

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

SITE NUMBER GP-30-a	SITE NAME Iosegun River valley crossing West backslope- Catchwater ditch slide	HIGHWAY & KM Hwy 43:12	PREVIOUS INSPECTION DATE May 27, 2014	INSPECTION DATE May 26, 2015
LEGAL DESCRIPTION LSD 2-35-61-18-W5M	NAD 83 COORDINATES N 6,018,494 E 526,876	PREVIOUS RISK ASSESSMENT PF: 10 CF: 3 TOTAL: 30 (downdrain failure)		
		CURRENT 2012 RISK ASSESSMENT PF: 10 CF: 3 TOTAL: 30 (downdrain failure)		

SUMMARY OF SITE INSTRUMENTATION: No instrumentation.	INSPECTED BY: (i)KarlEng: Karl Li (ii) AT: Ed Szmata, Rocky Wang
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PRIMARY SITE ISSUE:
In 2011,

i) Leakage of a buried down drain “Big O” pipe has occurred during spring 2010 causing the erosion scouring of slope. The buried down drain pipe was previously installed in Fall 2010 and its performance was not successful. For a period of 3 year since the pipe has been leaking, the erosion damage and movement of slope was observed non-substantial. It is desirable to observe the leakage condition for a few years further prior to decide if it is required to redesign and re-construct a new channeling device for drainage outfall of the waters from backslope catchwater ditch (as originally intended to replace the leaking buried downdrain pipe).

As noted in previous reports:

ii) The previous sliding of backslope occurred because of over-spillage of surface water from a catchwater ditch (on top of backslope) that is lacking in hydraulic capacity (grade is too flat and channel section too small).

iii) For drainage of waters from catchwater ditch, a buried pipe was opted to conduct flows down the 3H:1V slope. This construction was attempted in Fall 2010 but its construction Q/A performance was unsatisfactory to result leakage.

Note:
Refer to previous 2010 Slide Tour and earlier Reports for details.

APPROXIMATE DIMENSIONS:
As a result of this 2011 leakage failure of the buried downdrain pipe,

i) 110m of buried “Big O’ downdrain pipe needs to be excavated and replaced with other drainage option.

<p>Prior to Oct 2010 repair with use of downdrain pipe, the slide distress area entail</p> <ul style="list-style-type: none"> ii) Slide area 50mx30m, backslope @3H:1V at about 30m slope height. This slide area was remediated by regrading (2010) the slope and installing finger drains at seepage spots. iii) About 300m (Sta. 420 to Sta.720) length of backslope ditch was assessed too flat and was regraded (Elev. 850m to Elev.835) to outflow into the downdrain pipe.
<p>DATE OF ANY REMEDIAL ACTION: (reiterated from previous report)</p> <ul style="list-style-type: none"> - Oct 2010, the following construction were constructed. <ul style="list-style-type: none"> o Regrading of catchwater ditch to sufficient hydraulic efficiency. o Installation of a buried and anchored "Big O" downdrain to carry confined outflow from catchwater ditch down to highway ditch o Installation of a splash pad at downdrain outlet o Installation of finger drains to tap to seepage zones o Regrading of slope with simonizing of escarpment zones for slope reconstruction. - Spring 2011 <ul style="list-style-type: none"> o Failure (leakage and joint separation) of buried and anchored "Big O" downdrain was observed to caused soil erosion along slope face.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
PAVEMENT DISTRESS		x	n/a		
SLOPE MOVEMENT	a), b**))		(a) Previous sliding movement of backslope was remediated by regrading of slope in Fall 2010, (b) Due to leakage failure of downdrain, <u>**new slide movement may likely</u> evolve from erosion (spring snow runoff) and remains to be observed	**	
EROSION	x		Leakage of a buried "Big O" downdrain pipe (2010 Fall) occurred to cause erosion of slope Its effect remains to be observed	x	
CULVERT DISTRESS	x		Leakage of a buried "Big O" downdrain pipe creating erosion of slope		x

COMMENTS:
In current 2015 site visit, it was reviewed that

- 1) No obvious deterioration of site occurred. The pipe leakage did not aggravate instabilities of backslope and its current backslope stability can be assessed adequate. Despite pipe separation(s)

(at some joint locations) and squash damage to pipe causing its leakage, wash flow is still transmitting to outflow from its end to ditch. It is apparent the water flow has found its path with no obvious detrimental effect to stability of the backslope

Reiterate from previous reports

- 2) Over preceding year (2014/2015), the leakage along the leaking pipe (and erosion thereof generated) has not deteriorated to create adverse soil movements (internal erosion or cavitation) of the backslope. Good grass catch has established over some leakage erosion areas.
 - 1a) Water is outflowing at outlet from the leaking pipe (despite it was separated and swashed at several sections. No serious erosion or slumping of grounds has evolved as result of the pipe leaking.
 - 1b) It is advisable to further observe if any natural stabilization can evolve for a drainage path to establish itself down this slope.
- 3) Options to repair the leaking pipe should be postponed and observation of recuperation of the site should take precedence at this time. It is advisable to delay the option of designing an open channel gabion chute (down the 3H:1V backslope) to replace the failed down drain "Big O pipe"(Fall 2010) as was intended previously.

Important Note:

This form assessment is an update for current year only. Please refer to the detailed assessment provided as in the 2011 Annual Assessment and earlier Reports for background understanding of this site.

END

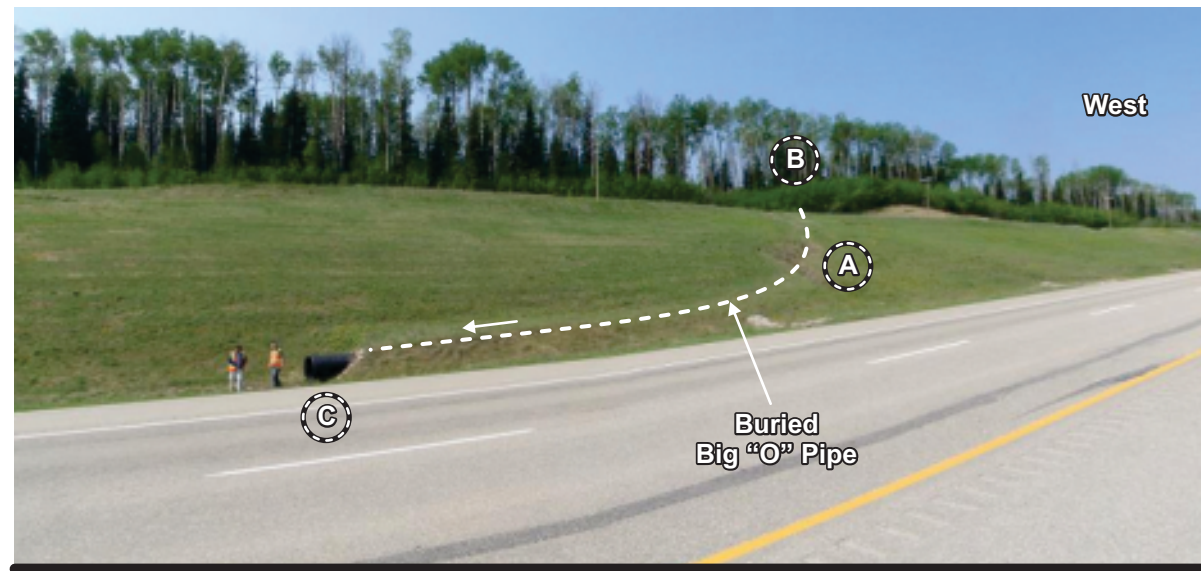


Photo 1

Looking west upgrade at backslope along eastbound lane

- Location of buried Big “O” (Elephant Trunk) pipe B-A-C
- Which has suffered separation at joints and swashing at some sections to result leakage
- Subsidence of ground along buried pipe alignment to have stabilized and not deteriorating
- Backslope in survivable acceptable conditions

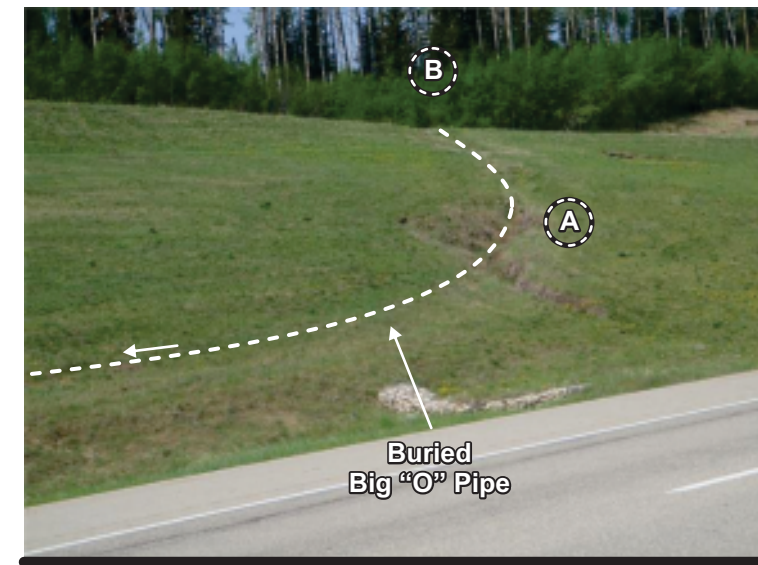


Photo 1a

Looking west upgrade at backslope along eastbound lane

- Location of buried Big “O” (Elephant Trunk) pipe B-A-C
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- Subsidence of ground along buried pipe alignment to have stabilized and not deteriorating
- Backslope in survivable acceptable conditions



Photo 1b

Slumping and erosion location along buried pipe due to leakage



Photo 1c

Slumping and erosion location along buried pipe due to leakage



Photo 1d

Outlet of Big “O” pipe

- Water outflow functioning despite pipe leakages

**GP-30a, Hwy. 43:12
Iosegun River
West Backslope (Catchwater Ditch) Slide
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Note: Photos taken on May, 2015



Photo 2
Top of backslope and catchwater ditch
 • Inlet of buried big “O” for inflow from catchwater ditch



Photo 2a
Catchwater Ditch inflow sections (east end and west end)



Photo 2b
Catchwater Ditch inflow sections (east end and west end)



Photo 2c
Top of backslope and catchwater ditch
 • Inlet of buried big “O” for inflow from catchwater ditch