GEOHAZARD ASSESSMENT PROGRAM

NORTH CENTRAL REGION – ATHABASCA

2009 INSPECTION

Government of Alberta ■ Transportation

THURBER ENGINEERING LTD.
GEOTECHNICAL ▪ ENVIRONMENTAL ▪ MATERIALS

Site Number	Location	Name	Hwy	km
NC 14	Northeast boundary of the Town of Fort Assiniboine	**Fort Assiniboine**	661:02	1.8
Legal Description		**UTM Co-ordinates (NAD 83)**		
NW-1-62-6-W5M		11 N 6023391 E 644779		

	Date	PF	CF	Total
Previous Inspection:	June 9, 2008	8	4	32
Current Inspection:	June 18, 2009	8	4	32
Road AADT:	1070		**Year:**	2008
Inspected By:	Tarek Abdelaziz, Renato Clementino (Thurber) Roger Skirrow, Neil Kjelland (TRANS)			
Report Attachments:	☑ Photographs ☑ Plans ☐ Maintenance Items			

Primary Site Issue:	Slope creep movements causing pavement distress to a sidehill alignment due to seasonal high ground water levels	
Dimensions:	About 250 m long	
Date of any remediation:	None recently	
Maintenance:	None	
Observations:	**Description**	**Worse?**
☑ Pavement Distress	Slight dip on SBL of Mid-Hill section. Cracks up to 30 mm wide with up to 20 mm differential height across cracks	☑
☑ Slope Movement	Slight depression on ground near power pole, south west end	☑
☐ Erosion		☐
☑ Seepage	Drains dripping into MH#2, where water levels were slightly lower than 2008. Water is ponding around of MH#1, which is currently full to three quarters of its height	☑
☐ Bridge/Culvert Distress		☐
☐ Other		☐

Instrumentation: (4SIs, 13 SPs)

Two zones of creep on SI06-12 &16 with rates of 0.3 and 0.4 mm/yr, respectively. Water levels remained relatively unchanged in the majority of standpipes since Fall 2008 Ave0. water levels at 6 to 8 m B.G.S. A11 showed a reduction in water level by 0.9 m. Probably perched water levels : 2.69 m (SP06-1); 14.6 m (SP06-5)

Assessment (Refer to attached Figure)**:**

The site observations and the instrument readings indicate that the site continued to show creep movements due to minor fluctuations in water levels. The highway condition appeared to have deteriorated since last year as evidenced from widening and opening of cracks. The

sub-horizontal drains (tied into the manholes) are probably helping in reducing the slide movement by lowering the water levels in the slide area. The water ponding around MH#1 is a reflection of the poor drainage characteristic of soils surrounding the manhole and could have stemmed from the rising of water levels around the manhole (either due to blockage of outflow pipe or from a bad connection between one of the drains and the manhole body)

Recommendations:

In the short term, the MCI should seal all open cracks in the pavement to limit infiltration of surface water into the slide mass. Flushing the manhole drain and outflow pipes is also important to improve slope drainage characteristics. It is also recommended to excavate around MH#1 to expose the drain pipes and the perforations around the manhole. The perforations of the manhole should be covered with non-woven geotextile fabric to reduce the likelihood of future clogging. The excavation should be backfilled with washed gravel enveloped in a non-woven geotextile, and capped at the ground surface with a clay seal.

The ballpark cost to flush the manhole pipes and to place the filter gravel around MH#1 is $15,000.