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GOVERNMENT OF YUKON
FORMER CLINTON CREEK ASBESTOS MINE - Long Term Performance Monitoring - 2006

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UMA Project No. 6029 008 00 (4.6.1)

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UMA Project No. 6029 008 00 (4.6.1)

Mr. Hugh Copland, P.Eng., P.Geo.
Government of Yukon - Energy, Mines and Resources
Box 2703 (K-419)
Whitehorse, Yukon
Y1A 2C6

Dear Sir:

Re: Former Clinton Creek Asbestos Mine – Long Term Performance Monitoring - 2006

The attached report describes the results of performance monitoring completed in 2006 at the former Clinton Creek Asbestos Mine. The report includes a brief summary of the objectives for the long term performance monitoring program, a discussion of the results and recommendations for the 2007 work season including site inspection, surveying and maintenance work. We have also included a discussion on water levels at the Hudgeon Lake outlet which are being impacted by debris at the upstream end of the channel stabilization works.

If we can be of further assistance, please contact Gil Robinson, P.Eng.

Sincerely,

UMA Engineering Ltd.

R. V. Typliski

Ron Typliski, P.Eng.
Regional Vice President
GR/dh

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1.0 Introduction

This report provides the results of the 2006 performance monitoring and a review of Hudgeon Lake outlet conditions at the former Clinton Creek Asbestos Mine. The purpose of the monitoring program is to obtain information on the performance of physical mine site features including the waste rock dump, Clinton Creek channel including the stabilization works, Wolverine Creek channel and the tailings pile. The monitoring program provides data which is compared with trigger levels and an action plan for maintenance or remedial stabilization work developed to maintain the long term stability of these features. The terms of reference for the performance monitoring work are outlined in our letter proposal to Mr. Hugh Copland, P.Eng. P.Geo. of the Government of Yukon (GY), Energy, Mines and Resources dated October 13, 2006. The assessment of Hudgeon Lake levels is based on a request from Mr. Hugh Copland to undertake this additional work.

1.1 Background

Hazards associated with continued degradation of the Clinton Creek channel through the waste rock dump and the Wolverine Creek channel through the tailings piles have been previously identified (UMA 2000). Of particular concern are potential risks to human life and property downstream of the mine associated with a sudden breach of the channel blockages. In areas with significant relief, such as the Clinton Creek valley, flooding from failures of channel blockages can be especially dangerous and unrelated to precipitation events that would normally be expected to produce flooding conditions.

With respect to the potential for a breach of channel blockages, the most immediate concern was considered to be at the outlet from Hudgeon Lake. Profiles of the creek channel through the waste rock from 1986, 1999 and 2001, showed progressive channel degradation (i.e. erosion / down-cutting) was occurring spatially along the first 500 m of channel downstream of the outlet. As degradation continued, the toe of the waste rock pile was being undercut and localized slope instabilities were developing. By 2001, conditions had developed to a point where it was feared that normal flow and/or an overtopping event could trigger a breach of the waste rock at the Hudgeon Lake outlet. The consequences of a breach and rapid draining of Hudgeon Lake are discussed in UMA's Risk Assessment Report (UMA 2000). To address this concern, channel stabilization works were constructed at the Hudgeon Lake outlet between 2001 and 2004.

Measures to stabilize the Wolverine Creek tailings pile have also been investigated (UMA 2003). The requirement for these remedial measures was based on the premise that the tailings were moving at rates comparable to those observed at mine closure. Recent surveys however, indicate that the movements are significantly less than previously assumed and some mounding of the tailings in the valley bottom is occurring. A better understanding of the overall behaviour of the tailings piles is necessary to determine the most appropriate strategy to deal with previously identified hazards. In this regard, the implementation of stabilization measures have been deferred until this information becomes available and the need for remedial work is confirmed. Of particular concern with respect to tailings pile stability is the potential for channel degradation where Wolverine Creek passes over the toe of the tailings. In this regard, maintaining the integrity of the rock-lined channel downstream of the tailings is considered essential.

2.0 Hudgeon Lake Outlet Review

Following a meeting between Government of Yukon (GY) and the Department of Fisheries and Oceans (DFO) in the fall of 2006, UMA was asked to review the practicality and effects of removing all or part of the draw down weir on the first gabion drop structure (DS-1), which is partially plugged with organic debris. The debris is limiting discharge from the lake during low flows when levels drop below the drawdown weir. As a result, the lake levels are higher than normal during periods of low flow.

Prior to construction of the four gabion drop structures in the Clinton Creek channel immediately downstream of the Hudgeon lake outlet, the water level in the lake was controlled by two culverts at the ford crossing (Figure 2-1). On July 24, 2002, a meeting was held in Dawson City, Yukon with Al von Finster of DFO, Brett Hartshorne of Indian and Northern Affairs Canada (INAC) and UMA to discuss the proposed creek stabilization work at the former Clinton Creek mine. As reported in a letter from INAC to DFO which summarizes the meeting (Appendix A), it was agreed to design the stabilization works with an outlet control that would increase the water level in Hudgeon Lake by about 300 mm (to about elevation 411.15 m).

Figure 2-1 Hudgeon Lake Outlet Prior to Construction of Channel Stabilization Work

At the onset of construction in the fall of 2002, it was noted that the lake level was influenced by the two culverts (invert elevation 410.86 m) which were partially blocked with debris and the ford crossing overtop of the culverts at elevation 411.0 m. One of the culverts and the ford crossing are visible in Figure 2-1. Although the lake level was typically controlled by the elevation of the ford crossing, the culverts would allow the lake level to gradually drawdown below elevation 411.0 m during low flow periods. During the first stage of construction, the culverts were removed and the excavation backfilled to elevation 411.0 m. The first row of gabion baskets, located directly below the drawdown weir shown on Figure 2-2, and the upstream channel were set at elevation 411.0 m. The draw down weir required to control upstream channel flow velocities during periods of high flow was set at elevation 411.5 m.

Figure 2-2 First Drop Structure at Hudgeon lake Outlet

The drop structures and drawdown weir were constructed of rock filled gabion baskets that are permeable enough to allow some flow through the baskets. The first drop structure functioned in this manner for the first two to three years maintaining lake levels at about elevation 411.15 m during dryer periods. However, as illustrated on Figure 2-3, floating organic debris (e.g. dead leaves and spruce needles that were washed into the lake after the forest fires in 2004) has settled into the baskets. This debris has partially blocked flow through the drawdown weir and the underlying row of gabions resulting in lake levels near 411.5 m for extended periods of time. This condition does not significantly impact the flow capacity of the drop structures during high flow events as the water mainly flows over the gabions (Figure 2-4).

Figure 2-3 Organic Debris on Upstream Side of Drop Structure #1

Figure 2-4 High Flow Rate Over Drawdown Weir

During low flow periods, this condition results in lake levels that are about 500 to 600 mm higher than the lake levels before construction of the channel stabilization works. To reduce the impact of debris blockage and achieve lower lake levels during periods of low flow, a larger opening in the first draw down weir is required. UMA has reviewed the hydraulics of the drop structure design and determined that this could be accomplished by removing one compartment (0.5 x 1.0 x 1.0 m) in the draw-down reduction weir. Because of the rotation of the drop structure (i.e. channel bend), the compartment to be removed should be located immediately to the right of the channel centreline (when facing downstream) so that the increased flow rate through this opening will occur on the inside of the channel bend. The horizontal bend and flow concentration to the outside of the bend are visible in Figure 2-4. Having the new opening located to the right of the channel centerline will result in the water flow discharging toward the centre of the structure.

The opening will result in a small reduction in upstream water levels during periods of high runoff (e.g. spring freshet). During low flow periods, the flow will be centered in the structure at the first drop step and the lake levels should be maintained at levels between 411.0 to 411.2 m. Blockage of the opening in the drawdown weir may still occur if larger floating debris (e.g. drift wood) accumulates in front of the opening. Beavers may also attempt to block the opening. Once the opening is partially blocked, debris may again accumulate and further reduce flow through the opening. The presence of debris should be checked for during every site visit and if necessary, blockages should be removed from the opening.

3.0 Performance Monitoring

A site plan of the mine site is provided on Drawing 01. The 2006 monitoring work consisted of surveying the movement monitors on the Clinton Creek Waste Rock Dump and the Wolverine Creek Tailings Pile, surveying profiles of Clinton Creek and Wolverine Creek, establishing four new movement monitors around each drop structure and surveying baseline cross-sections at two locations on each drop structure. Two horizontal measurements across each drop structure were completed by the Government of Yukon in June and October of 2006.

Underhill Geomatics Ltd. (UGL) from Whitehorse, YK completed the survey work for the performance monitoring program under Contract with the Government of Yukon. The survey was completed on 28 July 2006 by John Tom Tom and Jean-Louis Salesse of UGL using Global Positioning Survey (GPS) referenced to the UTM NAD 83 (Zone 7) co-ordinate system. The horizontal accuracy of the GPS survey is within 2 to 3 cm, which is acceptable given the magnitude of movements expected and given the potential error in positioning the survey rod at the exact same location for each monitoring event. The monitoring instructions and protocol provided to UGL by UMA are provided in Appendix B along with the resulting survey information provided by Underhill.

3.1 Clinton Creek Waste Rock Dump

3.1.1 Movement Monitors

Monitoring of the waste rock dump was re-instated in 1999 with subsequent monitoring events in 2001, 2003 and 2004. In 2003, the monitoring network was expanded from seven to forty-two monitoring points (UMA 2004). The monitoring results from the 1999 and 2001 surveys are provided in two separate reports prepared for INAC (UMA 2002 and UMA 2003). The monitoring results from the 2003 and 2004 surveys are provided in reports prepared for Government of Yukon (UMA 2004 and UMA 2006).

The locations of the movement monitors shown on Drawing 02 have been categorized according to location on the waste rock dump that is, the lower slope monitors are located below elevation 420 m, the mid-slope monitors are located between elevation 420 m and 450 m and the upper slope monitors are located above elevation 450 m. The Porcupine Pit slope monitor points are not included in these categories since they provide data on pit wall movements and not waste rock movements (with the exception of monitors #'s 1493 and 1839). A detailed summary of the 2006 waste rock movement monitoring for the upper, mid and lower slope areas and the open pit area are provided on Tables C-1 to C-4 in Appendix C and are summarized in Table 3-1. Horizontal rates of movement range from 0.01 to 0.07 m/yr, or about 0.01 to 0.04 m/yr less than the rates calculated from the 2004 survey. The direction and magnitude of movement for each monitor is shown on Drawing 02.

Table 3-1: Summary of Annual Movement Rates

CLINTON CREEK WASTE ROCK DUMP				
Dump Area	Annual Movement Rates (m/yr)			Rate Change
		Monitoring Period 2003-2004	Monitoring Period 2004-2006	
Upper	Average	0.04	0.02	-0.02
(5 monitors)	Maximum	0.07	0.03	-0.04
	Minimum	0.02	0.01	-0.01
Mid	Average	0.05	0.03	-0.02
(13 monitors)	Maximum	0.08	0.07	-0.01
	Minimum	0.02	0.01	-0.01
Lower	Average	0.04	0.02	-0.02
(18 monitors)	Maximum	0.11	0.07	-0.04
	Minimum	0.00	0.01	0.01

Upper Slope Monitors

There are five monitors located in the upper slope area. The movement vectors and magnitudes shown on Drawing 02 suggest that this area of the waste rock dump is moving in a northerly direction (i.e. down the underlying valley slope). The rates of movement range from 0.01 to 0.03 m/yr with an average of 0.03 m/yr (Table C-1, Appendix C).

Mid Slope Monitors

There are 13 monitors located in the mid slope area of the waste rock pile, which covers the underlying south valley slope toe and the original valley bottom. Monitor #19 was missed during the 2006 survey but will be included in the next survey. The rates of movement for these monitors range from 0.01 to 0.07 m/yr with an average of 0.03 m/yr (Table C-2, Appendix C). The movement vectors and magnitudes shown on Drawing 02 suggest that the waste rock dump in this area is generally moving in a northerly direction across the former valley. However, the three monitors closest to Hudgeon Lake (#0229, #1831 and #22A) are moving in a north westerly direction towards the lake at rates of 0.04 to 0.07 m/yr. This radial spreading has been previously reported and is not unexpected. However, the monitors in the center of the mid-slope area (Monitors #21A, U1196, #68 and #4) do not follow this pattern as they are moving erratically although at lesser rates of 0.02 to 0.04 m/yr.

Lower Slope Monitors

There are 18 active monitors located in the lower slope area of the waste rock pile, which is likely located along the toe and/or side slope of the original north valley slope. Monitor XS-G was destroyed during the creek stabilization work in 2003. The 2006 results for Monitor XS-A suggest that it has sloughed into Clinton Creek and a nearby marker pin was surveyed instead (note: XS-A originally had a marker rod located close to the roadway to aid in finding the pin). The rates of movement for these monitors range from 0.01 to 0.07 m/yr with an average of 0.02 m/yr (Table C-3, Appendix C). It appears that waste rock in the area south of the stabilized creek channel (Monitors #0228, #1833 and P2) are moving in a north westerly direction at rates of about 0.05 m/yr. The exception is Monitor #0226 which is moving in a north easterly direction. The remaining monitors east of the stabilized channel section are moving in a south to south west direction at rates of about 0.02 m/yr. Movement in this direction is unexpected and may be a

result of passive resistance developing at the leading edge of the waste rock. In any case, the magnitudes are small and not considered to be of any consequence to the stabilized section of the channel at this time.

Open Pit Area Monitors

There are six monitors in the Open Pit area of the waste rock pile. Four are located on the east wall of the Porcupine Open Pit (#'s 1830, 1832, 1837 and 1838), one on the north side of the pit (#1839) and one near the former crusher building (#1493). Movements into the open pit of about 0.01 m/yr are evident in the four monitors on the east pit wall. These results suggest that that there is little movement of the pit walls at the location of the monitors. The unstable areas of the open pit are quite obvious upon visual inspection and include the south west and south east corners of the pit that are considered to be the most unstable. Monitors #1839 and #1493, located on the waste rock to the north of the open pit are moving in a northerly direction at rates of 0.03 and 0.10 m/yr, respectively which is consistent with Monitor U1194 located farther downslope (Table C-4, Appendix C).

3.1.2 Summary

The waste rock is currently closing in on the stabilized section of the channel at a rate of about 0.05 m/yr. While movement rates are less than previously measured, it is expected that integrity of the gabion drop structures will eventually be compromised unless stabilization measures for the waste rock dump are implemented. Alternatively, the gabion structures can be replaced or repaired as required in the future to restore their functionality. While movements of the mid and lower slope downstream of the stabilized channel section are erratic, they are of no consequence to the stabilized section of the channel.

3.2 Gabion Drop Structures

Starting in 2004, the monitoring program for the drop structures was limited to taking horizontal measurements across each gabion drop structure at two locations (Drawing D-1, Appendix D) to determine if the gabions are deforming laterally. To provide a better understanding of the deformations of the gabion drop structures in relation to the waste rock movements, and the impact on functionality of the structures, additional survey requirements were recommended for long term performance monitoring (UMA 2006b). These include four movement monitors located near the four corners of each drop structure and surveying two cross sections of each drop structure.

3.2.1 Horizontal Measurements

The horizontal measurements to date for Drop Structures 1, 2, 3 and 4 are summarized in Tables D-1 to D-5 (Appendix D). The measurement locations were tagged with permanent markers in September 2006 to improve the repeatability of the measurement locations. To date, from 0.01 to 0.23 m of lateral movement has been measured, with the largest movements measured at Drop Structure #3. The average annual rates of movement calculated from the June and October 2006 measurements are 0.05 and 0.12 m/yr, respectively. These magnitudes and rates are somewhat greater than measured at the waste rock monitors suggesting that the drop structures are still undergoing post-construction adjustments in addition to the movement attributable to the waste rock movement.

3.2.2 Movement Monitors

Sixteen movement monitors (#1450 to 1465) were installed near the corners of the four drop structures in July 2006 by UGL. The locations of these monitors are illustrated on Drawings 03 to 07. The 2006 survey of these monitors will serve as the baseline for future surveys. Monitoring results will be available after the next survey, which has been recommended for 2007.

3.2.3 Surveyed Cross-Sections

Two cross-sections were surveyed across each drop structure in July 2006 by UGL. The locations of these sections (eight in total) are illustrated on Drawings 03 to 07. The plan view and sections provided on the left hand side of Drawings 04 to 07 represent the as-constructed drop structure geometry. The sections on the right hand side of the drawings represent the surveyed geometry. Although the 2006 surveyed sections are intended to serve as a baseline for future surveys, a comparison of this survey with the as-constructed sections suggests that some deformation has already occurred. Observations made for each drop structure are summarized as follows:

Drop Structure 1: Sections 1 and 2 from Drop Structure #1 (Drawing 04) show that the design flow depth (2.01 m) at the top of the drop structure (Section 1) is just contained within the upper level of the gabion drop structure. This appears to be a result of vertical settlement of the upper two or three gabion baskets on each side of the channel. On Section 2, the dip in the side slope on the right hand side occurred during the first spring freshet after the structure was completed. As noted in the Stage II construction report (UMA 2003 b), an additional row of baskets was added to the downstream end of this structure and the others to mitigate this problem, measures which to date have been effective.

Drop Structure 2: Section 4 from Drop Structure #2 (Drawing 05) suggests that there has been some bulging at the toe of the slope on the left hand side. This should be confirmed during the next site inspection trip.

Drop Structure 3: Section 6 from Drop Structure #3 (Drawing 06) suggests that there has been some bulging at the toe of the slope on the right hand side. This should be confirmed during the next site inspection trip.

Drop Structure 4: Section 8 from Drop Structure #4 (Drawing 07) suggests that there has been some bulging at the toe of the slope on the right hand side. This should be confirmed during the next site inspection trip.

3.2.4 Summary

The observed deformations of the gabion drop structures are at least partially a result of continued waste rock movements. Since the flow depth at the design discharge is within 0.2 m of the top edge of the gabions at Drop Structure 1, the trigger level has been reached and remedial repairs are required within 1 year (UMA 2006b). It is recommended that the repairs be completed before freeze-up in the fall of 2007 and in place for the spring freshet in 2008. In this regard, the feasibility of placing an extra row or two of gabion baskets above and /or beside the top row of baskets forming Drop Structure #1 should be assessed immediately. Prior to carrying out remedial design measures however, the top of channel between Hudgeon Lake and Drop Structure #1 should be surveyed to confirm that the outlet channel also has at least 0.2 m freeboard above the design flow depth.

Trigger levels for the structure geometry are illustrated on the drawings as 2H:1V sideslopes. The bulging of the structures picked up in the survey has not reached a point where flow depths will be affected and no action is required at this time other than a visual assessment in 2007.

3.3 Clinton Creek Channel

Since 1983, The Clinton Creek Channel profile has been surveyed on seven different occasions. For purposes of comparing conditions before and after channel stabilization works, the profile from 2001 is shown as a dashed line on Drawing 08 with the 2004 and 2006 surveys. The 2004 survey has been

selected as the baseline to evaluate channel degradation (down-cutting) and determine when remedial measures are required. The creek profile shown on Drawing 08 has been sub-divided on to three larger scale drawings (Drawings 09, 10 and 11) to aid in evaluating changes in the channel profile. Offset lines are shown on these drawings to indicate the depth of channel degradation that would trigger the action items identified in the Long Term Performance Monitoring Report (UMA 2006b). That is, between the downstream end of Drop Structure #4 and Station 0+225 m a 0.5 m offset line is shown and downstream of Station 0+225 m a 1.5 m offset line is shown.

No channel down-cutting is evident for the first 20 m downstream of the end sill on Drop Structure #4. In this section of the channel, the gabion drop structure was constructed just upstream of a area where the channel is relatively well covered with boulders (Figure 3-1) from the former rock weir (Drawing 09). Immediately downstream of the end sill of Drop Structure 4, some additional gabion baskets were installed as a transition between the stabilized creek and the existing creek channel. The transition is 9 m long and consists of two full rows of gabion baskets (6 m long) covering the channel sides and bottom followed by a single row of baskets (3 m long) along the channel bottom (UMA 2005). Beyond this point, the channel is relatively well protected with boulders to about Station 0+195 m near the area where bedrock is exposed in the channel bottom. From about Station 0+195 m (i.e. just downstream of the boulders) to 0+225, about 0.2 to 0.3 m of localized down-cutting is evident in the 2006 survey. Downstream of Station 0+225, there is some evidence of minor and localized down-cutting with some stretches showing as much as 1 m of aggradation (deposition). These results are not unexpected as localized slumps routinely cause small blockages until the material is washed and deposited farther downstream (Figure 3-2).

Figure 3-1 Channel Downstream of Drop Structure #4

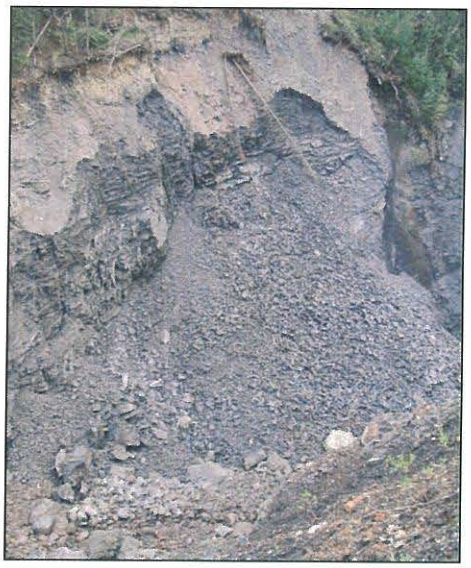

Figure 3-2 Localized Slumping Into Channel

3.3.1 Summary

The 2006 survey suggests about 0.2 to 0.3 m of channel degradation has occurred around Station 0+200 m, which is significant enough to trigger planning for channel revetment work. However, because the length of channel where this has occurred is less than 10 m long it is recommended that the channel between Drop Structure #4 and Station 0+225 m be re-surveyed and visually examined in 2007 to determine if this action is necessary. Given the irregular channel bottom amongst the boulders, it is

possible that this apparent change in elevation resulted from different positions of the survey prism between the 2004 and 2006 surveys.

3.4 Wolverine Creek Tailings Pile

Fifty-three movement monitors were surveyed in July 2006 by UGL, including the eleven new monitor points (2005-01 to 2005-11) established on the South Lobe in 2005. The previous monitoring event was in September 2005 (UMA 2006a). The monitoring results from 2006 are provided in Appendix E. The monitor point locations on the tailings pile are shown on Drawing 12. The monitors on the South and North lobes of the tailings pile have been grouped according to their location on the upper, mid and lower slope areas. The monitors on the upper slope are located above elevation 530 m, the mid slope monitors are located between elevation 425 and 530 m and the lower slope monitors are located below elevation 425 m. For the current monitoring period from September 2005 to July 2006, the direction and magnitude of movement of each monitoring point is indicated by the vectors shown on Drawing 12. The measured movement between September 2005 and July 2006 has been extrapolated over a one year period to estimate annual movement rates, which are summarized in Tables 3-2 and 3-3 for the South and North lobes, respectively. A summary of the movements for each monitor is provided in Appendix E (Tables E1 to E3).

3.4.1 South Lobe

The average horizontal movement rates for the upper, mid and lower slope areas of the South Lobe for the current monitoring period (September 2005 to July 2006) are 0.10, 0.65 and 0.35 m/yr, respectively, as shown in Table 3-2. These calculated rates are less than those for the previous monitoring period (2004 to 2005) by 0.03, 0.11 and 0.10 m/yr. Drawing 13 illustrates the movement vectors and magnitudes on the South Lobe. The upper slope is the least active area, consistent with previous monitoring data, with movements rates from the two movement monitors ranging from 0.02 to 0.18 m/yr. The mid slope area is the most active with annual movement rates from the 12 monitors ranging from 0.26 to 0.75 m/yr. Movement rates from the 14 monitors on the lower slope area range from 0.03 to 0.55 m/yr.

Table 3-2: Range of Annual Movement Rates – South Lobe

WOLVERINE CREEK TAILINGS PILE – SOUTH LOBE						
Slope Area		Annual Movement Rates (m/yr)				Rate Change Last 2 Surveys
		Monitoring Period 1984	Monitoring Period 2003 -2004	Monitoring Period 2004- 2005	Monitoring Period 2005-2006	
Upper	Average	0.50	0.15	0.13	0.10	-0.03
(2 monitors)	Maximum	-	0.24	0.18	0.18	0
	Minimum	-	0.07	0.09	0.02	-0.07
Mid	Average	7.00	0.87	0.76	0.65	-0.11
(12 monitors)	Maximum	-	1.02	0.93	0.75	-0.18
	Minimum	-	0.43	0.35	0.26	-0.09
Lower	Average	-	0.46	0.45	0.35	-0.10
(14 monitors)	Maximum	2.80	0.76	0.66	0.55	-0.11
	Minimum	0.50	0.07	0.05	0.03	-0.02

The small movement rates on the upper slope area are not unexpected because the original landslide did not encompass much of this area, which may be due to a decrease in the inclination of the underlying valley slope above elevation 530 m. This feature is visible on aerial photographs taken before mine site development (UMA 2003). The mid slope is most active and is coincident with the main area of the original landslide which occurred in 1974 (UMA 2003). As mounding of tailings occurs in the valley bottom (i.e. lower slope area), the movement rates in the mid-slope area may continue to decrease as toe support due to mounding increases. It is expected that the variability in movement magnitudes and directions on the lower slope are due to lateral spreading resulting from mounding of the tailings in the valley bottom and the non-uniform development of passive resistance.

The upper and mid slope areas are moving down slope in an easterly direction. Near the mid and lower slope boundary, the movement vectors tend toward a north easterly direction indicating some lateral spreading is occurring, which is more pronounced by the lower slope movement vectors. This general direction of movement is indicated on Drawing 13. The movement vectors for the monitors in the center of the lower slope area along the creek (e.g. 25B, SL-1 and SL-2) are moving eastward and the movement monitors along the south edge of the lower slope area (2005-04, 2005-05 and 80-9) are moving in a south easterly direction. These movements show that lateral spreading of the tailings is occurring and will likely continue until sufficient toe resistance (e.g. mounding) is developed across the lower slope area. Figure 3-2 illustrates the mounding and lateral spreading along the north edge of the lower slope area

Figure 3-2) Mounding at Toe of South Lobe Near Monitor 2005-01 (view South)

3.4.2 North Lobe

The movement rates for the North lobe summarized in Table 3-3 are less than measured for the South lobe. The average horizontal movement rates for the upper, mid and lower slope areas of the North Lobe for the current monitoring period (September 2005 to July 2006) are 0.06, 0.13 and 0.09 m/yr, respectively. The rates are less than those for the previous monitoring period (2004 to 2005) by about 0.01, 0.05 and 0.04 m/yr.

Table 3-3: Range of Annual Movement Rates – North Lobe

WOLVERINE CREEK TAILINGS PILE – NORTH LOBE						
Slope Area		Annual Movement Rates (m/yr)				Rate Change Last 2 Surveys
		Monitoring Period 1984	Monitoring Period 2003- 2004	Monitoring Period 2004-2005	Monitoring Period 2005-2006	
Upper	Average	-	0.04	0.07	0.06	-0.01
(7 monitors)	Maximum	0.90	0.10	0.12	0.18	+0.06
	Minimum	0.40	0.01	0.03	0.03	0
Mid	Average	-	0.21	0.18	0.13	-0.05
(10 monitors)	Maximum	24.50	0.63	0.53	0.43	-0.10
	Minimum	1.60	0.02	0.02	0.02	0
Lower	Average	20.0	0.11	0.13	0.09	-0.04
(8 monitors)	Maximum	-	0.17	0.18	0.13	-0.05
	Minimum	-	0.08	0.08	0.05	-0.03

Drawing 12 illustrates the movement vectors and magnitudes on the North lobe. The upper slope is the least active area, consistent with previous monitoring data, with movements rates ranging from 0.03 to 0.18 m/yr. The mid slope area is the most active with annual movement rates ranging from 0.02 to 0.43 m/yr. Movement rates on the lower slope area range from 0.05 to 0.13 m/yr. The small movements of the upper slope are not unexpected since the original landslide did not encompass much of this area (UMA 2003). As shown on Drawing 12, the upper slope monitors moved in a variety of directions over the last monitoring period. Local slumping of the tailings may be responsible for these movements or it is possible the exact same location was not surveyed as the previous year. The tailings monitoring survey will now be completed on a bi-annual basis with the next survey to be completed in 2008. The measured movements over a two year period are expected to be greater and should result in more consistent direction of movement.

The largest movements on the North lobe were measured along the south and east edges of the mid slope area (i.e. all mid-slope monitors except 1085, 500-1 and 650-1). The direction of movement is eastward (downslope) was consistent with the previous monitoring period. The mid-slope monitors just upslope from the 425 m contour moved 0.06 to 0.10 m. On the south edge, Monitors 80-4 and 80-5 moved 0.26 and 0.37 m, respectively. These two monitors moved about 0.30 m more than the other monitors on the North Lobe. The lower slope area was slightly less active than the mid slope area with movements less than 0.11 m. In general, the lower slope is moving easterly but the southern edge appears to be moving south into the pond between the two lobes because of the reduced toe support in this area.

3.4.3 Summary

It appears that the downslope movement rates of the tailings continue to decline, likely as a result of mounding at the toe of the slide material. Since none of the trigger levels have been reached (UMA 2006b) no action is required in 2007.

3.5 Wolverine Creek Channel

The channel profile between Stations 0+700 m and 1+500 m (Drawing 14) was surveyed by UGL in 2006 with the intent to utilize the original survey from 2003 as the baseline to compare subsequent surveys and evaluate channel degradation. Once Drawing 14 was created is was apparent that there was a discrepancy between the two surveys, in plan and profile, mainly between Station 0+800 and 1+100 m. In discussion with Jean-Louis Salesse of UGL, the two surveys cannot be reconciled without checking some of the control points used for the 2003 survey. Therefore no conclusions can be made at this time. It is recommended that the survey be re-done in 2007 and if possible, the control points from 2003 should be checked. If this is not possible then the 2006 survey should be selected as the baseline for future surveys.

4.0 Recommendations

Based on previous recommendations and the results of the 2006 performance monitoring the following work is recommended for 2007:

- Remove one compartment of gabion baskets in the drawdown weir in Drop Structure #1 at the Hudgeon Lake outlet to reduce the impact on lake levels from debris blockage.
- Assess the possible repairs strategies including the feasibility of placing an extra row or two of gabion baskets along the sides of Drop Structure #1 as required to provide 0.2 m of free board above the design flow depth. Install additional baskets as required.
- Visually inspect the rock lined channel and weirs on Wolverine Creek.
- Visually inspect the gabion drop structures and Clinton Creek channel to verify the localized down-cutting.
- Survey the following:
    - gabion cross-sections #1 to #8 including the movement monitors (#1450 to #1465) established in 2006,
    - top of channel elevations between Hudgeon lake outlet and Drop Structure 1,
    - waste rock movement monitors south of the stabilized creek section (#0228, 1833, P2, 0226, 0229, 1831, 22A, 21A, 0224, 81-2, 20A and 1196),
    - Clinton Creek profile just d/s of Drop Structure 4 where channel degradation of about 0.3 m appears to have occurred over a short stretch of the channel,
    - Wolverine Creek profile survey should be re-done in 2007 and if possible, the control points used for the 2003 survey should be checked.

The next complete round of performance monitoring is scheduled for 2008 as described in the Long Term Performance Monitoring Plan (UMA 2006b). If we can be of further assistance or should you wish to proceed with the recommended engineering work in 2007, please contact either of the undersigned.

Respectfully Submitted,

UMA Engineering Ltd.

Gil Robinson

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Geotechnical Engineer
Earth and Water

Reviewed By:

Ken Skaftfeld, P.Eng.
Senior Geotechnical Engineer
Earth and Water

PROFESSIONAL ENGINEER
GR
YUKON TERRITORY
GILBERT G. ROBINSON
23-April-2007

PERMIT TO PRACTICE
Signature Gil Robinson
Date 23-April-2007
PERMIT NUMBER: PP066
Association of Professional Engineers of Yukon

References

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Drawings

B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 07/04/23 11:19:55 AM

Saved By: stevensc

UMA FILE NAME: 6029-008-00_02-H-F001_RX.dwg

510,500 511,000 511,500 512,000 513,000 513,500 514,000 514,500 515,000 515,500 516,000

7,149,500

7,149,000

7,148,500

7,148,000

7,147,500

7,147,000

U1190

AIRSTRIP

WOLVERINE CREEK TAILINGS PILE

NORTH LOBE

FORMER MILL SITE

U2834 (RTK BASE)

SOUTH LOBE

U1561 (MINE)

U1086

WOLVERENE CREEK

HILL (MINE)

U5700

U1192

U1183 U1191

G-TRAV (MINE)

U5699

U5698

HUDGEON LAKE

2835

U1200

U1189

CLINTON CREEK WASTE ROCK DUMP

U2836 (RTK BASE)

BEAR CREEK

CLINTON CREEK

U228 (MINE)

U1836

U1182

PORCUPINE PIT

U1193

SHACK (MINE)

U280 (MINE)

PORCUPINE CREEK

0 150 300 m

SCALE 1:15000

UTM ZONE 7 NAD83

IMAGE DATE 1999

U5700 BENCHMARK

U228 (MINE) LOCAL MINE BENCHMARKS

UMA | AECOM

Government of Yukon

Former Clinton Creek Asbestos Mine

Long Term Performance Monitoring - 2006

Site Plan And Bench Mark Locations

Drawing - 01

CREEK STABILIZATION AREA INCLUDING:
HUDGEON LAKE OUTLET
AND FOUR GABION
DROP STRUCTURES

HUDGEON LAKE

±420 CONTOUR

±450 CONTOUR

±450 CONTOUR

CLINTON CREEK WASTE ROCK DUMP

NOT SURVEYED IN 2006

CLINTON CREEK

WOLVERINE CREEK

CLINTON CREEK

FORMER CRUSHER BUILDING (DEMOLISHED)

SNOWSHOE PIT

PORCUPINE PIT

PORCUPINE PIT SLOPE MONITORS

CREEK PIT

7,147,500

7,147,000

7,146,500

513,000

513,500

514,000

0228 12cm
P2 10cm
XS-G
0226 3cm
1833 10cm
69 5cm
0217 5cm
XS-A (DESTROYED ?)
80-13 4cm
XS-B 4cm
0219 3cm
P3 2cm
68 6cm
80-14 14cm
0222 3cm
0220 2cm
XS-E 1cm
0218 2cm
P4 5cm
84-1 1cm
P5 4cm
1831 13cm
22A 13cm
21A 8cm
0224 5cm
U1196 4cm
20A 5cm
81-2 2cm
4 7cm
19
0229 7cm
U1195 3cm
0227 4cm
81-1 5cm
1834 6cm
0223 4cm
0225 4cm
U1194 8cm
1839 7cm
U1493 21cm
1832 2cm
1830 1cm
1837 2cm
1838 2cm

0226 MONITOR LOCATION (ACTIVE)
XS-G MONITOR LOCATION (DESTROYED)
P2 PIEZOMETER LOCATION
22cm RECORDED MOVEMENT (JULY 2004 - JULY 2006)
MOVEMENT VECTOR (JULY 2004 - JULY 2006)

ELEVATION >450± - UPPER SLOPE AREA
ELEVATION >420± <450± - MID SLOPE AREA
ELEVATION <420± LOWER SLOPE AREA

0 50 100 m SCALE 1:5000
UTM ZONE 7 NAD83
IMAGE DATE 1999

UMA | AECOM

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Clinton Creek Waste Rock Dump Movement Monitoring

Drawing - 02

7 147 500
7 147 250
7 147 000
513 000
513 250
513 500

SECTION 1
SECTION 2
SECTION 3
SECTION 4
SECTION 5
SECTION 6
SECTION 7
SECTION 8

1450 1451 1452 1453 1454 1455 1456 1457 1458 1459 1460 1461 1462 1463 1464 1465

DROP STRUCTURE #1
(SEE DRAWING 04)

DROP STRUCTURE #2
(SEE DRAWING 05)

DROP STRUCTURE #3
(SEE DRAWING 06)

DROP STRUCTURE #4
(SEE DRAWING 07)

ALIGNMENT OF CREEK CHANNEL (TYP.)

1999 (OR EARLIER)

2001

JULY, 2006

JULY, 2004
(BASE LINE)

0+000 0+050 0+100 0+150 0+200 0+250 0+300 0+350 0+400 0+450 0+500 0+550 0+600 0+650 0+700 0+750 0+800 0+850 0+900 0+950

CHANNEL STATION
(m) TYP.

PLAN

0 25 50 75 m SCALE 1:2500

UTM ZONE 7 NAD83
IMAGE DATE 1999

LEGEND

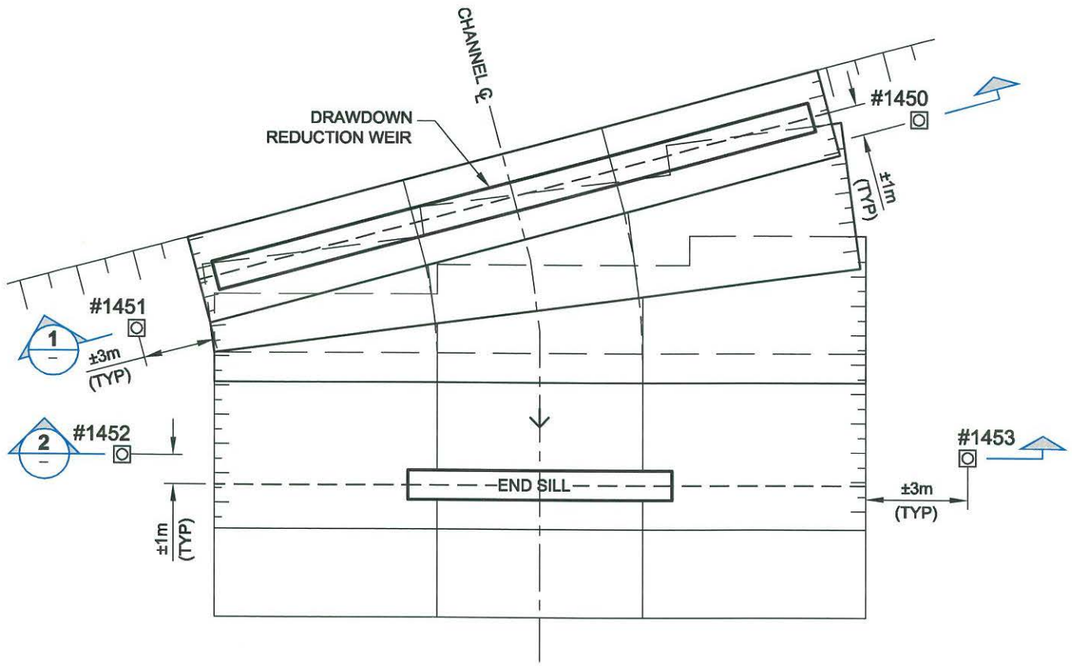
- 1450 — CHANNEL CLOSURE MOVEMENT MONITOR (TYP)
- CREEK CENTRELINE 1999
- CREEK CENTRELINE 2001
- CREEK CENTRELINE 2004 (BASELINE FOR LONG TERM MONITORING)
- CREEK CENTRELINE 2006

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Clinton Creek Channel Plan

Drawing - 03

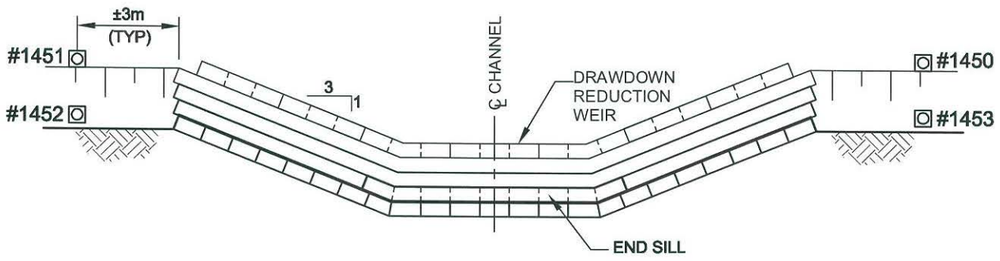
UMA | AECOM



DROP STRUCTURE PLAN VIEW

0 2 4 6 m SCALE 1:200

AS CONSTRUCTED

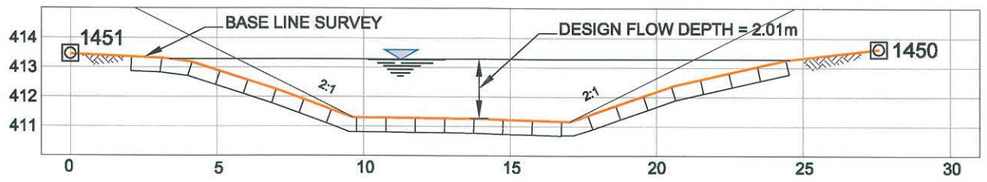


DROP STRUCTURE END VIEW

0 2 4 6 m SCALE 1:200

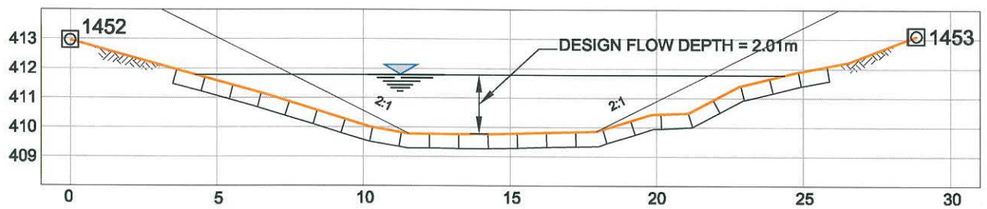
AS CONSTRUCTED

⊡ CHANNEL CLOSURE MOVEMENT MONITOR (19mm Ø STEEL PIN) INSTALLED DURING 2006 SURVEY.



SECTION 1

0 2 4 6 m SCALE 1:200



SECTION 2

0 2 4 6 m SCALE 1:200

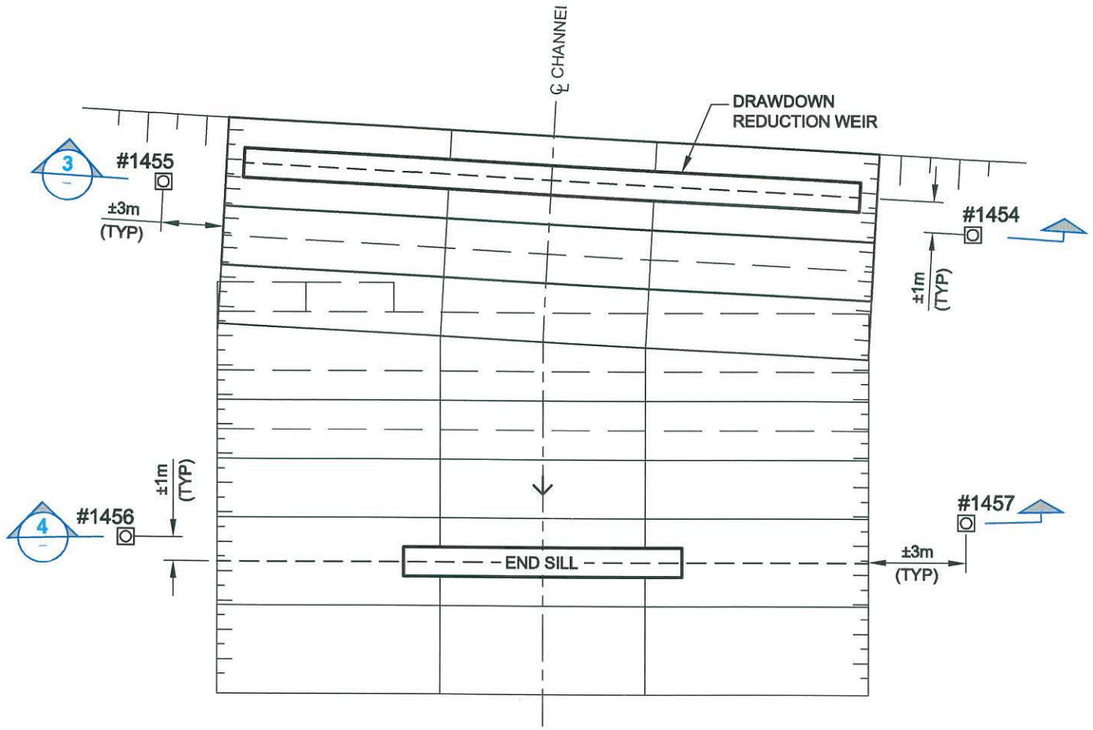
BASE LINE SURVEY (2006)

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Drop Structure #1

Drawing - 04

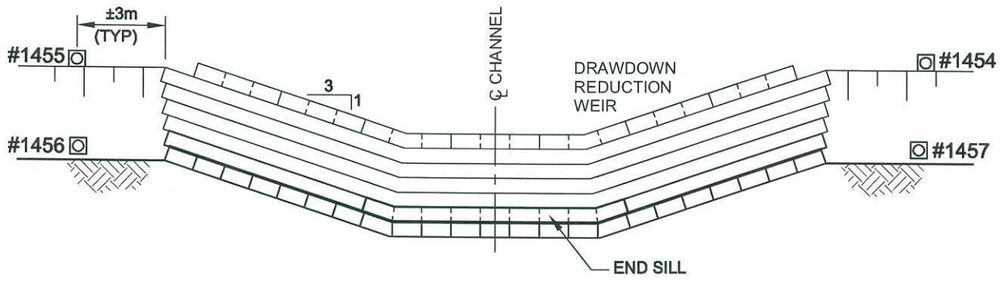
UMA | AECOM



DROP STRUCTURE PLAN VIEW

0 2 4 6 m SCALE 1:200

AS CONSTRUCTED

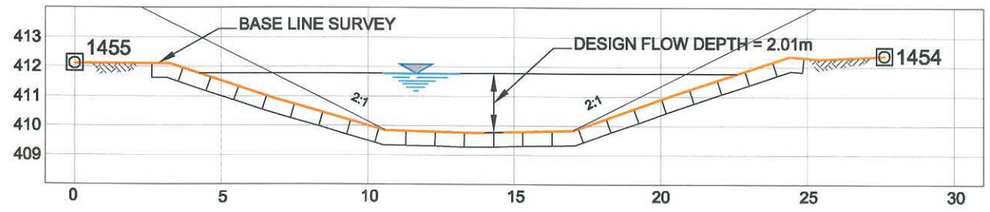


DROP STRUCTURE END VIEW

0 2 4 6 m SCALE 1:200

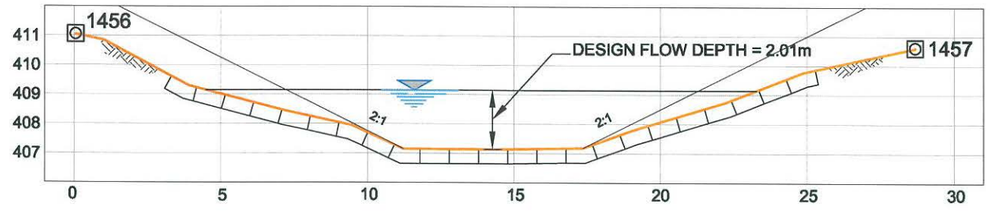
AS CONSTRUCTED

▣ CHANNEL CLOSURE MOVEMENT MONITOR (19mm Ø STEEL PIN) INSTALLED DURING 2006 SURVEY.



SECTION 3

0 2 4 6 m SCALE 1:200



SECTION 4

0 2 4 6 m SCALE 1:200

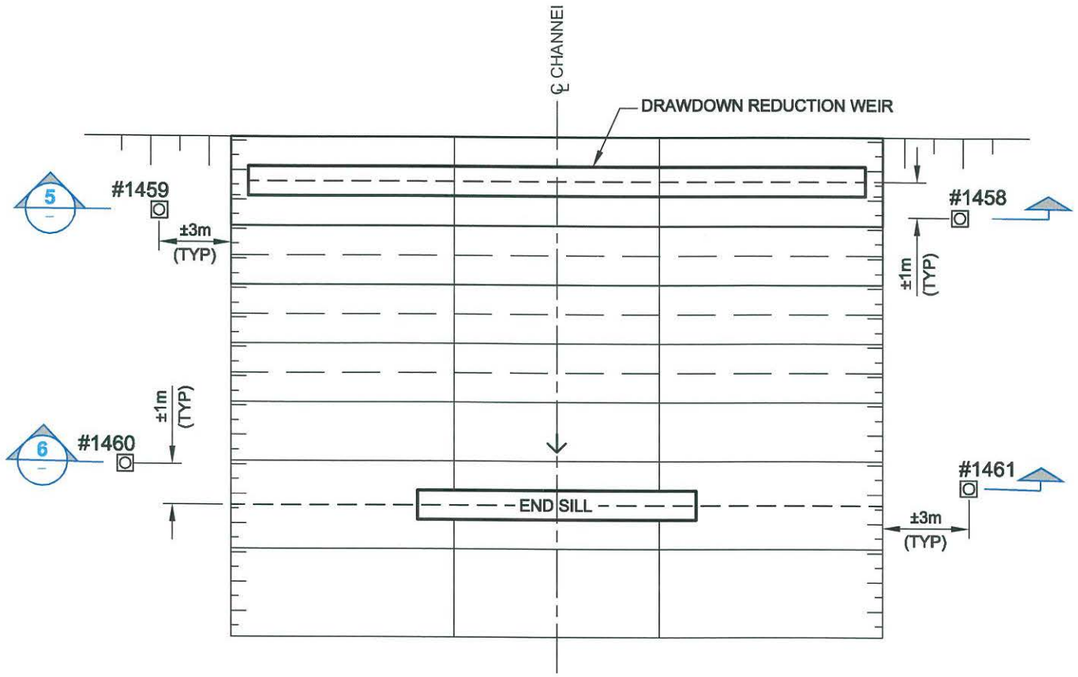
BASE LINE SURVEY (2006)

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Drop Structure #2

UMA | AECOM

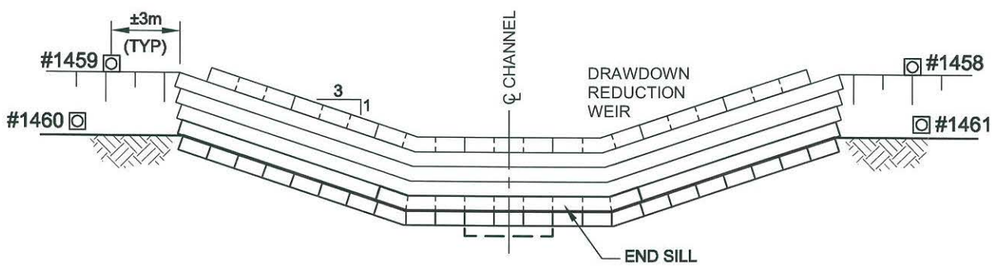
Drawing - 05



DROP STRUCTURE PLAN VIEW

0 2 4 6 m SCALE 1:200

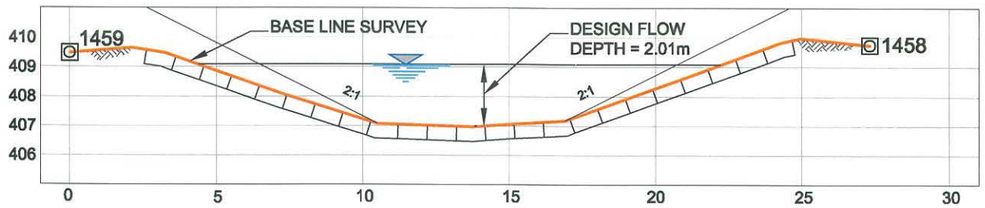
AS CONSTRUCTED



DROP STRUCTURE END VIEW

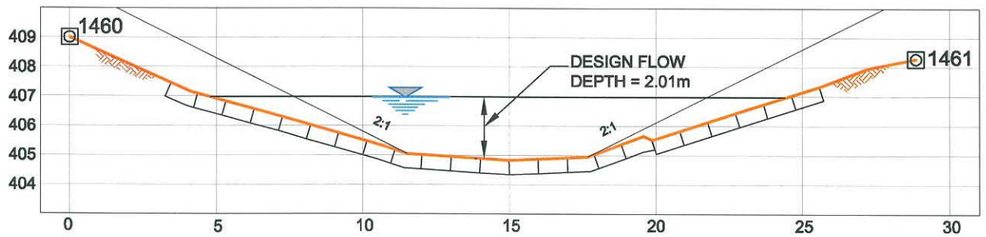
0 2 4 6 m SCALE 1:200

AS CONSTRUCTED



SECTION 5

0 2 4 6 m SCALE 1:200



SECTION 6

0 2 4 6 m SCALE 1:200

℄ CHANNEL CLOSURE MOVEMENT MONITOR (19mm Ø STEEL PIN) INSTALLED DURING 2006 SURVEY.

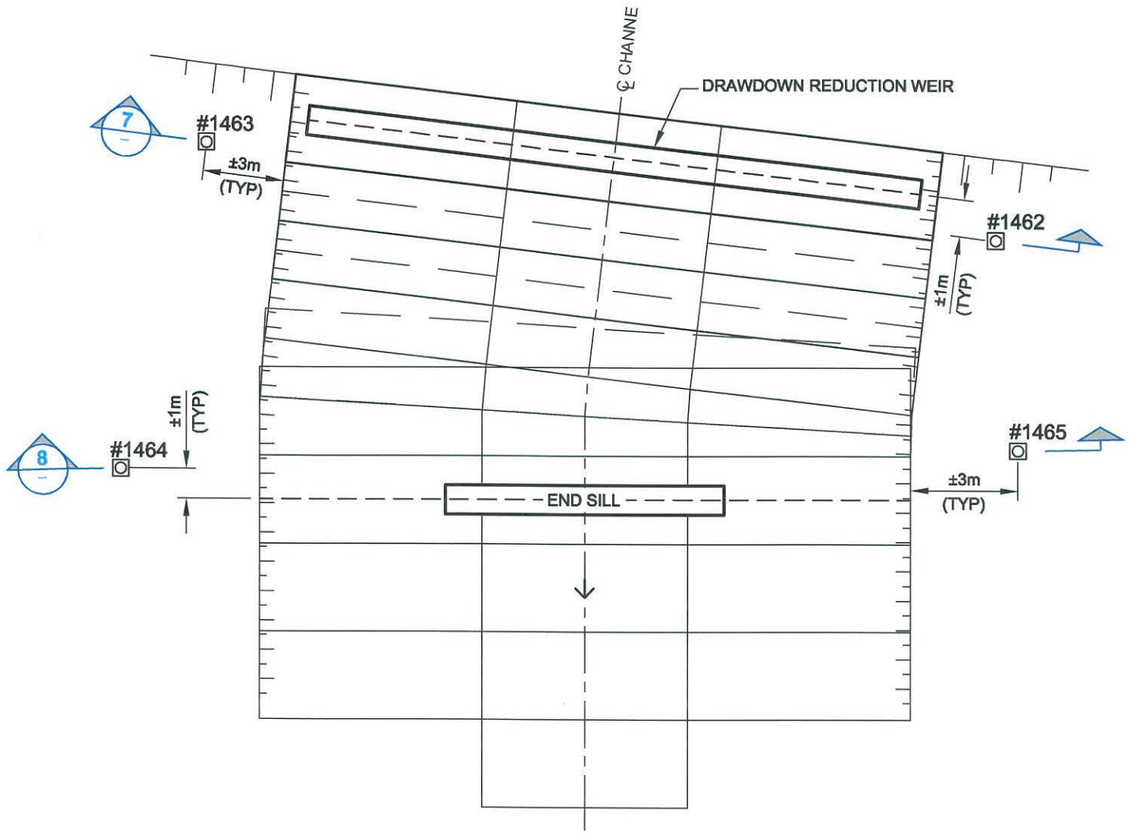
BASE LINE SURVEY (2006)

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Drop Structure #3

UMA | AECOM

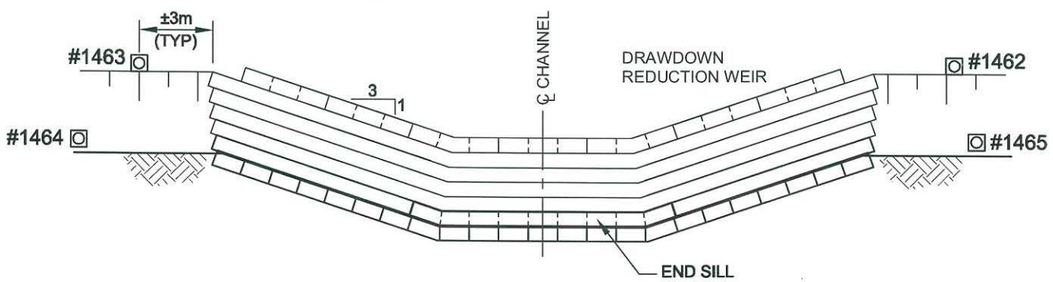
Drawing - 06



DROP STRUCTURE PLAN VIEW

0 2 4 6 m SCALE 1:200

AS CONSTRUCTED

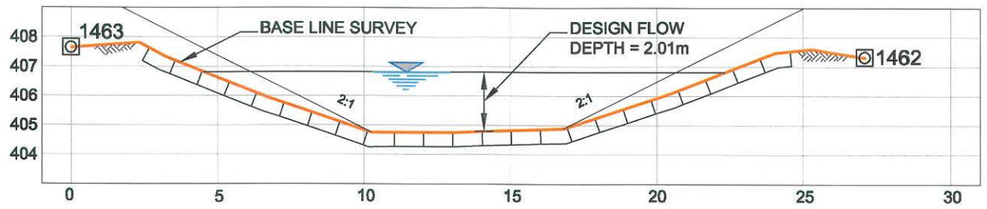


DROP STRUCTURE END VIEW

0 2 4 6 m SCALE 1:200

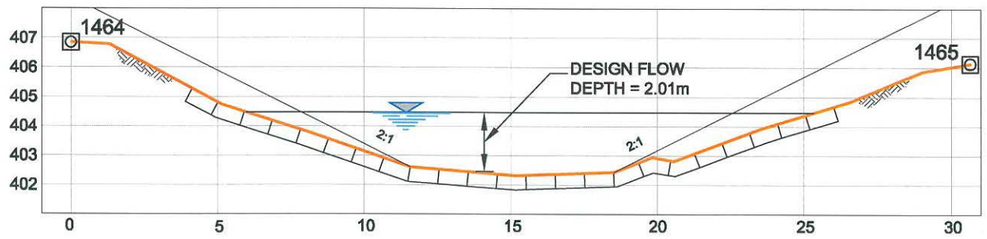
AS CONSTRUCTED

▣ CHANNEL CLOSURE MOVEMENT MONITOR (19mm Ø STEEL PIN) INSTALLED DURING 2006 SURVEY.



SECTION 7

0 2 4 6 m SCALE 1:200



SECTION 8

0 2 4 6 m SCALE 1:200

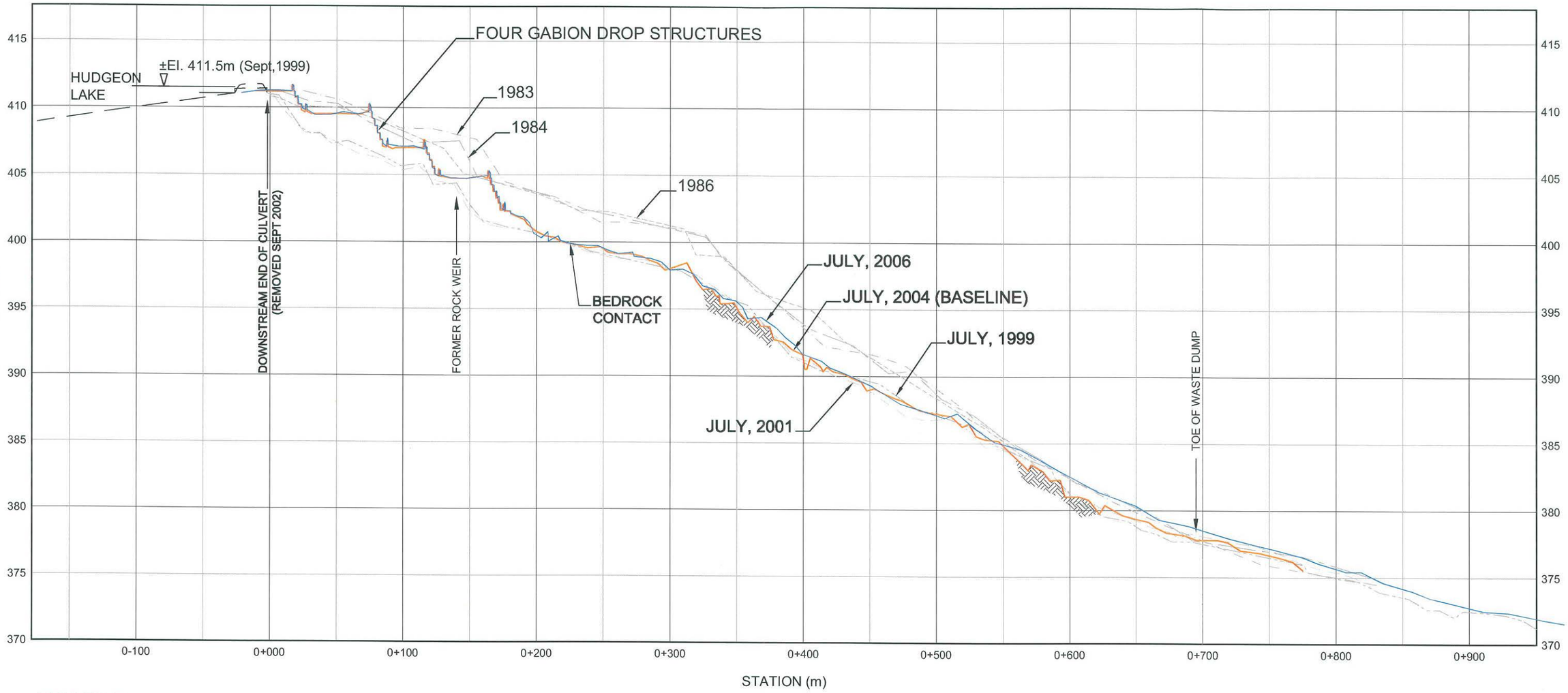
BASE LINE SURVEY (2006)

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Drop Structure #4

UMA | AECOM

Drawing - 07



PROFILE

0 30 60 m H=1:3000
0 3 6 V=1:300

STATION	NORTHING	EASTING
0+000	7,147,427	512,863
0+250	7,147,366	513,113
0+500	7,147,272	513,363
0+750	7,147,204	513,613

COORD: UTM ZONE 7W NAD83

LEGEND

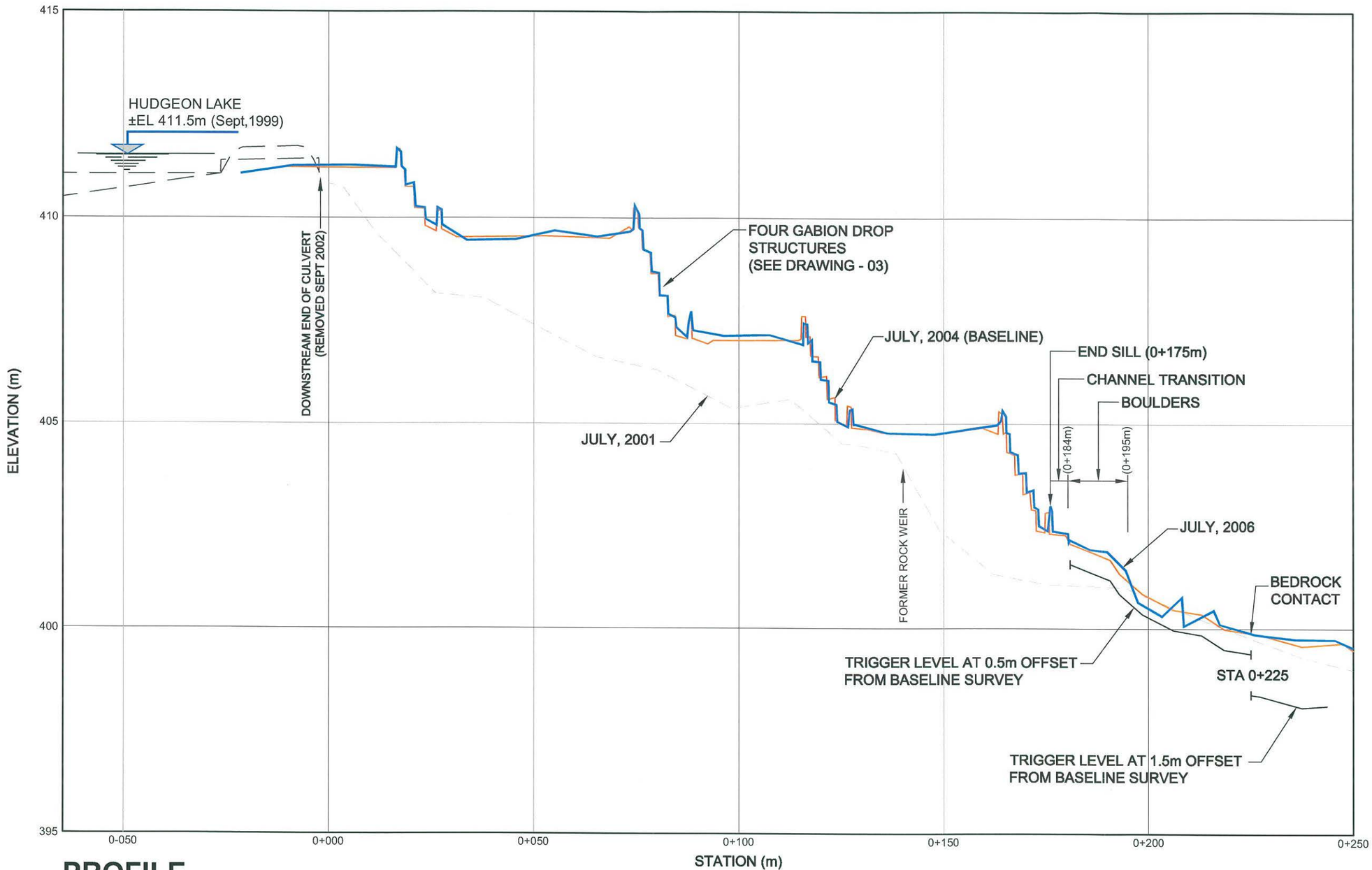
- PROFILE 1983
- PROFILE 1984
- PROFILE 1986
- PROFILE 1999
- PROFILE 2001
- PROFILE 2004 (BASELINE FOR LONG TERM MONITORING)
- PROFILE 2006

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Clinton Creek Channel Profile

Drawing - 08

UMA | AECOM



PROFILE

0 10 20 30 m H=1:1000
0 1 2 3 V=1:100

0+00 to 0+250

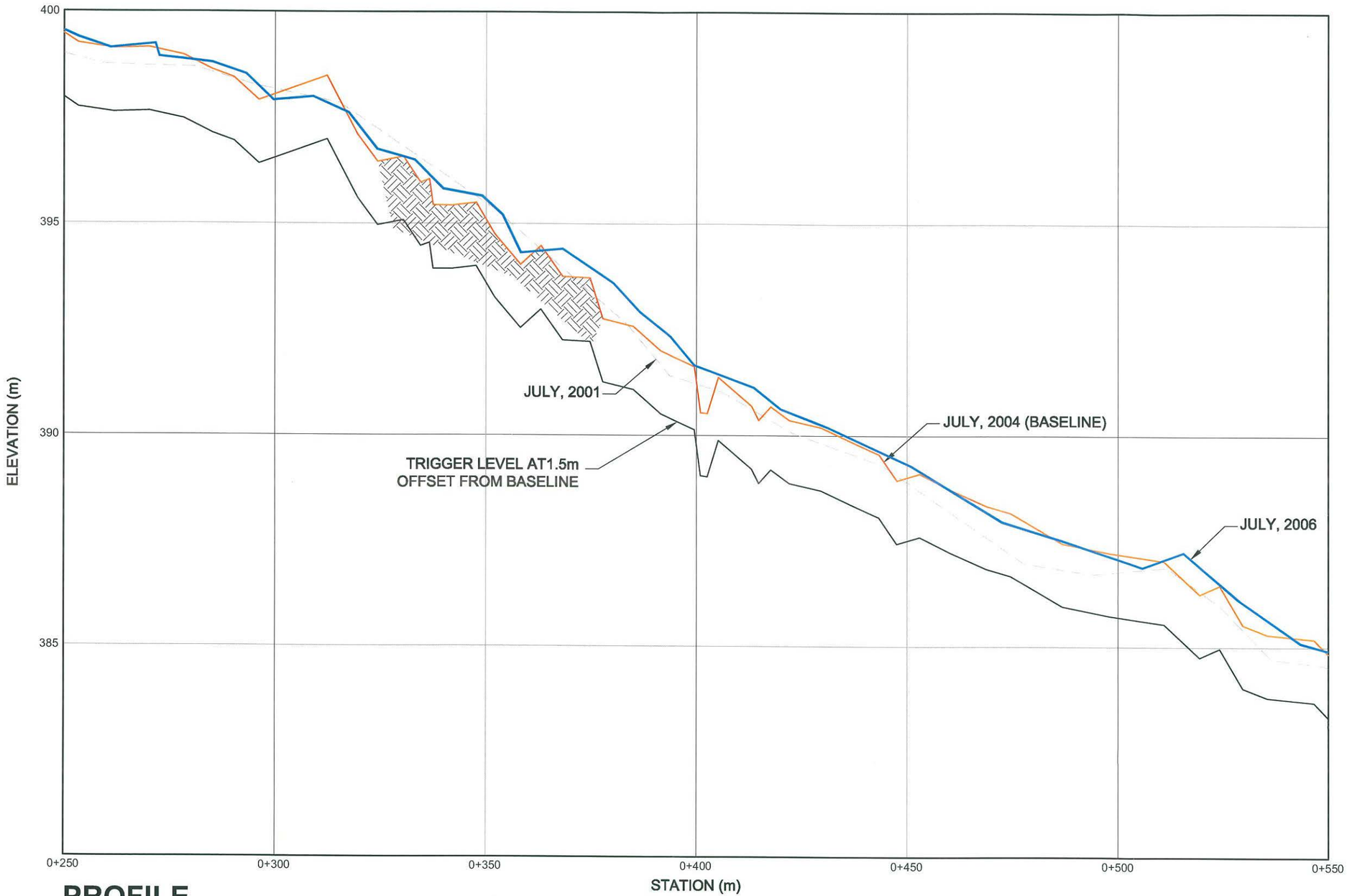
LEGEND

- PROFILE 2001
- PROFILE 2004 (BASELINE FOR LONG TERM MONITORING)
- PROFILE 2006

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Clinton Creek Channel Profile
Station 0-050 to 0+250

Drawing - 09



PROFILE

0 10 20 30 m H=1:1000

0 1 2 3 V=1:100

0+250 to 0+550

LEGEND

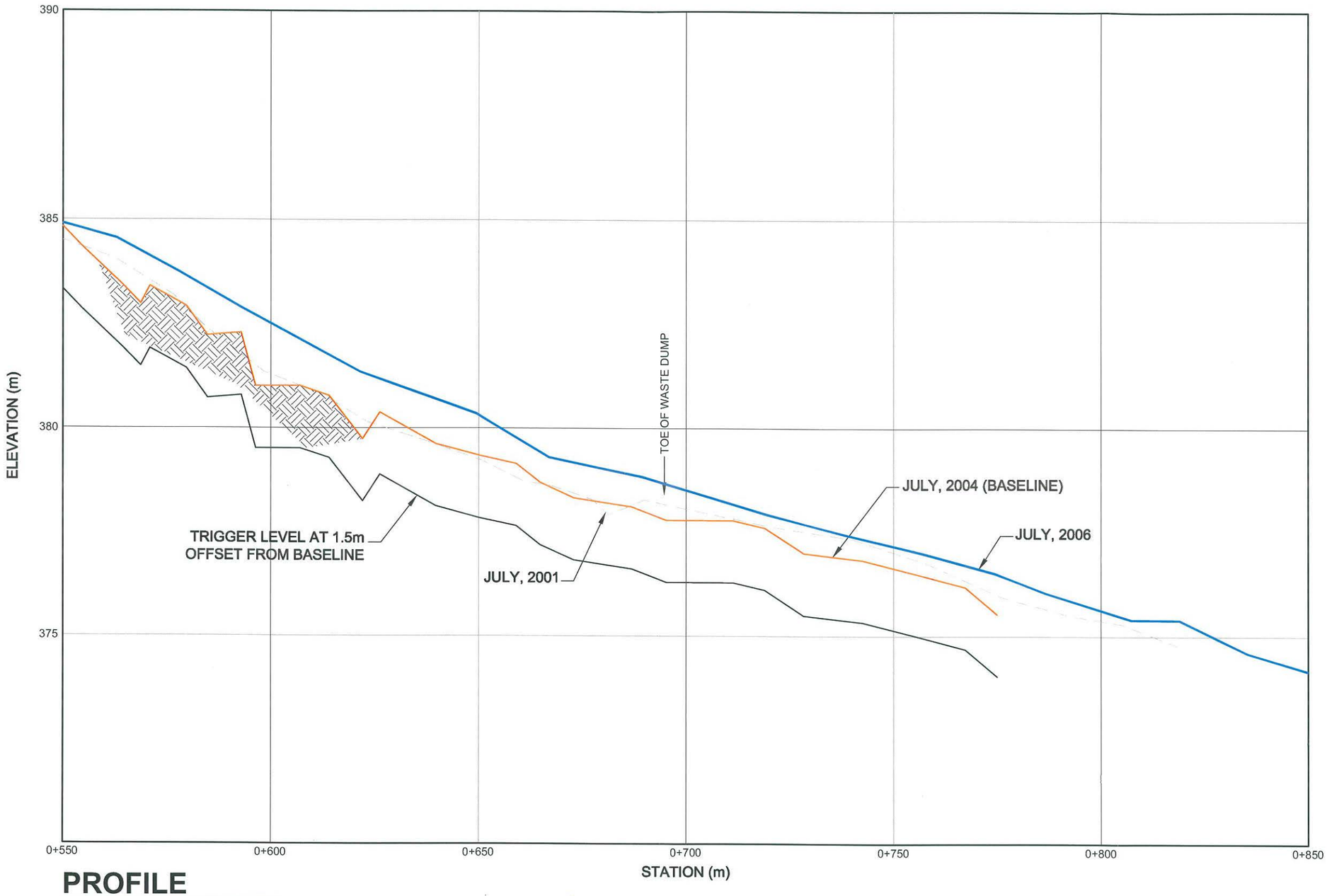
PROFILE 2001
PROFILE 2004 (BASELINE FOR LONG TERM MONITORING)
PROFILE 2006

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Clinton Creek Channel Profile Station 0+250 to 0+550

Drawing - 10

UMA | AECOM



PROFILE

0 10 20 30 m H=1:1000

0 1 2 3 V=1:100

0+550 to 0+850

LEGEND

- PROFILE 2001
- PROFILE 2004 (BASELINE FOR LONG TERM MONITORING)
- PROFILE 2006

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Clinton Creek Channel Profile Station 0+550 to 0+850

Drawing - 11

UMA | AECOM

513,000 513,500 514,000

7,148,500 7,148,000

530 425

1495 3cm
BH-14(T7) 16cm
80-1 3cm
26 4cm
26A 2cm
80-2 3cm
1483 3cm
2834 (RTK BASE)
1492 2cm
24 15cm
1084 22cm
1485 65cm
U1086

650-1 2cm
650-2 6cm
1491 9cm
NL-1 11cm
1083 (NL-2) 9cm
NL-3 9cm
350-3A 9cm
1489 4cm
NL-4 8cm
NL-5 6cm
1085 2cm
500-1 2cm
500-2 10cm
80-7 9cm
350-1A 10cm
350-2A 10cm
80-5 26cm
80-4 37cm
2005-01 56cm
NL-BASE 3cm
2005-02 48cm
1484 47cm
39cm
SL-5 49cm
2005-10
SL-4 43cm
2005-03 50cm
SL-3 42cm
SL-2 33cm
SL-1 24cm
2005-11 39cm
2005-09 29cm
24D 43cm
BH-16(T8) 64cm
24B 62cm
25B 16cm
2005-04 55cm
24A 64cm
2005-08 9cm
2005-07 4cm
2005-06 44cm
2005-05 70cm
80-9 3cm

FORMER MILL SITE
WOLVERINE CREEK
NORTH LOBE
WOLVERINE CREEK TAILINGS PILES
SOUTH LOBE
UPPER SLOPE AREA
MID SLOPE AREA
LOWER SLOPE AREA
ROCK LINED CHANNEL AND ROCK WEIRS
530m ELEVATION CONTOUR
425m ELEVATION CONTOUR

0 40 80 120 m SCALE 1:4000

UTM ZONE 7 NAD83
IMAGE DATE 1999

24	MONITOR LOCATION (ACTIVE)
2005-01	MONITOR LOCATION (ADDDED IN 2005)
22cm	RECORDED MOVEMENT (SEPT 2005 - JULY 2006)
→	MOVEMENT VECTOR (SEPT 2005 - JULY 2006)
SL/NL-01	VISUAL ALIGNMENT PIN
BH-14 (T7)	1978 TEST HOLE LOCATION

COMPASS BEARING FROM NL-BASE ALONG PINS NL-1 TO NL-5
DECLINATION: 30°
BEARING: 208°

COMPASS BEARING FROM NL-BASE ALONG PINS SL-1 TO SL-5
DECLINATION: 30°
BEARING: 121°

UMA | AECOM

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Wolverine Creek Tailings Pile 2006 Movement Monitoring

Drawing - 12

513,500

514,000

7,148,000

530

425

80-2
3cm

1483
1cm

2834 (RTK BASE)

1492
2cm

80-5
26cm

80-4
37cm

350-3A 8cm

1489 4cm

350-2A
10cm

NL-4 8cm

350-1A
10cm

NL-5 6cm

2005-01
56cm

NL-BASE
3cm

2005-02
48cm

1484
47cm

SL-5
49cm

2005-03
50cm

2005-10
39cm

SL-4
42cm

2005-11
39cm

SL-3 43cm

2005-09
29cm

SL-2 33cm

SL-1 24cm

WOLVERINE CREEK
TAILINGS PILES

SOUTH LOBE

APPARENT DIRECTION
OF MOVEMENT

APPARENT DIRECTION
OF MOVEMENT

24D
16cm

BH-16(T8)
64cm

25B
16cm

2005-08
9cm

24B
62cm

2005-04
55cm

24
15cm

1084
22cm

24A
64cm

1485
65cm

2005-06
44cm

2005-05
70cm

80-9
3cm

2005-07
4cm

UPPER SLOPE AREA

MID SLOPE AREA

LOWER SLOPE AREA

530m ELEVATION
CONTOUR

425m ELEVATION
CONTOUR

ROCK LINED
CHANNEL AND
ROCK WEIRS

0 20 40 60 m

SCALE 1:2000

UTM ZONE 7 NAD83
IMAGE DATE 1999

24	MONITOR LOCATION (ACTIVE)
2005-01	MONITOR LOCATION (ADDDED IN 2005)
22cm	RECORDED MOVEMENT (SEPT 2004 - SEPT 2005)
	MOVEMENT VECTOR (SEPT 2004 - SEPT 2005)
SL/NL-01	VISUAL ALIGNMENT PIN
BH-14 (T7)	1978 TEST HOLE LOCATION

COMPASS BEARING FROM NL-BASE ALONG PINS NL-1 TO NL-5
DECLINATION: 30°
BEARING: 208°

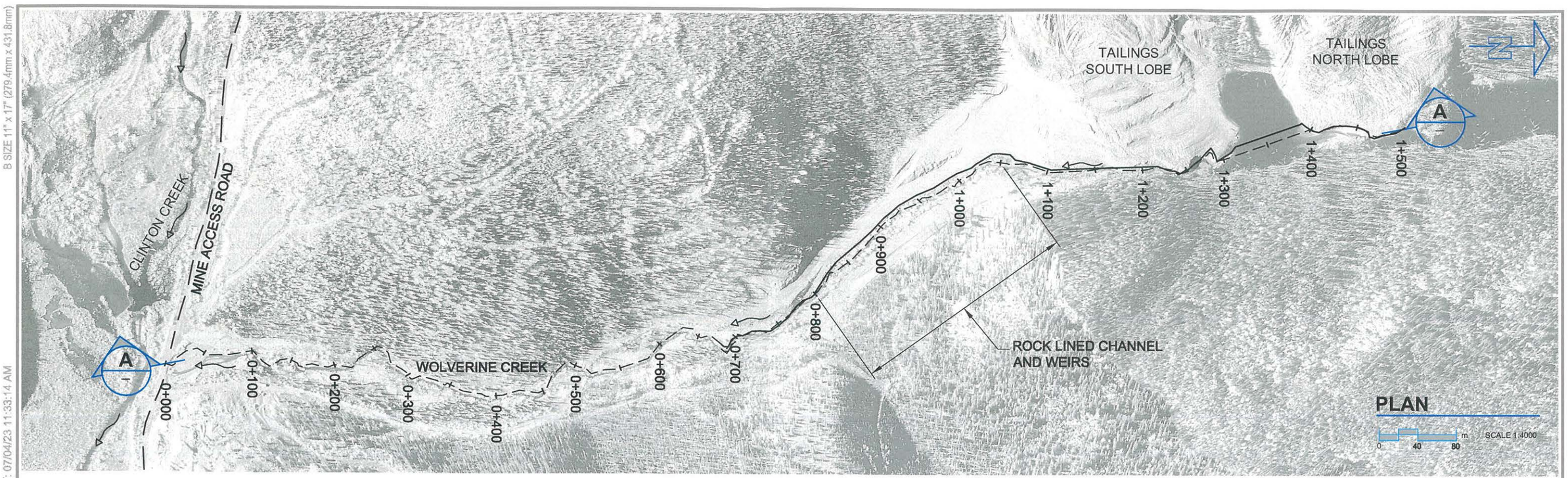
COMPASS BEARING FROM NL-BASE ALONG PINS SL-1 TO SL-5
DECLINATION: 30°
BEARING: 121°

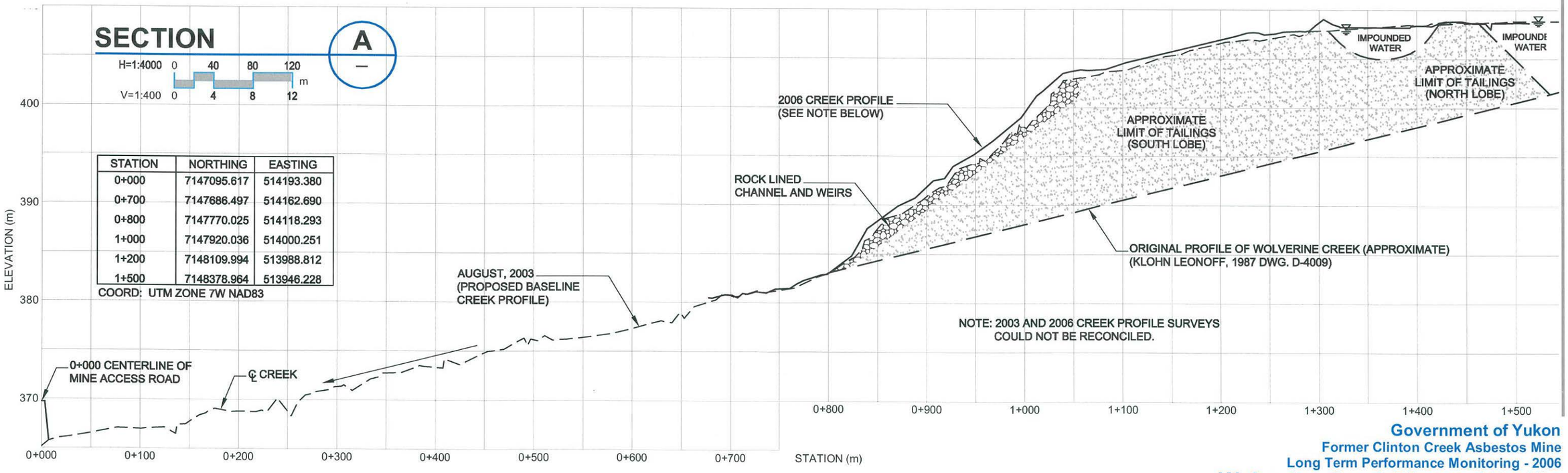
UMA | AECOM

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Wolverine Creek Tailings Pile
Direction of Movement

Drawing - 13





STATION	NORTHING	EASTING
0+000	7147095.617	514193.380
0+700	7147686.497	514162.690
0+800	7147770.025	514118.293
1+000	7147920.036	514000.251
1+200	7148109.994	513988.812
1+500	7148378.964	513946.228

COORD: UTM ZONE 7W NAD83

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring - 2006

Wolverine Creek Plan and Profile

UMA | AECOM

Drawing - 14

Appendix A

Hudgeon Lake Outlet Review

4440-041-01

Indian and Northern Affairs Canada / Affaires indiennes et du Nord Canada

Waste Management Program
345 - 300 Main Street
Whitehorse, Yukon
Y1A 2B5
Phone: 867-667-3268
Fax: 867-667-3271
e-mail: hartshorneb@inac.gc.ca

August 16, 2002

TO:
Mr. Gil Robinson
UMA Engineering Ltd.
Winnipeg
FAX: 204-453-9167

FROM:
Brett Hartshorne
DIAND - Waste Management
Whitehorse

Gil:
Copy for your records.

Regards,

Department of Fisheries and Oceans
100 - 419 Range Road
Whitehorse, Yukon
Y1A 3V1
Attn: Mr. Al Von Finster

VIA FAX: 867-393-6737

re: G. Robertson
Aug - Env. File

Dear Mr. Von Finster:

Re: Clinton Creek Asbestos Mine - Clinton Creek Channel Stabilization Project

DIAND - Waste Management Program is planning to undertake a channel stabilization project on Clinton Creek at the outlet of Hudgeon Lake. We wish to provide, for your review, the following information in addition to the Project Description.

As discussed with you in Dawson City, Yukon on July 24, 2002 the following changes to the design of the short-term channel stabilization works for Clinton Creek will be incorporated:

1. Draw-Down Reduction Weir:
The draw-down reduction weir has been shifted in the upstream direction to provide a 1.0 metre horizontal run between the drawdown reduction weir and the first 0.5 metre step. (A drawing of a typical gabion drop structure is attached.) The end sill of each structure will be relocated during construction such that it is at least 1.0 metre upstream of the downstream end of the gabion structure. This will help to reduce the erosion potential of the channel rip rap placed immediately downstream of each drop structure.

2. Flow During Construction:
We also discussed how the flow from Hudgeon Lake will be handled during construction. Construction of the drop structures will require that the flow be diverted around the work site for a distance of up to 150 metres. This will require that the outlet be dammed off and the flow maintained using a siphon pipe. The objective will be to start the siphon prior to damming off the outlet in order to maintain continuous flow in the channel.

../2

The siphon will consist of one or more pipes ranging in diameter from 200 to 300 mm, what ever may be required to maintain an adequate flow in the channel. A spillpad will be constructed at the downstream end of the siphon to prevent any erosion of the channel bed. The spill pad will be constructed using gabion baskets, clean rock and geotextile. This spill pad will be maintained as required during construction. Upon completion of the work, natural flow will be introduced into the stabilized channel by maintaining the siphon flow until the dam at the outlet is removed. If the level of the lake is below the invert of the outlet at this time the siphon will be allowed to flow into the new channel until the lake recovers sufficiently to begin flowing over the outlet.

3. Increasing Final Lake Elevation:
We also discussed the potential for increasing the elevation of the outlet from Hudgeon Lake by about 300 millimetres. The only concern from a geotechnical view is that the increased water elevation may increase the potential for piping conditions to develop in the channel bed and channel side slopes. All efforts will be made to raise the outlet by approximately 300 millimetres, provided that the stability of the outlet is not compromised.

4. Fish Salvage:
A fish salvage operation will be conducted to retrieve any fish in the creek construction area prior to adjustments to the flow. This will be accomplished by anesthetizing fish in an area approximately 200 metres downstream from the outlet of Hudgeon Lake. (Electrofishing techniques will be implemented if the anesthetizing operation is not successful.) The fish will be appropriately transported to an area downstream of the construction. An experienced team, lead by Mr. Pat Roach of DIAND, will be conducting this operation.

Please review this information. If you have any further questions, or require any clarification, please contact me directly.

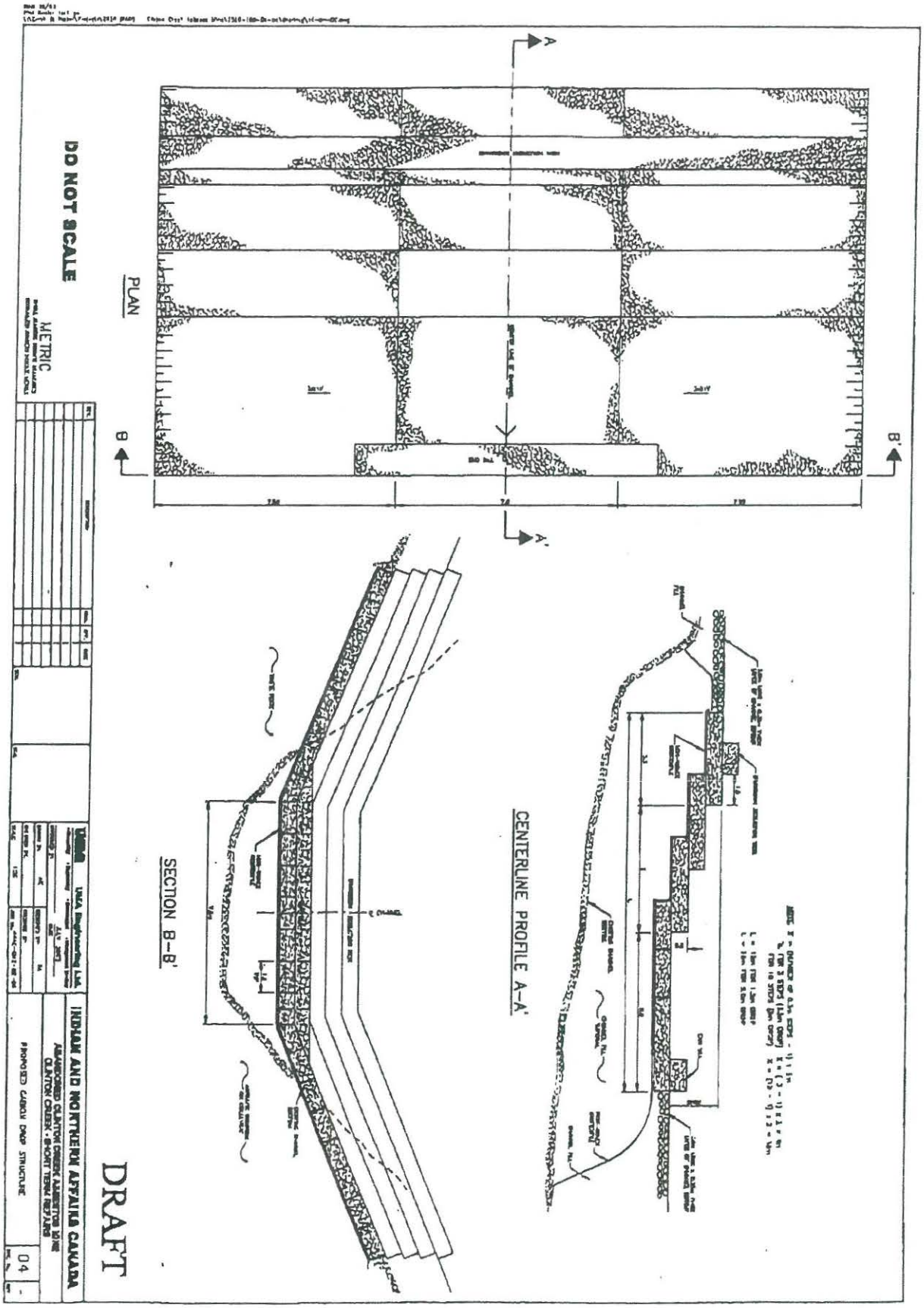
Thank you for your input and continuing efforts on this project.

Sincerely,

Brett Hartshorne, Manager

attached: UMA Drawing 4

cc: Pat Roach - DIAND
Gil Robinson - UMA Engineering Ltd.


DO NOT SCALE
METRIC
PLAN
A
A'
B
B'
SECTION B-B'
CENTERLINE PROFILE A-A'
DRAFT
INDIAN AND NORTHERN AFFAIRS CANADA
ABANDONED CLINTON CREEK, YUKON TERRITORY
CLINTON CREEK - GROUT TERM REPAIRS
PROPOSED GABION DROP STRUCTURE
04

4440-041-01

Fisheries and Oceans
Pêches et Océans

Habitat and Enhancement Branch
Fisheries and Oceans Canada
100-419 Range Road
Whitehorse Yukon
Y1A 3V1
Fax 867-393-6737

August 16, 2002

Waste Management Program
345-300 Main Street
Whitehorse YT
Y1A 2B5
Attn Brett Hartshorne

TO:
Gil Robinson
UMA Engineering Ltd.
Winnipeg, Manitoba
Fax: 204-453-9167

FROM:
Brett Hartshorne
DIAND - Waste Management
Whitehorse, Yukon

P.1 of 2

Gil:
For your information.

Regards,
Brett

cc: G. Robinson
Proj. - Gen. File

Re: **Clinton Creek Channel Stabilisation Project**

Fisheries and Oceans Canada (DFO) has received your proposal to stabilize the channel of Clinton Creek below Hudgeon Lake. The project is described in the May 2002 INAC Abandoned Clinton Creek Asbestos Mine Environmental Liability Report, the August 2002 Project Description for Abandoned Clinton Creek Asbestos Mine Creek Channel Stabilization and in your letter of August 16, 2002 to myself providing clarification on components of the project. Where there is any difference between any of these documents, the most recent document is considered to be the proposal for the work or undertaking concerned.

Provided you implement your proposal, as set out in the documents noted above and in accordance with the advice given below, it is our opinion that the plan as proposed is adequate to protect fish and fish habitat.

Our advice is:

- That the closing of the existing channel of Clinton Creek, construction of the stabilized channel, and the opening of the stabilized channel be done in such a manner as to minimize the release of sediment to downstream waters;
- That all deleterious substances and specifically lubricants, coolants and fuels be used, transferred and stored in such a manner that they are not and do not become deposited in fish bearing waters;
- That DFO is immediately contacted should there be any unexpected circumstances which may result in the harmful alteration of fish habitat as a result or consequence of the project. Contact is to be myself at ph. 393-6721, email vonfinstera@pac.dfo-mpo.gc.ca

If the harmful alteration, disruption or destruction of fish habitat occurs as a result of a change in the project plans, or because of a failure to properly implement the measures outlined in your plans and this letter, contravention of section 35(1) of the Fisheries Act could occur. Section 35(1) the states:

> "No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat."

This Letter of Advice is intended to provide recommendations to ensure that the proposed works are conducted and completed in manner that avoids adverse impacts to fish and fish habitat. It is not an authorization pursuant to s. 35(2) to conduct works that will result in a HADD.

Please also note that this letter of advice does allow the deposit of a deleterious substance into waters frequented by fish and does not release you from the responsibility for obtaining any approvals that may be required under other federal legislation, or the legislation of any other relevant government.

We would request that you notify us when work will commence and that a copy of this letter be kept on site while works are in progress. If you have any questions concerning the measures listed, or should there be any changes to the proposed work, please contact me directly at 393-6721, email vonfinstera@pac.dfo-mpo.gc.ca

Sincerely,

Al von Finster
Resource Restoration Biologist

Copy: J. Duncan, YSC;
B. van Dijken, YSC;
Dawson RRC;
Vince Fraser, TdHFN;
GY Fisheries;
DFO C&P

Fisheries and Oceans | Pêches et Océans

Habitat and Enhancement Branch
Fisheries and Oceans Canada
100-419 Range Road
Whitehorse Yukon
Y1A 3V1
Fax 867-393-6737

Your file Votre référence

Our file Notre référence

Sept 6, 2002

Waste Management Program
345-300 Main Street
Whitehorse YT
Y1A 2B5
Attn Brett Hartshorne

Re: **Clinton Creek Channel Stabilisation Project – Amendment to August 16 Letter of Advice**

A template used to prepare the August 16, 2002 letter of advice provided to you had an error. One of my colleagues with a sharper eye than mine found it and brought it to my attention.

The error is found in the second-to-last paragraph, which reads:

"Please also note that this letter of advice does allow the deposit of a deleterious substance into waters frequented by fish and does not release you from the responsibility for obtaining any approvals that may be required under other federal legislation, or the legislation of any other relevant government."

Please accept the following paragraph as being valid as advice pursuant to the *Fisheries Act* and consider it to be an amendment to the original Letter of Advice:

"Please also note that this letter of advice does **not** allow the deposit of a deleterious substance into waters frequented by fish and does not release you from the responsibility for obtaining any approvals that may be required under other federal legislation, or the legislation of any other relevant government."

My apologies for any difficulty that this oversight on my part may have caused you.

Sincerely,

Al von Finster
Resource Restoration Biologist

Canada

Appendix B

Monitoring Instructions and Protocol
and
Survey Results From Underhill Geomatics

Former Clinton Creek Asbestos Mine
Monitoring Protocol
June 2006

1. Set-up GPS base station near mill site at BM-U1086.
   (Ref. Drawing B-1, Table B-1)

2. Check control points to confirm BM-U1086 is stable
   (Ref. Drawing B-1, Table B-1).

3. Once control has been verified start survey of movement monitoring points.

4. Waste Rock Pile (ref: Drawing B-2):
   - Setup RTK base station Waste Rock pile at U2836,
   - Face Clinton Creek (CC) when surveying points,
   - Survey ground level at the base of the pin on the side of the pin furthest from the creek.

5. Porcupine Pit Slope Monitors (ref: Drawing B-2):
   - Face the open pit when surveying,
   - survey ground level at the base of the pin on the side of the pin furthest from the pit.

6. Clinton Creek Channel Stabilization – Drop Structure Monitoring (ref: Drawing B-3):
   - **2006 Survey: install 4 pins at each drop strucutre as shown on Drawing B-3**
   - Face creek when surveying,
   - survey ground level at the base of the pin on the side of the pin furthest from the creek.
   - Survey cross-sections of drop structures along the line between the two sets of movement monitoring pins at each structure. Take survey shots on top of the gabions at top of slope, mid-slope, toe of slope and centerline.

7. Clinton Creek Centreline Profile Survey (ref. Drawing B-4):
   - Establish TBM's (check 2004 survey files for locations),
   - Start at Station 0+00m (see Table below for co-ordinates),
   - Survey to Station 0+000 to 0+800 m

Clinton Creek Profile Survey: Station Co-ordinates

STATION (m)	NORTHING	EASTING
0+000	7,147,427	512,863
0+250	7,147,366	513,113
0+500	7,147,272	513,363
0+750	7,147,204	513,613
	UTM NAD 83 Zone 7W	

8. Tailings (Ref Drawing B-5):
    - Setup RTK base station near crest of tailings pile (U 2834),
    - Face Wolverine Creek when surveying,
    - survey ground level at the base of the pin on the side furthest from the creek.

9. Wolverine Creek Centreline Profile Survey (Ref Drawing B-6):
    - Establish TBM's if required (check 2003 survey for locations),
    - Start at Station 0+800 m (see Table below for co-ordinates),
    - Survey Station 0+700 to 1+500 m

Wolverine Creek Profile Survey: Station Co-ordinates

STATION (m)	NORTHING	EASTING
0+000	7,147,095.6	514,193.4
0+700	7,147,686.5	514,162.7
0+800	7,147,770.0	514,118.3
1+000	7,147,920.0	514,000.3
1+200	7,148,110.0	513,988.8
1+500	7,148,379.0	513,946.2
	UTM NAD 83 Zone 7W	

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine
UMA Job No.: 6029-007-00

Table B-1) Benchmarks at Former Clinton Creek Mine

UTM NAD83 ZONE 7N

Based on 1999 Air Photo Control (U1189 Destroyed)
Set new Control Points U1086 and U1836. Tied 2001 Control Points in stable areas

	Northing (m)	Easting (m)	Elevation (m)	ID
1086	7,147,972.205	513,176.707	590.950	U1086
1182	7,146,634.155	513,637.686	465.460	U1182
1190	7,149,824.696	512,500.926	609.520	U1190
1191	7,147,605.454	513,589.857	528.930	U1191
1192	7,147,564.047	512,278.761	441.290	U1192
1193	7,146,545.113	513,572.457	456.430	U1193
1200	7,147,166.861	513,662.996	375.480	U1200
1836	7,146,656.183	513,597.724	476.540	U1836
2834	7,148,172.722	513,447.467	607.224	U2834
2836	7,146,814.577	513,092.158	478.422	U2836
5698	7,147,458.764	512,825.164	415.050	U5698
5699	7,147,485.368	512,618.332	425.550	U5699
5700	7,147,657.353	512,155.907	481.380	U5700

Local Mine Ground Control Transformed to UTM

Transformation based on U5698,U5699,U5700,U1182 common 2001 and 2003 ties.(U1184 not found)
Used U5698 as base. LDD handles scale to ground and rotation -0°17'15" to grid. Manually scale to metric.
Elevation differences based on U1561 (UTM = 423.803m., LOCAL = 1389.87ft.)

	Northing (m)	Easting (m)	Elevation (m)	ID
228	7,146,650.833	513,454.406	500.740	U228
280	7,146,404.795	513,292.824	501.030	U280
300	7,147,747.252	512,674.428	509.290	HILL
400	7,146,435.213	513,325.619	495.390	SHACK
900	7,147,649.576	513,899.213	489.860	GTRAV
1561	7,148,082.327	514,012.370	423.800	U1561

LOCAL MINE GROUND SYSTEM(feet)

2003 GPS Control transformed to ground

	Northing (ft)	Easting (ft)	Elevation (ft)	ID
1086	113,283.833	107,216.924	1,938.260	U1086
1182	108,884.267	108,707.955	1,526.550	U1182
1190	119,375.619	105,029.244	1,999.190	U1190
1191	112,073.197	108,566.986	1,734.780	U1191
1192	111,958.873	104,262.818	1,447.250	U1192
1193	108,593.080	108,492.379	1,496.920	U1193
1200	110,632.388	108,799.766	1,231.340	U1200
1836	108,957.224	108,577.153	1,562.900	U1836
5698	111,604.300	106,054.560	1,361.160	U5698
5699	111,695.030	105,376.109	1,395.610	U5699
5700	112,267.162	103,861.093	1,578.780	U5700

Local mine control from historical files

	Northing (ft)	Easting (ft)	Elevation (ft)	ID
228	108,941.540	108,107.020	1,642.290	U228
280	108,136.470	107,572.500	1,643.240	U280
300	112,553.880	105,564.450	1,670.330	HILL
400	108,235.800	107,680.660	1,624.750	SHACK
900	112,213.030	109,583.730	1,606.590	GTRAV
1561	113,631.480	109,961.620	1,389.870	U1561

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine
UMA Job No.: 6029-007-00

Upper Slope) Elevation > 450m
Mid-Slope) Elevation 420 to 450m
Lower Slope) Elevation < 420m

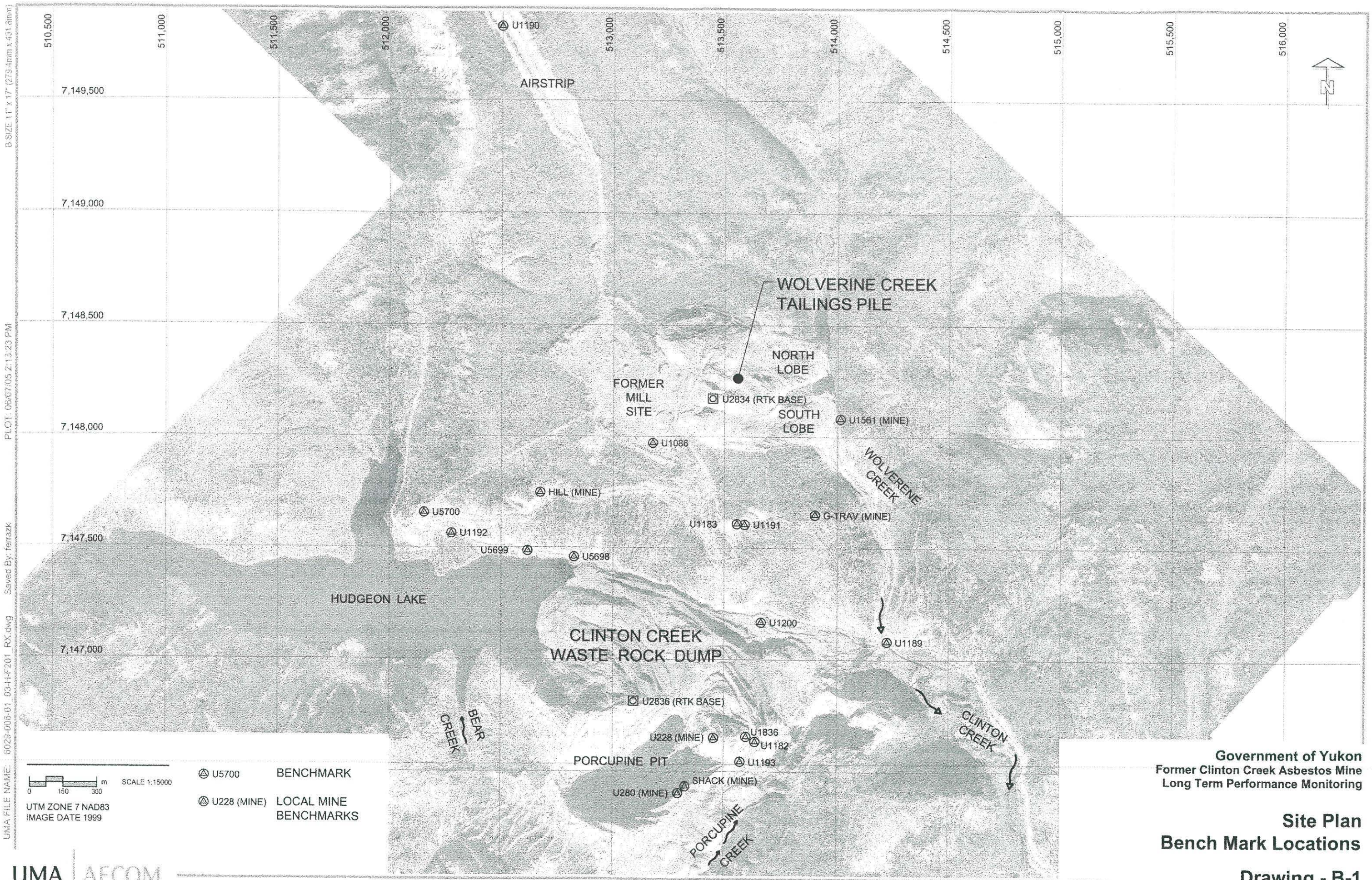
Table B-2) Clinton Creek Waste Rock Dump Instrumentation

Description	ID	Location	Type	Stick Up		Serial No on Prism	Marker Cone	Monitor Tag	Underhill Geomatics Tag	Underhill Survey (Aug 21/03) UTM NAD 83			Comments
				(cm)	(feet)					Northing	Easting	Elevation	
Movement Monitor	0225	Upper Slope						0225	0225	7,146,918.716	512,905.221	475.17	
Movement Monitor	0223	Upper Slope						0223	0223	7,146,978.053	512,942.739	467.22	
Movement Monitor	1834	Upper Slope						1834	1834	7,146,973.618	512,893.433	461.12	
Movement Monitor	UU1195	Upper Slope	Bench Mark	NA				UU1195		7,147,111.936	512,899.532	456.59	
Movement Monitor	81-1	Upper Slope		143	4.69			81-1		7,147,034.819	512,978.933	455.27	Old Pin
Movement Monitor	21-A	Mid-Slope	Prism	121	3.97			21-A		7,147,228.197	512,915.152	446.54	Old Pin with prism
Movement Monitor	20-A	Mid-Slope	Prism	130	4.27			20-A		7,147,207.859	513,057.137	445.83	Old Pin with prism
Movement Monitor	22-A	Mid-Slope		122			YES	22-A		7,147,224.290	512,841.309	444.99	
Movement Monitor	0224	Mid-Slope						0224	0224	7,147,241.091	512,963.327	444.85	Old pin found
Movement Monitor	UU1196	Mid-Slope	Bench Mark	NA				UU1196		7,147,231.232	513,066.175	444.08	
Movement Monitor	81-2	Mid-Slope		135	4.43		YES	81-2		7,147,205.285	513,011.562	443.75	Old Pin
Movement Monitor	0227	Mid-Slope						0227	0227	7,147,076.844	513,124.776	439.48	
Movement Monitor	0229	Mid-Slope						0229	0229	7,147,113.528	512,719.142	437.43	Old Pin found
Movement Monitor	4	Mid-Slope		52	1.71			4		7,147,211.284	513,193.636	435.18	Old Pin
Movement Monitor	68	Mid-Slope		120	3.94		YES	68		7,147,262.029	513,142.415	434.42	
Movement Monitor	UU1194	Mid-Slope	Bench Mark	NA				UU1194		7,147,017.321	513,472.438	433.19	
Movement Monitor	1831	Mid-Slope						1831	1831	7,147,227.179	512,766.646	432.85	
Movement Monitor	19	Mid-Slope	3/4" diam. Bar	156	5.12		YES	19		7,147,124.347	513,365.638	429.24	located 3m east of #19-B
Movement Monitor	19-B	Mid-Slope	1/2" diam. Bar	62	2.03			19-B		7,147,126.637	513,363.485	429.13	was 19. Should be 19-B
Movement Monitor	1839	Mid-Slope	Marker					1839	1839	7,146,861.354	513,285.180	428.66	Marker Pin for T2
Movement Monitor	0226	Lower Slope						0226	0226	7,147,311.525	513,066.355	426.46	Was Underhill tag CP1635-1.
Movement Monitor	1833	Lower Slope	3/8" Steel Pin					1833	1833	7,147,302.699	512,921.250	418.34	
Movement Monitor	XS-G	Lower Slope	3/4" Steel Pin					n/a		7,147,356.110	513,038.841	416.54	Destroyed
Piezometer	P2	Lower Slope	1" white pipe					P2		7,147,354.357	512,999.352	416.10	P1 destroyed
Piezometer	P3	Lower Slope	1" white pipe					P3		7,147,309.317	513,135.578	415.35	
Movement Monitor	69	Lower Slope	Marker?	54	1.77			69		7,147,335.532	513,140.577	414.90	Mon 69 in previous UMA survey
Movement Monitor	0217	Lower Slope	Marker	33	1.08			0217	0217	7,147,314.731	513,183.178	414.87	XS-A in previous UMA survey
Movement Monitor	0228	Lower Slope						0228	0228	7,147,346.995	512,836.840	413.95	
Movement Monitor	80-13	Lower Slope	3/8" Steel Pin					80-13		7,147,299.401	513,183.839	413.08	Found on South Side of Road
Movement Monitor	XS-A	Lower Slope	3/4" Steel Pin	33	1.08			XS-A		7,147,320.214	513,190.989	411.33	Nearly in Creek
Movement Monitor	0219	Lower Slope	Marker				NA	0219	0219	7,147,292.121	513,274.646	404.60	Monitor 83 in previous UMA Survey
Movement Monitor	XS-B	Lower Slope	3/4" Steel Pin	64	2.10			XS-B		7,147,293.649	513,274.196	404.28	Nearly in Creek
Movement Monitor	80-14	Lower Slope	3/4" Steel Pin				NA	80-14	No	7,147,267.767	513,283.109	403.77	Found on South Side of Road
Movement Monitor	0222	Lower Slope	Marker	58	1.90			0222	0222	7,147,269.485	513,334.964	398.01	XS-C in previous UMA Survey
Piezometer	P4	Lower Slope	1" white pipe					P4		7,147,239.500	513,347.557	397.28	
Movement Monitor	0220	Lower Slope	Marker	72	2.36		NA	0220	0220	7,147,223.417	513,430.902	388.65	XS-E in previous UMA Survey
Movement Monitor	0218	Lower Slope	Marker	67	2.20		NA	0218	0218	7,147,222.214	513,433.185	388.04	Mon-X in previous UMA Survey
Movement Monitor	XS-E	Lower Slope	3/4" Steel Pin	NA			NA	XS-E	No	7,147,224.703	513,432.222	387.53	
Piezometer	P5	Lower Slope	1" white pipe					P5		7,147,182.931	513,461.461	387.21	
Movement Monitor	84-1	Lower Slope	Marker	54	1.77			84-1		7,147,201.069	513,504.647	381.77	
PORCUPINE PIT AREA													
Movement Monitor	1839	north of pit	Marker					1839	1839	7,146,861.354	513,285.180	428.66	located at entrance to open pit
Movement Monitor	U1493	NE of pit	Marker					U1493	U1493	7,146,801.561	513,576.663	453.00	Located NW od former crusher building
Movement Monitor	1832	West pit slope	Marker					1832	1832	7,146,537.063	513,483.131	473.62	Pit Slope Monitor
Movement Monitor	1830	West pit slope	Marker					1830	1830	7,146,523.769	513,455.681	471.67	Pit Slope Monitor
Movement Monitor	1837	West pit slope	Marker					1837	1837	7,146,502.874	513,411.468	470.22	Pit Slope Monitor
Movement Monitor	1838	West pit slope	Marker					1838	1838	7,146,491.909	513,380.524	468.34	Pit Slope Monitor, original markings show '320'
1978 TEST HOLE LOCATIONS (WITH THERMISTORS)													
BH - 1 (T1)	T1	Mid-Slope	cable	NA				BH - 1 (T1)		7,146,863.402	513,381.017	422.96	Borehole / Thermistor
BH - 2 (T2)	T2	Mid-Slope	cable	NA				BH - 2 (T2)		7,146,882.784	513,274.725	424.28	Borehole / Thermistor
BH-4 (T3)	T3	Upper Slope	cable	NA									Borehole / Thermistor - cable cut
BH-6 (T4)	T4	Lower Slope											Destroyed

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine
UMA Job No.: 6029-007-00
Survey By: Underhill Geomatics - Whitehorse, YT

Table B-3) Wolverine Creek Tailings Pile - Movement Monitor Summary
Datum: NAD83, UTM Zone 7 Coordinates

Station	Northing	Easting	Elevation	Comment
24	7,148,033.895	513,525.561	549.553	
26	7,148,341.494	513,483.546	575.081	
1083 / NL-2	7,148,354.012	513,936.519	414.078	
1084	7,148,017.993	513,618.378	516.095	
1085	7,148,346.060	513,666.411	488.824	
1484	7,148,149.184	513,961.975	417.949	
1485	7,148,018.022	513,703.459	480.101	
1489	7,148,305.198	513,928.504	413.635	
1491	7,148,376.821	513,868.989	432.316	
1492	7,148,053.727	513,409.949	609.982	
1495	7,148,526.645	513,528.950	529.066	
2834	7,148,172.721	513,447.481	607.227	RTK base for tailings survey
1483	7,148,233.020	513,412.679	608.997	
24-A	7,148,035.439	513,775.702	464.888	
24-B	7,148,045.334	513,833.263	445.888	
24-D	7,148,071.928	513,920.650	422.279	
25-B	7,148,065.753	513,948.634	422.031	
26-A	7,148,339.318	513,540.493	557.740	
350-1A	7,148,298.609	513,822.642	448.002	
350-2A	7,148,300.538	513,873.845	428.576	
350-3A	7,148,312.197	513,899.138	417.275	
500-1	7,148,343.237	513,725.526	474.010	
500-2	7,148,344.367	513,842.258	438.050	
650-1	7,148,408.753	513,701.306	483.907	
650-2	7,148,400.253	513,816.079	439.717	
80-1	7,148,408.034	513,543.064	555.613	
80-2	7,148,290.083	513,549.484	552.632	
80-4	7,148,201.727	513,689.474	501.415	
80-5	7,148,249.423	513,718.768	481.074	
80-7	7,148,344.005	513,890.893	422.399	
80-9	7,147,996.383	513,970.725	411.035	
BH-14 T7	7,148,488.334	513,562.988	530.299	
BH-16 T8 CORD	7,148,048.627	513,761.307	464.593	
BH-16 T8 POST	7,148,048.841	513,761.873	464.910	
NL-1	7,148,365.727	513,942.447	413.164	
NL-2	see 1083			NL-2 and 1083 are the same point
NL-3	7,148,334.731	513,926.880	417.046	
NL-4	7,148,307.194	513,912.986	416.159	
NL-5	7,148,275.174	513,896.964	415.416	
SL-1	7,148,079.086	513,970.461	419.764	
SL-2	7,148,087.009	513,956.878	422.458	
SL-3	7,148,100.541	513,933.163	420.779	
New Points Established in 2005				
NL-Base	7,148,154.79	513,836.26	431.47	existing point tied in
SL-4	7,148,115.67	513,907.57	416.88	existing point tied in
SL-5	7,148,133.63	513,876.08	422.91	existing point tied in
2005-01	7,148,100.15	513,757.89	463.73	new point for 2005
2005-02	7,148,118.21	513,816.95	447.89	new point for 2005
2005-03	7,148,108.16	513,870.12	428.18	new point for 2005
2005-04	7,148,047.07	513,876.04	428.36	new point for 2005
2005-05	7,148,000.57	513,781.55	464.67	new point for 2005
2005-06	7,147,999.72	513,865.78	433.29	new point for 2005
2005-07	7,148,000.11	513,945.37	416.35	new point for 2005
2005-08	7,148,038.85	513,970.98	415.77	new point for 2005
2005-09	7,148,124.38	513,969.23	420.18	new point for 2005
2005-10	7,148,146.69	513,925.39	411.78	new point for 2005
2005-11	7,148,176.10	513,942.17	411.91	new point for 2005



UMA | AECOM

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring

Site Plan
Bench Mark Locations

Drawing - B-1

CREEK STABILIZATION AREA INCLUDING:
HUDGEON LAKE OUTLET
AND FOUR GABION
DROP STRUCTURES

HUDGEON LAKE

CLINTON CREEK
WASTE ROCK DUMP

WOLVERINE CREEK

CLINTON CREEK

FORMER CRUSHER BUILDING (DEMOLISHED)

SNOWSHOE PIT

PORCUPINE PIT

PORCUPINE PIT SLOPE MONITORS

CREEK PIT

±420 CONTOUR

±450 CONTOUR

±460 CONTOUR

P2 P3 P4 P5

XS-A XS-B XS-E XS-G

80-13 80-14 81-1 81-2 84-1

0217 0218 0219 0220 0222 0223 0224 0225 0226 0227 0228 0229

1831 1832 1833 1834 1837 1838 1839

22A 21A 20A 19 4 68 69

U1194 U1195 U1196 U1493

7,147,500
7,147,000
7,146,500
513,000
513,500
514,000

SCALE 1:5000
0 50 100 m
UTM ZONE 7 NAD83
IMAGE DATE 1999

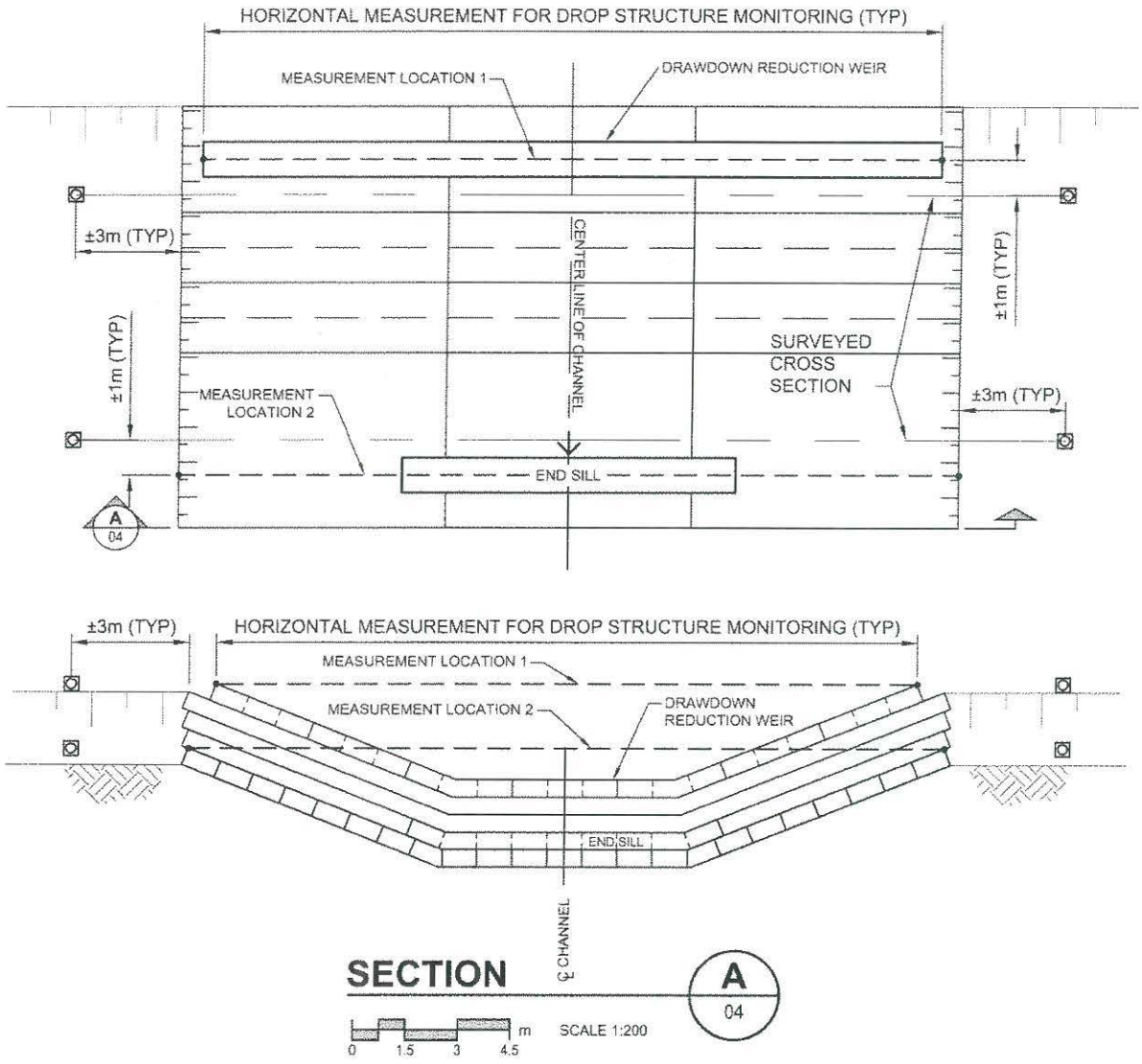
0226	MONITOR LOCATION (ACTIVE)	ELEVATION >450± - UPPER SLOPE
XS-G	MONITOR LOCATION (DESTROYED)	ELEVATION >420± <450± - MID SLOPE
P2	PIEZOMETER LOCATION	ELEVATION <420± LOWER SLOPE

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring

Clinton Creek Waste Rock Dump Movement Monitors

Drawing - B-2

UMA | AECOM



NOTE: MONITORING LOCATIONS APPLY TO ALL FOUR DROP STRUCTURES.

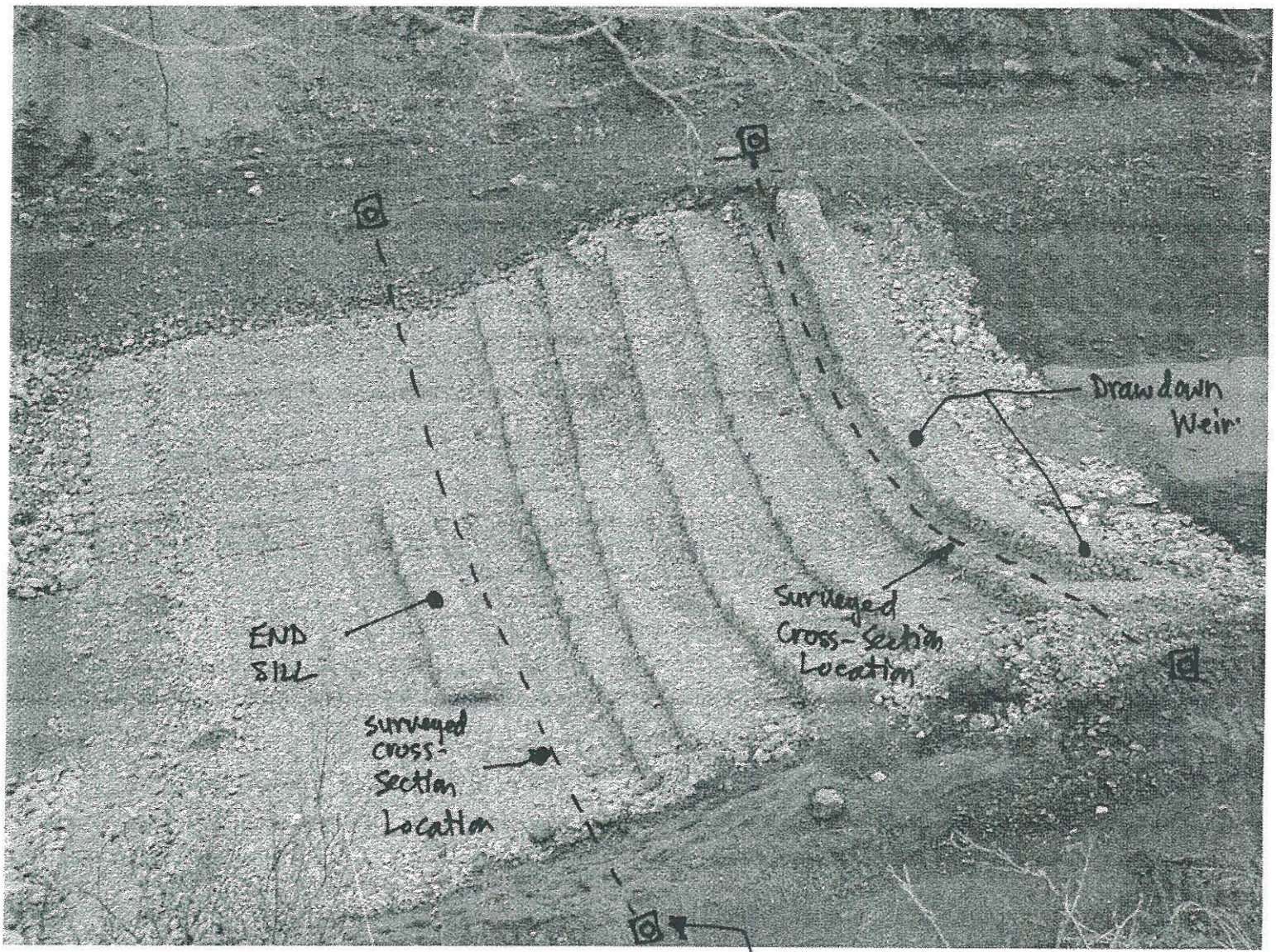
⊡ PROPOSED CHANNEL CLOSURE MOVEMENT MONITOR (19mm Ø STEEL PIN) — to be installed during 2006 Survey (see attached photo)

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring

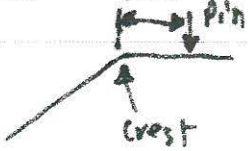
Drop Structure Monitoring

UMA | AECOM

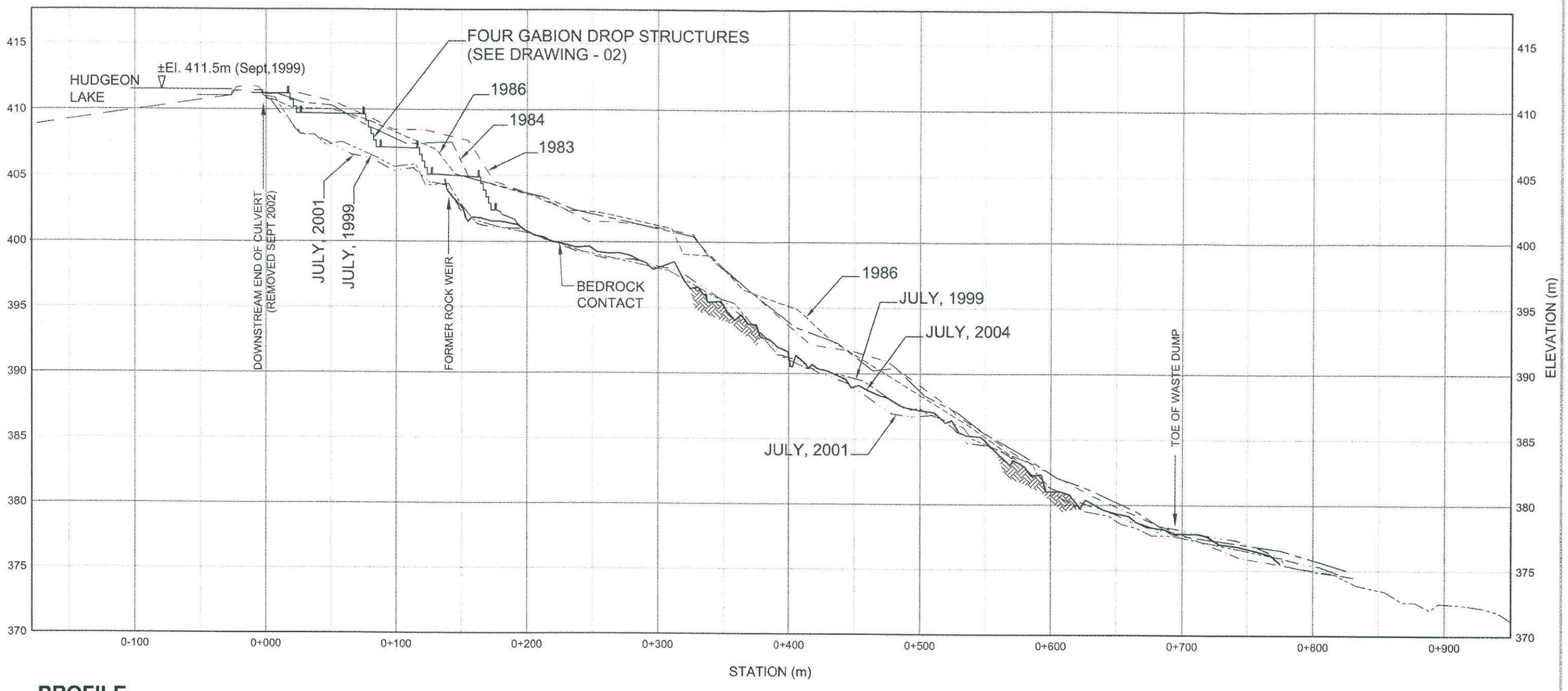
Drawing - B-3



Drop Structure Monitoring Plan
- pin locations
- x-section locations



Monitoring Pins TO Be Installed
- locate @ areas shown
- put on flat area at least 1m from slope crest
- survey sections of drop structure in-line with pin locations.



PROFILE

0 30 60 H=1:3000
m
0 3 6 V=1:300

STATION	NORTHING	EASTING
0+000	7,147,427	512,863
0+250	7,147,366	513,113
0+500	7,147,272	513,363
0+750	7,147,204	513,613

COORD: UTM ZONE 7W NAD83

LEGEND

- PROFILE 1983
- PROFILE 1984
- PROFILE 1986
- PROFILE 1999
- PROFILE 2001
- PROFILE 2004

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring

Clinton Creek
Channel Profile

Drawing - B-4

UMA | AECOM

B SIZE 11" x 17" (279.4mm x 431.8mm)

PLOT: 06/07/05 2:15:42 PM

Saved By: ferrazk

UMA FILE NAME: 6029-006-01_03-H-F205_RX.dwg

513,000

513,500

514,000

7,148,500

7,148,000

530

425

1495

BH-14(T7)

WOLVERINE CREEK

80-1

650-1

650-2

1491

NL-1 13cm

1083 (NL-2) 13cm

NL-3 10cm

350-3A 12cm

1489 9cm

NL-4 11cm

NL-5 6cm

NORTH LOBE

26

26A

1085

500-1

500-2

80-7

80-2

350-1A

350-2A

80-5

80-4

1483

FORMER MILL SITE

2834 (RTK BASE)

2005-01

NL-BASE

2005-02

1484

SL-5

2005-03

SL-3 58cm

SL-2 35cm

SL-1 20cm

WOLVERINE CREEK TAILINGS PILES

2005-10

SL-4

2005-11

2005-09

24D

SOUTH LOBE

BH-16(T8)

25B

24B

2005-04

1492

24

1084

1485

24A

2005-08

2005-07

2005-06

2005-05

80-9

U1086

UPPER SLOPE AREA

MID SLOPE AREA

LOWER SLOPE AREA

ROCK LINED CHANNEL AND ROCK WEIRS

530m ELEVATION CONTOUR

425m ELEVATION CONTOUR

24 MONITOR LOCATION (ACTIVE)

2005-01 MONITOR LOCATION (ADDDED IN 2005)

SL/NL-01 VISUAL ALIGNMENT PIN

BH-14 (T7) 1978 TEST HOLE LOCATION

0 40 80 120 m

SCALE 1:4000

UTM ZONE 7 NAD83

IMAGE DATE 1999

COMPASS BEARING FROM NL-BASE ALONG PINS NL-1 TO NL-5
DECLINATION: 30°
BEARING: 208°

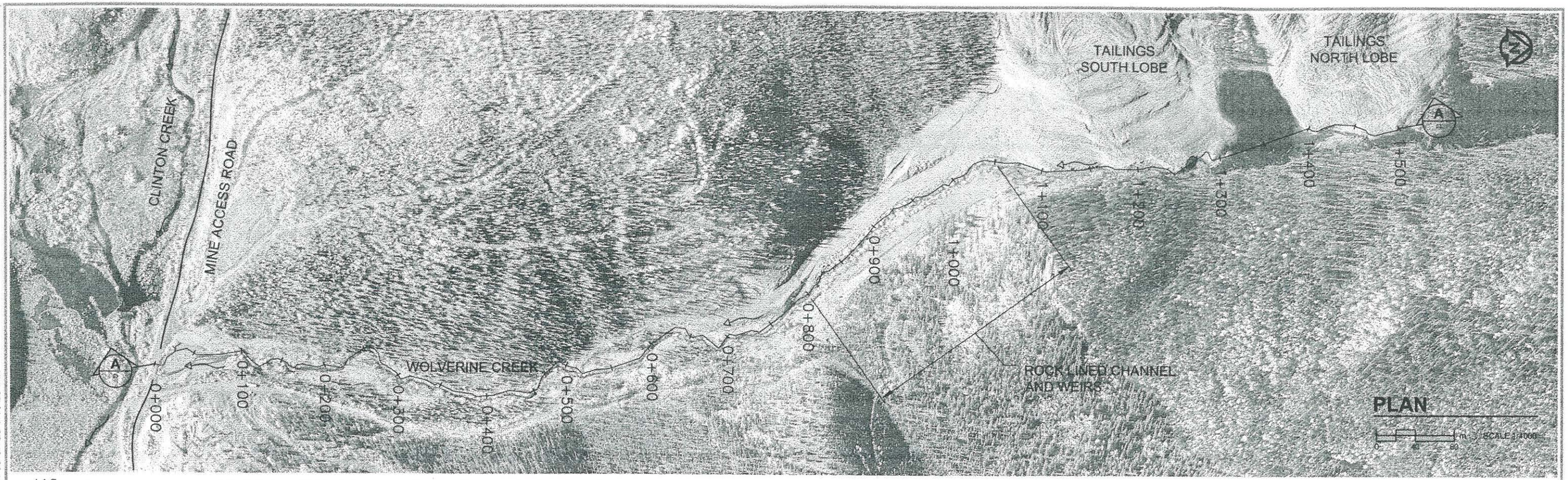
COMPASS BEARING FROM NL-BASE ALONG PINS SL-1 TO SL-5
DECLINATION: 30°
BEARING: 121°

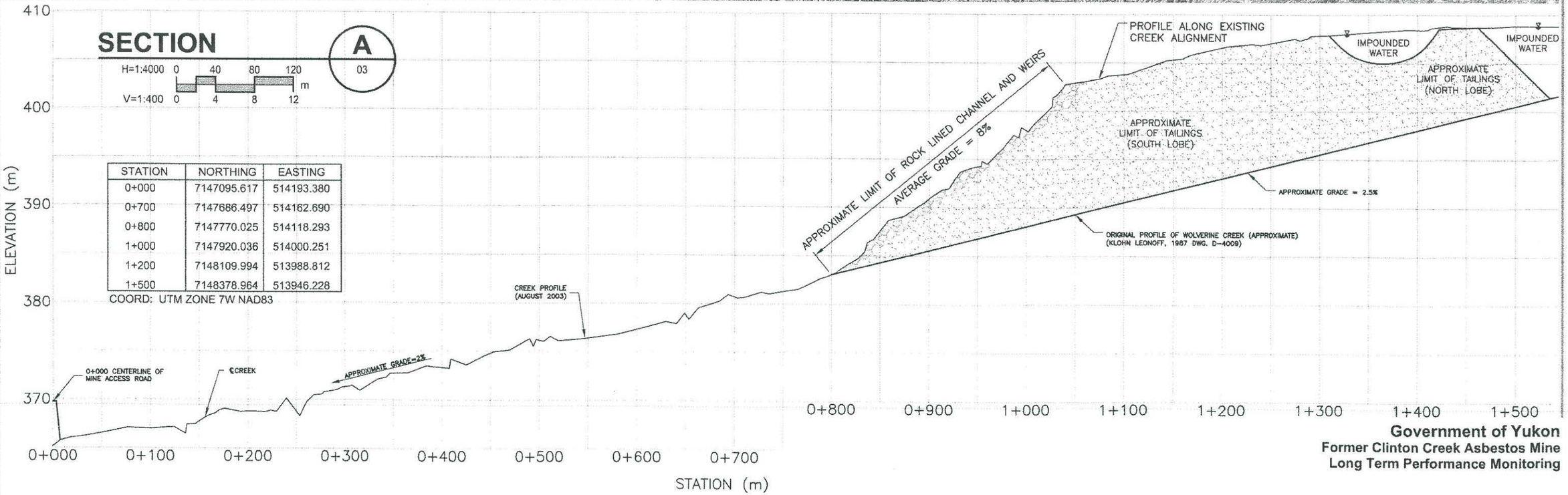
Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring

Wolverine Creek Tailings Pile Movement Monitors

Drawing - B-5

UMA | AECOM





STATION	NORTHING	EASTING
0+000	7147095.617	514193.380
0+700	7147686.497	514162.690
0+800	7147770.025	514118.293
1+000	7147920.036	514000.251
1+200	7148109.994	513988.812
1+500	7148378.964	513946.228

COORD: UTM ZONE 7W NAD83

Government of Yukon
Former Clinton Creek Asbestos Mine
Long Term Performance Monitoring

UMA | AECOM

Wolverine Creek Plan and Profile
Drawing - B-6

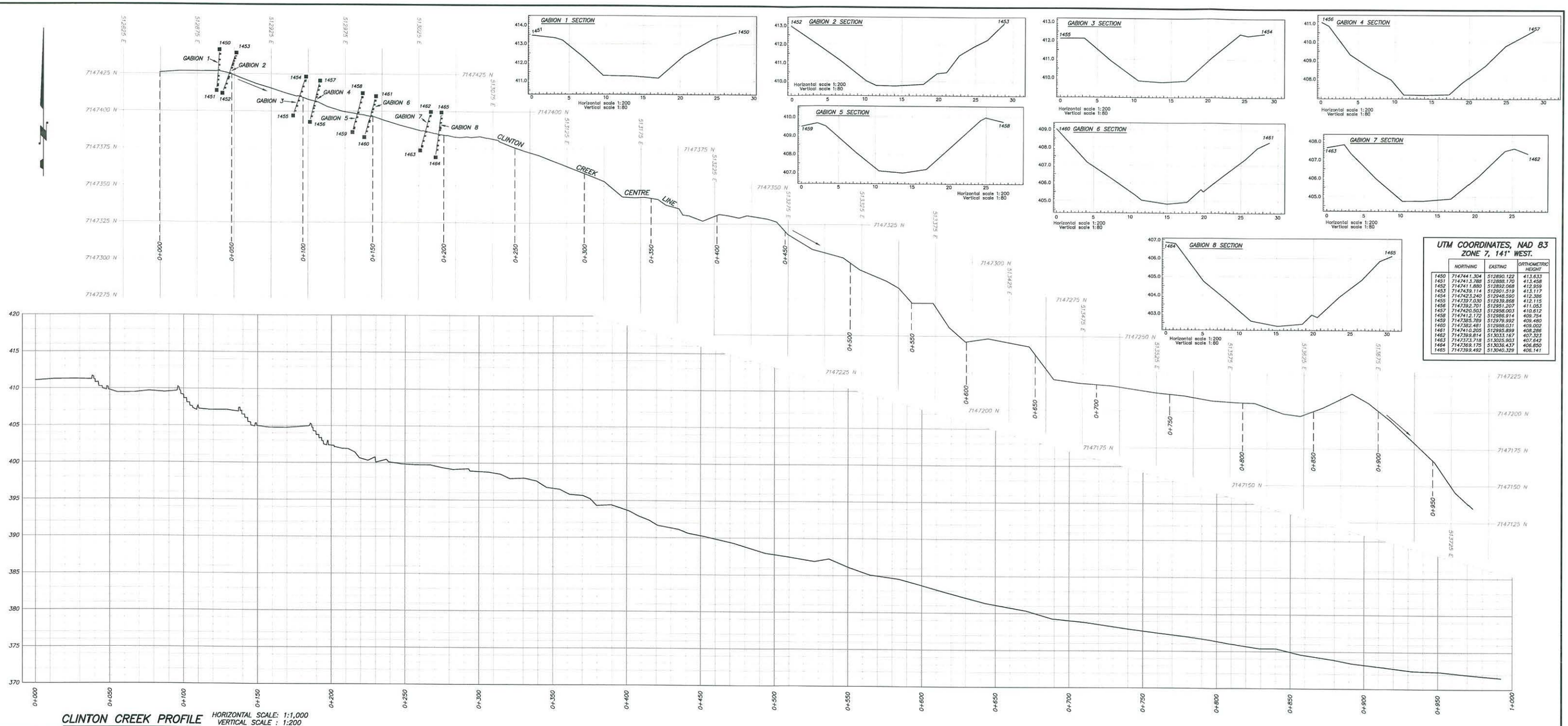
CLINTON CREEK LONG TERM PERFORMANCE MONITORING PROGRAM (AUGUST 2006)
UTM COORDINATES
NAD 83, Zone 7, 141° West

CONTROL			
	NORTHING	EASTING	OTHOMETRIC HEIGHT
1086	7147972.219	513176.710	590.955
1192	7147564.009	512278.758	441.286
2834	7148172.719	513447.524	607.146
2835	7147272.645	513147.179	432.938
2836	7146814.619	513092.380	478.168
5698	7147458.764	512825.164	415.050

Coordinates are NAD 83 UTM grid, derived from a least squares adjustment of GPS observations holding values of stations 5698 and 1086 fixed in 3D.

WOLVERINE CREEK TAILINGS PILES				
	NORTHING	EASTING	ORTHOMETRIC HEIGHT	
2834	7148172.719	513447.524	607.146	Real Time Kinematic base for tailings survey
1083	7148354.026	513936.743	414.061	
1084	7148018.002	513618.940	515.984	
1085	7148346.077	513666.465	488.816	
1483	7148233.057	513412.703	608.996	
1484	7148150.100	513962.627	417.980	
1485	7148018.164	513705.012	479.623	
1489	7148305.124	513928.618	413.619	
1491	7148376.898	513869.237	432.339	
1492	7148053.676	513410.039	609.788	
1495	7148526.672	513529.020	529.058	
2005-02	7148118.323	513817.414	447.768	
2005-05	7148000.645	513782.242	464.513	
2005-1	7148100.130	513758.452	463.638	
2005-10	7148146.969	513925.660	411.802	
2005-11	7148176.453	513942.334	411.957	
2005-3	7148108.351	513870.582	428.035	
2005-4	7148047.268	513876.558	428.263	
2005-6	7147999.736	513866.222	433.216	
2005-7	7148000.073	513945.390	416.364	
2005-8	7148038.813	513971.059	415.789	
2005-9	7148124.552	513969.464	420.278	
24	7148033.921	513525.892	549.369	
24-A	7148035.660	513777.191	464.471	
24-B	7148045.693	513834.658	445.459	
24-D	7148072.445	513921.532	422.294	
25-B	7148065.812	513949.047	422.148	
26	7148341.500	513483.576	575.067	
26-A	7148339.326	513540.543	557.709	
350-1A	7148298.652	513822.903	447.931	
350-2A	7148300.519	513874.081	428.520	
350-3A	7148312.162	513899.340	417.289	
500-1	7148343.238	513725.559	474.095	
500-2	7148344.388	513842.527	438.022	
650-1	7148408.772	513701.346	483.893	
650-2	7148400.246	513816.267	439.697	
80-1	7148408.021	513543.144	555.553	
80-2	7148290.088	513549.604	552.541	
80-4	7148201.897	513690.347	501.140	
80-5	7148249.549	513719.405	480.959	
80-7	7148343.990	513891.158	422.372	
80-9	7147996.355	513970.798	411.120	
BH-14	7148488.374	513563.023	530.338	
BH-16 T8 CORD	7148048.791	513762.765	464.195	
BH-16 T8 POST	7148048.998	513763.332	464.461	
NL-1	7148365.702	513942.695	413.153	
NL-3	7148334.747	513927.079	417.084	
NL-4	7148307.120	513913.194	416.112	
NL-5	7148275.137	513897.102	415.414	
NL-BASE	7148154.782	513836.229	431.376	
SL-1	7148078.843	513971.095	419.835	
SL-2	7148087.075	513957.681	422.654	
SL-3	7148101.129	513933.984	420.863	
SL-4	7148115.912	513907.912	416.816	
SL-5	7148133.855	513876.515	422.785	

CLINTON CREEK WASTE ROCK DUMP				
	NORTHING	EASTING	ORTHOMETRIC HEIGHT	
2835	7147272.645	513147.179	432.938	Real Time Kinematic base for waste rock dump survey
4	7147211.160	513193.613	435.063	
68	7147262.021	513142.361	434.310	
69	7147335.493	513140.519	414.910	
217	7147314.718	513183.156	414.858	
218	7147222.197	513433.176	388.091	
219	7147292.124	513274.621	404.621	
220	7147223.417	513430.884	388.680	
222	7147269.510	513334.934	397.993	
223	7146978.118	512942.727	467.206	
224	7147241.171	512963.286	444.785	
225	7146918.769	512905.177	475.145	
226	7147311.555	513066.415	426.359	
227	7147076.818	513124.774	439.453	
228	7147347.133	512836.728	413.920	
229	7147113.553	512719.106	437.385	
1194	7147017.427	513472.438	433.084	
1195	7147111.952	512899.496	456.561	
1196	7147231.284	513066.231	443.966	
1493	7146801.846	513576.599	452.894	
1830	7146523.788	513455.675	471.728	
1831	7147227.356	512766.550	432.713	
1832	7146537.038	513483.162	473.681	
1833	7147302.781	512921.237	418.345	
1834	7146973.691	512893.357	461.090	
1837	7146502.876	513411.444	470.239	
1838	7146491.872	513380.525	468.381	
1839	7146861.403	513285.195	428.595	
2836	7146814.581	513092.369	478.120	
2838	7147271.247	513328.531	399.085	
2839	7147334.925	513144.941	414.601	
20-A	7147207.883	513057.144	445.691	
21-A	7147228.259	512915.109	446.383	
22-A	7147224.400	512841.264	444.813	
570S	7146977.441	513497.335	436.715	
80-13	7147299.345	513183.823	413.104	
80-14	7147267.647	513283.104	403.797	
81-1	7147034.804	512978.920	455.183	
81-2	7147205.278	513011.594	443.711	
84-1	7147201.090	513504.630	381.825	
T2 (BH-02)	7146883.125	513275.133	424.243	
T1 (BH-1)	7146863.698	513381.506	422.917	
P2 (BH-10)	7147354.500	512999.344	415.985	
T3 (BH-4)	7146871.229	513025.091	471.130	
P4 (BH-7)	7147239.444	513347.502	397.338	
P5 (BH-8)	7147182.915	513461.402	387.241	
P3 (BH-9)	7147309.3	513135.533	415.189	
photo-target	7147186.132	513554.593	379.038	
ROD	7146818.359	513088.055	478.312	
XS-A	7147315.671	513189.815	413.347	
XS-B	7147293.671	513274.181	404.307	
XS-E	7147224.66	513432.163	387.587	



CLINTON CREEK PROFILE

HORIZONTAL SCALE: 1:1,000
VERTICAL SCALE : 1:200

UTM COORDINATES, NAD 83 ZONE 7, 141° WEST.

	NORTHING	EASTING	ORTHOMETRIC HEIGHT
1450	7147441.304	512890.122	413.633
1451	7147413.788	512888.170	413.458
1452	7147411.880	512882.068	412.559
1453	7147439.114	512901.519	413.117
1454	7147423.240	512948.590	412.386
1455	7147397.030	512939.868	412.115
1456	7147392.701	512951.207	411.053
1457	7147420.503	512958.003	410.612
1458	7147412.172	512986.914	409.754
1459	7147385.789	512979.992	409.480
1460	7147382.481	512988.031	409.002
1461	7147410.205	512985.899	408.286
1462	7147398.814	513033.167	407.323
1463	7147373.718	513025.903	407.642
1464	7147369.175	513036.437	406.850
1465	7147399.492	513040.329	406.141

UNDERHILL GEOMATICS LTD.
PROFESSIONAL LAND SURVEYORS
WHITEHORSE, YUKON TERRITORY

Iron Bar placed shown thus . . . . . ■

Distances shown are horizontal at general ground level and are expressed in metres.

Coordinates are NAD 83, Zone 7, derived from GPS dual frequency phase observations holding cordinates of UGL station 2835 fixed in 3D

REV	Y	M	D	REVISION DESCRIPTION	DRN	CHK	APP
0	06	08	18	ISSUED	JLS	GCF	GCF

CLIENT: GOVERNMENT OF YUKON

TITLE: CLINTON CREEK PROFILE
LONG TERM PERFORMANCE MONITORING PROGRAM

SCALE	FILE NUMBER	DRAWING NUMBER	SHEET	REVISION
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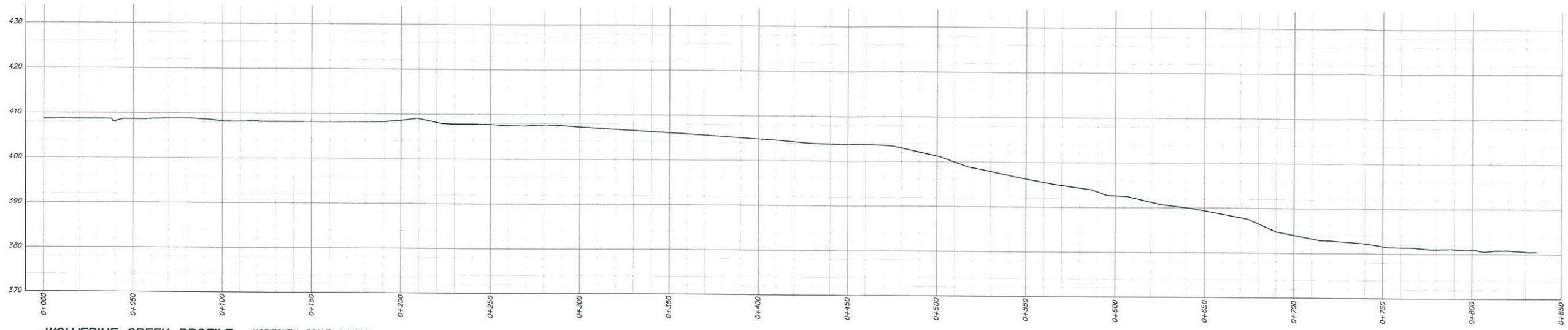
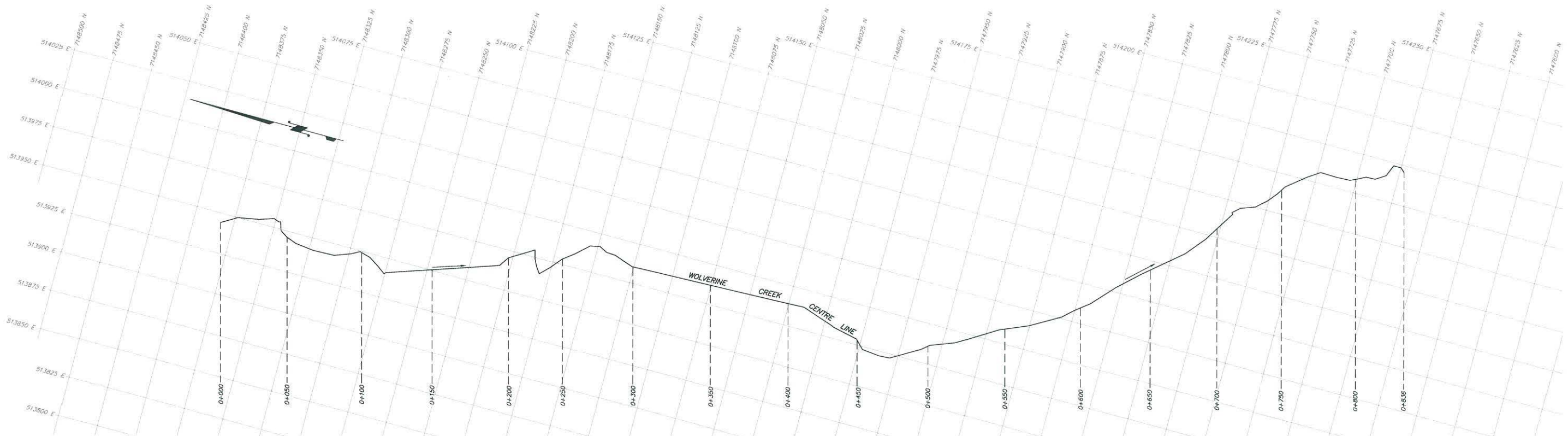


WOLVERINE CREEK PROFILE

HORIZONTAL SCALE: 1:1,000
VERTICAL SCALE : 1:200



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WHITEHORSE, YUKON TERRITORY

Distances shown are horizontal at general ground level and are expressed in metres.
Coordinates are NAD 83, Zone 7, derived from GPS dual frequency phase observations holding corrdinates of UGL station 2834 fixed in 3D

REV	Y	M	D	REVISION DESCRIPTION	DRN	CHK	APP
0	06	08	18	ISSUED	JLS	GCF	GCF

CLIENT: GOVERNMENT OF YUKON

TITLE: WOLVERINE CREEK PROFILE
LONG TERM PERFORMANCE MONITORING PROGRAM

SCALE	FILE NUMBER	DRAWING NUMBER	SHEET	REVISION
1:1000	06086	SK5570	1/1	1

Appendix C

Waste Rock Dump Movement Monitoring Results

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table C-1) Waste Rock Dump Stability - Upper Slope Summary After July 2006 Survey

Monitor	Date	UTM Coordinates			Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
81-1	19-Jun-01	7,147,034.71	512,978.88	455.25	3.26	0.12	0.06	-2.02	0.14	0.07
	20-Aug-03	7,147,034.82	512,978.93	455.27	3.38	0.12	0.06	-2.01	0.02	0.01
	28-Jul-04	7,147,034.76	512,978.92	455.23	3.32	0.06	0.07	-2.05	-0.04	-0.05
	28-Jul-06	7,147,034.80	512,978.92	455.18	3.36	0.05	0.02	-2.09	-0.04	-0.02
223	19-Jun-01	n/a								
	20-Aug-03	7,146,978.05	512,942.74	467.22						
	28-Jul-04	7,146,978.08	512,942.73	467.20	0.03	0.03	0.03	-0.02	-0.02	-0.02
	28-Jul-06	7,146,978.12	512,942.73	467.21	0.07	0.04	0.02	-0.01	0.00	0.00
225	19-Jun-01	n/a								
	20-Aug-03	7,146,918.72	512,905.22	475.17						
	28-Jul-04	7,146,918.73	512,905.18	475.14	0.04	0.04	0.04	-0.03	-0.03	-0.03
	28-Jul-06	7,146,918.77	512,905.18	475.15	0.07	0.04	0.02	-0.03	0.00	0.00
1195	19-Jun-01	7,147,111.83	512,899.53	456.62	0.10	0.10	0.05	0.16	0.16	0.08
	20-Aug-03	7,147,111.94	512,899.53	456.59	0.20	0.11	0.05	0.13	-0.03	-0.01
	28-Jul-04	7,147,111.95	512,899.52	456.60	0.22	0.02	0.02	0.14	0.01	0.01
	28-Jul-06	7,147,111.95	512,899.50	456.56	0.22	0.03	0.01	0.10	-0.04	-0.02
1834	19-Jun-01	n/a								
	20-Aug-03	7,146,973.62	512,893.43	461.12						
	28-Jul-04	7,146,973.64	512,893.38	461.09	0.06	0.06	0.06	-0.03	-0.03	-0.03
	28-Jul-06	7,146,973.69	512,893.36	461.09	0.11	0.06	0.03	-0.03	0.00	0.00

Average	1999 to 2001	0.11	0.06		0.15	0.08
	2001 to 2003	0.12	0.05		0.00	0.00
	2003 to 2004	0.04	0.04		-0.02	-0.02
	2004 to 2006	**0.04**	**0.02**		**-0.02**	**-0.01**
Maximum	1999 to 2001	0.12	0.06		0.16	0.08
	2001 to 2003	0.12	0.06		0.02	0.01
	2003 to 2004	0.06	0.07		0.01	0.01
	2004 to 2006	**0.06**	**0.03**		**0.00**	**0.00**
Minimum	1999 to 2001	0.10	0.05		0.14	0.07
	2001 to 2003	0.11	0.05		-0.03	-0.01
	2003 to 2004	0.02	0.02		-0.04	-0.05
	2004 to 2006	**0.03**	**0.01**		**-0.04**	**-0.02**

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table C-2) Waste Rock Dump Stability - Mid - Slope Summary After July 2006 Survey

Monitor	Date	UTM Coordinates			Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
4	19-Jun-01	7,147,211.31	513,193.67	435.30	0.06	0.06	0.03	-0.17	-0.17	-0.09
	20-Aug-03	7,147,211.28	513,193.64	435.18	0.10	0.05	0.02	-0.29	-0.12	-0.06
	28-Jul-04	7,147,211.22	513,193.64	435.08	0.14	0.06	0.07	-0.39	-0.10	-0.11
	28-Jul-06	7,147,211.16	513,193.61	435.06	0.21	0.07	0.03	-0.41	-0.02	-0.01
19	19-Jun-01	7,147,124.18	513,365.54	430.10	7.75	0.22	0.11	2.12	-0.32	-0.16
	20-Aug-03	7,147,124.35	513,365.64	429.24	7.94	0.19	0.09	2.99	-0.86	-0.40
	28-Jul-04	7,147,124.36	513,365.70	429.13	7.99	0.06	0.06	3.10	-0.11	-0.11
	28-Jul-06	not surveyed in 2006								
20A	19-Jun-01	7,147,207.71	513,057.05	445.86	9.00	0.22	0.11	2.21	0.05	0.03
	20-Aug-03	7,147,207.86	513,057.14	445.83	9.17	0.17	0.08	2.24	-0.03	-0.01
	28-Jul-04	7,147,207.85	513,057.12	445.74	9.15	0.02	0.03	2.33	-0.09	-0.09
	28-Jul-06	7,147,207.88	513,057.14	445.69	9.19	0.05	0.02	2.38	-0.05	-0.03
21A	19-Jun-01	7,147,228.14	512,915.05	446.57	9.45	0.20	0.10	-3.12	0.05	0.02
	20-Aug-03	7,147,228.20	512,915.15	446.54	9.50	0.11	0.05	-3.15	-0.03	-0.02
	28-Jul-04	7,147,228.18	512,915.11	446.43	9.48	0.04	0.05	-3.26	-0.11	-0.11
	28-Jul-06	7,147,228.26	512,915.11	446.38	9.56	0.08	0.04	-3.31	-0.05	-0.02
22A	19-Jun-01	7,147,224.10	512,841.41	445.02	12.02	0.19	0.10	4.45	-0.03	-0.02
	20-Aug-03	7,147,224.29	512,841.31	444.99	12.23	0.22	0.10	4.48	-0.03	-0.01
	28-Jul-04	7,147,224.27	512,841.30	444.88	12.22	0.02	0.02	4.59	-0.11	-0.12
	28-Jul-06	7,147,224.40	512,841.26	444.81	12.35	0.13	0.07	4.66	-0.07	-0.03
68	19-Jun-01	7,147,261.98	513,142.46	434.49	7.86	0.02	0.01	-2.56	-0.15	-0.08
	20-Aug-03	7,147,262.03	513,142.42	434.42	7.86	0.07	0.03	-2.63	-0.07	-0.03
	28-Jul-04	7,147,262.00	513,142.42	434.33	7.84	0.03	0.04	-2.72	-0.09	-0.09
	28-Jul-06	7,147,262.02	513,142.36	434.31	7.81	0.06	0.03	-2.74	-0.02	-0.01
81-2	19-Jun-01	7,147,205.22	513,011.60	443.70	2.70	0.15	0.08	-2.04	0.04	0.02
	20-Aug-03	7,147,205.29	513,011.56	443.75	2.73	0.07	0.03	-1.99	0.05	0.02
	28-Jul-04	7,147,205.26	513,011.60	443.71	2.73	0.05	0.05	-2.03	-0.04	-0.05
	28-Jul-06	7,147,205.28	513,011.59	443.71	2.74	0.02	0.01	-2.03	0.00	0.00
224	19-Jun-01	n/a								
	20-Aug-03	7,147,241.09	512,963.33	444.85						
	28-Jul-04	7,147,241.12	512,963.29	444.82	0.04	0.04	0.05	-0.03	-0.03	-0.03
	28-Jul-06	7,147,241.17	512,963.29	444.79	0.09	0.05	0.03	-0.06	-0.03	-0.02
227	19-Jun-01									
	20-Aug-03	7,147,076.84	513,124.78	439.48						
	28-Jul-04	7,147,076.78	513,124.77	439.44	0.07	0.07	0.07	-0.04	-0.04	-0.04
	28-Jul-06	7,147,076.82	513,124.77	439.45	0.03	0.04	0.02	-0.03	0.01	0.01
229	19-Jun-01	n/a								
	20-Aug-03	7,147,113.53	512,719.14	437.43						
	28-Jul-04	7,147,113.49	512,719.14	437.37	0.04	0.04	0.05	-0.06	-0.06	-0.06
	28-Jul-06	7,147,113.55	512,719.11	437.39	0.04	0.07	0.04	-0.05	0.02	0.01
1194	19-Jun-01	7,147,017.22	513,472.45	433.19	0.09	0.09	0.05	-0.18	-0.18	-0.09
	20-Aug-03	7,147,017.32	513,472.44	433.19	0.18	0.10	0.05	-0.18	0.00	0.00
	28-Jul-04	7,147,017.35	513,472.44	433.12	0.21	0.03	0.03	-0.25	-0.07	-0.07
	28-Jul-06	7,147,017.43	513,472.44	433.08	0.28	0.08	0.04	-0.28	-0.04	-0.02
1196	19-Jun-01	7,147,231.16	513,066.14	444.13	0.17	0.17	0.09	0.03	0.03	0.01
	20-Aug-03	7,147,231.23	513,066.18	444.08	0.25	0.08	0.04	-0.02	-0.05	-0.02
	28-Jul-04	7,147,231.26	513,066.20	444.05	0.29	0.04	0.04	-0.06	-0.03	-0.03
	28-Jul-06	7,147,231.28	513,066.23	443.97	0.32	0.04	0.02	-0.14	-0.08	-0.04
1831	19-Jun-01	n/a								
	20-Aug-03	7,147,227.18	512,766.65	432.85						
	28-Jul-04	7,147,227.23	512,766.60	432.79	0.07	0.07	0.08	-0.06	-0.06	-0.07
	28-Jul-06	7,147,227.36	512,766.55	432.71	0.20	0.13	0.07	-0.14	-0.07	-0.04

Average	1999 to 2001	0.15	0.08		-0.08	-0.04
	2001 to 2003	0.12	0.05		-0.13	-0.06
	2003 to 2004	0.04	0.05		-0.07	-0.08
	2004 to 2006	**0.07**	**0.03**		**-0.03**	**-0.02**
Maximum	1999 to 2001	0.22	0.11		0.05	0.03
	2001 to 2003	0.22	0.10		0.05	0.02
	2003 to 2004	0.07	0.08		-0.03	-0.03
	2004 to 2006	**0.13**	**0.07**		**0.02**	**0.01**
Minimum	1999 to 2001	0.02	0.01		-0.32	-0.16
	2001 to 2003	0.05	0.02		-0.86	-0.40
	2003 to 2004	0.02	0.02		-0.11	-0.12
	2004 to 2006	**0.02**	**0.01**		**-0.08**	**-0.04**

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table C-3) Waste Rock Dump Stability - Lower - Slope Summary After July 2006 Survey

Monitor	Date	UTM Coordinates			Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
69	19-Jun-01	7,147,335.52	513,140.55	414.88	0.19	0.19	0.10	-0.05	-0.05	-0.03
	20-Aug-03	7,147,335.53	513,140.58	414.90	0.22	0.03	0.01	-0.03	0.02	0.01
	28-Jul-04	7,147,335.53	513,140.56	414.87	0.20	0.02	0.02	-0.06	-0.03	-0.04
	28-Jul-06	7,147,335.49	513,140.52	414.91	0.15	0.05	0.03	-0.02	0.05	0.02
80-13	19-Jun-01	n/a								
	20-Aug-03	7,147,299.40	513,183.84	413.08						
	28-Jul-04	7,147,299.39	513,183.83	413.06	0.02	0.02	0.02	-0.02	-0.02	-0.03
	28-Jul-06	7,147,299.35	513,183.82	413.10	0.06	0.04	0.02	0.02	0.05	0.02
80-14	19-Jun-01	n/a								
	20-Aug-03	7,147,267.77	513,283.11	403.77						
	28-Jul-04	7,147,267.79	513,283.08	403.74	0.03	0.03	0.03	-0.03	-0.03	-0.03
	28-Jul-06	7,147,267.65	513,283.10	403.80	0.12	0.14	0.07	0.03	0.05	0.03
84-1	19-Jun-01	7,147,201.04	513,504.62	381.71	0.13	0.13	0.07	-0.01	-0.01	-0.01
	20-Aug-03	7,147,201.07	513,504.65	381.77	0.10	0.04	0.02	0.05	0.06	0.03
	28-Jul-04	7,147,201.08	513,504.64	381.72	0.09	0.01	0.02	-0.01	-0.06	-0.06
	28-Jul-06	7,147,201.09	513,504.63	381.83	0.08	0.01	0.01	0.10	0.11	0.06
217	19-Jun-01	7,147,314.81	513,183.13	414.83	0.05	0.05	0.02	-0.05	-0.05	-0.03
	20-Aug-03	7,147,314.73	513,183.18	414.87	0.08	0.09	0.04	-0.01	0.04	0.02
	28-Jul-04	7,147,314.77	513,183.18	414.84	0.07	0.03	0.04	-0.04	-0.03	-0.03
	28-Jul-06	7,147,314.72	513,183.16	414.86	0.07	0.05	0.03	-0.02	0.02	0.01
218	19-Jun-01	7,147,222.17	513,433.25	387.99	0.07	0.07	0.04	0.05	0.05	0.02
	20-Aug-03	7,147,222.21	513,433.19	388.04	0.15	0.07	0.03	0.09	0.05	0.02
	28-Jul-04	7,147,222.22	513,433.18	388.03	0.15	0.00	0.00	0.08	-0.01	-0.01
	28-Jul-06	7,147,222.20	513,433.18	388.09	0.15	0.02	0.01	0.14	0.06	0.03
219	19-Jun-01	7,147,292.13	513,274.61	404.48	0.17	0.17	0.09	-0.05	-0.05	-0.03
	20-Aug-03	7,147,292.12	513,274.65	404.60	0.15	0.03	0.02	0.07	0.12	0.06
	28-Jul-04	7,147,292.13	513,274.65	404.55	0.14	0.01	0.01	0.02	-0.05	-0.05
	28-Jul-06	7,147,292.12	513,274.62	404.62	0.17	0.03	0.02	0.09	0.07	0.04
220	19-Jun-01	7,147,223.43	513,431.01	388.55	0.25	0.25	0.13	0.06	0.06	0.03
	20-Aug-03	7,147,223.42	513,430.90	388.65	0.34	0.11	0.05	0.17	0.10	0.05
	28-Jul-04	7,147,223.43	513,430.90	388.60	0.33	0.01	0.01	0.12	-0.05	-0.05
	28-Jul-06	7,147,223.42	513,430.88	388.68	0.35	0.02	0.01	0.20	0.08	0.04
222	19-Jun-01	7,147,269.46	513,334.94	397.91	0.06	0.06	0.03	-0.05	-0.05	-0.02
	20-Aug-03	7,147,269.49	513,334.96	398.01	0.06	0.04	0.02	0.05	0.10	0.04
	28-Jul-04	7,147,269.52	513,334.97	397.96	0.05	0.03	0.03	0.00	-0.05	-0.05
	28-Jul-06	7,147,269.51	513,334.93	397.99	0.02	0.03	0.02	0.03	0.03	0.02
226	19-Jun-01	n/a								
	20-Aug-03	7,147,311.53	513,066.36	426.46						
	28-Jul-04	7,147,311.54	513,066.40	426.43	0.04	0.04	0.05	-0.03	-0.03	-0.03
	28-Jul-06	7,147,311.56	513,066.42	426.36	0.07	0.03	0.01	-0.10	-0.07	-0.04
228	19-Jun-01	n/a								
	20-Aug-03	7,147,347.00	512,836.84	413.95						
	28-Jul-04	7,147,347.03	512,836.79	413.88	0.06	0.06	0.07	-0.07	-0.07	-0.08
	28-Jul-06	7,147,347.13	512,836.73	413.92	0.18	0.12	0.06	-0.03	0.04	0.02
1833	19-Jun-01	n/a								
	20-Aug-03	7,147,302.70	512,921.25	418.34						
	28-Jul-04	7,147,302.69	512,921.27	418.30	0.02	0.02	0.02	-0.04	-0.04	-0.04
	28-Jul-06	7,147,302.78	512,921.24	418.35	0.08	0.10	0.05	0.01	0.04	0.02
P2	19-Jun-01	7,147,354.12	512,999.27	416.14	0.17	0.17	0.09	-0.09	-0.09	-0.05
	20-Aug-03	7,147,354.36	512,999.35	416.10	0.42	0.25	0.11	-0.13	-0.04	-0.02
	28-Jul-04	7,147,354.41	512,999.36	415.98	0.47	0.05	0.05	-0.25	-0.12	-0.13
	28-Jul-06	7,147,354.50	512,999.34	415.99	0.56	0.10	0.05	-0.25	0.00	0.00
P3	19-Jun-01	7,147,309.29	513,135.55	415.34	0.11	0.11	0.06	-0.11	-0.11	-0.06
	20-Aug-03	7,147,309.32	513,135.58	415.35	0.11	0.04	0.02	-0.10	0.01	0.00
	28-Jul-04	7,147,309.30	513,135.56	415.24	0.11	0.03	0.03	-0.21	-0.11	-0.11
	28-Jul-06	7,147,309.30	513,135.53	415.19	0.13	0.02	0.01	-0.26	-0.05	-0.03
P4	19-Jun-01	7,147,239.53	513,347.49	397.05						
	20-Aug-03	7,147,239.50	513,347.56	397.28	0.07	0.07	0.02	0.23	0.23	0.06
	28-Jul-04	7,147,239.49	513,347.51	397.31	0.05	0.05	0.05	0.26	0.03	0.03
	28-Jul-06	7,147,239.44	513,347.50	397.34	0.09	0.05	0.02	0.29	0.03	0.01
P5	19-Jun-01	7,147,182.91	513,461.26	386.86						
	20-Aug-03	7,147,182.93	513,461.46	387.21	0.20	0.20	0.05	0.35	0.35	0.09
	28-Jul-04	7,147,182.95	513,461.42	387.20	0.17	0.04	0.05	0.34	-0.01	-0.01
	28-Jul-06	7,147,182.92	513,461.40	387.24	0.14	0.04	0.02	0.38	0.04	0.02
XS-A	19-Jun-01	n/a								
	20-Aug-03	7,147,320.21	513,190.99	411.33						
	28-Jul-04	7,147,320.32	513,191.01	411.24	0.10	0.10	0.11	-0.09	-0.09	-0.09
	28-Jul-06	7,147,315.67	513,189.82	413.35						
XS-B	19-Jun-01	n/a								
	20-Aug-03	7,147,293.65	513,274.20	404.28						
	28-Jul-04	7,147,293.70	513,274.20	404.29	0.06	0.06	0.06	0.01	0.01	0.01
	28-Jul-06	7,147,293.67	513,274.18	404.31	0.03	0.04	0.02	0.03	0.02	0.01
XS-E	19-Jun-01	n/a								
	20-Aug-03	7,147,224.70	513,432.22	387.53						
	28-Jul-04	7,147,224.67	513,432.18	387.52	0.06	0.06	0.06	-0.01	-0.01	-0.01
	28-Jul-06	7,147,224.66	513,432.16	387.59	0.07	0.01	0.01	0.06	0.07	0.04
XS-G	19-Jun-01	7,147,355.94	513,038.74	416.55	0.19	0.19	0.10	-0.12	-0.12	-0.06
	20-Aug-03	7,147,356.11	513,038.84	416.54	0.39	0.20	0.09	-0.13	-0.01	0.00
	destroyed									

Average	1999 to 2001	0.14	0.07		-0.04	-0.02
	2001 to 2003	0.10	0.04		0.09	0.03
	2003 to 2004	0.04	0.04		-0.04	-0.04
	2004 to 2006	**0.05**	**0.02**		**0.04**	**0.02**
Maximum	1999 to 2001	0.25	0.13		0.06	0.03
	2001 to 2003	0.25	0.11		0.35	0.09
	2003 to 2004	0.10	0.11		0.03	0.03
	2004 to 2006	**0.14**	**0.07**		**0.11**	**0.06**
Minimum	1999 to 2001	0.05	0.02		-0.12	-0.06
	2001 to 2003	0.03	0.01		-0.04	-0.02
	2003 to 2004	0.00	0.00		-0.12	-0.13
	2004 to 2006	**0.01**	**0.01**		**-0.07**	**-0.04**

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

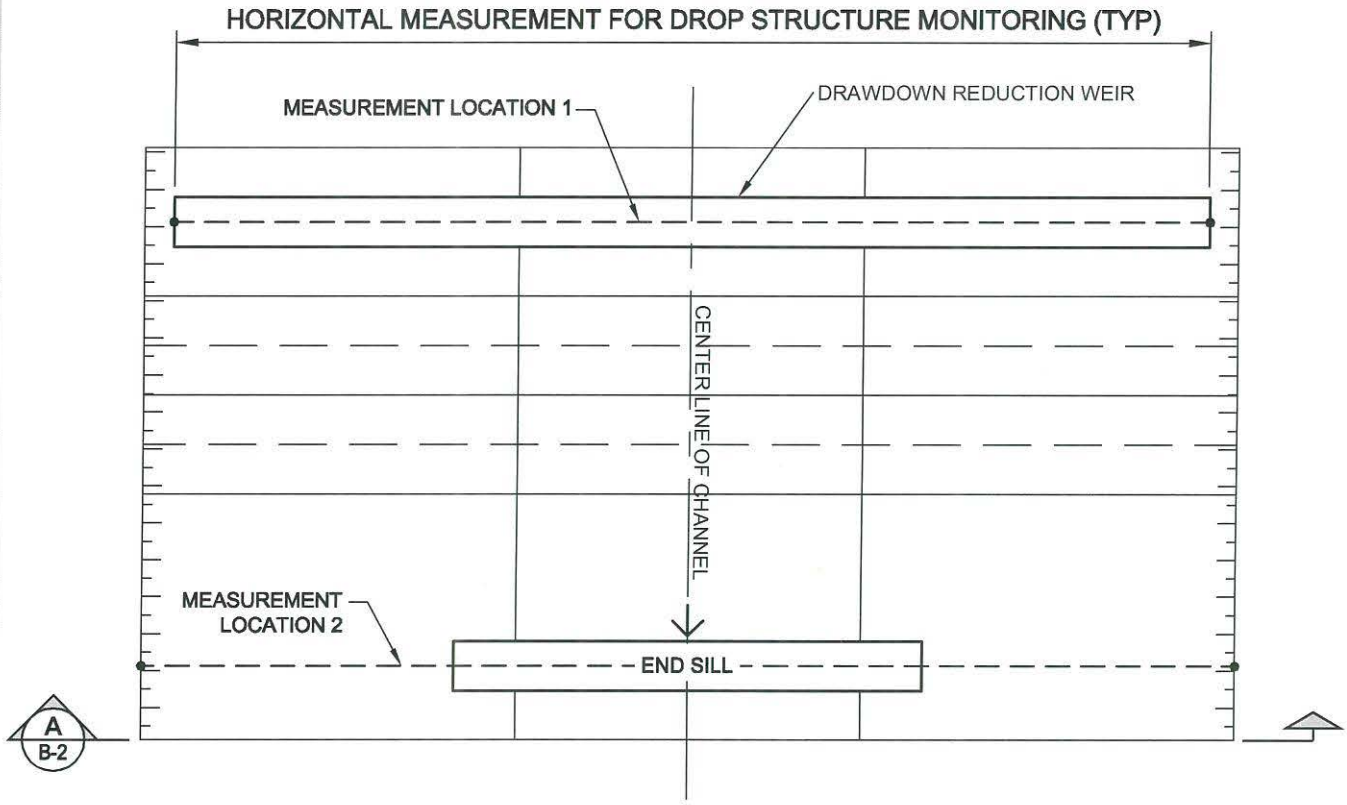
Table C-4) Open Pit Area - Summary After July 2006 Survey

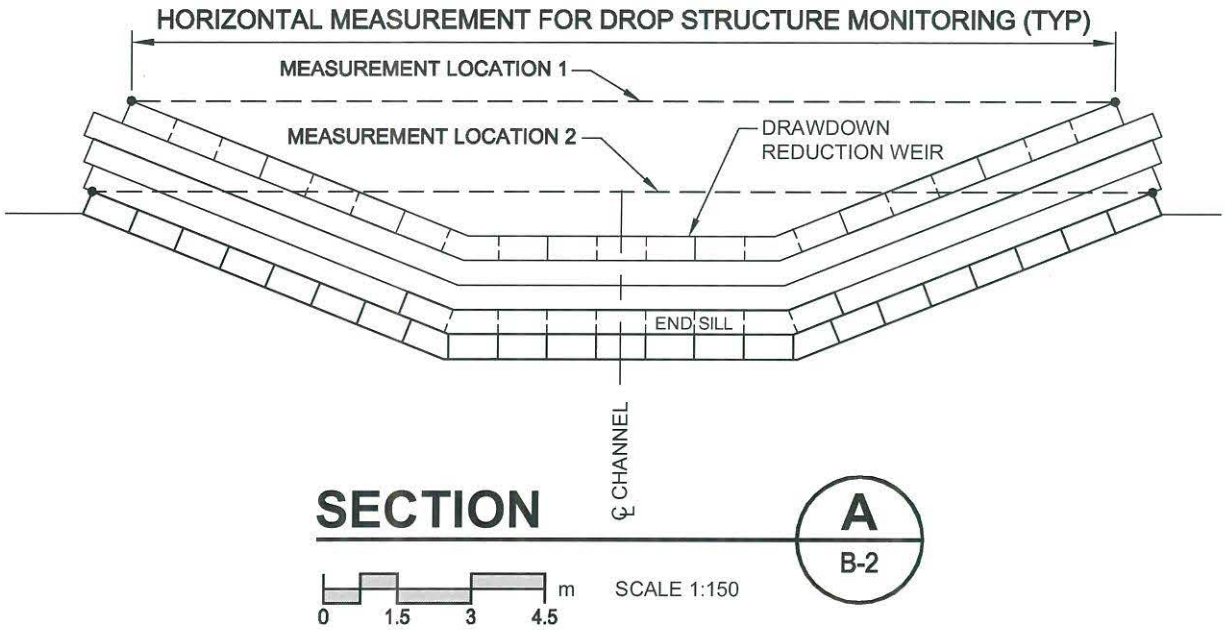
Monitor	Date	UTM Coordinates			Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
1493	19-Jun-01	n/a								
	20-Aug-03	7,146,801.56	513,576.66	453.00						
	28-Jul-04	7,146,801.65	513,576.65	452.96	0.08	0.08	0.09	-0.04	-0.04	-0.04
	28-Jul-06	7,146,801.85	513,576.60	452.89	0.29	0.21	0.10	-0.11	-0.07	-0.03
1830	19-Jun-01	n/a								
	20-Aug-03	7,146,523.77	513,455.68	471.67						
	28-Jul-04	7,146,523.79	513,455.68	471.68	0.02	0.02	0.02	0.01	0.01	0.01
	28-Jul-06	7,146,523.79	513,455.68	471.73	0.02	0.01	0.00	0.06	0.05	0.03
1832	19-Jun-01	n/a								
	20-Aug-03	7,146,537.06	513,483.13	473.62						
	28-Jul-04	7,146,537.06	513,483.16	473.58	0.03	0.03	0.03	-0.04	-0.04	-0.05
	28-Jul-06	7,146,537.04	513,483.16	473.68	0.04	0.02	0.01	0.06	0.10	0.05
1837	19-Jun-01	n/a								
	20-Aug-03	7,146,502.87	513,411.47	470.22						
	28-Jul-04	7,146,502.89	513,411.46	470.20	0.02	0.02	0.02	-0.02	-0.02	-0.02
	28-Jul-06	7,146,502.88	513,411.44	470.24	0.02	0.02	0.01	0.02	0.03	0.02
1838	19-Jun-01	n/a								
	20-Aug-03	7,146,491.91	513,380.52	468.34						
	28-Jul-04	7,146,491.89	513,380.52	468.33	0.02	0.02	0.02	-0.01	-0.01	-0.01
	28-Jul-06	7,146,491.87	513,380.53	468.38	0.04	0.02	0.01	0.04	0.05	0.03
1839	19-Jun-01	n/a								
	20-Aug-03	7,146,861.35	513,285.18	428.66						
	28-Jul-04	7,146,861.34	513,285.17	428.61	0.02	0.02	0.02	-0.05	-0.05	-0.05
	28-Jul-06	7,146,861.40	513,285.20	428.60	0.05	0.07	0.03	-0.06	-0.01	-0.01

Average	1999 to 2001	n/a	n/a		n/a	n/a
	2001 to 2003	n/a	n/a		n/a	n/a
	2003 to 2004	0.03	0.03		-0.03	-0.03
	2004 to 2006	**0.06**	**0.03**		**0.03**	**0.01**
Maximum	1999 to 2001	n/a	n/a		n/a	n/a
	2001 to 2003	n/a	n/a		n/a	n/a
	2003 to 2004	0.08	0.09		0.01	0.01
	2004 to 2006	**0.21**	**0.10**		**0.10**	**0.05**
Minimum	1999 to 2001	n/a	n/a		n/a	n/a
	2001 to 2003	n/a	n/a		n/a	n/a
	2003 to 2004	0.02	0.02		-0.05	-0.05
	2004 to 2006	**0.01**	**0.00**		**-0.07**	**-0.03**

Appendix D

Gabion Drop Structure Measurements





Government of Yukon
Former Clinton Creek Asbestos Mine
Long term Performance Monitoring-2006

Drop Structure Measurements

UMA | AECOM

Drawing - D-1

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table D-1) Former Clinton Creek Asbestos Mine - Clinton Creek Drop Structure Monitoring

Measurement Location #1 - Across Drawdown Weir

Drop Structure	Horizontal Distance Across Drop Structure (metres)				Total Change (m)	Comment
	Date 29-Jul-04	Date 22-May-05	Date 21-Jun-06	Date 03-Oct-06		
1	19.62	19.57	19.57	19.58	-0.04	survey tags 1 & 2
2	19.49	19.48	19.48	19.48	-0.01	survey tags 5 & 6
3	19.44	19.32	19.25	19.21	-0.23	survey tags 9 & 10
4	n/a	19.61	19.55	19.51	-0.10	survey tags 13 & 14

Measurement Location #2 - Across Lower Tier In-Line With End Sill

Drop Structure	Horizontal Distance Across Drop Structure (metres)				Total Change (m)	Comment
	Date 29-Jul-04	Date 22-May-05	Date 21-Jun-06	Date 03-Oct-06		
1	n/a	21.00	20.99	20.90	-0.10	survey tags 3 & 4
2	n/a	21.15	21.06	21.05	-0.10	survey tags 7 & 8
3	n/a	21.50	21.31	21.31	-0.19	survey tags 11 & 12
4	n/a	21.48	21.46	21.36	-0.12	survey tags 15 & 16

Year	Monitored By	
2004	UMA	
2005	UMA	
2006	Gov of Yukon	Survey tags installed in September 2006

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table D-2) Former Clinton Creek Asbestos Mine - Clinton Creek Drop Structure #1 Monitoring

Monitoring Date	Time		Horizontal Movement - Location 1 (Weir)				Horizontal Movement - Location 2 (End Sill)				Comments
	total (days)	incremental (days)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	
29-Jul-04	0	0	19.62								
22-May-05	297	297	19.57	-0.05	-0.05	**-0.06**	21.00				
21-Jun-06	692	395	19.57	-0.05	0.00	**0.00**	20.99	-0.01	-0.01	**-0.01**	
03-Oct-06	796	104	19.58	-0.04	0.01	**0.04**	20.90	-0.10	-0.09	**-0.32**	

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table D-3) Former Clinton Creek Asbestos Mine - Clinton Creek Drop Structure #2 Monitoring

Monitoring Date	Time		Horizontal Movement - Location 1 (Weir)				Horizontal Movement - Location 2 (End Sill)				Comments
	total (days)	incremental (days)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	
29-Jul-04	0	0	19.49								
22-May-05	297	297	19.48	-0.01	-0.01	**-0.01**	21.15				
21-Jun-06	692	395	19.48	-0.01	0.00	**0.00**	21.06	-0.09	-0.09	**-0.08**	
03-Oct-06	796	104	19.48	-0.01	0.00	**0.00**	21.05	-0.10	-0.01	**-0.04**	

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table D-4) Former Clinton Creek Asbestos Mine - Clinton Creek Drop Structure #3 Monitoring

Monitoring Date	Time		Horizontal Movement - Location 1				Horizontal Movement - Location 2				Comments
	total (days)	incremental (days)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	
29-Jul-04	0	0	19.44								
22-May-05	297	297	19.32	-0.12	-0.12	**-0.15**	21.50				
21-Jun-06	692	395	19.25	-0.19	-0.07	**-0.06**	21.31	-0.19	-0.19	**-0.18**	
03-Oct-06	796	104	19.21	-0.23	-0.04	**-0.14**	21.31	-0.19	0.00	**0.00**	

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table D-5) Former Clinton Creek Asbestos Mine - Clinton Creek Drop Structure #4 Monitoring

Monitoring Date	Time		Horizontal Movement - Location 1				Horizontal Movement - Location 2				Comments
	total (days)	incremental (days)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	measurement (metres)	total move	incremental (metres)	rate (metres/year)	
29-Jul-04	n/a										
22-May-05	0	0	19.61				21.48				
21-Jun-06	395	395	19.55	-0.06	-0.06	**-0.06**	21.46	-0.02	-0.02	**-0.02**	
03-Oct-06	499	104	19.51	-0.10	-0.04	**-0.14**	21.36	-0.12	-0.10	**-0.35**	

Appendix E

Tailings Pile Movement Monitoring Results

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table E1) Tailings Stability - Upper Slopes (Elevation > 530 m)

North Lobe

Monitor	Date	UTM Coordinates			Time		Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (days)	incremental (days)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
1483	21-Aug-03	7,148,233.01	513,412.67	609.08	0	0						
	28-Jul-04	7,148,233.01	513,412.69	609.02	342	342	0.03	0.03	0.03	-0.06	-0.06	-0.06
	23-Sep-04	7,148,233.02	513,412.68	609.00	399	57	0.02	0.02	0.10	-0.08	-0.03	-0.16
	17-Sep-05	7,148,233.03	513,412.71	608.96	758	359	0.05	0.03	0.03	-0.12	-0.04	-0.04
	28-Jul-06	7,148,233.06	513,412.70	609.00	1,072	314	0.06	0.03	0.04	-0.08	0.04	0.05
26	21-Aug-03	7,148,341.45	513,483.53	575.11	9,275	7,007	2.12	0.77	0.04	-0.95	-0.43	-0.02
	28-Jul-04	7,148,341.48	513,483.55	575.10	9,617	342	2.15	0.04	0.04	-0.96	-0.01	-0.01
	23-Sep-04	7,148,341.49	513,483.55	575.08	9,674	57	2.15	0.02	0.10	-0.97	-0.01	-0.10
	17-Sep-05	7,148,341.47	513,483.57	575.01	10,033	359	2.16	0.04	0.04	-1.05	-0.07	-0.07
	28-Jul-06	7,148,341.50	513,483.58	575.07	10,347	314	2.18	0.04	0.04	-0.99	0.06	0.07
80-2	21-Aug-03	7,148,290.05	513,549.41	552.78	7,294	7,007	1.71	0.86	0.05	-0.57	-0.57	-0.03
	28-Jul-04	7,148,290.09	513,549.50	552.65	7,636	342	1.80	0.09	0.10	-0.70	-0.13	-0.14
	23-Sep-04	7,148,290.08	513,549.48	552.63	7,693	57	1.79	0.01	0.09	-0.72	-0.02	-0.12
	17-Sep-05	7,148,290.08	513,549.57	552.50	8,052	359	1.87	0.09	0.09	-0.86	-0.14	-0.14
	28-Jul-06	7,148,290.09	513,549.60	552.54	8,366	314	1.90	0.03	0.04	-0.81	0.05	0.05
26-A	21-Aug-03	7,148,339.30	513,540.50	557.82	9,275	7,007	2.50	0.74	0.04	-0.83	-0.83	-0.04
	28-Jul-04	7,148,339.32	513,540.52	557.75	9,617	342	2.51	0.03	0.03	-0.90	-0.07	-0.08
	23-Sep-04	7,148,339.32	513,540.49	557.74	9,674	57	2.49	0.02	0.15	-0.91	-0.01	-0.06
	17-Sep-05	7,148,339.34	513,540.56	557.65	10,033	359	2.55	0.07	0.07	-1.01	-0.10	-0.10
	28-Jul-06	7,148,339.33	513,540.54	557.71	10,347	314	2.54	0.02	0.03	-0.94	0.06	0.07
80-1	21-Aug-03	7,148,407.98	513,543.04	555.71	7,294	7,007	2.07	1.79	0.09	-1.97	-1.97	-0.10
	28-Jul-04	7,148,408.01	513,543.07	555.61	7,636	342	2.09	0.04	0.05	-2.06	-0.10	-0.10
	23-Sep-04	7,148,408.03	513,543.06	555.61	7,693	57	2.08	0.03	0.16	-2.06	0.00	0.00
	17-Sep-05	7,148,408.01	513,543.12	555.49	8,052	359	2.14	0.06	0.06	-2.19	-0.12	-0.13
	28-Jul-06	7,148,408.02	513,543.14	555.55	8,366	314	2.16	0.03	0.03	-2.12	0.06	0.07
BH-14 (T7)	21-Aug-03	7,148,488.36	513,563.01	530.33	0	0						
	28-Jul-04	7,148,488.36	513,563.01	530.29	342	342	0.01	0.01	0.01	-0.04	-0.04	-0.05
	23-Sep-04	7,148,488.33	513,562.99	530.30	399	57	0.03	0.03	0.22	-0.03	0.01	0.08
	17-Sep-05	7,148,488.34	513,562.87	530.24	758	359	0.14	0.12	0.12	-0.09	-0.06	-0.06
	28-Jul-06	7,148,488.37	513,563.02	530.34	1,072	314	0.02	0.16	0.18	0.01	0.10	0.11
1495	21-Aug-03	7,148,526.59	513,528.92	529.06	0	0						
	28-Jul-04	7,148,526.62	513,528.97	529.05	342	342	0.06	0.06	0.06	-0.01	-0.01	-0.01
	23-Sep-04	7,148,526.65	513,528.95	529.07	399	57	0.06	0.03	0.20	0.01	0.01	0.08
	17-Sep-05	7,148,526.65	513,529.00	528.97	758	359	0.10	0.05	0.05	-0.09	-0.10	-0.10
	28-Jul-06	7,148,526.67	513,529.02	529.06	1,072	314	0.13	0.03	0.03	0.00	0.09	0.11

Average	Aug 03 to Jul 04	0.04	0.04		-0.06	-0.06
	Jul 04 to Sep 04	0.02	0.15		-0.01	-0.04
	Sep 04 to Sep 05	0.06	0.07		-0.09	-0.09
	Sep 05 to Jul 06	**0.05**	**0.06**		**0.07**	**0.08**
Maximum	Aug 03 to Jul 04	0.09	0.10		-0.01	-0.01
	Jul 04 to Sep 04	0.03	0.22		0.01	0.08
	Sep 04 to Sep 05	0.12	0.12		-0.04	-0.04
	Sep 05 to Jul 06	**0.16**	**0.18**		**0.10**	**0.11**
Minimum	Aug 03 to Jul 04	0.01	0.01		-0.13	-0.14
	Jul 04 to Sep 04	0.01	0.09		-0.03	-0.16
	Sep 04 to Sep 05	0.03	0.03		-0.14	-0.14
	Sep 05 to Jul 06	**0.02**	**0.03**		**0.04**	**0.05**

South Lobe

Monitor	Date	UTM Coordinates			Time		Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (days)	incremental (days)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
1492	21-Aug-03	7,148,053.74	513,409.91	610.07	1,496	1,496	0.30	0.30	0.07	-0.42	-0.42	-0.10
	28-Jul-04	7,148,053.72	513,409.97	609.98	1,838	342	0.36	0.06	0.07	-0.50	-0.09	-0.09
	23-Sep-04	7,148,053.73	513,409.95	609.98	1,895	57	0.34	0.02	0.14	-0.50	0.00	-0.01
	17-Sep-05	7,148,053.69	513,410.03	609.80	2,254	359	0.42	0.08	0.09	-0.69	-0.18	-0.19
	28-Jul-06	7,148,053.68	513,410.04	609.79	2,568	314	0.44	0.02	0.02	-0.70	-0.01	-0.01
24	21-Aug-03	7,148,033.83	513,525.34	549.69	9,275	7,007	10.88	9.06	0.47	-5.54	-5.54	-0.29
	28-Jul-04	7,148,033.87	513,525.57	549.55	9,617	342	11.10	0.23	0.24	-5.68	-0.14	-0.15
	23-Sep-04	7,148,033.90	513,525.56	549.55	9,674	57	11.09	0.03	0.19	-5.67	0.01	0.04
	17-Sep-05	7,148,033.91	513,525.74	549.37	10,033	359	11.27	0.18	0.18	-5.86	-0.19	-0.19
	28-Jul-06	7,148,033.92	513,525.89	549.37	10,347	313	11.42	0.15	0.18	-5.86	0.00	0.00

Average	Aug 03 to Jul 04	0.14	0.15		-0.11	-0.12
	Jul 04 to Sep 04	0.03	0.17		0.00	0.01
	Sep 04 to Sep 05	0.13	0.13		-0.19	-0.19
	Sep 05 to Jul 06	**0.09**	**0.10**		**0.00**	**0.00**
Maximum	Aug 03 to Jul 04	0.23	0.24		-0.09	-0.09
	Jul 04 to Sep 04	0.03	0.19		0.01	0.04
	Sep 04 to Sep 05	0.18	0.18		-0.18	-0.19
	Sep 05 to Jul 06	**0.15**	**0.18**		**0.00**	**0.00**
Minimum	Aug 03 to Jul 04	0.06	0.07		-0.14	-0.15
	Jul 04 to Sep 04	0.02	0.14		0.00	-0.01
	Sep 04 to Sep 05	0.08	0.09		-0.19	-0.19
	Sep 05 to Jul 06	**0.02**	**0.02**		**-0.01**	**-0.01**

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table E2) Tailings Stability - Mid Slopes (Elevation 425 to 530 m)

North Lobe

Monitor	Date	UTM Coordinates			Time		Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (days)	incremental (days)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
80-4	21-Aug-03	7,148,201.56	513,688.82	501.73	7,294	7,007	15.93	14.32	0.75	-5.41	-5.41	-0.28
	28-Jul-04	7,148,201.69	513,689.40	501.49	7,636	342	16.52	0.59	0.63	-5.65	-0.24	-0.26
	23-Sep-04	7,148,201.73	513,689.47	501.42	7,693	57	16.60	0.09	0.56	-5.73	-0.07	-0.47
	17-Sep-05	7,148,201.81	513,689.99	501.18	8,052	359	17.12	0.52	0.53	-5.96	-0.24	-0.24
	28-Jul-06	7,148,201.90	513,690.35	501.14	8,366	314	17.49	0.37	0.43	-6.00	-0.04	-0.05
80-5	21-Aug-03	7,148,249.32	513,718.34	481.19	7,294	7,007	21.58	17.49	0.91	-8.31	-8.31	-0.43
	28-Jul-04	7,148,249.41	513,718.73	481.10	7,636	342	21.98	0.40	0.43	-8.40	-0.09	-0.10
	23-Sep-04	7,148,249.42	513,718.77	481.07	7,693	57	22.02	0.04	0.28	-8.43	-0.02	-0.16
	17-Sep-05	7,148,249.49	513,719.16	480.92	8,052	359	22.41	0.39	0.40	-8.59	-0.16	-0.16
	28-Jul-06	7,148,249.55	513,719.41	480.96	8,366	314	22.67	0.26	0.30	-8.54	0.04	0.05
1085	21-Aug-03	7,148,346.05	513,666.41	488.88	0	0						
	28-Jul-04	7,148,346.06	513,666.43	488.84	342	342	0.02	0.02	0.02	-0.04	-0.04	-0.04
	23-Sep-04	7,148,346.06	513,666.41	488.82	399	57	0.01	0.02	0.14	-0.06	-0.01	-0.09
	17-Sep-05	7,148,346.06	513,666.46	488.72	758	359	0.05	0.05	0.05	-0.16	-0.10	-0.10
	28-Jul-06	7,148,346.08	513,666.47	488.82	1,072	314	0.06	0.02	0.02	-0.06	0.09	0.11
500-1	21-Aug-03	7,148,343.22	513,725.53	474.09	9,088	7,007	107.37	44.05	2.29	-46.56	-15.13	-0.79
	28-Jul-04	7,148,343.24	513,725.54	474.02	9,430	342	107.38	0.02	0.02	-46.63	-0.07	-0.07
	23-Sep-04	7,148,343.24	513,725.53	474.01	9,487	57	107.37	0.01	0.09	-46.64	-0.01	-0.06
	17-Sep-05	7,148,343.24	513,725.55	473.95	9,846	359	107.39	0.02	0.02	-46.70	-0.06	-0.06
	28-Jul-06	7,148,343.24	513,725.56	474.10	10,160	314	107.40	0.02	0.02	-46.56	0.14	0.16
650-1	21-Aug-03	7,148,408.73	513,701.26	483.95	9,088	7,007	83.33	25.21	1.31	-31.32	-11.57	-0.60
	28-Jul-04	7,148,408.75	513,701.33	483.92	9,430	342	83.40	0.06	0.07	-31.35	-0.03	-0.03
	23-Sep-04	7,148,408.75	513,701.31	483.91	9,487	57	83.38	0.02	0.13	-31.36	-0.01	-0.07
	17-Sep-05	7,148,408.75	513,701.34	483.87	9,846	359	83.42	0.04	0.04	-31.39	-0.03	-0.03
	28-Jul-06	7,148,408.77	513,701.35	483.89	10,160	314	83.42	0.02	0.03	-31.37	0.02	0.02
350-1A	21-Aug-03	7,148,298.59	513,822.46	448.09	9,078	7,007	149.66	72.05	3.75	-52.52	-25.55	-1.33
	28-Jul-04	7,148,298.61	513,822.64	448.01	9,420	342	149.85	0.19	0.20	-52.61	-0.08	-0.09
	23-Sep-04	7,148,298.61	513,822.64	448.00	9,477	57	149.85	0.00	0.03	-52.61	0.00	-0.03
	17-Sep-05	7,148,298.64	513,822.81	447.93	9,836	359	150.01	0.17	0.17	-52.69	-0.07	-0.08
	28-Jul-06	7,148,298.65	513,822.90	447.93	10,150	314	150.10	0.10	0.11	-52.68	0.00	0.00
500-2	21-Aug-03	7,148,344.36	513,842.07	438.14	9,078	7,007	159.40	66.97	3.49	-61.43	-26.78	-1.40
	28-Jul-04	7,148,344.36	513,842.27	438.06	9,420	342	159.60	0.20	0.21	-61.51	-0.08	-0.08
	23-Sep-04	7,148,344.37	513,842.26	438.05	9,477	57	159.59	0.02	0.10	-61.52	-0.01	-0.08
	17-Sep-05	7,148,344.37	513,842.43	438.00	9,836	359	159.77	0.17	0.18	-61.57	-0.05	-0.05
	28-Jul-06	7,148,344.39	513,842.53	438.02	10,150	314	159.86	0.10	0.11	-61.55	0.03	0.03
650-2	21-Aug-03	7,148,400.26	513,815.95	439.87	9,078	7,007	134.07	38.47	2.00	-44.69	-11.93	-0.62
	28-Jul-04	7,148,400.25	513,816.10	439.75	9,420	342	134.21	0.15	0.16	-44.81	-0.12	-0.12
	23-Sep-04	7,148,400.25	513,816.08	439.72	9,477	57	134.19	0.02	0.12	-44.84	-0.04	-0.24
	17-Sep-05	7,148,400.24	513,816.21	439.67	9,836	359	134.32	0.13	0.13	-44.89	-0.04	-0.05
	28-Jul-06	7,148,400.25	513,816.27	439.70	10,150	314	134.38	0.06	0.07	-44.86	0.02	0.03
350-2A	21-Aug-03	7,148,300.52	513,873.67	428.71	9,070	7,007	163.89	73.00	3.80	-61.41	-29.09	-1.52
	28-Jul-04	7,148,300.53	513,873.83	428.58	9,412	342	164.05	0.16	0.17	-61.54	-0.13	-0.14
	23-Sep-04	7,148,300.54	513,873.85	428.58	9,469	57	164.07	0.01	0.09	-61.55	-0.01	-0.04
	17-Sep-05	7,148,300.52	513,873.98	428.51	9,828	359	164.20	0.14	0.14	-61.61	-0.06	-0.07
	28-Jul-06	7,148,300.52	513,874.08	428.52	10,142	314	164.30	0.10	0.12	-61.60	0.01	0.01
1491	21-Aug-03	7,148,376.83	513,868.79	432.49	0	0						
	28-Jul-04	7,148,376.82	513,869.00	432.34	342	342	0.21	0.21	0.22	-0.15	-0.15	-0.16
	23-Sep-04	7,148,376.82	513,868.99	432.32	399	57	0.20	0.01	0.05	-0.17	-0.02	-0.13
	17-Sep-05	7,148,376.85	513,869.15	432.27	758	359	0.36	0.17	0.17	-0.22	-0.05	-0.05
	28-Jul-06	7,148,376.90	513,869.24	432.34	1,072	314	0.45	0.09	0.11	-0.15	0.07	0.08

Average	Aug 03 to Jul 04	0.20	0.21		-0.10	-0.11
	Jul 04 to Sep 04	0.02	0.16		-0.02	-0.14
	Sep 04 to Sep 05	0.18	0.18		-0.09	-0.09
	Sep 05 to Jul 06	**0.11**	**0.13**		**0.04**	**0.04**
Maximum	Aug 03 to Jul 04	0.59	0.63		-0.03	-0.03
	Jul 04 to Sep 04	0.09	0.56		0.00	-0.03
	Sep 04 to Sep 05	0.52	0.53		-0.03	-0.03
	Sep 05 to Jul 06	**0.37**	**0.43**		**0.14**	**0.16**
Minimum	Aug 03 to Jul 04	0.02	0.02		-0.24	-0.26
	Jul 04 to Sep 04	0.00	0.03		-0.07	-0.47
	Sep 04 to Sep 05	0.02	0.02		-0.24	-0.24
	Sep 05 to Jul 06	**0.02**	**0.02**		**-0.04**	**-0.05**

South Lobe

Monitor	Date	UTM Coordinates			Time		Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (days)	incremental (days)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
1084	21-Aug-03	7,148,017.97	513,617.95	516.26	0	0						
	28-Jul-04	7,148,017.98	513,618.35	516.10	342	342	0.40	0.40	0.43	-0.16	-0.16	-0.17
	23-Sep-04	7,148,017.99	513,618.38	516.10	399	57	0.43	0.03	0.18	-0.16	-0.01	-0.06
	17-Sep-05	7,148,018.02	513,618.72	516.02	758	359	0.77	0.34	0.35	-0.24	-0.08	-0.08
	28-Jul-06	7,148,018.00	513,618.94	515.98	1,072	314	0.99	0.22	0.26	-0.28	-0.04	-0.04
1485	21-Aug-03	7,148,017.91	513,702.37	480.46	0	0						
	28-Jul-04	7,148,018.00	513,703.32	480.19	342	342	0.95	0.95	1.02	-0.27	-0.27	-0.29
	23-Sep-04	7,148,018.02	513,703.46	480.10	399	57	1.09	0.14	0.89	-0.36	-0.09	-0.56
	17-Sep-05	7,148,018.12	513,704.37	479.82	758	359	2.00	0.91	0.93	-0.64	-0.29	-0.29
	28-Jul-06	7,148,018.16	513,705.01	479.62	1,072	314	2.65	0.65	0.75	-0.84	-0.19	-0.22
BH-16 (T8)	21-Aug-03	7,148,048.49	513,760.30	464.94	0	0						
	28-Jul-04	7,148,048.61	513,761.19	464.65	342	342	0.90	0.90	0.96	-0.29	-0.29	-0.31
	23-Sep-04	7,148,048.63	513,761.31	464.59	399	57	1.02	0.12	0.77	-0.35	-0.05	-0.35
	17-Sep-05	7,148,048.72	513,762.13	464.34	758	359	1.84	0.82	0.84	-0.60	-0.25	-0.26
	28-Jul-06	7,148,048.79	513,762.77	464.20	1,072	314	2.49	0.64	0.75	-0.75	-0.14	-0.17
24A	21-Aug-03	7,148,035.28	513,774.68	465.27	9,275	7,007	83.16	61.43	3.20	-21.10	-21.10	-1.10
	28-Jul-04	7,148,035.42	513,775.58	464.94	9,617	342	84.07	0.91	0.97	-21.43	-0.33	-0.35
	23-Sep-04	7,148,035.44	513,775.70	464.89	9,674	57	84.20	0.13	0.82	-21.49	-0.05	-0.34
	17-Sep-05	7,148,035.58	513,776.55	464.66	10,033	359	85.06	0.86	0.87	-21.71	-0.23	-0.23
	28-Jul-06	7,148,035.66	513,777.19	464.47	10,347	673	85.70	0.64	0.75	-21.90	-0.42	-0.23
24B	21-Aug-03	7,148,045.09	513,832.26	446.30	9,275	7,007	81.91	61.12	3.18	-20.06	-20.06	-1.04
	28-Jul-04	7,148,045.31	513,833.13	446.00	9,617	342	82.81	0.90	0.96	-20.36	-0.30	-0.32
	23-Sep-04	7,148,045.33	513,833.26	445.89	9,674	57	82.94	0.13	0.85	-20.47	-0.11	-0.69
	17-Sep-05	7,148,045.55	513,834.05	445.62	10,033	359	83.75	0.82	0.83	-20.74	-0.27	-0.27
	28-Jul-06	7,148,045.69	513,834.66	445.46	10,347	314	84.38	0.62	0.73	-20.90	-0.16	-0.19
NL-Base	17-Sep-05	7,148,154.79	513,836.26	431.47	0	0						
	28-Jul-06	7,148,154.78	513,836.23	431.38	314	314	0.03	0.03	0.04	-0.09	-0.09	-0.10
2005-06	17-Sep-05	7,147,999.72	513,865.78	433.29	0	0						
	28-Jul-06	7,147,999.74	513,866.22	433.22	314	314	0.44	0.44	0.51	-0.07	-0.07	-0.08
2005-07	17-Sep-05	7,148,000.11	513,945.37	416.35	0	0						
	28-Jul-06	7,148,000.07	513,945.39	416.36	314	314	0.04	0.04	0.05	0.01	0.01	0.01
2005-08	17-Sep-05	7,148,038.85	513,970.98	415.77	0	0						
	28-Jul-06	7,148,038.81	513,971.06	415.79	314	314	0.09	0.09	0.10	0.02	0.02	0.02
2005-09	17-Sep-05	7,148,124.38	513,969.23	420.18	0	0						
	28-Jul-06	7,148,124.55	513,969.46	420.28	314	314	0.29	0.29	0.34	0.10	0.10	0.12
2005-10	17-Sep-05	7,148,146.69	513,925.39	411.78	0	0						
	28-Jul-06	7,148,146.97	513,925.66	411.80	314	314	0.39	0.39	0.45	0.02	0.02	0.02
2005-11	17-Sep-05	7,148,176.10	513,942.17	411.91	0	0						
	28-Jul-06	7,148,176.45	513,942.33	411.80	314	314	0.39	0.39	0.45	-0.11	-0.11	-0.13

Average	Aug 03 to Jul 04	0.81	0.87		-0.27	-0.29
	Jul 04 to Sep 04	0.11	0.70		-0.06	-0.40
	Sep 04 to Sep 05	0.75	0.76		-0.22	-0.23
	Sep 05 to Jul 06	**0.56**	**0.65**		**-0.19**	**-0.17**
Maximum	Aug 03 to Jul 04	0.95	1.02		-0.16	-0.17
	Jul 04 to Sep 04	0.14	0.89		-0.01	-0.06
	Sep 04 to Sep 05	0.91	0.93		-0.08	-0.08
	Sep 05 to Jul 06	**0.65**	**0.75**		**-0.04**	**-0.04**
Minimum	Aug 03 to Jul 04	0.40	0.43		-0.33	-0.35
	Jul 04 to Sep 04	0.03	0.18		-0.11	-0.69
	Sep 04 to Sep 05	0.34	0.35		-0.29	-0.29
	Sep 05 to Jul 06	**0.22**	**0.26**		**-0.42**	**-0.23**

Client: Government of Yukon
Project: Former Clinton Creek Asbestos Mine:
Long Term Performance Monitoring - 2006

Table E3) Tailings Stability - Lower Slopes (Elevation <425 m)

North Lobe

Monitor	Date	UTM Coordinates			Time		Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (days)	incremental (days)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
80-7	21-Aug-03	7,148,344.01	513,890.73	422.54	7,294	7,007	84.36	64.92	3.38	-23.45	-23.45	-1.22
	28-Jul-04	7,148,344.00	513,890.89	422.43	7,636	342	84.52	0.16	0.17	-23.56	-0.11	-0.12
	23-Sep-04	7,148,344.01	513,890.89	422.40	7,693	57	84.52	0.01	0.04	-23.59	-0.03	-0.21
	17-Sep-05	7,148,344.00	513,891.07	422.38	8,052	359	84.70	0.17	0.18	-23.61	-0.02	-0.02
	28-Jul-06	7,148,343.99	513,891.16	422.37	8,366	314	84.79	0.09	0.11	-23.62	-0.01	-0.01
350-3A	21-Aug-03	7,148,312.23	513,899.00	417.39	9,064	7,007	167.16	67.44	3.51	-67.47	-27.66	-1.44
	28-Jul-04	7,148,312.20	513,899.14	417.31	9,406	342	167.30	0.14	0.15	-67.55	-0.08	-0.08
	23-Sep-04	7,148,312.20	513,899.14	417.28	9,463	57	167.29	0.01	0.03	-67.59	-0.04	-0.25
	17-Sep-05	7,148,312.19	513,899.26	417.28	9,822	359	167.42	0.12	0.12	-67.58	0.00	0.00
	28-Jul-06	7,148,312.16	513,899.34	417.29	10,136	314	167.50	0.09	0.10	-67.57	0.01	0.01
1489	21-Aug-03	7,148,305.23	513,928.45	413.70	0	0						
	28-Jul-04	7,148,305.19	513,928.51	413.66	342	342	0.08	0.08	0.08	-0.04	-0.04	-0.04
	23-Sep-04	7,148,305.20	513,928.50	413.64	399	57	0.06	0.01	0.09	-0.06	-0.03	-0.16
	17-Sep-05	7,148,305.15	513,928.58	413.62	758	359	0.15	0.09	0.09	-0.08	-0.02	-0.02
	28-Jul-06	7,148,305.12	513,928.62	413.62	1,072	314	0.20	0.04	0.05	-0.08	0.00	0.00
NL-1	28-Jul-04	7,148,365.73	513,942.45	413.19	0	0						
	23-Sep-04	7,148,365.73	513,942.45	413.16	57	57	0.01	0.01	0.03	-0.02	-0.02	-0.15
	17-Sep-05	7,148,365.72	513,942.59	413.16	416	359	0.14	0.14	0.14	-0.03	0.00	-0.01
	28-Jul-06	7,148,365.70	513,942.70	413.15	730	314	0.24	0.11	0.13	-0.03	-0.01	-0.01
1083	21-Aug-03	7,148,354.01	513,936.37	414.10	0	0						
(NL-2)	28-Jul-04	7,148,354.00	513,936.52	414.10	342	342	0.15	0.15	0.16	0.00	0.00	-0.01
	23-Sep-04	7,148,354.01	513,936.52	414.08	33	-309	0.15	0.01	0.09	-0.02	-0.02	0.02
	17-Sep-05	7,148,354.02	513,936.65	414.05	758	359	0.28	0.13	0.14	-0.05	-0.03	-0.03
	28-Jul-06	7,148,354.03	513,936.74	414.06	1,072	314	0.37	0.09	0.11	-0.04	0.01	0.02
NL-3	28-Jul-04	7,148,334.73	513,926.88	417.07	0	0						
	23-Sep-04	7,148,334.73	513,926.88	417.05	57	57	0.00	0.00	0.03	-0.02	-0.02	-0.13
	17-Sep-05	7,148,334.75	513,926.99	417.08	416	359	0.10	0.11	0.11	0.01	0.03	0.03
	28-Jul-06	7,148,334.75	513,927.08	417.08	730	314	0.20	0.09	0.11	0.02	0.01	0.01
NL-4	28-Jul-04	7,148,307.20	513,913.00	416.19	0	0						
	23-Sep-04	7,148,307.19	513,912.99	416.16	57	57	0.02	0.02	0.13	-0.03	-0.03	-0.20
	17-Sep-05	7,148,307.14	513,913.12	416.11	416	359	0.13	0.14	0.14	-0.08	-0.05	-0.05
	28-Jul-06	7,148,307.12	513,913.19	416.11	730	314	0.21	0.08	0.09	-0.08	0.01	0.01
NL-5	28-Jul-04	7,148,275.21	513,896.96	415.46	0	0						
	23-Sep-04	7,148,275.17	513,896.96	415.42	57	57	0.04	0.04	0.26	-0.04	-0.04	-0.26
	17-Sep-05	7,148,275.16	513,897.05	415.39	416	359	0.10	0.08	0.08	-0.07	-0.03	-0.03
	28-Jul-06	7,148,275.14	513,897.10	415.41	730	314	0.16	0.06	0.07	-0.04	0.03	0.03

Average	Aug 03 to Jul 04	0.11	0.11		-0.05	-0.05
	Jul 04 to Sep 04	0.01	0.09		-0.03	-0.17
	Sep 04 to Sep 05	0.12	0.13		-0.02	-0.02
	Sep 05 to Jul 06	**0.08**	**0.09**		**0.01**	**0.01**
Maximum	Aug 03 to Jul 04	0.16	0.17		0.00	-0.01
	Jul 04 to Sep 04	0.04	0.26		-0.02	0.02
	Sep 04 to Sep 05	0.17	0.18		0.03	0.03
	Sep 05 to Jul 06	**0.11**	**0.13**		**0.03**	**0.03**
Minimum	Aug 03 to Jul 04	0.08	0.08		-0.11	-0.12
	Jul 04 to Sep 04	0.00	0.03		-0.04	-0.26
	Sep 04 to Sep 05	0.08	0.08		-0.05	-0.05
	Sep 05 to Jul 06	**0.04**	**0.05**		**-0.01**	**-0.01**

South Lobe

Monitor	Date	UTM Coordinates			Time		Horizontal Movement			Vertical Movement		
		Northing (metres)	Easting (metres)	Elevation (metres)	total (days)	incremental (days)	total (metres)	increment (metres)	rate (metres/year)	total (metres)	incremental (metres)	rate (metres/year)
24D	21-Aug-03	7,148,071.59	513,920.05	422.39	9,103	7,007	63.31	50.43	2.63			
	28-Jul-04	7,148,071.88	513,920.59	422.29	9,445	342	63.92	0.61	0.65	-0.10	-0.10	-0.11
	23-Sep-04	7,148,071.93	513,920.65	422.28	9,502	57	63.99	0.08	0.51	-0.11	-0.01	-0.06
	17-Sep-05	7,148,072.22	513,921.17	422.27	9,861	359	64.57	0.59	0.60	-0.12	-0.01	-0.01
	28-Jul-06	7,148,072.45	513,921.53	422.29	10,175	314	64.99	0.43	0.50	-0.10	0.03	0.03
25B	21-Aug-03	7,148,065.68	513,948.29	422.02	9,096	7,007	50.24	35.04	1.83	1.18	1.18	0.06
	28-Jul-04	7,148,065.72	513,948.61	422.03	9,438	342	50.56	0.32	0.34	1.19	0.01	0.01
	23-Sep-04	7,148,065.75	513,948.63	422.03	9,495	57	50.59	0.04	0.26	1.19	0.00	-0.01
	17-Sep-05	7,148,065.78	513,948.89	422.10	9,854	359	50.84	0.25	0.26	1.26	0.07	0.07
	28-Jul-06	7,148,065.81	513,949.05	422.15	10,168	314	51.01	0.16	0.19	1.31	0.05	0.06
80-9	21-Aug-03	7,147,996.44	513,970.69	411.11	7,294	7,007	11.83	12.02	0.63	3.07	3.07	0.16
	28-Jul-04	7,147,996.41	513,970.75	411.09	7,636	342	11.89	0.06	0.07	3.05	-0.02	-0.03
	23-Sep-04	7,147,996.38	513,970.73	411.04	7,693	57	11.88	0.03	0.20	2.99	-0.05	-0.33
	17-Sep-05	7,147,996.37	513,970.77	411.06	8,052	359	11.93	0.05	0.05	3.02	0.03	0.03
	28-Jul-06	7,147,996.36	513,970.80	411.12	8,366	314	11.96	0.03	0.03	3.08	0.06	0.07
1484	21-Aug-03	7,148,148.49	513,961.52	417.94	0	0						
	28-Jul-04	7,148,149.07	513,961.93	417.98	342	342	0.71	0.71	0.76	0.04	0.04	0.04
	23-Sep-04	7,148,149.18	513,961.98	417.95	399	57	0.83	0.12	0.78	0.01	-0.03	-0.19
	17-Sep-05	7,148,149.71	513,962.36	417.93	758	359	1.49	0.65	0.66	-0.01	-0.01	-0.02
	28-Jul-06	7,148,150.10	513,962.63	417.98	1,072	314	1.96	0.47	0.55	0.04	0.05	0.05
SL-1	28-Jul-04	7,148,078.88	513,970.45	419.86	0	0						
	23-Sep-04	7,148,079.09	513,970.46	419.76	57	57	0.20	0.20	1.30	-0.09	-0.09	-0.60
	17-Sep-05	7,148,078.87	513,970.86	419.83	416	359	0.40	0.45	0.46	-0.03	0.06	0.06
	28-Jul-06	7,148,078.84	513,971.10	419.84	730	314	0.64	0.24	0.28	-0.02	0.01	0.01
SL-2	28-Jul-04	7,148,086.80	513,956.84	422.53	0	0						
	23-Sep-04	7,148,087.01	513,956.88	422.46	57	57	0.21	0.21	1.38	-0.07	-0.07	-0.45
	17-Sep-05	7,148,086.98	513,957.37	422.60	416	359	0.56	0.49	0.50	0.08	0.15	0.15
	28-Jul-06	7,148,087.08	513,957.68	422.65	730	314	0.89	0.33	0.38	0.13	0.05	0.06
SL-3	28-Jul-04	7,148,100.47	513,933.11	420.80	0	0						
	23-Sep-04	7,148,100.54	513,933.16	420.78	57	57	0.09	0.09	0.59	-0.02	-0.02	-0.13
	17-Sep-05	7,148,100.89	513,933.63	420.83	416	359	0.67	0.58	0.59	0.03	0.05	0.05
	28-Jul-06	7,148,101.13	513,933.98	420.86	730	314	1.10	0.43	0.49	0.06	0.03	0.04
SL-4	17-Sep-05	7,148,115.67	513,907.57	416.88	0	0						
	28-Jul-06	7,148,115.91	513,907.91	416.82	314	314	0.42	0.42	0.49	-0.06	-0.06	-0.07
SL-5	17-Sep-05	7,148,133.63	513,876.08	422.91	0	0						
	28-Jul-06	7,148,133.86	513,876.52	422.79	314	314	0.49	0.49	0.57	-0.12	-0.12	-0.14
2005-01	17-Sep-05	7,148,100.15	513,757.89	463.73	0	0						
	28-Jul-06	7,148,100.13	513,758.45	463.64	314	314	0.56	0.56	0.65	-0.09	-0.09	-0.10
2005-02	17-Sep-05	7,148,118.21	513,816.95	447.89	0	0						
	28-Jul-06	7,148,118.32	513,817.41	447.77	314	314	0.48	0.48	0.56	-0.12	-0.12	-0.14
2005-03	17-Sep-05	7,148,108.16	513,870.12	428.18	0	0						
	28-Jul-06	7,148,108.35	513,870.58	428.04	314	314	0.50	0.50	0.58	-0.14	-0.14	-0.16
2005-04	17-Sep-05	7,148,047.07	513,876.04	428.36	0	0						
	28-Jul-06	7,148,047.27	513,876.56	428.26	314	314	0.55	0.55	0.64	-0.10	-0.10	-0.12
2005-05	17-Sep-05	7,148,000.57	513,781.55	464.67	0	0						
	28-Jul-06	7,148,000.65	513,782.24	464.51	314	314	0.70	0.70	0.81	-0.16	-0.16	-0.19

Average	Aug 03 to Jul 04	0.43	0.46		-0.02	-0.02
	Jul 04 to Sep 04	0.11	0.72		-0.04	-0.25
	Sep 04 to Sep 05	0.44	0.45		0.05	0.05
	Sep 05 to Jul 06	**0.30**	**0.35**		**0.04**	**0.05**
Maximum	Aug 03 to Jul 04	0.71	0.76		0.04	0.04
	Jul 04 to Sep 04	0.21	1.38		0.00	-0.01
	Sep 04 to Sep 05	0.65	0.66		0.15	0.15
	Sep 05 to Jul 06	**0.47**	**0.55**		**0.06**	**0.07**
Minimum	Aug 03 to Jul 04	0.06	0.07		-0.10	-0.11
	Jul 04 to Sep 04	0.03	0.20		-0.09	-0.60
	Sep 04 to Sep 05	0.05	0.05		-0.01	-0.02
	Sep 05 to Jul 06	**0.03**	**0.03**		**0.01**	**0.01**