

GEOHAZARD ASSESSMENT PROGRAM
NORTH CENTRAL REGION – ATHABASCA
2012 INSPECTION



| Site Number | Location | Name | Hwy | km |
|--------------------------|--|----------------------------------|----------|------|
| NC 42 | 75 km north of Slave Lake and 40 km from the junction of highways 88 and 754 | North of Slave lake | 754:04 | 20.8 |
| Legal Description | | UTM Co-ordinates (NAD 83) | | |
| SE-28-77-3-W5M | | 11 N 6177576 | E 664053 | |

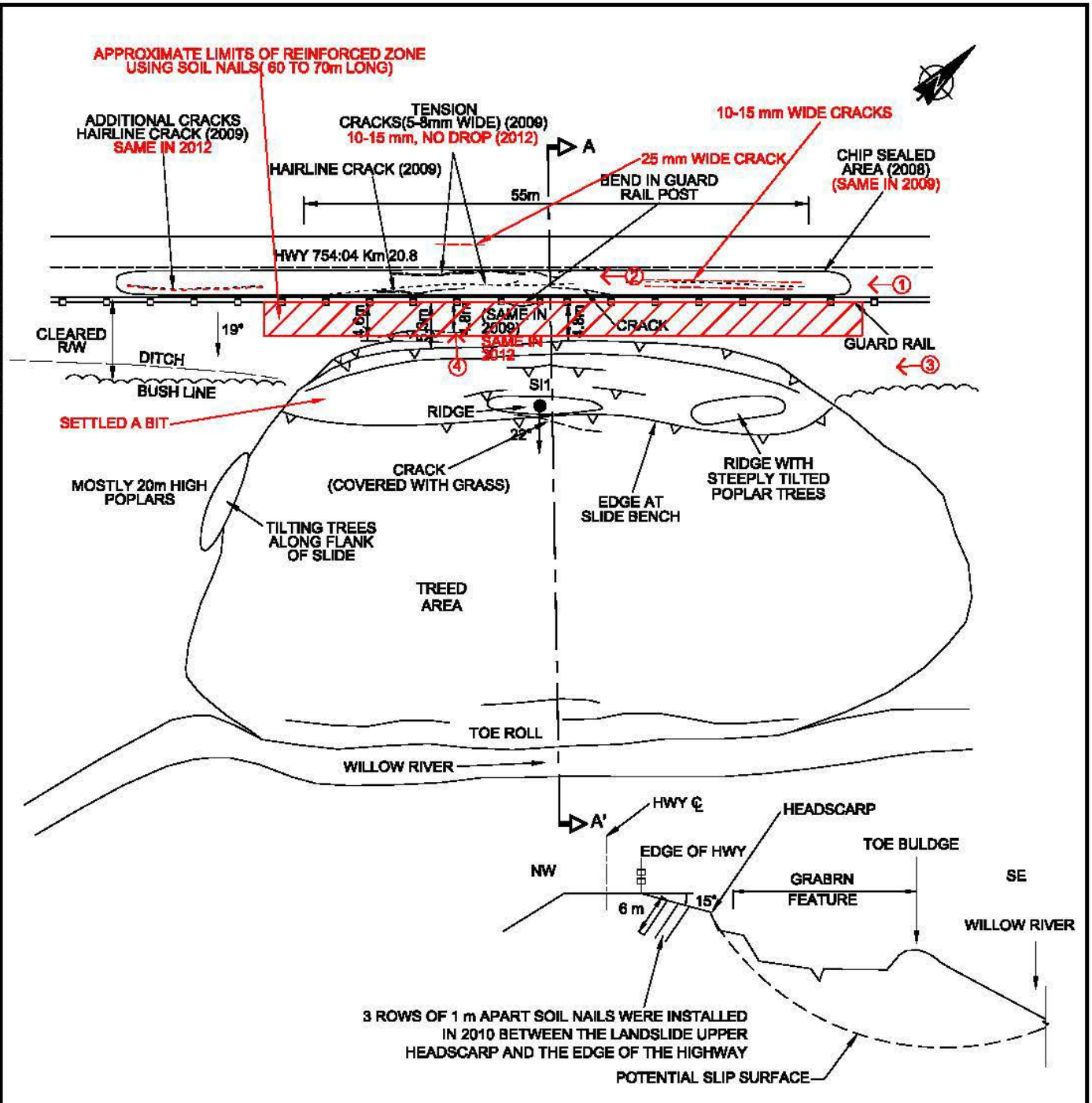
| | Date | PF | CF | Total |
|-----------------------------|--|--------------|----|-------|
| Previous Inspection: | June 18, 2009 | 9 | 3 | 27 |
| Current Inspection: | June 11, 2012 | 9 | 3 | 27 |
| Road AADT: | 870 | Year: | | 2011 |
| Inspected By: | Tarek Abdelaziz, Don Proudfoot (Thurber) Roger Skirrow, Arthur Kavulok, Gordon Wolters (TRANS) | | | |
| Report Attachments: | <input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input type="checkbox"/> Maintenance Items | | | |

| | | |
|---|--|--------------------------|
| Primary Site Issue: | A large landslide affecting the highway side slope, triggered by toe erosion from the Willow river | |
| Dimensions: | About 55 m long highway surface | |
| Date of any remediation: | Reinforcement of the highway side slope above the main headscarp using three rows of launched soil nails was completed in August 2010. The reinforced zone length was about 60 to 70 m along the highway alignment. A total of 180 steel soil nails (advanced to 6 m depth, or practical refusal) were installed in approximately 1x1 m ² grid patterns. The disturbed areas due to construction activities were covered with Landlok 300 TRM, top soiled and seeded. The construction cost was in the range of \$85,000. | |
| Maintenance: | Highway chip-sealed in 2008 | |
| Observations: | Description | Worse? |
| <input checked="" type="checkbox"/> Pavement Distress | 10 to 15 mm wide cracks in the highway NBL; 25 mm wide crack in the highway SBL | <input type="checkbox"/> |
| <input type="checkbox"/> Slope Movement | | <input type="checkbox"/> |
| <input type="checkbox"/> Erosion | | <input type="checkbox"/> |
| <input type="checkbox"/> Seepage | | <input type="checkbox"/> |
| <input type="checkbox"/> Bridge/Culvert Distress | | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Other | Vegetation cover on the construction-induced disturbed areas to install the soil nails | <input type="checkbox"/> |
| Instrumentation: (1SI) | | |
| Creep movement at a rate of 3.3 mm/yr | | |
| Assessment (Refer to attached Figure): | | |
| The SI shows ongoing creep movement of the landslide mass. The cracks in the highway surface might be in response to the continued creep movement of the landslide. | | |

The soil nails should reduce the risk of head scarp retrogression into the highway lanes.

Recommendations:

The site conditions did not change significantly since the 2009 site visit, and therefore future site inspections could be deferred for a few years. However, the MCI should visually inspect the extent of cracking in the highway surface and alert us if any sudden changes occur. In addition, any open cracks in the pavement should be sealed to reduce surface water infiltration into the highway subgrade in the vicinity of the landslide.



LEGEND

- SLOPE INDICATOR INSTALLED BY JACQUES WHITFORD IN 2006
2012 OBSERVATIONS ARE SHOWN IN RED
- ① → PHOTOGRAPH NUMBER, AND APPROXIMATE LOCATION AND DIRECTION (JUNE 11, 2012)

SECTION A - A'
N. T. S.

**NORTH CENTRAL REGION (ATHABASCA AREA)
- 2012 GEOHAZARD ASSESSMENT
NC42: HWY 754:04 NORTH OF SLAVE LAKE(km 20.8)
SITE PLAN AND CROSS - SECTION**

FIGURE NC42-1



| | |
|-------------|--------------|
| DRAWN BY | ML |
| DESIGNED BY | TSA |
| APPROVED BY | DWP |
| SCALE | N. S.T. |
| DATE | OCTOBER 2012 |
| FILE No. | 15-18-275 |





Photo#1 Looking southeast from the north side of the site at longitudinal cracks in the highway NBL



Photo#2 Looking southeast at an additional set of longitudinal cracks in the highway NBL



Photo#3 Looking south east at the landslide mass



Photo#4 Looking northwest at the soil nails installed above the main headscarp