, as described in the Reference Bulletin, "contribute to the timeliness and effectiveness of the proceedings", and does not result in unnecessary delays in the overall timeline for the environmental assessment.

CZN has a number of concerns with respect to the contents of the AR. These were discussed with Review Board staff on June 15, 2015 in meetings in Yellowknife. The respective geotechnical consultants for the Board and CZN also held an independent conference call on June 12, 2015 to discuss many of the concerns. A summary of the teleconference is provided with the attached documents for your information. The meetings and teleconference provided greater clarity on the contents and intentions of the AR.

CZN proposes to submit a DAR Addendum taking into account the comments in the AR as appropriate. The DAR Addendum will also include a more detailed Concordance Table cross referencing every item in the TOR.

This EA is the sixth environmental assessment completed by CZN in respect of the Prairie Creek Project, and as such, builds on all of the work completed and information gained in previous EA's, including in particular, the EA for the Prairie Creek Mine (EA0809-002) which included a comprehensive assessment of the winter road to the Mine. The proposed all season road represents an extension of the operating season of that same road, and will have the same footprint (some minor variations) which has been previously assessed by the Review Board, and in respect of which Land Use Permits have already been issued by both MVLWB and Parks

Canada. This footprint, and the year-round nature of the proposed development has, in our opinion, limited potential for additional impacts beyond those already assessed in EA 0809-002.

Although we understand that the current EA requires a stand-alone DAR, we feel the AR did not properly consider the past EA's of, and permits issued for, the access road. The 1980 winter road LUP provided for all season use from the Mine to Km 39 (i.e. traversing the mountainous portion). EA0809-002 evaluated the new winter road, with re-alignments. It was our understanding, based on previous comments by Board staff, that previous documents, or parts thereof, can be used to inform the current EA, and that it would be acceptable to simply refer to them and they will be added to the public record.

The AR implies a high level of impact assessment detail for this EA, well in excess of past EA's. In this respect, the AR seems to reflect a departure in approach for this EA compared to EA0809-002.

We believe the AR contains requests that imply a level of detail beyond what is appropriate for an EA, and we felt obliged to discuss this with Board staff. We also feel that it would have been more efficient to issue the AR to CZN in draft form. Thereafter, CZN would have provided comments for consideration before the AR was finalized. We believe this approach would have addressed most of the noted issues.

Our concerns are detailed in the attachment with appendices. The main issues are summarized below, along with our revised understanding acquired from the meetings with Board staff. We provide our intentions with respect to addressing the particular issues, and welcome further comment from the Review Board if these appear not to be aligned with expectations.

#### **Baseline Data:**

The AR indicates that additional terrain and environmental baseline data are required. CZN has reviewed the additional data requirements listed in the AR, and in our opinion, confirmed by the opinion of CZN's consultants, the necessary information is already available or can be provided quite quickly. We believe that no additional fieldwork is necessary.

Regarding terrain baseline data, during the teleconference held on June 12, 2015 between the respective geotechnical consultants advising the Board (Knight Piesold) and CZN (Tetra Tech EBA), Tetra Tech EBA noted that additional requirements should be tempered by the fact that the proposed all season road will be built on the same general alignment of the already approved and permitted winter road. Knight Piesold apparently was unaware of this, and this may explain what we believe to be an implied inappropriate level of detail regarding terrain/engineering requirements in the AR. However, we believe additional air photo interpretation, mapping and consolidation of past and recent results in a pictorial format will address the requirements.

Regarding environmental baseline data, nearly all of the AR requirements can be satisfied by providing existing data (from past and recent studies) in a revised format. Regarding contaminant concentrations in fish tissue and vegetation, it is our understanding that the final Terms of

Reference (TOR) requires only “existing” data. This qualification was added to the final TOR following our comments on the draft TOR. Review Board staff confirmed acceptance of the change in their On-Line Review System reply to CZN’s comments.

**Engineering Detail:**

The AR suggests a requirement for some information and engineering design specifics that are normally provided at the post-EA, detailed design stage. For example, the AR requests “estimates of vertical scour and potential undermining of the riprap armour”. This is a task normally completed after project approval as part of the detailed design process for crossing structures.

It is our understanding that detailed design usually follows after project approval, and in most cases after permitting. At the EA stage, it is normal and logical to provide an engineering detail of structures at a preliminary design or pre-feasibility level. During the June 12 teleconference between the geotechnical consultants, Knight Piesold advised that they consider a feasibility level design to be appropriate at the EA stage. This again may explain the basis for some of the terrain and engineering requirements in the AR. We agree that further investigation and detailed design will be required before construction, but it is premature at this time, and we strenuously disagree that feasibility level designs are required for EA.

We note that in EA0809-004, the Nico Project DAR describes a 50 km all season access road. To our knowledge, this is the most recent all season access road proposal considered by the Board. It appears that similar field investigation methods were carried out for terrain assessment as for the Prairie Creek road, that is, hand shovel and auger. We also note that road design was limited to a concept consisting of a preferred alignment within +/- 500 m (R. Schryer, pers. comm.), preliminary design occurred during the EA analysis phase.

In our meetings with Board staff, we were informed that the level of engineering design is not necessarily important. Rather, the proponent is required to identify the risks associated with the development proposal, identify mitigation steps, and provide an effects assessment in sufficient detail to allow the Board to make determinations. In the DAR Addendum, CZN expects to do that and provide the appropriate responses to AR requests.

**Management Plans:**

The AR suggests that 16 management plans must be presented. This is not consistent with the TOR, and the preparation of such plans is normally part of the regulatory process before the Water Board. Indeed, the preparation of such plans may be part of the recommendations of the Review Board in its Decision on the EA.

Of the 16 plans itemised in the AR, only 7 exist in draft form related to EA0809-002 (the Mine and winter Road) and the subsequently issued Land Use Permits. Many are required to be prepared as conditions of these permits i.e. after EA completion and permit issue.

Management plans require a significant level of detail and input. A typical management plan includes details such as objectives, roles and responsibilities, background information, actions to be taken, monitoring and inspection information, and contingency plans. Management plans formalize mitigation steps and monitoring requirements for situations where significant potential impacts have been identified. The contents of management plans are often informed by both the EA and permitting processes.

We submit that mitigation steps and monitoring requirements can be identified, and the likely effectiveness of proposed management plans can be assessed, without the preparation of the formal management plan. In our meetings with Board staff, we were advised that it would be acceptable to do this in the DAR Addendum in the absence of an existing plan.

### **Conclusion**

In order to advance this EA in a timely and efficient manner, CZN proposes to submit a DAR Addendum taking into account the comments in the AR as appropriate, and the advice provided by Board staff. The DAR Addendum will also include a more detailed Concordance Table cross referencing every item in the TOR.

As noted above, we welcome further comment from the Review Board regarding our intended course of action, if necessary.

Thank you for your consideration and attention to this matter. If you have any questions, please contact us at 604 688 2001.

Yours truly,  
CANADIAN ZINC CORPORATION



David P. Harpley, P. Geo.  
VP, Environment and Permitting Affairs

Attachment

## **ATTACHMENT TO CZN JUNE 2015 LETTER TO REVIEW BOARD RE ALL SEASON ACCESS ROAD DAR ADEQUACY REVIEW**

This document provides comments on the Adequacy Review (AR). Following a general comment, comments are provided in the order items appear in the AR.

### **General Comment - Level of Assessment Complexity Requested**

The AR in combination with the interpretation of TOR requirements by Review Board staff requests a level of assessment complexity that is well in excess of past EA's. With any impact assessment, the magnitude of required mitigation is dependent on whether there are significant assessed impacts and their severity. To a large extent, this determines the need for, and content of, subsequent assessment steps. The TOR identifies a very prescriptive way to complete impact assessments. The AR indicates that this is to be followed to the letter (AR Section 1.2) without any practical interpretation. Relevant AR sections are 5, 6.2, 6.3, 8.1, 12, 13, 14.2, 14.3, 14.4, 15.2, 16.2, 17.2, 18.2, 19.2, 20.7, 21.2, 21.3, 22.1 and 24.2. A summary assessment table for every item of most sections of the TOR is unnecessarily excessive.

### **1.1 Summary of adequacy review findings**

1. Project Description: See comments provided in the letter from Allnorth Consultants in Appendix 1.
2. Assessment steps: An effects assessment was completed. However, the AR considers it to be unsatisfactory. Refer to comments in the letter from Tetra Tech EBA in Appendix 2 for additional advice. An effects assessment on karst was completed for EA0809-002. This was referred to, but the AR does not appear to adequately account it. Baseline information is discussed later in this document.

### **1.2 Assessment steps**

The AR indicates that assessment steps are to be followed with little latitude afforded to the consultants performing the work. It seems that the assessment steps are to be followed for every perceived issue, irrespective of whether a qualified professional judges there to be a significant potential impact requiring mitigation, or not. This approach is very different from EA0809-002. We understand that an EA process may evolve over time, but it appears that significant change shift has occurred. The only other AR completed was for the Jay Pipe in November 2014. That AR does not appear to have been as onerous as CZN's. Additional comments are provided in Appendix 2.

### **3.1 Consideration of Alternatives to the development**

The AR states "alternatives two and three do not accomplish the same objective alone, and would need to be used in conjunction". This is not correct. The assumptions for Alternative 2 are that 90,000 tonnes are transported out over a restricted winter road window utilizing readily available trucks. The remaining 30,000 tonnes are transported out by trucks acquired at a premium cost because of the high demand for trucking at that time of year. For Alternative 3,

90,000 tonnes are trucked out as for Alternative 2, and the remaining 30,000 tonnes are flown out. Both alternatives achieve the same objective, but differently. The Terms of Reference (TOR) does not require a “no project” scenario. We agree that more detail can be provided regarding the different types of environmental indicators.

#### **4.8 Freeboard at watercourse crossings**

Determining precise flood levels and freeboards requires detailed site topographic surveys to be carried out in the field by a surveyor, a task that would be completed after project approval as part of the detailed design process. See Appendix 1 for further advice. Estimated flood levels and freeboard allowance can be indicated.

#### **4.9 Estimated peak flow rates and water surface elevations**

Regarding specific mitigations for erosion and sedimentation potential, and channel stability, these are considerations more relevant to the detailed design stage. However, a more detailed discussion of the major stream crossings than was provided in the DAR can be completed. This would include location rationale, flood and damage risks, and mitigation strategies. Specific mitigations for each location would be identified during detailed design. See Appendix 1 for additional advice.

#### **4.12 Bedrock type and depth**

This information is requested for each bridge site. Bedrock type can be projected, but depth can only be speculated upon at this stage. In any event, it is not necessary to know this for preliminary design. Bridge foundations often do not rely on bedrock, and are confirmed at the detailed design stage following drilling. See Appendices 1 and 3 for additional advice.

#### **4.13 Location of borrow areas**

All borrow areas are shown on drawings contained in the Allnorth report in Appendix 1 of the DAR, and described in the body of that report and in Appendix 4 to it. Tetra Tech EBA addressed those borrow pits requiring discussion from a terrain perspective in their report in Appendix 2 of the DAR.

#### **4.17 Existing Management Plans**

The AR requests the presentation of 16 management plans. Of these, only 7 of these exist in draft form related to EA0809-002 (the Mine and winter road) and the subsequently issued permits. Many are to be prepared as conditions of these permits i.e. after the EA and permit issue. Management plans require a significant level of detail and input. Management plans formalize mitigation steps for situations where significant potential impacts have been identified. We submit that mitigation steps can be identified without the preparation of a formal management plan, and that the appropriate timing for management plan development is during or after the permitting process i.e. immediately before the operations that would use such plans. In fact, the

contents of management plans are usually informed by the process and outcome of EA, including input from other agencies, and information generated during detailed design.

Existing plans available in draft form are:

- Spill Risk Analysis Plan
- Spill Contingency Plan
- AEMP (for the Prairie Creek drainage)
- Contaminant Loading Management Plan
- Sediment and Erosion Control Plan
- Waste Management Plan
- Wildlife Mitigation and Monitoring Plan
- Air Quality Monitoring Plan

We propose to discuss any additional mitigations that would be added to these plans in a DAR Addendum or subsequent submissions as part of the EA process i.e. we believe it is unnecessary and inappropriate to modify these plans at this stage.

The spill risk assessment in the DAR supersedes the contents of the existing Spill Risk Analysis Plan. It would not be useful to provide that plan or revise it presently.

A Spill Contingency Plan was provided with the application for all season road permits, and so is available. Any necessary revision of the plan would be informed by the process and outcome of the EA.

The existing AEMP relates to bull trout and mine water discharge to Prairie Creek during mine operations. The plan includes monitoring of the trout population in Funeral Creek. The access road does not cross Funeral Creek where it is fish-bearing. No changes to the AEMP are currently considered to be necessary.

The Contaminant Loading and Management Plan was developed after EA0809-002 in response to a commitment made by CZN during the EA. CZN commits to revise the plan as appropriate after the current EA if the project is approved.

It is our understanding that Quarry Management Plans are specific to each borrow site to be developed. Since borrow sites can have very different site-specific conditions, a generic single plan is not very helpful. Borrow site investigations would be conducted during detailed design. Quarry Management Plans would logically be developed after this, and reviewed and approved before use as a condition of a permit.

We agree that appropriate mitigation for sediment and erosion needs to be discussed in the DAR Addendum. This information would subsequently be incorporated into a revised Sediment and Erosion Control Plan. We note that the appropriate content of the plan for the winter road was defined by the Water Board in their January 10, 2013 cover letter accompanying new LUP MV2012F0007. We would expect the same for the all season road.

A Road Operations Plan has not yet been written for the winter road. The plan will include items such as traffic speeds along different sections of the road, signage for this and hazards, a Journey Management System that tracks each trucks' movement (explained during the EA process), procedures for poor visibility, procedures for wildlife encounters, procedures for accidents and malfunctions, operation of the security check-point, as well as other driver-oriented information. The plan is to be submitted to the Water Board for approval 90 days prior to construction. Again, we would expect the same for the all season road.

A Construction, Operations and Maintenance Plan has not yet been written for the winter road. The plan will include items such as the timing of seasonal construction and closure, in-season closure, protection of stream banks, mitigation for crossings and ice bridges, manpower and machinery requirements for maintenance, how repairs will be conducted, and managing drainage and runoff. The plan is also to be submitted to the Water Board for approval 90 days prior to construction, and we would expect the same for the all season road.

An Interim Closure and Reclamation Plan has not yet been written for the winter road. Closure concepts were presented during the EA process. The plan is also to be submitted to the Water Board for approval 90 days prior to construction, and we would expect the same for the all season road.

A Waste Management Plan was provided with the application for all season road permits, and so is available.

CZN has a draft Wildlife Mitigation and Monitoring Plan (WMMP) for the winter road. This plan is expected to be largely suitable for an all season road, but would be reviewed and modified as appropriate. The AR requests CZN to prepare two new wildlife-related management plans (Wildlife and Wildlife Habitat Protection Plan (WWHPP), and Wildlife Effects Monitoring Plan). We note that the GNWT is in the process of completing a second draft of guidelines relating to the preparation of the two new plans, with release slated for this summer followed by further consultations. One recommendation made relating to the first draft was to combine the two plans. Therefore, it is premature to consider the preparation of these plans. We propose that CZN be required to provide details of any mitigation plans appropriate to the potential impacts defined, and additional to those already contained in the existing WMMP. We understand that our WMMP is broadly comparable to a WWHPP.

The Controlled Road Use Plan was re-named the Road Operations Plan during EA0809-002 and the subsequent winter road permitting. A draft Controlled Road Use Plan was prepared in July 2007 for the winter road LUP in effect at that time (for the old alignment). A copy of this can be provided, but we believe it would be more efficient to consider the more detailed mitigations that would be incorporated into the Road Operations Plan.

Appropriate approaches and mitigation for an Invasive Species Management Plan will be discussed in a DAR Addendum. This information would subsequently be incorporated into a formal plan prior to road construction.



We believe the only air quality issue of significance related to the road is dust control. Suitable mitigation strategies can be identified in the DAR Addendum. Rather than subsequently incorporating these strategies into an Air Quality Monitoring and Management Plan, it would be more appropriate to incorporate them into the Construction, Operations and Maintenance Plan.

CZN's Socio-Economic Agreement with the GNWT is posted on GNWT's website. Section 20.3 of the AR requests a list of socio-economic initiatives and/or agreements. There are no non-confidential details of IBA's. Therefore, with our reply to Section 20.3, we assume the requirement for this 'plan' will be satisfied.

## **6.2 Impact Assessment Steps and Baseline Information**

See Appendix 2.

## **7.2 Existing topography – characterization of geohazards**

Detailed comments on terrain issues are provided in a letter from Tetra Tech EBA provided in Appendix 3. These issues were also discussed with the Board's geotechnical consultant (see Appendix 4).

## **7.5 Stability of landforms with respect to permafrost**

Detailed comments are provided in a letter from Tetra Tech EBA provided in Appendix 3. See also Appendix 4.

## **7.6 Channel morphology and stability**

The item rationale provided in the AR for watercourse crossings in this section appears to contain misconceptions. The Casket Creek crossing already consists of a built road bed with a span crossing of the main channel, and culverts for a seasonal northern side channel and peak flow alluvial side channels. The crossing of the main channel was re-assessed for size and load rating, hence the preliminary design provided. At the proposed crossing locations for Sundog, Tetcela and Grainger, the channels are not braided and are stable in terms of location. This was a prime consideration in location selection. The proposed crossing structures are clear spans of the active channels (apart from two Sundog tributary crossings which were confirmed not to be fish-bearing and for which culverts have been proposed). While more detail on site-specific channel stability can be provided, review of historical air photos may not be necessary, site inspections have already been completed, and preliminary design details (e.g. Sundog re-alignment, riprap armour design) would be provided.

## **8.1 Impact assessment and baseline information**

This section states "Please either provide at minimum a conceptual Controlled Road Use Plan with mitigation measures needed to fulfil Section 4.1, 4. of the ToR or provide the mitigation for habitat fragmentation and movement." We agree with this approach which gives the proponent

the option of presenting a formal plan **or** the mitigation required. This is logical and practical. We recommend this approach be adopted for all of the ‘plans’ listed in Section 4.17.

## **8.2 Cumulative effects assessment**

The item rationale provided in the AR for this section appears to contain misconceptions that need to be resolved. The item states “the information provided in Appendix 7, Section 8, relied on data from a previous EA (EA0809-002)”. It is our understanding that this is acceptable. The item also states “The DAR did not describe an effective method to control access along the proposed all season road. There is the potential for use of the all season road into the NNPR by the public, tourists, hunters and others that is additive to use of the road by the developer. A new all season road into the NNPR will attract visitors. There is not enough information in the cumulative effects section of the DAR to determine potential cumulative impacts from the project on the NNPR”.

There are a number of problems with these statements. Regarding an effective method to control access, the DAR notes that the barge crossing of the Liard River would be a private vessel, and there will be a security check-point between the river and Grainger Gap. We believe these will be effective access control mechanisms. However, the point is that this is a matter of opinion, and the AR suggests that a decision has been made that those access control mechanisms will not be effective. We believe it is too early to render such a decision, and we do not believe it was the Board’s intention to imply that such a decision has been made.

CZN has been and continues to evaluate additional methods to control access. Therefore, it is certainly premature to render a decision. Regarding the cumulative effects assessment, road access by the public, tourists, hunters and others has been treated as a project effect, not a cumulative effect, which we believe is correct since the access by those groups is not related to a different project. If it were, it would then be cumulative.

## **10.1 Summary of non-conforming and inadequate sections**

Comments are provided in a letter from Tetra Tech EBA provided in Appendix 3.

## **15.2 Effects assessment**

Comments are provided in a letter from Tetra Tech EBA provided in Appendix 2.

## **17.2 Effects assessment**

Comments are provided in a letter from Tetra Tech EBA provided in Appendix 2.

## **18.2 Effects assessment**

Comments are provided in a letter from Tetra Tech EBA provided in Appendix 2.

## **22.2 Changes to permafrost and subsidence**

Comments are provided in a letter from Tetra Tech EBA provided in Appendix 3.

## **25 Required Draft or Conceptual Plans**

Please refer to our comments in 4.17 above. The Incident Command System and emergency response plan are parts of the existing draft Spill Contingency Plan. The winter driving policy is specific to tire chains. This and other driving policies would be components of the Road Operation Plan. A wildlife right of way policy is already part of the draft Wildlife Mitigation and Monitoring Plan.

## **Appendix 2: Baseline Information**

### **1 Species at Risk**

Of the drainages proximal to, or crossed by, the access road, bull trout are only found in the Prairie Creek drainage, including Funeral Creek. Baseline data for, and impacts to, bull trout were considered in EA0809-002. We assume that this data can be referred to in this EA and does not need to be repeated, along with presenting any new data, in the process of completing an impact assessment.

### **2 Species at Risk, Distribution and Abundance**

The following reports are relevant and available regarding wildlife and vegetation baseline:

- Beak 1981, vegetation and wildlife, surveys cover a 10 km strip from the Liard River to the Mackenzie Mountains, as well as the mine area. Covers the old winter road and extends as far south as Bluefish Lake
- Beak 1982, Dall sheep lambing areas near the mine
- Robertson Environmental Services for Rescan, 1994, summary of vegetation and wildlife data, old winter road
- CZN June 2006, wildlife only, mine claim areas
- Chillborne 2007, airborne wildlife survey of winter road and re-alignment to Nahanni Butte
- EBA July 2009, rare plant and wildlife survey, winter road (Appendix 13 of the 2010 DAR)
- EBA August 2010, invasive plant survey winter road, rare plant survey road re-alignments (Appendix 2 to first IR round reply, EA0809-002)
- Golder 2010, vegetation and wildlife impact assessment (Appendix 17 of 2010 DAR)
- Golder, December 2010 and February 2011, airborne caribou occupancy survey, new winter road
- Golder, 2014a (February-March), airborne caribou occupancy, new winter road
- Golder, 2014b (September), ground caribou occupancy survey, all season road

### **3 Vegetation Baseline, Contaminant Concentrations**

It is not clear if this item is requesting simply a description of existing contaminant concentrations, which would be confirmation that there are no data, or that CZN acquire data. The request in Baseline Item 8 suggests it is the latter. We refer to the document ORS\_Review\_of\_Draft\_ToR dated September 12, 2014. The document provides review comments on the draft TOR, and the Review Board's responses. For TOR items 5.1.4 item 9, 5.1.5 item 7, 5.1.6 item 10 and 5.1.7 item 6, CZN commented that it was not appropriate or necessary to collect baseline contaminant concentration data. The Review Board response (see Appendix 5 for excerpt of ORS document) was "'Existing data' has been added", indicating that the Review Board agreed with CZN. For section 5.1.7, the word "existing" was added to the final TOR, but not "data". The result is that the request is somewhat ambiguous – does it mean existing data, as it should, or existing concentrations i.e. concentrations that exist at present. The ORS comment response and the addition of the word "existing" in the final TOR must be read as meaning "existing data". Therefore, we assume this item will be satisfied by describing that there are no existing data on contaminant concentrations in vegetation.

### **6 Water and Sediment Quality**

Regarding water quality baseline, In the DAR, CZN presented data on the major watercourses crossed by the road for the summer (July 28) and fall (September 26) seasons of 2014. There is additional data for Prairie Creek and Funeral Creek that was presented in the 2010 DAR, which the AR does not account for. There is a considerable amount of data for Prairie Creek since 2010. CZN also has data on the major watercourses crossed by the road for September 2009 that was not included in the 2010 DAR. All of this data can be consolidated and presented. While most of the samples taken along the road were taken at crossing locations, they are representative of upstream water quality since the crossing structures are not yet present, and any effects from the historical winter road have long since diminished as the ground has revegetated and stabilized. The existing data is considered to adequately characterize baseline water quality conditions along the road for the purpose of impact assessment. There is ample time after project approval to locate, and establish baseline for, stations that may be used to monitor project effects.

### **8 Baseline Contaminant Concentrations**

Baseline data for fish tissue chemistry is available from the Beak 1981 work, and will be provided. However, if the data were not available, the requirement to provide this data during the EA would be inappropriate considering the advice provide in 3 above.

# **APPENDIX 1**

8 June 2015

Project Number: 14GP0128

Canadian Zinc Corporation  
Suite 1710-650 West Georgia Street  
Vancouver, B.C.  
V6B 4N9

Dear Dave Harpley, VP Environmental & Permitting Affairs

**RE: COMMENTS ON ADEQUACY REVIEW OF CANADIAN ZINC'S DEVELOPERS ASSESSMENT REPORT**

On behalf of Canadian Zinc Corporation (CZN), Allnorth Consultants Limited prepared a preliminary engineering design for an all season road from the Prairie Creek Mine to the Liard Highway, NWT. We understand CZN submitted the design report to the Mackenzie Valley Review Board as an appendix to their Developers Assessment Report (DAR) for the road. The Review Board has issued an Adequacy Review (AR) of the DAR.

Allnorth's scope was to provide a preferred road alignment, representative road bed designs, and preliminary stream crossing structures to support CZN through the environmental assessment process. It is our impression that the Mackenzie Valley Review Board's Adequacy Review (AR) of the DAR implies a greater depth of detail and design than what we a) interpreted as being necessary from the Terms of Reference, and b) believe is required for this stage of the process related to assessing the environmental impact of the project.

Following CZN's request, this letter provides Allnorth's comments on the AR. Comments are provided on relevant items in the order they appear in the AR.

**1.1 Summary of Adequacy Findings, 1. Project Description**

The AR states that "The DAR did not present adequate information to determine if the road is acceptable from a safety perspective. The development description does not demonstrate adequate consideration of the challenges of building a road in this environment."

Safety: We agree that the road crosses challenging terrain, especially the western portion that traverses the Mackenzie Mountains. We understand that this portion of the road was used extensively during two winter seasons in the early 1980's, and with no significant issues. This type of terrain often limits, dictates, and controls the final road location. Allnorth's scope for the preliminary all season road design included looking for opportunities to improve the road

alignment and safety. This was achieved in several places by removing challenging corners, improving alignment, and reducing grades. In one case, a significant portion of the original road was re-aligned (KP 25 to 29) to the opposite side of the valley to avoid several steep rock faces and talus fans which pose avalanche and rock fall risks. This re-alignment should also reduce environmental impacts by avoiding ongoing potential talus slope failures, and maintenance associated with the original location.

The road was designed utilizing the standards defined in the B.C. Forest Engineering Manual. Although this road is located through challenging terrain, this type of terrain is commonly encountered in B.C. The road design defined one short section (< 400m) with 11% grade, and several sections with 10% grade, but the greater majority of the road falls at or below 8% grade. In B.C., it is not uncommon to find similarly designed resource roads operating safely with grades in excess of 10 to 12%.

A safety risk associated with operation of the road is rock fall/avalanche hazards in those road sections under the influence of steep slopes, although the reduced traffic intensity on an all season road would be less at risk from avalanches than the already permitted winter road. All reasonable attempts to re-locate the proposed road location to eliminate or reduce these hazards have been incorporated. We recommend a "Rock Fall/Avalanche Management Plan" be established and implemented prior to all season road construction to manage and reduce the risk to an acceptable level through avoidance or reduction of the severity of an incident.

Other safety considerations/improvements incorporated into the road design are up to 3 pullouts per km (the typical pullout design is 20m long plus approaches) combined with recommended radio controlled transportation. The reduction in traffic intensity with the operation of an all season road will also have a significant impact on the operational risks associated with the corridor. Operating an all season road would spread vehicle trips over roughly 210 days per year instead of 105 days operating a winter road, which in itself greatly improves the safety of the transportation operations.

"Run Away Lanes" were not considered in the design as it was concluded the combined road grades/lengths do not warrant such an approach. We note that winter road design drawings previously prepared by SNC Lavalin similarly did not include such lanes.

**Construction Challenges:** As stated earlier, the road location, particularly the western portion, has challenges, but no greater than what is encountered commonly in B.C. Those sections which posed unique challenges or additional considerations were identified, and a preliminary design was completed for the entire section.

A construction challenge that will be encountered that is not commonly found in B.C. is permafrost. For this reason, we have incorporated into the designs approaches taken in N.W.T. guidebooks, and input from a specialist geotechnical engineer from Tetra Tech EBA. The limited construction season

in summer could also be considered a challenge however, much of the construction would be completed in winter. As long as the construction schedule allows enough flexibility to construct during suitable operating seasons/windows, this challenge can be greatly managed.

It is our belief that, following detailed design and the resulting minor adjustments, a suitably safe road can be built. Our submission of a preliminary engineering design should be considered as indicative of this. While we accept that the Review Board may require additional details to confirm this, we caution that care should be taken not to imply that a road built based on the preliminary design would not be safe. The design incorporates accepted standards, including the B.C. Forest Engineering Manual, in addition to others which are considered the benchmark for resource roads such as the one being proposed. Subject to the creation and implementation of the required management plans, the final built road can be operated safely.

#### **4.8 Freeboard at Watercourse Crossings**

Freeboard determination requires a site-specific flood elevation to be determined. Preliminary engineering designs for crossing structures have been provided based partly on flood flow estimates, and partly on location assessments in the field. In the latter, we look for a location where the watercourse is relatively narrow, the channel is preferably not braided, the channel appears to be stable, and suitable abutments can be built. We also look for evidence of abnormal events, such as flood flows, icings, debris remnants and channel avulsions. The crossing structures we select for preliminary design, in terms of type and size, are based on all of this information, with a suitable contingency to minimize the risk of failure.

The fundamental approach taken in the preliminary designs for major stream crossings involving a bridge structure reflects “clear span” over the active channel of the stream. The foundations proposed within the preliminary designs utilize a precast concrete style spread footing. This approach is simple, avoids complicated construction, and is adaptable to a variety of situations. However, the structure ultimately selected will be based on detailed design, at which time site-specific flood elevations and freeboards will be known from detailed site topographic surveys undertaken in the field. This level of detail (and expense) is not required to create a preliminary design and demonstrate the intent of the approach.

#### **4.9 Estimated Peak Flow Rates and Water Surface Elevations**

As noted above, preliminary designs for crossing structures account for flood flows and levels, but this would be reviewed in more detail at the detailed design stage. The structures and related infrastructure (abutments, approaches, armour) would be designed to be inherently stable following common bridge construction principles and guidelines. The preliminary designs are intended to minimize erosion and sedimentation. It is premature to consider the site-specific attributes of the structures at this preliminary stage. The detailed design and the site specific



management plans for construction, sedimentation and erosion control will address the specific characteristics of each site with the intent being to prevent impacts from the activities.

#### **4.12 Bedrock Type and Depth**

This section implies that it is necessary to know the type and depth of bedrock for bridge design. This is not necessarily the case. A combination of final field investigation, a detailed site plan (field) and detailed design would determine the most suitable foundation type incorporating the unique site conditions. This process may involve drilling to determine bedrock depth and type.

#### **7.6 Channel Morphology and Stability**

For the first part of the required items, as noted above, channel stability was assessed in the field as part of crossing location selection, and the data collected was incorporated into the preliminary design and structure. As we described earlier, our selection of a preferred crossing included least channel width; a defined, single, stable stream channel both present day and historically; and, a road alignment/approach which minimizes the overall level of disturbance at the stream and within the active riparian zone. In the case of bridge crossings, the selected structure is intended to span the active zone of the channel. Regarding channel hydraulics and potential changes to the channel, this will be an important consideration during detailed design.

Yours truly,

Allnorth



Prepared By:  
Ernie Kragt  
Project Coordinator



Reviewed By:  
Don Watt  
Project Manager



Reviewed By:  
Bradley Major, P.Eng.  
Grande Prairie Division  
Manager

## **APPENDIX 2**

June 12, 2015

Canadian Zinc Corporation  
Suite 1710, 650 West Georgia Street  
PO Box 11644  
Vancouver, BC V6B 4N9

ISSUED FOR USE  
FILE: ENVMIN3073-01

Via Email: david@canadianzinc.com

**Attention:** David Harpley  
VP Environmental & Permitting Affairs

**Subject:** Response to the Adequacy Review of the  
Developer's Assessment Report, Environmental Assessment, EA1415-01  
Proposed All-Season Road Access and Airstrip to Prairie Creek Mine, NT

## 1.0 INTRODUCTION

Tetra Tech EBA Inc. (Tetra Tech EBA) recently completed a Vegetation and Wildlife and Wildlife Habitat Assessment Report to support the regulatory approvals for a proposed all-season road from Northwest Territories Highway 7 near Nahanni Butte to the Prairie Creek Mine. We understand that our report has been submitted as an appendix to the Developer's Assessment Report (DAR) to support Canadian Zinc Corporation (CZN) in securing approval from the Mackenzie Valley Review Board (MVRB), and that an adequacy review (AR) has raised some questions regarding the adequacy of some aspects.

This letter provides a summary of our assessment of the AR, some responses to specific items, as well as a suggested plan of action to help resolve remaining issues and develop some appropriate next steps.

## 2.0 PROJECT OVERVIEW

### 2.1 Proposed All-Season Road

Construction and operation of the approved winter road and its associated transfer facilities (EA0809-002) are planned to commence before construction of the proposed all-season road. Routing and construction of the proposed all-season road and locating the majority of borrow sources, generally on the winter road alignment minimizes the overall environmental footprint and effects, including possible contributions to cumulative effects by these linear developments. Effects, such as direct habitat loss, habitat fragmentation, responses to edge effects, and mortality from collisions with temporary or permanent structures are largely associated with the winter road and its facilities. Similarly, the construction and operation of the winter road influences a considerable share of potential effects, including but not limited to human access, predator travel, predator-prey relationships (e.g., predation of boreal caribou higher near linear developments), increased human-wildlife encounters (e.g., wolverine, wolves), disruptions to sensitive denning and overwintering periods, contamination of harvested species (i.e., similar quantities of mine-related concentrate and supplies transported along both roads), use of the area by resident migratory birds (e.g., interior forest species vs. forest edge species), and removal of merchantable timber.

The conclusions of the DAR for the Prairie Creek Mine, winter road, and its transfer facilities indicated that, despite the location, length, and operation of the road, the contribution to cumulative effects on the region were not expected to be significant with appropriate management and monitoring programs developed to industry standard. The MVRB's December 2011 positive decision for EA0809-002 confirms this. We believe weight needs to be given to these outcomes.

In addition, the proposed all-season road design considered each sensitive environmental area identified in community consultations. Avoidance of these sensitive areas were fundamental in the road design concept adopted, and minimizes the overall significance of potential project effects.

## 2.2 Adequacy Review

Overall, the AR provided few details regarding specific items of non-conformance, but rather provided instructive overviews of some key points of issue. In general, the AR indicated that several items required in the Terms of Reference (ToR) were not addressed or not addressed to the requested level of assessment.

Tetra Tech EBA observes that some of the items noted in the AR as missing, are in fact covered in our report, and need only to be located and identified accordingly in the text of the DAR. An example table indicating report locations is attached in Appendix A. A few items were not addressed at the level of detail requested. Responses to the AR, and specifics where provided, are addressed in Section 3.0.

## 3.0 RESPONSE TO SPECIFIC REMARKS IN THE ADEQUACY REVIEW

The following summarizes our response to the AR regarding several items specifically mentioned as deficient and requiring additional work:

### Baseline Data

- Adequate baseline vegetation and wildlife & wildlife habitat information have been collected to date, and no additional field studies are warranted. Previous field studies adequately describe baseline conditions, including species at risk, and were available in developing our assessment. Further account of existing baseline reports used in developing the assessment can be provided, and key baseline reports may be appended to the DAR to provide additional baseline support. Baseline study reports may include:
  - Golder Associates Ltd. 2014a. Occupancy Pattern of Caribou in the Prairie Creek Mine Road and Surrounding Area. Prepared for Parks Canada Agency; Nahanni National Park Reserve, NT. 17 pp.
  - Golder Associates Ltd. 2014b. Distribution of Caribou along the Proposed Prairie Creek Mine All-Season Road. Prepared for CZN. 18 pp.
  - EBA Engineering Consultants Ltd. 2009. Rare Plant and Wildlife Survey, Prairie Creek Mine Area and Winter Road, NT. Report prepared for CZN. Yellowknife, NT.
  - EBA Engineering Consultants Ltd. 2011. Reclamation Assessment, Invasive and Rare Plant Survey 2010, Prairie Creek Mine Access Road, NT. Report prepared for CZN. Yellowknife, NT.
- Baseline Traditional Knowledge was collected previously for EA0809-002. Tetra Tech EBA relied on the non-confidential portion available in preparation of our report. It is our understanding that an additional Traditional Knowledge consultation meeting was held during or immediately after submission of our report, and that information from this meeting would adequately address some non-conforming items outlined in the AR (Appendix B, items 4 and 5), including harvesting and current knowledge on harvested wildlife and harvesting areas, an indication of harvest pressure based on area, species, and season, and rationale for recent declines in harvest rates.

- Collection of baseline contaminant concentrations in harvested vegetation and wildlife species was not part of our scope of work as we understood existing data were to be the basis of assessment. Contaminant concentrations and tissues with greatest concentrations, when known, were identified in each of our baseline conditions report sections.

## Effects Assessment

- The effects assessment for the Subjects of Note (i.e., Species at Risk and Wildlife and Wildlife Habitat) components were considered collectively, and reported under the single heading Wildlife and Wildlife Habitat to minimize replication throughout the document since the potential effects listed in the ToR for both components were the same. For example, Collared Pika (ranked as May Be At Risk in the Northwest Territories and Special Concern by COSEWIC) was assessed in report Section 7.1 *Other Wildlife and Wildlife Habitat*. Selected wildlife species for assessment included those not already addressed in the assessment of the Key Lines of Inquiry, such as Rusty Blackbird and Wood Bison. The effects assessment for selected Species at Risk and other wildlife species considered in this report section (as well as the vegetation – Subjects of Note component report section) were completed following the ToR requirements stated below:
  - ToR Section 7.3.1: “Subjects of Note (including Species at Risk, Wildlife and Wildlife Habitat, and Vegetation) require a thorough analysis including a cumulative effects assessment, but do not require the same level of detail as the key lines of inquiry.”
- Overall the effects assessment approach is considered appropriate considering the approved CZN winter road. In our opinion, the DAR, when viewed as a whole, satisfies the intent of the ToR. However, Tetra Tech EBA recognizes that additional justification for some items noted in the ToR can be provided. In particular, these include impact assessment steps 2, 7, and 9 (ToR Section 4.1) that were specifically outlined in the AR as non-conforming. A brief response on these identified steps follows:
  - Step 2: requires the identification of “the natural range of background conditions (where historic data are available), and current baseline conditions, and analyze for discernable trends over time in each valued component, where appropriate, in light of the natural or existing variability for each”. Descriptions of background conditions and historical data (when known) were provided in the baseline report sections (not within the effects assessment). Historical data that could support an analysis of trends (i.e., quantitative data) is generally lacking from this remote area.
  - Step 7: requires a description of “techniques such as models utilized in impact prediction including techniques used where any uncertainty in impact prediction was identified”. Scientific judgement applied to available baseline information (including a caribou occupancy model described in the baseline section) was used in the impact predictions. A qualitative level of impact prediction was considered appropriate considering the current level of available data (including a general lack of quantifiable historical data) and since potential effects as a direct result of the all-season road are difficult to differentiate from those from the winter road (e.g., effects to predator-prey relationships, wildlife population cycles, effects to sensitive or important areas of habitat, attraction of bird and bird egg predators, invasive wildlife species, alteration of vegetation species or assemblages that are rare, valued or protected).
  - Step 9: advises to 1) “identify any monitoring, evaluation, and adaptive management plans required to detect potential unexpected changes, ensure that predications are accurate, and proactively manage against developing adverse impacts when they (or unexpected changes) are encountered”, and 2) a description of predicted impacts, impact significance, and mechanisms of cause and effect.

To satisfy ToR Step 9, item 1 listed above:

- Monitoring, evaluation, and adaptive management plans were identified throughout the effects assessment. Examples include the identification of the Controlled Road Use Plan (report Section 5.3 Effects on Wildlife from Harvesting Pressure), Waste Management Plan (report Section 5.6 Risks to Harvested Wildlife from Non-Harvest Mortality), Invasive Species Management Plan (example report Section 5.9 Effects to Traditionally Harvested Plants), Wildlife right-of-way Policy (report Section 5.10 Traditional Harvesting Mitigation and Best Management Practices), and Wildlife Mitigation and Monitoring Plan (report Section 9.0 Follow-up and Monitoring).
- In addition, measurable parameters to detect potential unexpected changes and to ensure the accuracy of predicted effects, where appropriate and when effects as a direct result of the all-season road could be differentiated from the winter road effects, were provided in each effects assessment section. An example measurable parameter that was identified to monitor unexpected changes to habitat loss was total footprint of the all-season access road that deviated from the approved winter road and associated facilities (report Section 5.4 Effects of Direct Habitat Loss on Harvested Wildlife). Similarly, an example measurable parameter identified to ensure predicted effects were accurate included recording the number of staff/contractor encounters with dangerous wildlife and number of reports of possible wildlife attraction and habituation (report Section 5.5 Effects from Project-Related Wildlife Disturbances), which are monitored as part of the draft Wildlife Mitigation and Monitoring Plan (this is outlined in report Section 9.0 Follow-up and Monitoring).
- A draft Wildlife Mitigation and Monitoring Plan (WMMP) (comparable to the Wildlife Management and Monitoring Plan identified in the new (November 2014) NWT *Wildlife Act*) was prepared previously for the mine and winter road, and was available for review in development of our report. Following the ToR (Section 6.5 Existing Management Plans), recommendations to update this WMMP to incorporate the proposed all-season road were made in a separate report section (report Section 9.0), outside the effects assessment. This WMMP, and other applicable management plans, will be developed following existing frameworks and industry standards established at other mines for their access roads.

To satisfy ToR Step 9, item 2 listed above:

- Descriptions of predicted impacts, impact significance, and mechanisms of cause and effect were outlined in the effects assessment primarily in table format or described within the text. The AR requests the use of the Example Assessment Matrix provided in the ToR (Appendix B). However, it is our opinion that this example table does not efficiently allow for the assessment to be completed specific to each valued component. The report effects assessment attempts to maintain the same information provided in the Example Assessment Matrix, but is organized specifically to focus on each valued component.
- The AR indicates that not all effects outlined in the ToR were adequately addressed. The effects assessment discussed pathways with anticipated minor changes caused by the Project relative to existing conditions (i.e., the winter road and its transfer facilities) in less detail, and assessed together with similar measurement indicators (e.g., overall abundance and distribution). This approach follows the same effects assessment approach considered in the previous CZN winter road DAR. We note that we followed a similar general style as that used for Dominion Diamond's Jay Project DAR, and that the November 2014 AR for that project does not appear to raise the same effects assessment concerns.

## 4.0 RESOLVING QUESTIONS AND PLANNING NEXT STEPS

Tetra Tech EBA would be pleased to meet with MVRB staff in order to convey our understanding of the project, help resolve remaining issues (including future Management Plans), and develop some appropriate next steps for the project team.

## 5.0 CLOSURE

We trust this summary meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,  
Tetra Tech EBA Inc.



Prepared by:  
Karla Langlois, B.Sc., P.Biol.  
Biologist  
Direct Line: (867) 766-3728 x223  
Karla.Langlois@tetrattech.com



Reviewed by:  
Jason Jones, Ph.D., R.P.Bio., P.Biol.  
Director – Terrestrial Ecology Discipline  
Direct Line: 778.945.5840  
Jason.Jones@tetrattech.com



Reviewed by:  
Richard Hoos, M.Sc. R.P.Bio  
Principal Consultant Environment Practice  
Direct Line: 604.608.8914  
Rick.Hoos@tetrattech.com

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Attachments: Appendix A – Report Locations for Select Examples of Effects

# APPENDIX A

## REPORT LOCATIONS FOR SELECT EXAMPLES OF EFFECTS

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The AR's Table 9 of Wildlife and Wildlife Habitat Non-conforming and Inadequate Sections lists all potential effect items outlined in the ToR as non-conforming, and indicated that "some of the items have a response in this section but most items do not. The DAR is therefore not in conformity with the ToR."

The Wildlife and Wildlife Habitat report section (part of the Subjects of Note, which do not require the same level of detail as the Key Lines of Inquiry) assessed potential effects for species not already addressed in the Key Lines of Inquiry; therefore, a small number of potential effects (particularly those relating to harvesting and harvest pressure, example provided below) were not applicable to the species assessed in this report section. Similarly, the proposed all-season road will make use of temporary or permanent structures from the winter road and its facilities, and therefore, bird mortality from collision with these structures are also not applicable.

Using a few examples, the table below outlines the report location where specific effects items are discussed:

Description of Item not in Conformity	Location in the Report
Methods to minimize the effect of the project on the species including strategies for mitigation and monitoring	<ul style="list-style-type: none"> <li>Sections 7.1.1 to 7.1.6 and 7.1.7: Applicable mitigation and monitoring was outlined specific to each potential effect assessment (i.e., Section 7.1.1 to 7.1.6), and was provided as overall mitigation and best management practices in Section 7.1.7</li> </ul>
Direct and indirect alteration of habitat including direct road footprint impact	<ul style="list-style-type: none"> <li>Section 7.1.1 <i>Effects from Direct and Indirect Habitat Loss and Alteration on Other Wildlife</i></li> </ul>
Visual or auditory disturbance, including habitat avoidance and effective habitat loss in relation to all season road facilities or activities	<ul style="list-style-type: none"> <li>Section 7.1.1 <i>Effects from Direct and Indirect Habitat Loss and Alteration on Other Wildlife</i></li> <li>Section 7.1.2 <i>Effects on Wildlife Movement, Distribution, and Abundance</i></li> </ul>
Effect of construction and pre-construction activities, including aircraft effects on wildlife	<ul style="list-style-type: none"> <li>All sections: Effects, including aircraft effects on wildlife considered in every potential effect assessment section</li> </ul>
<ol style="list-style-type: none"> <li>Wildlife mortality due to increased harvesting and vehicle collisions</li> <li>How road-related changes in harvest pressure could impact the resource</li> </ol>	<ul style="list-style-type: none"> <li>Section 7.1.6 <i>Risks of Wildlife to Direct and Indirect Mortality</i></li> </ul> <p>Note, based on the ToR (Section 7.3.8) species selected for this Subject of Note were to include species not already addressed in the traditional harvesting and harvested species section. Therefore, no wildlife species selected in this report section are traditionally harvested and no mortality due to increased harvesting or changes in harvest pressure are predicted or assessed</p>
Disruption of sensitive life stages or habitat (e.g., migration, breeding, calving, denning, overwintering)	<ul style="list-style-type: none"> <li>Section 7.1.1 <i>Effects from Direct and Indirect Habitat Loss and Alteration on Other Wildlife</i></li> <li>Section 7.1.2 <i>Effects on Wildlife Movement, Distribution, and Abundance</i></li> </ul>
Effects to sensitive or important areas or habitat	<ul style="list-style-type: none"> <li>All known important environmental areas identified by Naha Dehe Dene Band and Parks Canada were avoided during the all-season road route design to preclude significant environmental effects.</li> <li>Section 7.1.1 <i>Effects from Direct and Indirect Habitat Loss and Alteration on Other Wildlife</i></li> <li>Section 7.1.2 <i>Effects on Wildlife Movement, Distribution, and Abundance</i></li> </ul>
Habitat fragmentation	<ul style="list-style-type: none"> <li>The all-season road will generally follow the approved winter road alignment. By this design, effects from habitat fragmentation were avoided to the extent possible.</li> <li>Section 7.1.2 <i>Effects on Wildlife Movement, Distribution, and Abundance</i></li> </ul>
Effects to predator-prey relationships	<ul style="list-style-type: none"> <li>Section 7.1.3 <i>Effects on Predator-Prey Relationships</i></li> </ul>
Attraction to predators of birds and bird eggs	<ul style="list-style-type: none"> <li>Section 7.1.2 <i>Effects on Wildlife Movement, Distribution, and Abundance</i></li> </ul>

## **APPENDIX 3**

June 16, 2015

Canadian Zinc Corporation  
Suite 1710, 650 West Georgia Street  
PO Box 11644  
Vancouver, BC V6B 4N9

ISSUED FOR USE

FILE: Y14103320-01

Via Email: david@canadianzinc.com  
alan@canadianzinc.com

**Attention:** David Harpley, VP Environmental & Permitting Affairs

**Subject:** Response to Adequacy Review of  
Developer's Assessment Report for Environmental Assessment, EA1415-01  
Proposed All-Season Road Access to Prairie Creek Mine, NT

## 1.0 INTRODUCTION

Tetra Tech EBA Inc. (Tetra Tech EBA) recently completed a geotechnical evaluation to support the regulatory approvals for a proposed all-season road from Northwest Territories Highway 7 near Nahanni Butte to the Prairie Creek Mine. We understand that our geotechnical report has been submitted as part of the Developer's Assessment Report (DAR) to support Canadian Zinc Corporation (CZN) in securing approval from the Mackenzie Valley Environmental Impact Review Board (MVEIRB), and that some deficiencies regarding the geotechnical aspects of the DAR have been noted in an adequacy review (AR).

This letter provides an overview of our assessment of the AR, some responses, as well as a suggested plan of action to help resolve remaining issues and develop some appropriate next steps.

## 2.0 OVERVIEW

Tetra Tech EBA observes that many of the items noted in the AR as being missing are in fact already covered in our work, and need only to be located and identified accordingly in the text of the DAR. Some other items are accounted for in the scope of other consultants. These items are summarized below in Section 3.0. We believe the appropriate time to address the remaining items is during the detailed design phase, and those items are summarized in Section 4.0 below.

We note that while Tetra Tech EBA can provide additional information to facilitate better understanding of the presently-available data, we believe the information provided is consistent with preliminary design, or a Pre-Feasibility Study (PFS), which we consider to be the appropriate level for environmental assessment. For example, a number of items are not appropriate at the PFS level and are better addressed as part of a Feasibility Study (FS) or detailed design. In particular, further fieldwork is considered unnecessary at the present time, but is required and will be very important at the detailed design stage.

## 3.0 EXISTING ITEMS TO BE IDENTIFIED IN THE DAR, OR ITEMS DONE BY OTHERS

As noted above, numerous items were identified in the AR as being missing; however, these have been presented in the DAR or its appendices, or have been done by others, and need only to be identified and located in the text. Examples are presented in the order discussed in the AR and include:

- Section 4.13 of AR: Location of borrow areas: Specific details on borrow areas were provided by Allnorth Consultant Ltd. (Allnorth). Tetra Tech EBA's scope included the review of borrow sites with potential

geotechnical issues. Our comments are intended to be of general use from a geotechnical perspective, with site-specific comments where we noted potential permafrost or slope stability issues as a result of our review of the adjacent road, or at locations we visited for those reasons. Allnorth's report should be referred to for details on the various borrow sites.

- Section 7.2 of AR: Existing topography – identification of geohazards:
  - Slope aspect: Slope aspect is not mentioned in the TOR. We do discuss it several times, where it is applicable to the field or air photo observations and relevant to anticipated permafrost performance or characteristics along the route.
  - Natural slope angle: Tetra Tech EBA has reported slope angles in percent, or as ranges (gentle, moderately steep, steep, or very steep as per mapping convention).
  - Likelihood of meanders and avulsions affecting route: The geotechnical team considered primarily the effects of potential avulsions, particularly those related to debris flows/floods. Terrain that is poorly vegetated was assumed to have the potential to avulse on a regular and continuing basis, whether it is a stream channel or an alluvial fan/cone. Even well-vegetated fans/cones can be unpredictable; therefore, the road route has been placed to reduce the likelihood or limit the length of the crossing potentially being overrun with debris (skirting the toe of the fan, or crossing near the apex, depending on mitigation requirements for other hazards). Detailed design will consider the need for and form of crossing protection, or alternatively conscious site-specific design decisions may be made to provide for repair or replacement in the event of damage.
  - Comprehensive landslide mapping: Appendix C of our report provides a station-by-station description/location of talus slopes, debris fans/cones, and landslides, including numerous photos.
  - Frequency and magnitude of landslide hazards: The study included the 1994 air photos, the 2012 LiDAR/imagery, and the 2014 field observations; see also further discussion in Section 4.0 below. Frequency and magnitude has been estimated at a PFS level.
  - Evaluation of large-scale slope instabilities between KP039 and KP060: Most of the obvious slope activity along KP039 to KP049 is associated with stream meanders; however, detailed design would require further investigation in areas of apparent risk or with factors that are not obvious. Visual indicators from the 2014 field work, e.g. old overgrown slope failures at KP050.4, show previous extents of instabilities, and these have been mapped on the figures. The largest failures along the original winter road route are avoided by this reroute. Further investigation would be undertaken for detailed design. See further discussion on air photos in Section 4.0 below.
  - Integration of surficial geology and slope angle data into terrain stability maps: We acknowledge that a map presentation format may be helpful for the reader. It is noted that terrain stability related features are summarized in our Appendix C, in a station-by-station descriptive format.
  - Calibration of terrain stability analysis by “assessing the performance of previous clear cutting operations and road construction in relation to the surficial geology and slope angle.” Such a comparison may be of some use at the west end of the route, where there is already a partially-built road grade along much of the route, and accordingly we have noted several areas with apparent performance issues. These would need to be detailed and dealt with on a site-specific basis for detailed design. The west end of the route is also sparsely wooded, for the most part, particularly the mountainous portions, so some features may be less obvious than they would be in an area that is more thickly treed, while other features may be more obvious if there are differences in soil/rock colour on the aerial coverage. For much of the remaining route, as we have noted in

the report, the performance of a winter road is not particularly representative of the performance of an all-season road, and is therefore not considered a reliable predictor for the performance of an all-season road. As we have also noted, past performance is not necessarily representative of future performance, due to the continuing influence of climate change.

- Details of road design modifications to mitigate rock fall risk: As was noted in Golder's report (2010), this step is recommended for detailed design. We have recommended various locations where the highest risk areas can be avoided, and the route alignment has been changed accordingly by Allnorth. For locations where realignment is not possible or anticipated to be inadequate to sufficiently reduce the risk, we have recommended that engineering and/or administrative controls be implemented.
- Section 7.3 of AR: Unconsolidated surficial materials:
  - Mapping is recorded in a station-by-station tabular format with photos in Appendix C. Overlay map with findings of surficial geology mapping (Hawes 1975, DMAL 1995): Hawes' mapping would be relatively straightforward to add as a layer in Allnorth's database, while DMAL's mapping is a station-by-station description that would require modification for consistent presentation.

## 4.0 RESPONSE TO DEFICIENCIES NOTED IN THE AR

The following items summarize our response regarding several items specifically mentioned as deficient and requiring additional work:

- Section 4.12 of AR: Bedrock type and depth:
  - Conducting geotechnical drilling at the bridge locations to identify bedrock depth is excessive for a DAR at the PFS level, and unnecessary. We note that there are plenty of other feasible foundation types that do not rely on a bedrock foundation, and not all bridge locations will be well-suited to foundations on bedrock in any case. In some cases where bedrock outcrops are noted, or near-surface bedrock is anticipated, foundations on bedrock may be a logical solution. In contrast, locations with great thicknesses of coarse-grained glaciofluvial deposits may be ideal for foundations on non-frost-susceptible granular soils. Detailed geotechnical investigations should be carried out at the proposed bridge locations in support of a Feasibility level Study (FS) to enable detailed design.
- Section 7.2 of AR: Existing topography – identification of geohazards, and Section 7.4 Soil types:
  - The level of detail requested in the AR for permafrost and karst hazard mapping between KP048 and KP059, and the predicted spatial extents of the various soil types along the entire route, would require a detailed geotechnical field investigation of the entire route, complete with extensive geotechnical drilling, carried out with the appropriate track-mounted and/or heli-portable equipment in order to reliably achieve the desired depths of investigation. Sufficient information is currently available to comply with the TOR and assess impacts and risks, based on the existing mapping and ground-truthing. A more detailed geotechnical program is certainly warranted to support the detailed design, particularly to further delineate site-specific areas of concern identified during the PFS phase, but is considered excessive and inappropriate at the current level of evaluation. It should be noted that the road alignment was adjusted in many locations to avoid the visually obvious permafrost and karst terrain features identified during both terrain mapping and field inspections carried out in 2014. We consider our understanding of the terrain and processes at this time to be sufficient to anticipate that an all-season road can be built on the selected general alignment without significant impacts, subject to subsequent detailed field investigation, detailed design, and the incorporation of appropriate mitigations.

- Section 7.3 of AR: Unconsolidated surficial materials:
  - Overlay map with findings of surficial geology mapping (Hawes 1975, DMAL 1995): Hawes covers most of the route, with transitions along route fine-tuned by Tetra Tech EBA's air photo review. The northwestern 65 km of the route is mostly covered by DMAL's mapping, with the Polje reroute not on either Hawes or DMAL. The Polje reroute was reviewed by others during EA0809-002 (Golder, SNC-Lavalin, 2010), whose findings we have taken into account. Available mapping was also supplemented with field observations. Hawes' mapping should be relatively straightforward to add as a layer in Allnorth's database, while DMAL's mapping is a station-by-station description that would require modification for consistent presentation.
  - Terrain maps for the alignment: Detailed terrain maps would be best prepared in conjunction with the confirmatory site investigations and additional ground-truthing associated with detailed design.
- Section 7.5 of AR: Stability of landforms with respect to permafrost:
  - The AR noted that additional air photo analysis could have been carried out for the project, and specifically mentioned the use of multiple years of coverage for analysis. Indeed, when multiple years of coverage are available, it is often possible to follow the progression of thaw slumps/flows or rock/landslides.
  - Tetra Tech EBA reviewed the available 1994 air photo coverage and 2012 LiDAR/imagery coverage, as well as characteristics observed on site in 2014, to compare slope behaviour over time at locations identified to be of concern. These comparisons were particularly helpful in areas where it appeared that permafrost might be affecting slope behaviour, and are discussed as applicable to each road section in the text. We considered the more recent coverage to be the most relevant with respect to permafrost and the increasingly visible effects of climate change. We further note that this comparison provides a 20-year interval of observation, equivalent to the projected 14-year interval of operations and 6-year closure time.
  - Going further back in time would not have afforded greater analytical capability with the available coverage. We note that the 1994 coverage at 1:20,000 scale is already at the limit of utility with respect to identifying geohazards at a scale useful for route optimization. At this scale, some features are not readily visible, a fact noted also by J.D. Mollard and Associates Ltd. during their mapping of the winter road. Most of the available coverage in this area is at similar or higher levels, with typical scales ranging from 1:20,000 to 1:60,000. Carrying out a slope retrogression analysis on the air photos at this scale without georeferencing would likely result in errors of measurement greater than the distance to be measured, if the features could be identified at all. Most of the lower level coverage is in the immediate vicinity of Nahanni Butte or the Liard Highway, though there are a very few isolated coverage areas near the route that will be further evaluated during detailed design.
  - Retrogression analysis and/or semi-quantitative analysis, depending on the type of slope movement, would also be considered for detailed design.
  - We note that with the benefit of the 1994 air photos, the 2012 imagery and LiDAR, and the 2014 field work, as well as the findings from previous air photo analysis and field work by others in 2010, the project team was able to align the proposed road to avoid several significant areas of geohazard. These include the Polje area, where the winter route through intense karst terrain was avoided, and some important sections for a less-hazardous route on the north side of the Polje Creek drainage, which were ground-truthed in order to fine-tune the route, thus avoiding several sinkhole- and/or slope-related geohazards. Similarly, a combination of air photo review and ground-truthing assisted in the re-alignment of a challenging route section on the west side of the Silent Hills, again avoiding sinkholes, and also avoiding the most problematic

potential/existing debris-flow terrain. As mentioned in the report, continued route optimization and planning of design mitigations will be possible at the detailed design level.

- Inferred significance of elevation, slope aspect and slope angle to the ground temperature regime and the presence of permafrost: These and related parameters as applicable to each road section have been discussed along the route. Discussions on permafrost are presented in three places in Tetra Tech EBA's report (Appendix 2 of the DAR). For items specific to a road section, see the permafrost discussion in that road section. For the permafrost discussion relevant to the entire route, see the overall permafrost section (Section 5.4). For climate change considerations, see Section 6.0.
- Consideration of potential climate change effects in relation to variations in altitude and slope aspect along the route. See sections noted above.
- Section 14.4 Effects from water crossings: Site-specific design details and mitigations would ideally be prepared at the time of detailed design of the overall road and the stream crossings, when more site-specific information is available. For the purpose of the preliminary design, and given a set of likely outcomes if ice-rich permafrost is encountered at specific points along the route, typical strategies have already been outlined to mitigate those outcomes. When detailed site information becomes available, appropriate fill thicknesses, and measures including geotextile and/or corduroy to support road grades and protect the underlying soils will be designed on a site-specific basis. Similarly, stability and erosion protection measures will be designed in accordance with site-specific crossing structure requirements and local conditions.
- Section 22.1 of AR: Fires: Effects of fires on permafrost are discussed in numerous places in Tetra Tech EBA's report, in specific road sections and in Section 5.4 Permafrost. Additional observations are recorded in Appendix C.
- Section 22.2 of AR: Changes to permafrost and subsidence: Consideration of these items is included in the Landslides / Ground Movements column in the Risk Matrix Summary in Tetra Tech EBA's report Table 7.2.2.-1. If these items are now required to be noted separately, they would have to be broken out. Clarification would be required prior to incorporation of the table into a map series.
- Section 25: Required draft or conceptual plans: Provision of completed management plans at the PFS level may be premature, since the detailed design will have a significant influence on the requirements for each of those plans. For example, there will be many locations at which erosion protection design and/or the maintenance of natural overland surface water drainage will be important, and the Sediment and Erosion Control Plan (SECP) will take these areas into account. Precise details of the SECP and the corresponding monitoring program will be developed as the detailed design is developed. However, generic mitigation approaches for given situations can be described at this time.

## 5.0 RESOLVING ISSUES AND PLANNING NEXT STEPS

Tetra Tech EBA would be pleased to meet with MVEIRB staff and their consultant in order to convey our understanding of the project, help resolve remaining issues, and develop some appropriate next steps for the project team.



## 6.0 CLOSURE

We trust this summary meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,  
Tetra Tech EBA Inc.



Prepared by:  
Rita I. Kors-Olthof, P.Eng., P.E.  
Senior Geotechnical Engineer, Arctic Region  
Engineering Practice  
Direct Line: 403.763.9881  
Rita.Kors-Olthof@tetrattech.com



Reviewed by:  
Kevin Jones, P.Eng.  
Vice President, Arctic Development  
Engineering Practice  
Direct Line: 780.451.2130 x271  
Kevin.Jones@tetrattech.com

/KLA



## **APPENDIX 4**

Telephone Conversation **X**

Face-to-Face Meeting

Other

**Participants:** Knight Piesold/McElhanney (KP)  
- Doug Grimes, James Haley, Ryan Stinson, Bill Cheung  
Allnorth Consultants Ltd. (Allnorth) – Ernie Kragt, Don Watt  
Tetra Tech EBA – Rita Kors-Olthof, Kevin Jones

**Date:** June 12, 2015

**File:** Y14103320-01.002

**Subject:** Discussion of Adequacy Review (AR) for Developer's Assessment Report (DAR)  
Prairie Creek All-Season Access Road, NT  
ISSUED FOR REVIEW

**Notes:**

- Summary of Tetra Tech EBA Remarks:
  - Tetra Tech EBA observed that the AR is asking for more than the provided Pre-Feasibility Study (PFS) level of detail.
  - Tetra Tech EBA pointed KP towards locations in the DAR (specifically Tetra Tech EBA's report) to find various items identified by MVRB as not being present. Tetra Tech EBA also noted that borrow site details were provided by Allnorth, while Tetra Tech EBA provided overall geotechnical remarks with site-specific comments for sites where potential permafrost or slope stability issues were noted;
  - Tetra Tech EBA observed that more visual presentation was being requested, including mapping of items presented to date in text form, for example, data such as slope angles. Tetra Tech EBA acknowledged that mapping would simplify the presentation and provide the information in an easier format to follow;
  - Tetra Tech EBA and Allnorth acknowledged that while alternative routes had been evaluated, only the chosen route was presented. It was noted that there would be some value in MVRB being able to visualize the process of route finding/elimination, as an evaluation of alternatives.
  - Tetra Tech EBA noted that additional air photo work may not provide more info, particularly in regards to performance of permafrost, as some of the behaviours now seen in permafrost are likely a result of climate change, especially in the last 20 years. Low level air photos do not exist for much of the route. Tetra Tech EBA acknowledged KP's suggestion to confirm the availability and utility (dates and scales) of additional air photos;
  - Tetra Tech EBA noted that it was excessive to require bedrock type and depth for all bridges, considering that this might not be the most desirable foundation type at all the bridges. KP (Doug Grimes) conceded this, noting that many resource roads are not subject to any drilling;
  - Tetra Tech EBA (Kevin Jones) reminded KP that the proposed all-season road essentially follows an already-permitted road, albeit a different type of road – winter road vs. all-season road. KP (Doug Grimes) thought

Tetra Tech EBA Inc.

Box 2244, 201, 4916 - 49 Street  
Yellowknife, NT X1A 2P7 CANADA  
Tel 867.920.2287 Fax 867.873.3324

this [implications of prior approval] would be a question for MVRB. Tetra Tech EBA noted that work was concentrated on areas that deviate from the permitted winter road to avoid geohazards, or to find terrain more appropriate to an all-season road. Tetra Tech EBA believes that the level of evaluation undertaken should be recognized as appropriate along an already-permitted winter road.

- Tetra Tech EBA did not consider that a feasibility level of effort would be necessary at this stage, and had not anticipated the evaluation requiring the effort of an EIA. It is understood from KP that the same level is required for a DAR as for an EIA;
- Tetra Tech EBA noted that more info seems to be required for this small resource road compared to the requirements for the Mackenzie Valley Highway. Tetra Tech EBA recognized that some requirements may be additional due to the NNPR. KP asked if it was the same regulator, and Tetra Tech EBA said it is.

▪ Summary of KP Remarks:

- KP states that the level of design expected in the DAR is at Feasibility Study (FS) level, not the PFS level. KP and Tetra Tech EBA may have to agree to disagree (Doug Grimes);
- MVRB has said what they want to see [in the AR], so that's not for KP to say, but they would pass along comments/discussion to MVRB from this meeting (Doug Grimes);
- Road route should be completely pinned down by the time of the FS (and hence the DAR) in KP's opinion;
- KP noted that there was not a systematic way of reporting data such as slope angles.
- KP (James Haley) felt more air photo review and more surficial geology/slope angles/terrain stability mapping was required;
- KP (James Haley) wants focus on terrain stability, with terrain stability mapping for "post-construction" scenario – i.e. effect of road on environment, with mapping of polygons up to 1-2 km out from the road (corridor mapping);
- KP noted that historical air photo mapping up to the full catchment height would help to evaluate the potential effect of terrain on the infrastructure. In particular, KP brought up the potential for thaw retrogression towards the road;
- KP (James Haley) was also concerned with meanders and avulsions. Tetra Tech EBA noted that the riskiest terrain associated with avulsions was avoided with various realignments. The flatter terrain and larger trees associated with meandering streams, and a relatively short 20-year project timeframe, are mitigating factors for crossings of meandering streams. However, KP would like stream meander progression mapping with historical air photos to be sure that bridges are in the best locations;
- KP (James Haley) was also concerned about surface expression of karst along the route. He felt that a greater level of confidence was needed in the rock where karst features might be close to the surface;
- KP (Doug Grimes) suggested that Tetra Tech EBA do further review of air photo availability to see if there is additional information and, even if there turns out not to be more useful info, to report that to MVRB.

## **APPENDIX 5**

## REVIEW COMMENT TABLE

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## MVEIRB Draft Terms of Reference for CanZinc's Proposed All Season Road and Airstrip Project (MVEIRB)

**File(s):****Proponent:** CanZinc Corporation**Reviewer Comments Due By:** Aug 15, 2014**Proponent Responses Due By:** Aug 27, 2014**Documents:** [MVEIRB Draft Terms of Reference for CanZinc's Proposed All Season Road and Airstrip Project](#) 1.2MB**Item For Review Distributed On** July 31 at 16:28 [Distribution List](#)**Item Description**

This document is the Review Board's Draft Terms of Reference for the Prairie Creek All Season Road and Airstrip.

Files related to EA1415-01 can be found on the Review Board public registry:

[http://www.reviewboard.ca/registry/project.php?project\\_id=680](http://www.reviewboard.ca/registry/project.php?project_id=680)

**General Reviewer Information**

The Review Board has reviewed the

- *Developer's Proposed Terms of Reference,*
- comments on the *Developer's Proposed Terms of Reference,* and
- comments gathered during the scoping sessions in Nahanni Butte, Fort Liard, Fort Simpson, and Yellowknife.


Using this information, the Review Board has produced a *Draft Terms of Reference* for the proposed Prairie Creek all season road and airstrip project. Reviewers are asked to provide comments on the *Draft Terms of Reference*. Party comments are due by **Friday August 15, 2014** and comments from Canadian Zinc are due by **Wednesday August 27, 2014**. (The comment deadline date for Canadian Zinc has been extended from Friday August 22 to Wednesday August 27 based on a request by Canadian Zinc to accommodate its consultants' schedules). The comments on the *Draft Terms of Reference* will be considered by the Review Board before it issues its final *Terms of Reference* for the proposed project.

All information for this project will be placed on the Review Board public registry. Please sign up to the Review Board's email subscription to receive a link to new documents for EA1415-01.

<http://www.reviewboard.ca/subscriptions/>

The lead contact is Sachi De Souza, (867) 766-7054 [sdesouza@reviewboard.ca](mailto:sdesouza@reviewboard.ca)

**Contact Information** Sachi De Souza**Comment Summary**


CanNor NWT Region: Marie Adams				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Response
16	General File	<b>Comment</b>  Environment Canada Cover letter (as part of Govt of Canada submission) <b>Recommendation</b> GENERALFILE		
1	Government of Canada: Comments on MVEIRB Draft Terms of Reference, Canadian Zinc Corporation Environmental Assessment (File: EA1415-01)	<b>Comment</b> None <b>Recommendation</b> None		
2	Fisheries and Oceans Canada ("DFO") General: DFO has reviewed the Draft Terms of Reference and have determined that it adequately addresses points related to fish habitat and fishery	<b>Comment</b> None <b>Recommendation</b> None		

		Valley, with a focus on the Dehcho region." However, the definition of the geographic scope for employment and business opportunities in Table 2, Section 3.3, states: "The Dehcho region as a whole with particular attention to Nahanni Butte, Fort Liard, Fort Simpson, Wrigley and Lindberg Landing." <b>Recommendation</b> Recommendation(s): 23) MVEIRB change the definition for geographic scope for employment and benefits to the community to that agreed upon by the Developer and GNWT, which reads as: "The economy of the Mackenzie Valley, with a focus on the Dehcho region."		
15	Topic Title: Employment and Benefits to the Community, Section 7.3.11	<b>Comment</b> Comment(s): • The GNWT would like to include a specific reference to the potential for "increased" tourism opportunities in the project region from all-season access. <b>Recommendation</b> Recommendation(s): 24) Numbered bullet 12, Section 7.3.11, be revised to "effects on tourism activities (including potential opportunities for increased tourism) in the region from all season access".	<b>Aug 27:</b> We agree.	<b>Sep 12:</b> Amended as recommended.
16	Topic Title: Guidelines for Monitoring and Management Plans, Appendix C, AANDC page 40	<b>Comment</b> Comment(s): GNWT notes the 2007 Mine Site Reclamation Guidelines listed under the Aboriginal Affairs and Northern Development Canada heading in Appendix C has been superseded by the 2013 Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories, which is listed under the Mackenzie Valley Land and Water Board heading in Appendix C. <b>Recommendation</b> Recommendation: 25) Reference to the 2007 Mine Site Reclamation Guidelines be removed from the TOR.		<b>Sep 12:</b> Amended as recommended.
17	Topic Title: Encouragement to Review Certain Key Documents in Development of DAR	<b>Comment</b> Comment(s) only: When developing the DAR, GNWT encourages the Developer to review the Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the Northwest Territories (2009), Mine Site Reclamation Policy for the Northwest Territories (2002), and Guidelines for Spill Contingency Planning (2007). <b>Recommendation</b> Comment only; no recommendation.		
18	Topic Title: Tetcela Transfer Facility and Surrounding Territorial Areas	<b>Comment</b> Comment(s) only: Environment Canada, in its review of the TOR, has made a recommendation for a subsection to be added to Section 7.2.3 to include the full scope of the proposed Tetcela Transfer Facility and require a summary of any changes to footprint and environmental impacts in comparison to the already-assessed facility design. While the Tetcela Transfer Facility is within federal jurisdiction, any changes to its design and/or use have the potential to affect areas within GNWT jurisdiction. As a result, GNWT supports the Environment Canada above-noted recommendation. <b>Recommendation</b> Comment only; no recommendation.		
<b>Mackenzie Valley Environmental Impact Review Board: Sachi De Souza</b>				
<b>ID</b>	<b>Topic</b>	<b>Reviewer Comment/Recommendation</b>	<b>Proponent Response</b>	<b>Board Staff Response</b>
13	General File	<b>Comment</b>  This letter was written by BGC Engineering Inc to CanZinc, and it pertains to the content in the Draft Terms of Reference, specifically section 5.1.1. <b>Recommendation</b> GENERALFILE		

1	The following comments were submitted by Canadian Zinc Corporation	<b>Comment</b> None <b>Recommendation</b> None		
2	Section 1.4, information sources	<b>Comment</b> The section does not provide an information source to explain the origin of the contents of section 5.1. <b>Recommendation</b> Provide an information source to explain the origin of the contents of section 5.1.		<b>Sep 12:</b> The Board has expectations regarding certain information for projects of a similar nature. The level information and detail is dependent on the geographic scope, temporal scope, and scale.
3	Section 1.4, legal context	<b>Comment</b> The extensive legal and regulatory history of the access road in the Developer's version was deleted in its entirety. This included a Supreme Court decision, and a Review Board ruling regarding scope in the winter road EA. This provides relevant context to the current EA. <b>Recommendation</b> Re-insert the extensive legal and regulatory history of the access road from the Developer's TOR.		<b>Sep 12:</b> Please refer to the Reasons for Decision on Scoping which will be released shortly.
4	Section 5.1	<b>Comment</b> The content of section 5.1 was changed radically from that contained in the Developer's TOR, and after detailed review, comment and response, including during the Technical Session in Yellowknife. It appears that the original section was deleted and replaced completely by the section 5.1 contained in the TOR for the Wrigley to Inuvik all season road EA. That road would be a public highway, and would extend to high northern latitudes, much further north than the Prairie Creek access road. As such, we have significant concerns regarding both the manner in which the change in the section was made, and in the appropriateness of the scope and content of the new section. <b>Recommendation</b> The Review Board should review the process taken to completely change section 5.1 at such a late stage in the scoping process, and should review in detail the scope and content of the section to ensure it is appropriate for the Prairie Creek access road which will be very different from the Wrigley to Inuvik road, and will be close to the 60th parallel.		<b>Sep 12:</b> The Board has expectations regarding certain baseline information for projects of a similar nature. The level information and detail is dependent on the scale and scope of the development.
5	Section 5.1.1	<b>Comment</b> We are particularly concerned that this section, drawn from the Wrigley to Inuvik all season road TOR, is not appropriately scoped for this EA. We asked BGC Engineering to review the scope of this section and provide recommendations. Their letter of review is attached. <b>Recommendation</b> BGC provided the following recommendations: precede the descriptions of items 6, 14 and 15 with the word "probable"; reword item 12 to read "probable distribution on land, water, shoreline and slope crossings". In addition, we recommend that the BGC letter be referred to in the section as a source of additional context for the assessment, and be included in the TOR as an appendix.		<b>Sep 12:</b> The information provided by BGC is appreciated and should be submitted as evidence with the DAR to support the findings. The word "probable" has been added as requested.
6	Section 5.1.2	<b>Comment</b> Item 7 is a repeat of item 1. <b>Recommendation</b> Delete item 7.		<b>Sep 12:</b> Amended as recommended.
7	Section 5.1.3	<b>Comment</b> Item 12 is the same as item 12 in section 5.1.1 <b>Recommendation</b> Delete item 12.		<b>Sep 12:</b> Deleted item 12 from Section 5.1.3 and it is now listed in Section 5.1.1
8	Section 5.1.4 item 9, section 5.1.5 item 7, section 5.1.6 item 10,	<b>Comment</b> We have a number of concerns regarding the request for baseline contaminant concentrations in biota. First, we don't believe		<b>Sep 12:</b> "Existing data" has been added.

	section 5.1.7 item 6.	<p>this request is appropriate given the Prairie Creek access road will not be a public highway with high traffic load. Second, the request implies that there is an expectation of contamination associated with the road which is not credible. The concentrates CZN proposes to haul on the road will be in sealed bags inside truck boxes with sides and tarpaulin covers. This is the commitment stemming from the winter road EA. In addition, CZN committed to sampling road bed soils at regular time intervals to confirm that soil quality is not being negatively affected i.e. confirm no concentrate losses. Assuming this is the case, then there is a very low potential for biota to be affected. Simply put, there is no need for, and it is premature to require, the collection of this baseline data. Thirdly, collection of the data creates impacts in itself. This has been noted by the GNWT for wildlife. The same is true for fish which are in low abundance in the low productivity streams being crossed. We believe the correct approach, as suggested by the GNWT, is to only require the presentation of EXISTING data on baseline contaminant concentrations. At the conclusion of the EA, if the project is approved, the Board, if it desires, can still require the collection of this data prior to project initiation.</p> <p><b>Recommendation</b> In section 5.1.4 item 9, section 5.1.5 item 7, section 5.1.6 item 10 and section 5.1.7 item 6, insert the words "existing data on" at the start of each item.</p>		
9	Section 5.1.5, item 9	<p><b>Comment</b> We provided Review Board staff with aerial imagery to show that the proposed all season road alignment does not cross any wetlands associated with Bluefish Creek, nor any tributary of the creek itself. The alignment remains entirely within the Grainger River system as it crosses the lowlands between the Silent Hills to the west and the Front Range to the east.</p> <p><b>Recommendation</b> Delete Bluefish Creek.</p>		<b>Sep 12:</b> Potential impacts to Bluefish creek are required to be assessed.
10	Section 6.1, 2nd line	<p><b>Comment</b> The Tetcela Transfer Facility is already permitted, and the Liard Transfer Facility is not part of the scope of development.</p> <p><b>Recommendation</b> Reword the start of the line to read "construction and operation of an expanded Tetcela Transfer Facility".</p>		<b>Sep 12:</b> Amended as recommended.
11	Section 6.1, bullets starting on p. 19	<p><b>Comment</b> Item 29 is the same as item 2.</p> <p><b>Recommendation</b> Delete item 29.</p>		<b>Sep 12:</b> Amended as recommended.
12	Section 7.3.7, item 8	<p><b>Comment</b> See comment for section 5.1.5 above.</p> <p><b>Recommendation</b> Delete Bluefish Creek.</p>		<b>Sep 12:</b> Potential impacts to Bluefish creek are required to be assessed.

#### Naha Dehe Dene Band: Peter Redvers

ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Response
9	General File	<p><b>Comment</b>  (Submitted after Due Date)</p> <p>Supporting Letter</p> <p><b>Recommendation</b></p>		
1	Naha Dehe Dene Band Comments on August 14th, 2014 Draft Terms of Reference for CZN DAR for All Season Road and Airstrip -- EA1415-01	<p><b>Comment</b> None</p> <p><b>Recommendation</b> None</p>		
2	Overall Scope of Terms of Reference	<p><b>Comment</b> NDDDB is generally satisfied with the overall scope of the terms of reference and the fact that it will result in a 'stand-alone' DAR</p>		