August 2, 2010

Yukon Zinc Corporation
Suite 701, 475 Howe Street
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Attention: Mr. Chiew Yeo, Manager – Design Engineering

Subject: 2010 Annual Inspections of the On-site Earth Structures
Wolverine Mine Site, South Eastern Yukon

1.0 INTRODUCTION

As requested by Yukon Zinc Corporation (YZC), EBA Engineering Consultants Ltd. (EBA) has completed the 2010 annual inspections of the earth structures located throughout the Wolverine Mine site (shown on Figure 1). YZC identified the following areas as requiring inspection:

1. Industrial Complex – cut and fill slopes.
2. Industrial Complex Surface and Underground Water Treatment Sumps (1, 2, 3, 4 and 5) - liners and slopes.
3. Industrial Complex Diversion Ditch 1 – cut and fill slopes.
4. Industrial Complex Collection Ditches (2, 3, 4 and 5) – liners, cut and fill slopes.
5. Mine Camp Pad Area including upper generator and water treatment pad, sewage treatment plant pad, and treated effluent pond – liner, cut and fill slopes.
6. Temporary Waste Rock and Ore Storage Facility including seepage collection sump and ore waste stockpiles contained within the facility – cut and fill slopes.
7. Land Treatment Facility (Hydrocarbon Contaminated Material) including runoff collection sump – liners and fill slopes.

2.0 SCOPE OF SERVICES

It is understood that YZC requires an annual inspection of structures, works, and installations at the site as per Quartz Mining Licence QML-0006.
EBA scope of service for this annual inspection was as follows:

- Completed a visual inspection of the earth structures associated with each area of interest.
- Compiled a photo log for each area of interest.
- Prepared an inspection report with a brief statement about the status and stability conditions for each area of interest, and any recommendations for remedial action.

3.0 FIELD INSPECTION

The field inspection was completed by Mr. Chad Cowan, P.Eng. of EBA between June 19 to 21, 2010. The following is a brief inspection summary detailing any stability issues including a few photos of each area.

3.1 INDUSTRIAL COMPLEX

During the inspection of this area there was on-going construction, mostly associated with the interior of the industrial buildings. This construction did not impede EBA from inspecting the cut and fill slopes for the Mill, Fuel Tank Farm and Genset Pad locations.

The 1:1 (H:V) design cut slopes in the bedrock for these areas are considered stable.

EBA inspected the fill slope along the south western sides of the Mill, Fuel Tank Farm and Genset Pad locations. The fill slopes associated with the fill placement are considered stable and are constructed as per the 2:1 (H:V) design. There are some noticeable erosion channels along the south western side of the Mill fill that were created during the spring freshet (melt-water run-off). Proper perimeter berms and site grading should be completed to divert surface runoff towards designated drainage ditches. Until this final grading occurs the erosion channels should be filled in with coarse grained material.

During the 2009 summer a Mechanically Stabilized Earth (MSE) wall was constructed along the western portion of the south western side of the Mill fill. During the 2010 inspection EBA noted that there were no signs of bulging or noticeable zones of failure.
3.2 INDUSTRIAL COMPLEX SURFACE AND UNDERGROUND WATER TREATMENT SUMPS (1, 2, 3, 4 AND 5)

The foundations for all five sumps were inspected and EBA determined that there were minor issues requiring repair in Sumps 1 and 3. 

Sumps 1, 2 and 3 were constructed prior to 2009 and are situated within covered enclosures. As noted in the 2009 report all three sumps had noticeable settlement of the backfill along the perimeter liner key trench and buried propane lines - in some areas up to 150 mm of settlement. During the 2010 inspection this settlement is still noticeable along the perimeters of all three sumps. This settlement is an indication that the key trench and
buried propane line backfill material was not compacted to specification during placement. YZC was informed again of these conditions and should carry out repairs as soon as possible. All three sumps had varying amounts of water during the time of the inspection; Sump 1 was 30% full, Sump 2 was 50% full, and Sump 3 was 100% full. So it was possible to see the condition of the liner for both Sumps 1 and 2.

During the inspection of Sump 1 EBA noticed a bubble in the liner along the south eastern perimeter near the southern corner. This bubble is likely from the high water table in the area. YZC should continue to monitor this area for any increase in size of the bubble of the liner.

During the inspection of the Sump 2 there were no noticeable bulges in the exposed portion of the liner.

During the inspection of Sump 3 it was not possible to inspect for any bulges as the Sump was full of water, but there was an area along the liner key trench in the southern corner that was slumping. This area had been temporary repaired. When the water level within the pond is drawn down this area it should be properly repaired.

Sumps 4 and 5 were constructed in spring 2009 and still remain uncovered. During the 2010 inspection there was no noticeable settlement of the key trench along the perimeter of each sump. During the 2010 inspection both Sumps 4 and 5 were full of water. Both liners were not able to be inspected but from what was visible there was no noticeable slumping or bulging.

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**Photo 5:** Looking SW along south eastern side of Sump 1. Notice the bulging of the liner. (June 19, 2010)

**Photo 6:** Looking south from the entrance to Sump 2. (June 19, 2010)
3.3 INDUSTRIAL COMPLEX COLLECTION DITCHES (1, 2, 3, 4 AND 5)

It was noted in the 2009 report that along the upper slope of Ditch 1, frozen coluvium material was exposed and allowed to thaw, which caused failure and sloughing of the slope. YZC completed temporary repair to reduce any further damage to the affected area. This repair work consisted of excavating the sloughed material, and covering the slope with geotextile and rock. During the 2010 inspection of this slope, EBA noted that there were no instability issues associated with the previous year’s repair work. YZC should continue to monitor this slope and if there are any signs of possible failure of the slope an assessment by a qualified engineer should be completed.
There were sections of the ditch that were lined with non-woven geotextile but for the most part the ditch remains unlined. There were small amounts of debris or slough from the upper slope deposited in the bottom of the ditch. In the future and as required this material may have to be removed to allow for continuous water flow along the ditch bottom. Ditch 2 was inspected and only a portion of the ditch along the lower section between the Mill building location and the lower by pass road was lined. There were no issues noted with Ditch 2. Ditch 3 was inspected and EBA noted that there was a lot of sediment in the bottom of the ditch. This sediment will have to be removed from Ditch 3 to allow for proper flow of runoff. During the inspection, tension cracks were identified along the upper portion of the outer slope of Ditch 3. These tension cracks should be filled to reduce the amount of water infiltration which may lead to instability of the embankment.

The liner for Ditch 4 was inspected and EBA noted that there were many small tears or punctures of the liner along both side slopes of the ditch. YZC mentioned that these tears and punctures occurred while removing the accumulated snow prior to the spring run-off. The base of the liner appeared to be undamaged but the side slopes will require repair. During the 2009 inspection, along Ditch 4, it was noted that there was a large tension crack along the western down slope between STA 0+070 and STA 0+170. In 2009 YZC repaired this area but during the 2010 inspection the large tension crack was noticeable again. Additional repair work will be required to fill in the noticeable depression. Further up the ditch EBA identified other areas of concern associated with erosion channels and tension cracks near the crest of the down slope side. These erosion channels and tension cracks should be filled in to reduce the amount of water infiltration, which may lead to instability of the embankment.

Ditch 5 was inspected and there were no noticeable issues.

**Photo 11:** Looking NW at upper section of Ditch 1 located along the north eastern hill side slope behind the Mill location. (June 19, 2010)

**Photo 12:** Looking SW at the Ditch 2 alignment from the Mill location down to the lower bypass road. (June 19, 2010)
### 3.4 **MINE CAMP PAD AREA INCLUDING UPPER GENERATOR AND WATER TREATMENT PAD, SEWAGE TREATMENT PLANT PAD AND TREATED EFFLUENT POND**

The 2:1 cut and 1.5:1 fill slopes for the camp pad, upper generator and water treatment pad, sewage treatment plant pad, and the treated sewage effluent pond were inspected and all of the slopes were considered stable.

There were some noticeable tension cracks along the perimeter of the fill slope of the Camp, Upper Generator and Water Treatment pads. Similar cracks were noted in the 2009 inspection report. As mentioned in the report these areas should be monitored and repaired as required.

During the 2010 inspection the treated effluent pond was empty allowing for full inspection of the liner. There were no indications of slumping or bulging of the liner. The perimeter exterior fill slopes were also inspected and there were no noticeable signs of instability.
3.5 TEMPORARY WASTE ROCK AND ORE STORAGE FACILITY

All of the cut and fill slopes were inspected and considered stable. The collection sump was also inspected and at the time was full of runoff water. There were no noticeable signs of instability.
3.6 LAND TREATMENT FACILITY (HYDROCARBON CONTAMINATED MATERIAL) INCLUDING RUNOFF COLLECTION SUMP

The berms and the liner were inspected and there was no noticeable deterioration of the berms or damage to the exposed liner. The land treatment facility was 40% to 45% full of hydrocarbon contaminated material and the collection sump was about 50% full.
3.7 VENT RAISE AND PROPANE TANK PAD

The 2:1 cut slopes for the vent raise and propane tank pad were inspected and all of the slopes were considered stable.

Photo 23: Looking SE at the cut slope along the backside of the propane tank pad. (June 19, 2010)

Photo 24: Looking north at the cut slope above the location of the Vent Raise outlet. (June 19, 2010)

4.0 CONCLUSIONS

EBA has concluded that all of tension cracks, sloughing, bubbling liner, erosion channels, areas of settlement associated with the on-site earth structures pose no significant risk to the environment or human health and safety. These areas if interest should still be monitored frequently and repaired as required.
5.0 CLOSURE

This report and its contents are intended for the sole use of YZC and their agents. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than YZC, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in the General Conditions attached.

Yours truly,
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GEOTECHNICAL REPORT – GENERAL CONDITIONS

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of EBA’s Client. EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA’s Client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA’s instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA’s instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. EBA’s instruments of professional service will be used only and exactly as submitted by EBA.

Electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client’s current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. EBA does not represent the conditions illustrated as exact but recognizes that variations will exist.

Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.
7.0 SURFACE WATER AND GROUNDWATER CONDITIONS
Surface and groundwater conditions mentioned in this report are those observed at the times recorded in the report. These conditions vary with geological detail between observation sites; annual, seasonal and special meteorologic conditions; and with development activity. Interpretation of water conditions from observations and records is judgemental and constitutes an evaluation of circumstances as influenced by geology, meteorology and development activity. Deviations from these observations may occur during the course of development activities.

8.0 PROTECTION OF EXPOSED GROUND
Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

9.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES
Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

10.0 INFLUENCE OF CONSTRUCTION ACTIVITY
There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

11.0 OBSERVATIONS DURING CONSTRUCTION
Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

12.0 DRAINAGE SYSTEMS
Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

13.0 BEARING CAPACITY
Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

14.0 SAMPLES
EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client’s expense upon written request, otherwise samples will be discarded.

15.0 INFORMATION PROVIDED TO EBA BY OTHERS
During the performance of the work and the preparation of the report, EBA may rely on information provided by persons other than the Client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.