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THURBER

ALBERTA INFRASTRUCTURE
LANDSLIDE RISK ASSESSMENT

SECTION A: GEOTECHNICAL FILE REVIEW

NORTH CENTRAL REGION

SITE NC15: SH748:02

LEGAL LOCATION:	**NW 10-54-17-W5M**
NEAREST LANDMARK:	**8 km North of Edson (on Silver Summit Road)**
Highway Control Section:	**SH748:02**
Date of Initial Observation:	**1985**
Date of Last Inspection:	**1999**
Last Inspected By:	**GAEA Engineering Ltd.**
Instruments Installed:	**2 Slope Inclinometers (1985), Standpipe Piezometers (1985)**
Instruments Operational:	**2 Slope Inclinometers (1992), Standpipe Piezometers (1985)**
Risk Assessment:	PF(1) * CF(3) = **3**

Hydrogeology: Main aquifer is the Paskapoo Formation with yields of up to 8 L/s. Local buried channels can also provide yields of up to 8 L/s. Shallow groundwater flow direction is toward the Edson River.

Stratigraphy: The general subsurface stratigraphy at the site consists of the following:

Material	Depth (below ground surface)
Clay - firm to stiff, medium plastic, silty (slickensides noted in clay at 1.5 m)	Below topsoil to approximately 2.0 m
Sand/Silt - fine grained, compact	Below clay to 9.9-11.5 m
Clay Shale (Rafted?) - silty, weathered	Below Sand/Silt to 12.8-15.3 m.
Clay - stiff, medium plastic, silty	Below Clay Shale to 16.5-20.8 m.
Clay Shale - very hard, silty	Below Clay to a maximum depth of 20.8 m.

The measured water level was approximately 4 m to 6 m below ground surface.

4. CHRONOLOGY

1985

The first record of slope instability at this site was in 1985. The scarp of the slide was encroaching into the south bound driving lane.

The affected area was approximately 60 m in length and the pavement surface had dropped approximately 60 mm. It was presumed at that time that the slope instability was being caused by erosion at the toe of the slope by the river flow.

Two slope inclinometers and two standpipe piezometers were installed at the site.

1999

The slide was reactivated in July of 1999. Repair of the slide area was undertaken in August and September of 1999. The repair consisted of two rows of H-piles installed in holes drilled to depths of 20 m and backfilled with concrete.

In addition, approximately 80 m of gabion basket was installed behind the pile tops on the two levels. A 20 m length of drainage pipe was also installed in the centre of the slide area to drain the excessive seepage encountered in this area.

A total length of 250 m of trench drain was installed in the east ditch, draining south to the Edson River.

Selected portions of the Construction Completion report for the work are included in Section G.