

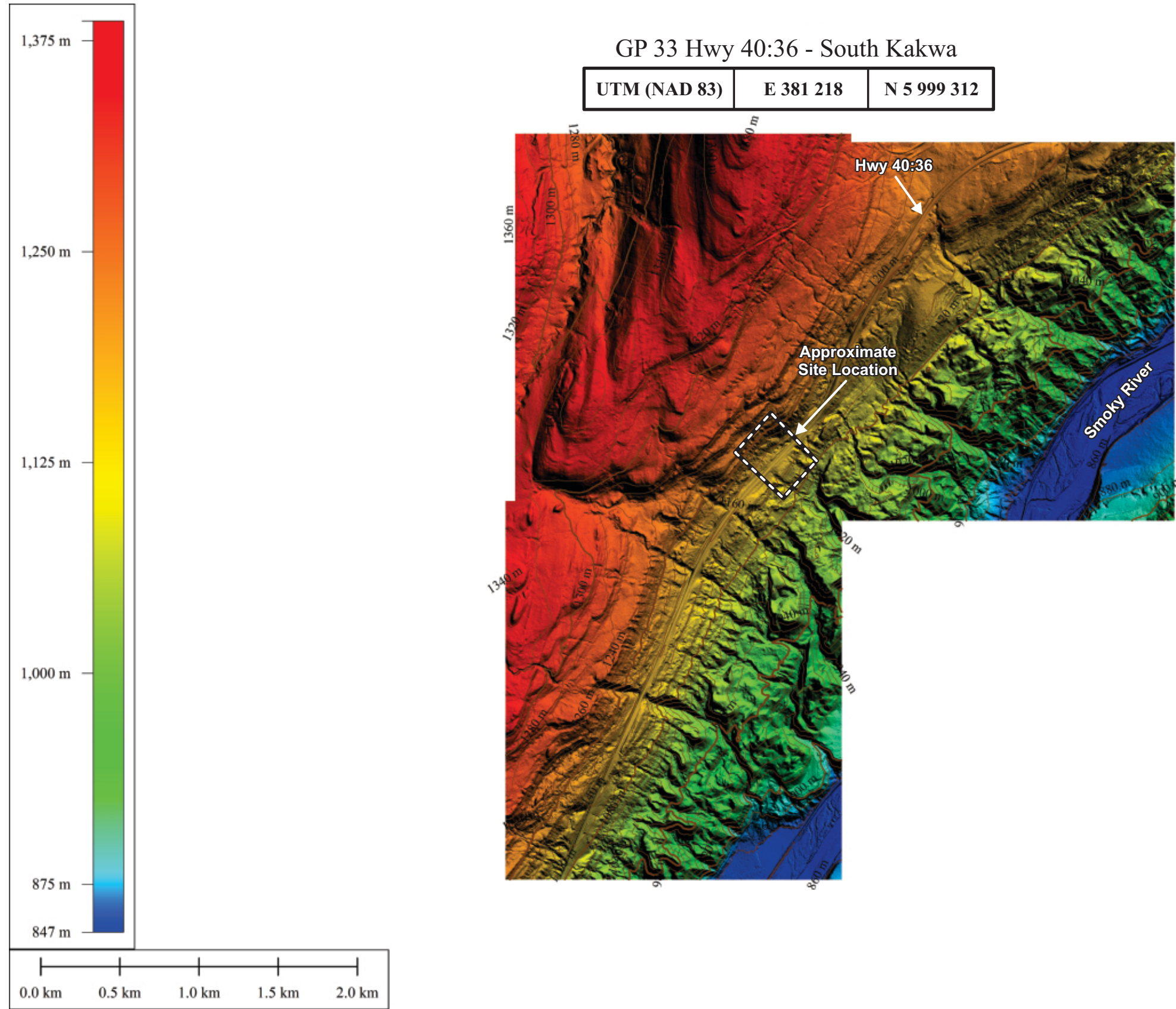
**PEACE REGION – GRANDE PRAIRIE  
GEOHAZARD RISK ASSESSMENT  
SITE INSPECTION FORM**

SITE NUMBER GP-33	SITE NAME Southview (Km 39.4) culvert slide	HIGHWAY & KM Hwy 40:36 @Km39.4	PREVIOUS INSPECTION DATE: July 4, 2008	INSPECTION DATE: July 12, 2012
LEGAL DESCRIPTION LSD -NE21-59-6-W6M	NAD 83 COORDINATES N5,999,312 E381,218	PREVIOUS RISK ASSESSMENT PF: 8      CF: 3      TOTAL: 24		
		<b>CURRENT 2012 RISK ASSESSMENT</b> PF: 8      CF: 3      TOTAL: 24		

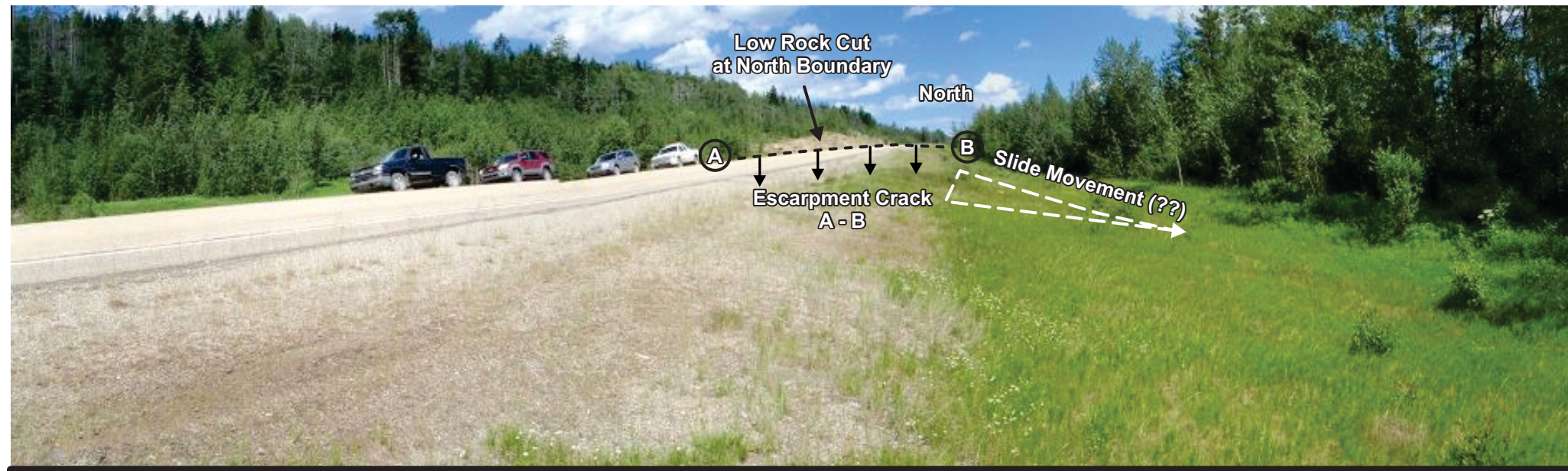
SUMMARY OF SITE INSTRUMENTATION:  No instrumentation installed.	(i)KarlEng: Karl Li, John Heilman (ii) AT: Ed Szmata, Mark Hoseasson, Roger Skirrow, Rocky Wang
PRIMARY SITE ISSUE: i) At east (north) side of site, a headscarp cracking of pavement had developed with the crack crossing centreline. Highway is a low fill (1.5m fill @4H:1V) embankment constructed over mountainous sidehill of the Smoky River valley slope. Slippage of embankment has apparently occurred. Only the north side of the headscarp crack was noticeable and rest of headscarp crack still remains to be observed. ii) At west (south) side of site(Sta.43+580), there is a culvert accepting a stream with continuous flow (skirting) along backslope flat area. The stream water is piped beneath the highway via "a broken" 900mm dia csp culvert. Leakage from culvert likely caused seepage flow beneath highway to cause wetting of subgrade on opposite side of embankment. De-icing pipe was observed at outlet of culvert. At the east (north) end, the probability of groundwater seepage flow occurring beneath the highway embankment may be likely as well. iii) This site is likely a slippage of embankment and maybe related to groundwater seepage below highway embankment across the mountainous sidehill terrain.	
APPROXIMATE DIMENSIONS: - Approx 150m distance (along highway) extends from cracking area in the east (north) to the csp culvert in the west (south) (Sta.43+580). - A low rock cut ledge can be located at east (north) limit (est. Sta. 43+900) of this site.	
DATE OF ANY REMEDIAL ACTION: n/a	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
PAVEMENT DISTRESS	x		Cracking and minor subsidence of		x

			pavement at east (north)end.		
SLOPE MOVEMENT	x		Likely slippage of embankment under influence of seepage groundwater regime		x
EROSION		x	n/a		
SEEPAGE	x		Probable seepage flow beneath embankment		
CULVERT DISTRESS	x		900mm dia culvert separated (July 2012)at 3m distance from inlet. Need to repair as a priority.		
<p>COMMENTS:</p> <p>In current 2012 site visit, it was reviewed that</p> <ol style="list-style-type: none"> <li>1) Headscarp crack at east (north) end has not deteriorated.</li> <li>2) At the west (south) end, the culvert is separated and has to be repaired as a priority. Active stream flow is entering the broken pipe. Leakage and seepage has been occurring.</li> <li>3) For this distress area, groundwater seepage flow beneath the embankment maybe likely. The continuous spring flow from a stream (skirting from backslope flat area) can be indicator of year-round seepage feed in the area. Thus for the cracking at the east (north) end, it maybe causal by likely seepage influence below embankment. However, this remains to be observed.</li> <li>4) Future deterioration of the site remains to be observed. Site to be inspected next year.</li> </ol> <p>Important Note:</p> <p>This form assessment is an update for current year only. Please refer to the detailed assessment provided as in the 2011 Annual Assessment and other earlier Reports for background understanding of this site.</p> <p>END</p>					



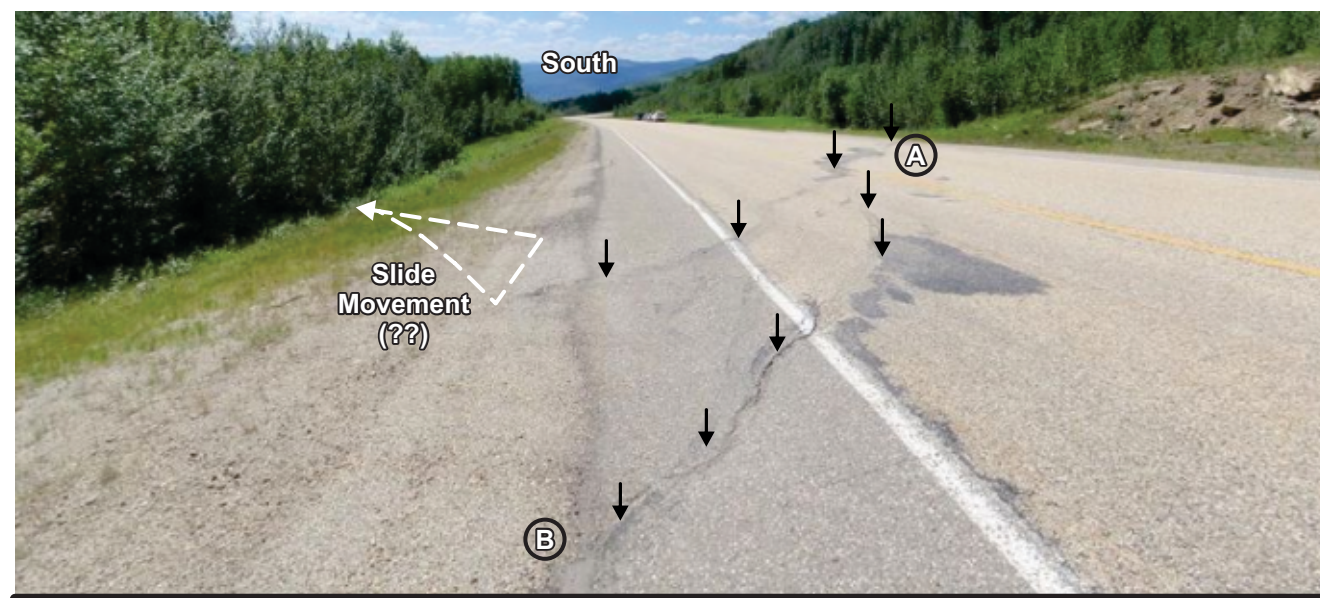
**Figure 1**  
GP-33, Hwy 40:36



**Photo 1**

**Looking north (towards Kakwa River)**

- Slide movement (??) may be under development from left to right (?) downvalley
- An escarpment crack has persisted at its north frank crossing (from sideslope @B to backslope ditch @A)
- Site is bordered to the north with a low rock cut slope
- Site is bordered to the south (Grande Cache direction) by a culvert



**Photo 1a**

**Looking south along sideslope**

- Escarpment crack across roadway (from sideslope @B to backslope @A)
- Close up

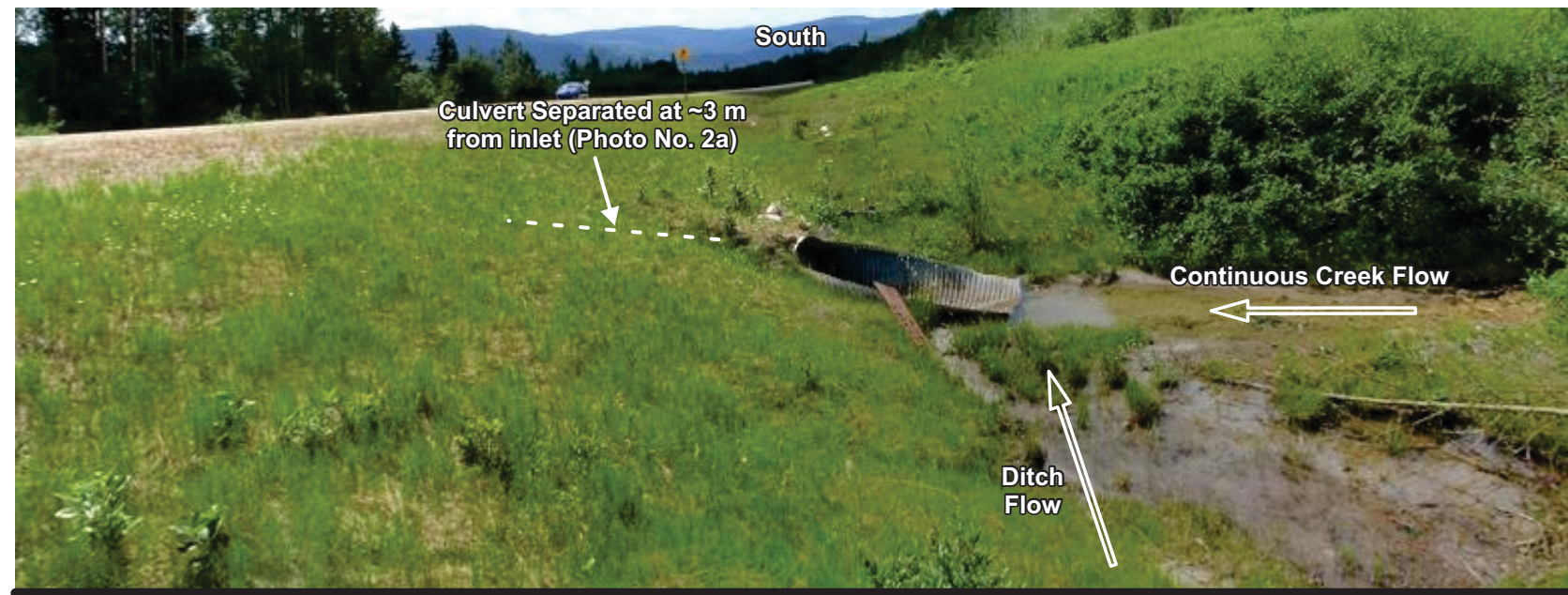


**Photo 1b**

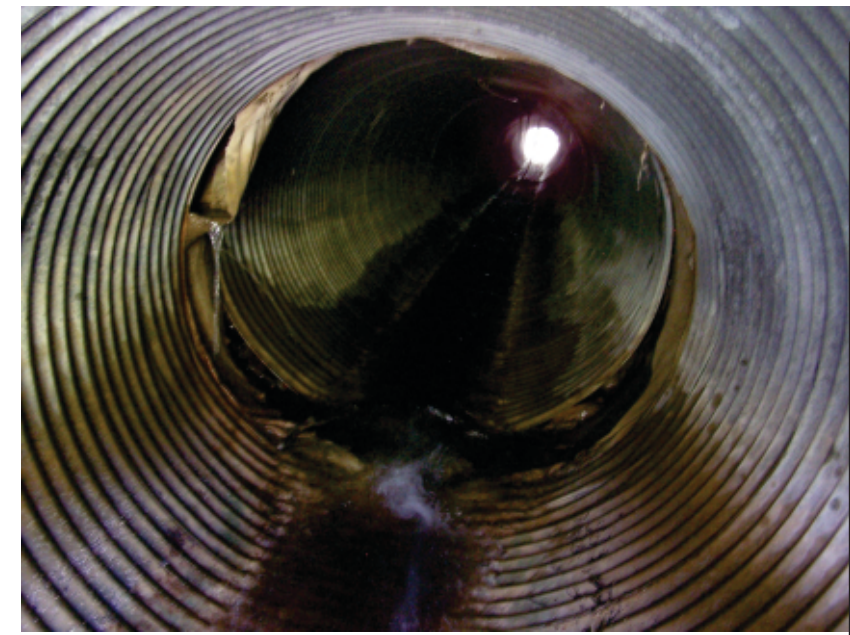
**Looking north along backslope**

- Another perspective of same crack A-B
- Close up

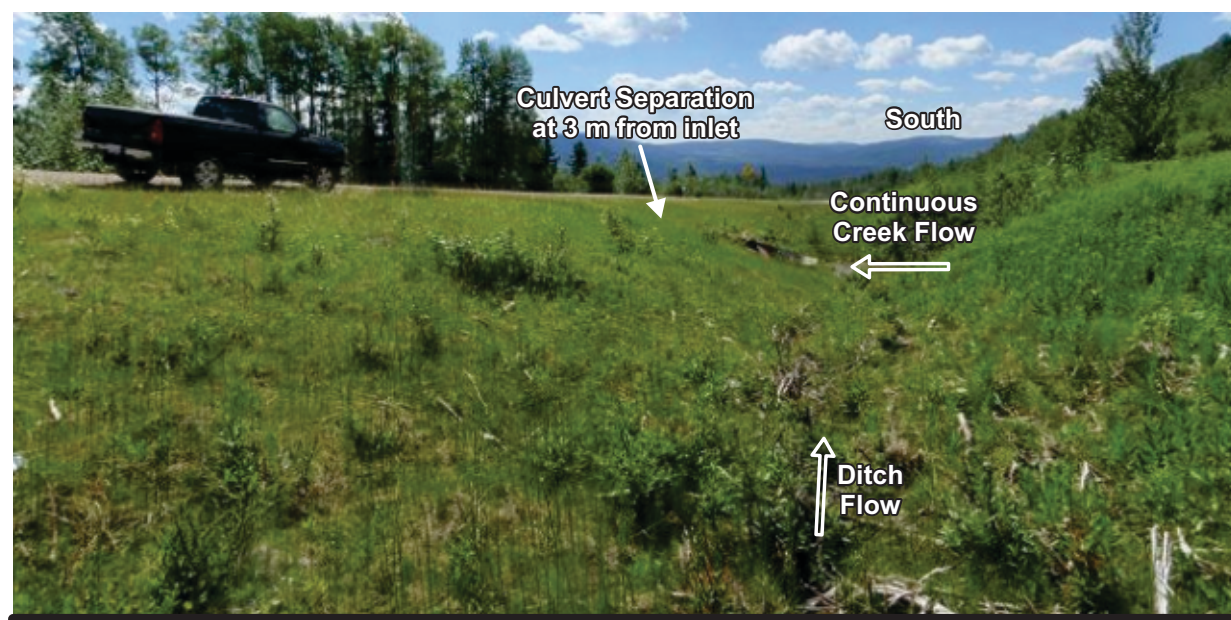
*Note: Photos taken on July 2012*



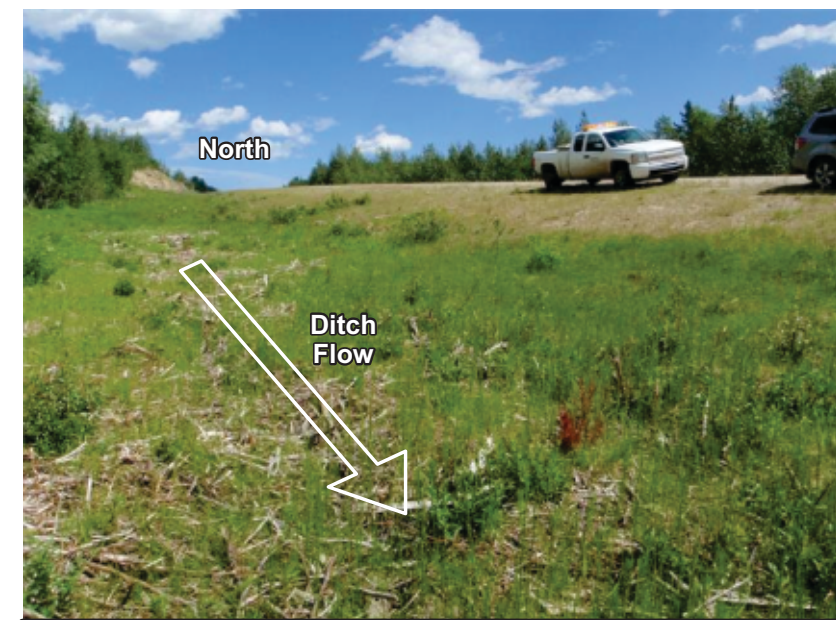
**Photo 2**  
**Looking south (towards Grand Cache)**  
 • A culvert a south border  
 • Broken at inlet area



**Photo 2a**  
**Culvert separated at about 3m from inlet**  
 • Culvert to be repaired

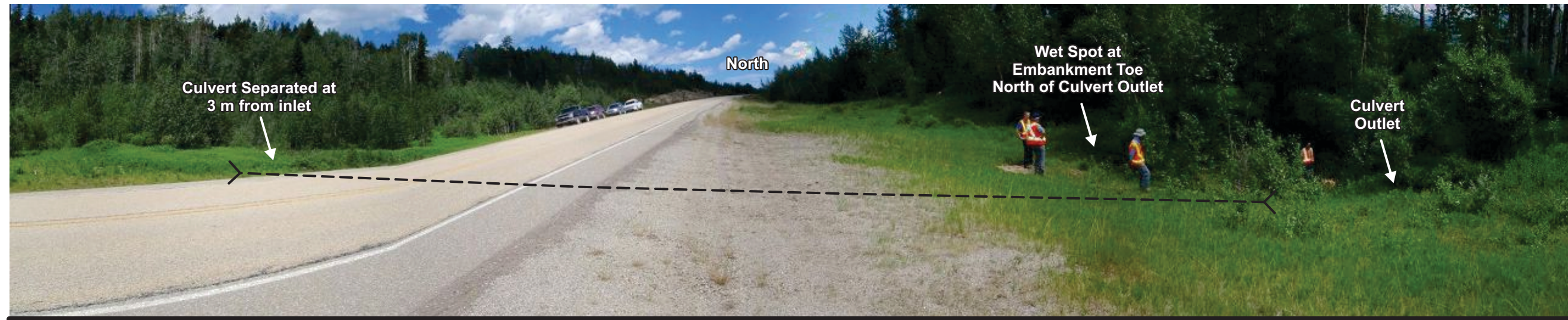


**Photo 2b**  
**Looking south**  
 • Backslope ditch to inflow merging flow from a continuous flowing creek



**Photo 2c**  
**Looking north (away from Grande Cache)**  
 • Another view of backslope ditch

*Note: Photos taken on July 2012*



**Photo 3**

**Looking north (away from Grande Cache)**

- A chronic wet spot at toe of road embankment beside the culvert outlet
- May be causal by culvert leakage
- Culvert separated at 3 m from inlet



**Photo 3a**

**Culvert outlet with continual flow**

*Note: Photos taken on July 2012*