NORTH CENTRAL REGION GRMP
EDSON / STONY PLAIN
SITE INSPECTION FORM

SITE NUMBER AND NAME:	HIGHWAY AND KM:	PREVIOUS INSPECTION:	CURRENT INSPECTION:
NC092 – Cattlepass Culvert BF 80823	37:02, km 23.855	June 20, 2024	May 21, 2025
LEGAL DESCRIPTION:	**NAD83 COORDINATES:**		**RISK ASSESSMENT:**
NE 33-54-27-W4M	UTM12U 5955908N, 307552E		PF: 10 CF: 6 Total: 60
AVERAGE ANNUAL DAILY TRAFFIC (AADT):		**CONTRACTOR MAINTENANCE AREA (CMA):**	
3000 (2024)		510	

SUMMARY OF INSTRUMENTATION:	INSPECTED BY:
One standpipe installed at this site. **LAST READING DATE:** February 29, 2024	Stantec: Leslie Cho, Sonja Pharand TEC: Kristen Tappenden

PRIMARY SITE ISSUE:

Two slope failures south of Highway 37 bisected by a cattlepass culvert.

APPROXIMATE DIMENSIONS:

25 m wide by 12 m long x 3.5 m deep

DATE OF ANY REMEDIAL ACTION:

An internal splice / coupler was installed approximately 6.7 m into the cattlepass culvert from the south end at an unknown date by the MCI.

From discussion with the landowner, the landowner extended the 800 mm diameter culvert on the west side of the site, to carry flow under their access road and outlet approximately 100 m further south into a field. The date of this action is unknown. In 2015, the landowner installed timber lagging at the north slope around the cattlepass due to sloughing. The lagging is held against the slope with 100 mm diameter steel pipe piles pushed into the ground approximately 2.5 – 3.0 m deep. The landowner occasionally regrades the east landslide toe to maintain functionality of the gate. New posts were installed in 2020-2021 on the west side of the south end of the cattlepass culvert. The wooden posts were significantly leaning in 2021 and were repaired in 2022. Regrading on the east side of the cattlepass may have been completed as part of fence repair.

ITEM	CONDITIONS EXIST		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Transverse cracking at both ends of slump. Some loss of lateral support for guardrails.		X
Slope Movement	X		Retrogressing slump south of HWY37 on both sides of cattlepass culvert. Scarps and tension cracking. Timber lagging on north end leaning away from slope. Increased ground cracking above north end of cattlepass.	X	
Erosion		X			X
Seepage		X			X
Culvert Distress	X		Sag ~3 m to 4 m into south end of cattlepass culvert.		X

COMMENTS

- Little to no change was observed at the slump on the southeast side of the cattlepass, with the scarp up to about 2.5 m high. The scarp at the east extent next to the pavement remains approximately 0.3 m high (Photos 1 and 2).
- The height of the toe bulge was about 700 mm high, similar to observations in 2024 (Photo 1).
- Four guardrail posts have been exposed by the scarp, one more than observed in previous inspections. Ponded water was observed at the base of one guardrail post.

- The west slump appeared to have retrogressed compared to the 2024 inspection. The scarp west of the cattlepass was about 3.0 m high and 1.8 m away from the guardrail (Photos 3 and 4).
- Tension cracks were observed on the west side of the west scarp and on the west side of the culvert opening, near the top of the culvert. Both appeared unchanged since 2024.
- A sag was observed about 3 m to 4 m inside the south end of the cattle pass culvert since 2021. The sag location appeared to be approximately in line with the two scarps and is potentially separated at the joint. A splice has been installed at this section as well (Photo 9).
- Regrading of the landslide toe on the east side of the cattlepass has been completed in the past, and may have taken place this year as well. The toe appears to have been cut back in an area 1.7 m wide, 4.0 m long, and 0.7 m high. A section of exposed soil was observed on the landslide toe during the recent inspection, which may be the result of recent grading (Photo 1).
- From discussion with the landowner (Louis Verbeek), it was understood that there was an approximately 1.2 m deep hole that developed at the south end of the cattlepass many years ago. This hole was subsequently backfilled with granular material by the landowner.
- A longitudinal crack in the EBL was observed above the culvert and is partially patched. The crack extends past the patch on both sides and is up to 10 mm wide (Photo 5).
- The transverse cracks above the eastern scarp and cattlepass culvert (Photo 6) appeared unchanged, and have reflected through their respective pavement patches.
- The guardrail appeared to be mostly in good condition.
- A black utility cable (likely Telus) continues to be observed running east-west, though it is above the landslide now (Photo 2). It appears to be a newly installed line that hasn't yet been buried.
- The groundwater level measured in the standpipe piezometer in BH24-01 during the Spring 2025 reading cycle was 4.4 m below ground surface corresponding to an increase of 0.9 m since February 2024.
- A ground crack approximately 50 mm wide was observed in 2024 above the north end of the cattlepass culvert, at the fence line (Photo 7). The crack has progressed and is now approximately 2.6 m long, 2.2 m longer than observed last year.
- The retaining wall constructed by the landowner at the north end of the cattlepass is leaning away from the slope, and fenceposts beyond the cattlepass can also be seen to be leaning downwards (Photo 8), suggesting that the north slope may be slowly moving as well. The gap between the backside of the timber lagging and the ground surface was measured to be approximately 60 mm.
- The culvert inlet in the ditch to the east of the private driveway, on the south side of the highway is sunken into the ground. The outlet in the north ditch is also sunken into the ground, and water is pooling in the outlet, unable to flow out (Photo 10). The culvert inlet to the west of the outlet in the northeast ditch appears to be at a higher elevation than the neighbouring outlet.

RECOMMENDATIONS

- The MCI should continue to monitor the highway surface and guardrails until remediation can be undertaken.
- The MCI should discuss possible solutions with the farmer to maintain functionality of the gate but to refrain from further grading work at the toe of the landslide. Loss of soil support at the toe can trigger additional slope movements.
- Cracks in the pavement should be sealed to prevent surface water from entering the embankment.
- In the short-term, fill can be placed at the base of the slope failure to act as a temporary buttress. The nearby Calahoo pit may be a potential source of granular material for this purpose.
- Stantec has submitted a design and work order for remediation of the embankment slope by removing the failed soils and replacement with granular fill reinforced with geogrid.
  - An alternative design was also submitted following the site visit with the landowners on May 16, 2025, to include partial culvert replacement either with replacement CSP or a box culvert. The alternative design is currently with TEC for review.
- Regrade the ground around the 600 mm dia. culvert inlet and outlets east of the private access road to promote positive surface water drainage.
- Site inspections should be completed annually.
- Instrument readings should continue in the Spring and Fall.

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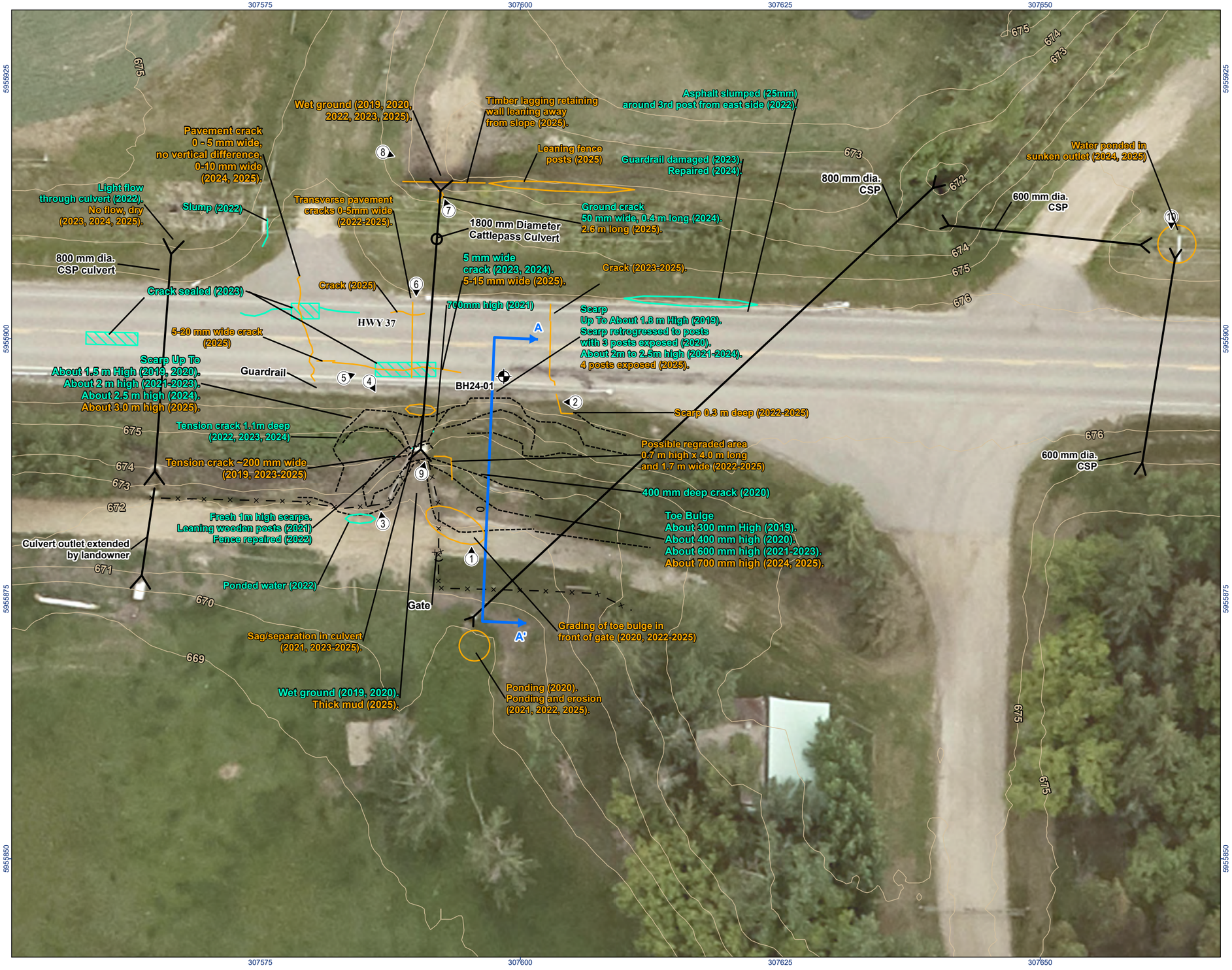
SITE INSPECTION FORM

PREPARED BY: Sonja Pharand, P.Eng.	**REVIEWED BY:** Leslie Cho, M.Eng., P.Eng.	**PERMIT TO PRACTICE**
PROFESSIONAL ENGINEER ALBERTA SONJA A. PHARAND ID 286545 2025-10-11		**PERMIT TO PRACTICE** **STANTEC CONSULTING LTD.** Signature ID# 74389 Date 15 - Oct - 2025 **PERMIT NUMBER: P 0258** The Association of Professional Engineers and Geoscientists of Alberta



Stantec

- Borehole Location
- Photos and Direction
- Previous Observation
- 2025 Observation
- Fence
- Ground Elevation Contours (m AMSL)
- Culvert
- Cross-Section Location

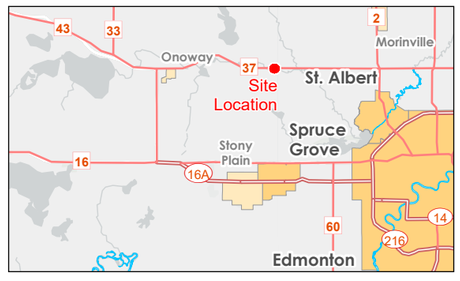
N

0 6.5 13 metres

(At original document size of 11x17)
1:375

Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Data Sources: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
3. Background: Light Gray Base: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
World Imagery: Parkland County, Sturgeon, Sturgeon County



Project Location
NE-33-054-27-W4M, Alberta

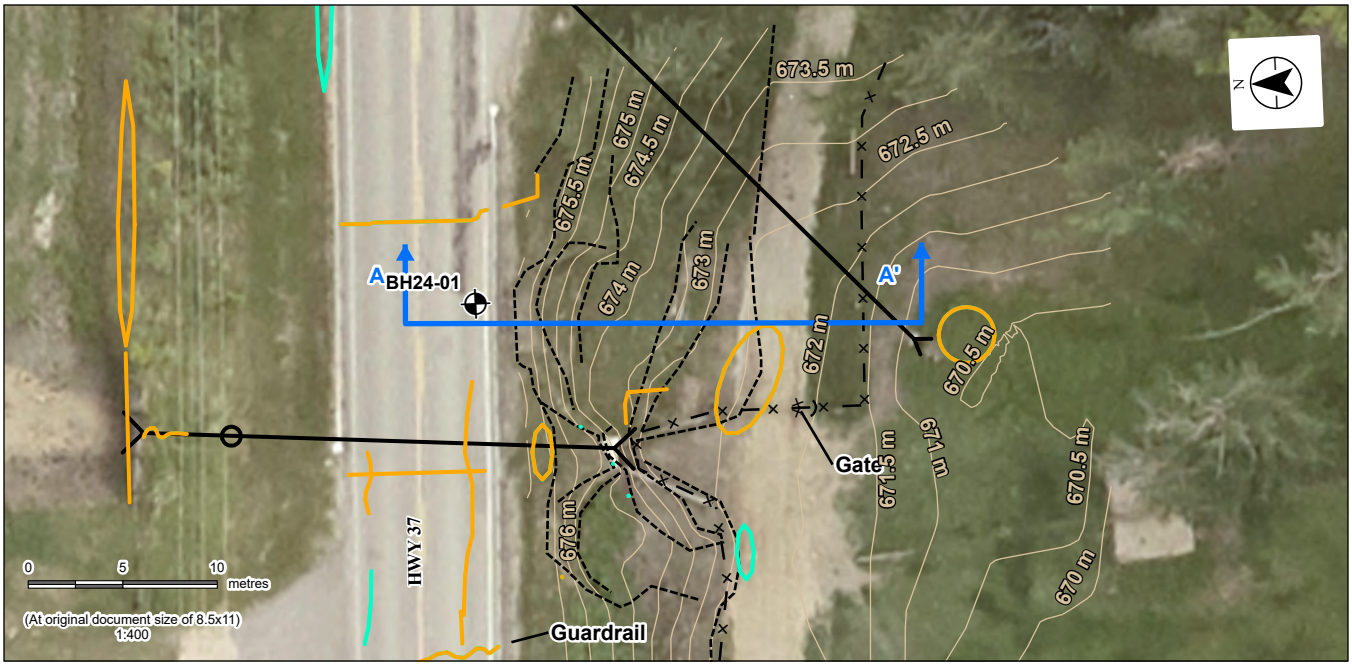
Prepared by MK on 2025-07-21
TR by SP on 2025-07-22
IR by LC on 2025-07-23

Client/Project 123315222
Transportation and Economic Corridors
Geohazard Monitoring Program
NC92 - Highway 37:2 Cattlepass Culvert

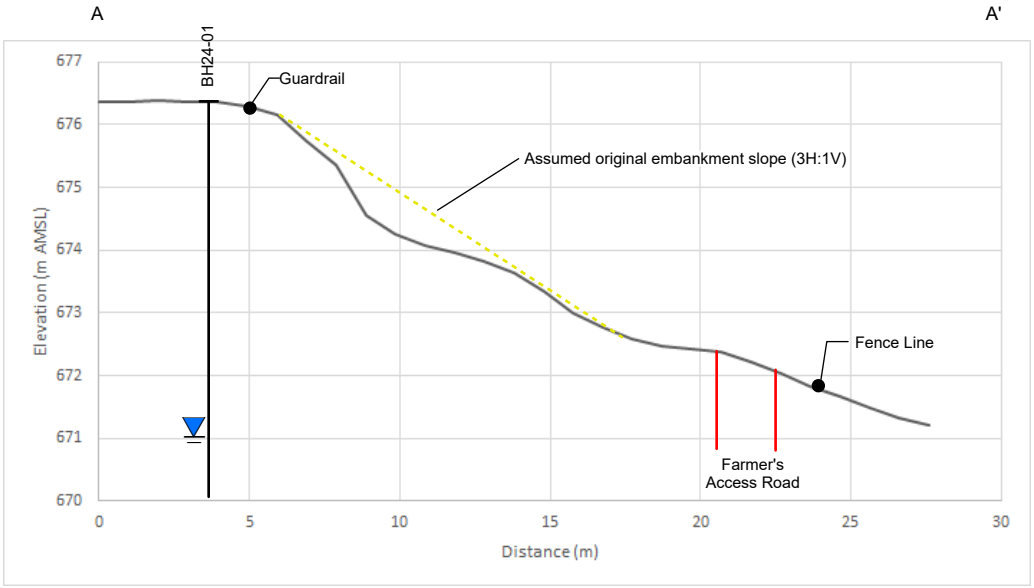
Figure No.
1

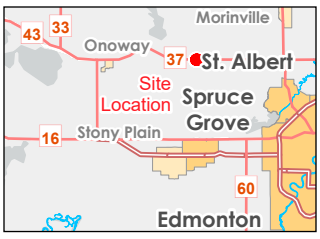
Title
Site Plan

C:\Users\MKuhl\AppData\Local\Temp\ArcGISPro\Temp\19556\Untitled\Untitled.aprx Revised: 2025-10-09 By: MKuhl



Cross Section A - A'





- Previous Observation
- 2025 Observation
- Break Line
- Fence
- Ground Elevation Contours (m AMSL)
- Culvert
- Cross-Section Location
- Groundwater Level (February 2024)

Notes

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2. Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
3. Background: Light Gray Base: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
World Imagery: Parkland County, Sturgeon, Sturgeon County.
4. Contours and Cross-Section Profile: Calculated from Stantec Survey Points (Feb. 2019).

m AMSL metres above mean sea level

Stantec

Project Location
NE-33-054-27-W4M,
Alberta

Prepared by MK on 2025-07-21
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Client/Project 123315222
Transportation and Economic Corridors
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NC92 - Highway 37:2 Cattlepass Culvert

Figure No.
2

Title
Ground Profile of Section A - A'

2025 Site Inspection Photos at NC092

Photo 1: Slump on east side of culvert. Looking north.

Photo 2: Slump across cattlepass culvert. Looking west.

2025 Site Inspection Photos at NC092

Photo 3: Scarp at west slump. Looking north.

Photo 4: West slump next to culvert entrance. Looking southeast.

2025 Site Inspection Photos at NC092

Photo 5: Highway surface above culvert. Looking east.

Photo 6: Transverse pavement crack above cattlepass culvert. Looking south.

2025 Site Inspection Photos at NC092

Photo 7: Ground crack along centreline of cattlepass culvert at north end. Looking north.

Photo 8: North end of the cattlepass culvert. Looking southeast. Photo taken May 16, 2025, prior to annual site inspection.

2025 Site Inspection Photos at NC092

Photo 9: Inside of cattlepass culvert, looking north from southern end.

Photo 10: Water ponded in sunken culvert outlet in ditch east of private access, north side of highway. Looking south.