ALBERTA TRANSPORTATION
GRMP
2018 Bi-annual Review Meeting

Peace / High Level Districts
Highway 2 East Hill Sites
Geo-referenced Photos + Historical Sat Imagery

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Peace River Region - Highway 2 - East Hill

- Site area directly east of the Town of Peace River
- Multiple sites within a 4 km segment of the Highway running along on the south-facing wall of the Heart River Valley.
- Widespread and highly active mass wasting processes that include channelized erosion, earth flows, deep and shallow landslides within colluvium and glaciolacustrine sediments (Glacial Lake Matthews).

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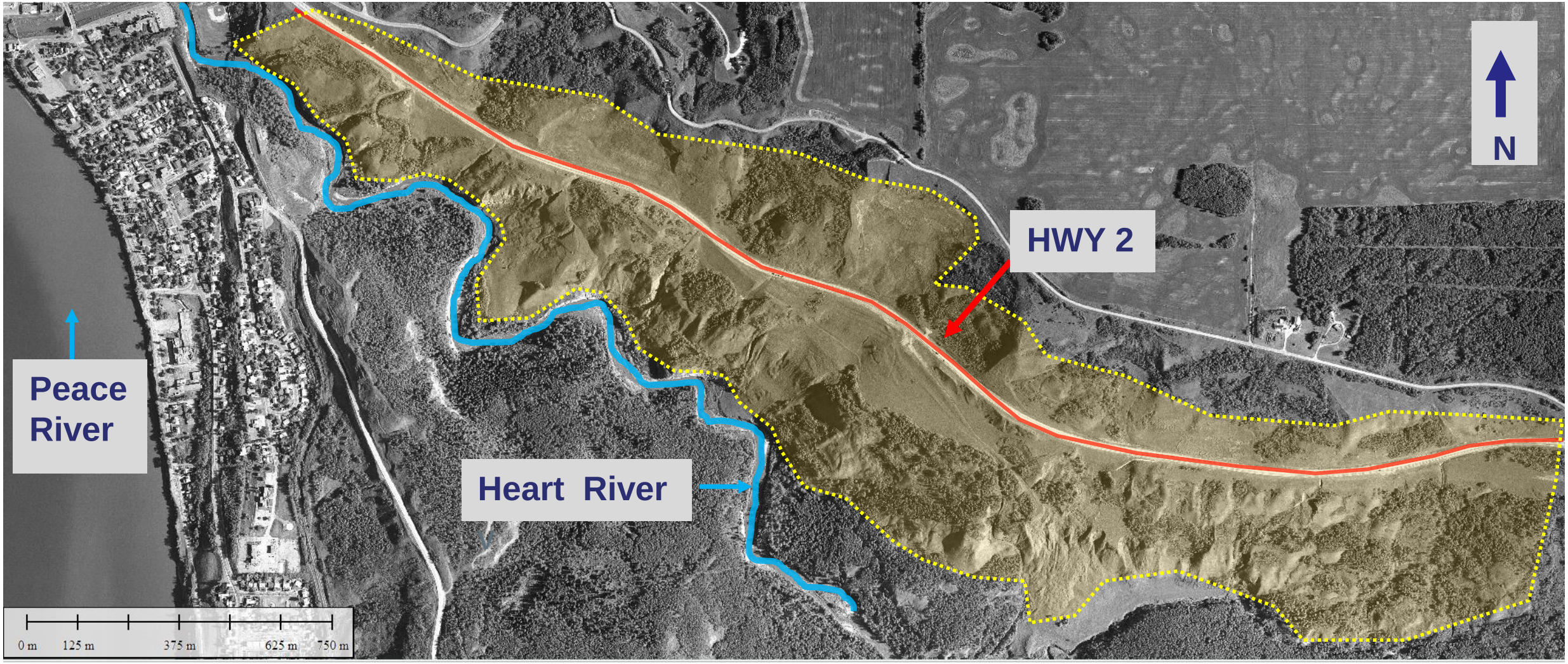

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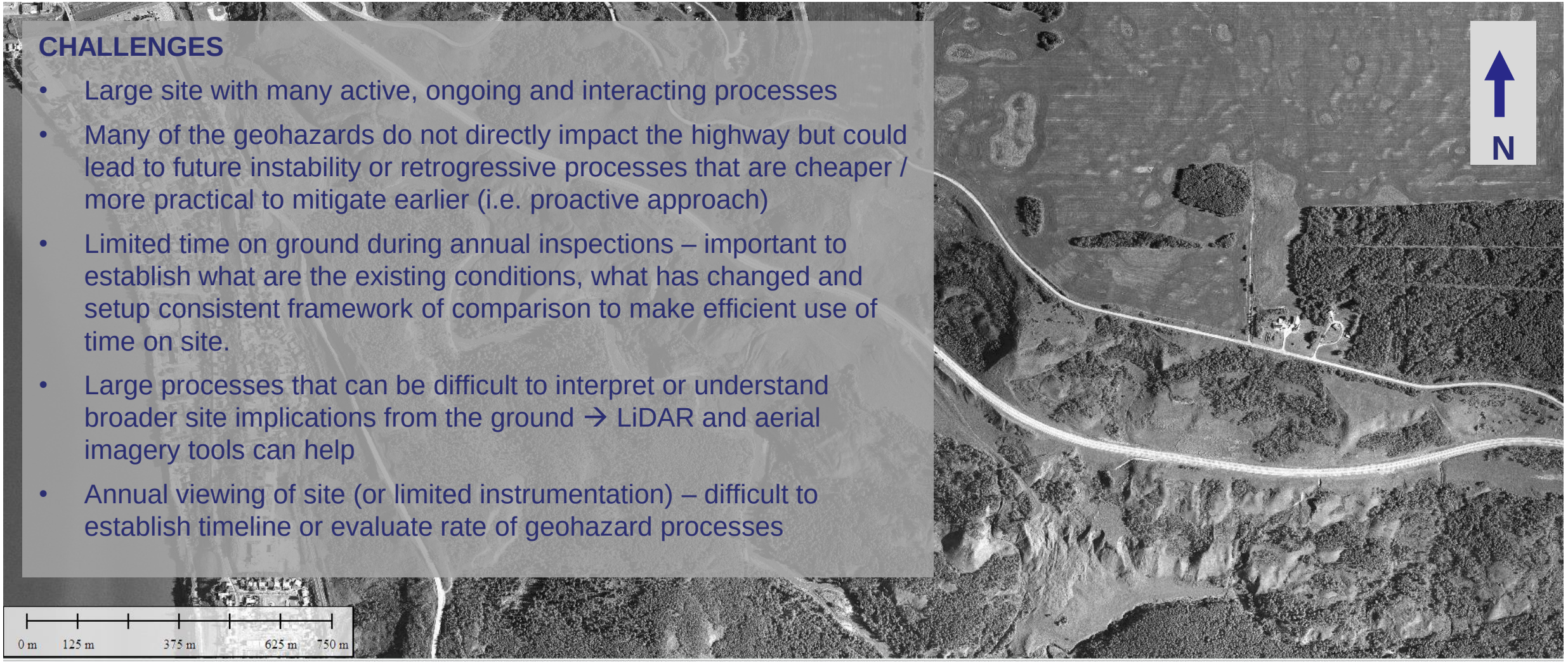
CHALLENGES

- Large site with many active, ongoing and interacting processes
- Many of the geohazards do not directly impact the highway but could lead to future instability or retrogressive processes that are cheaper / more practical to mitigate earlier (i.e. proactive approach)
- Limited time on ground during annual inspections – important to establish what are the existing conditions, what has changed and setup consistent framework of comparison to make efficient use of time on site.
- Large processes that can be difficult to interpret or understand broader site implications from the ground → LiDAR and aerial imagery tools can help
- Annual viewing of site (or limited instrumentation) – difficult to establish timeline or evaluate rate of geohazard processes



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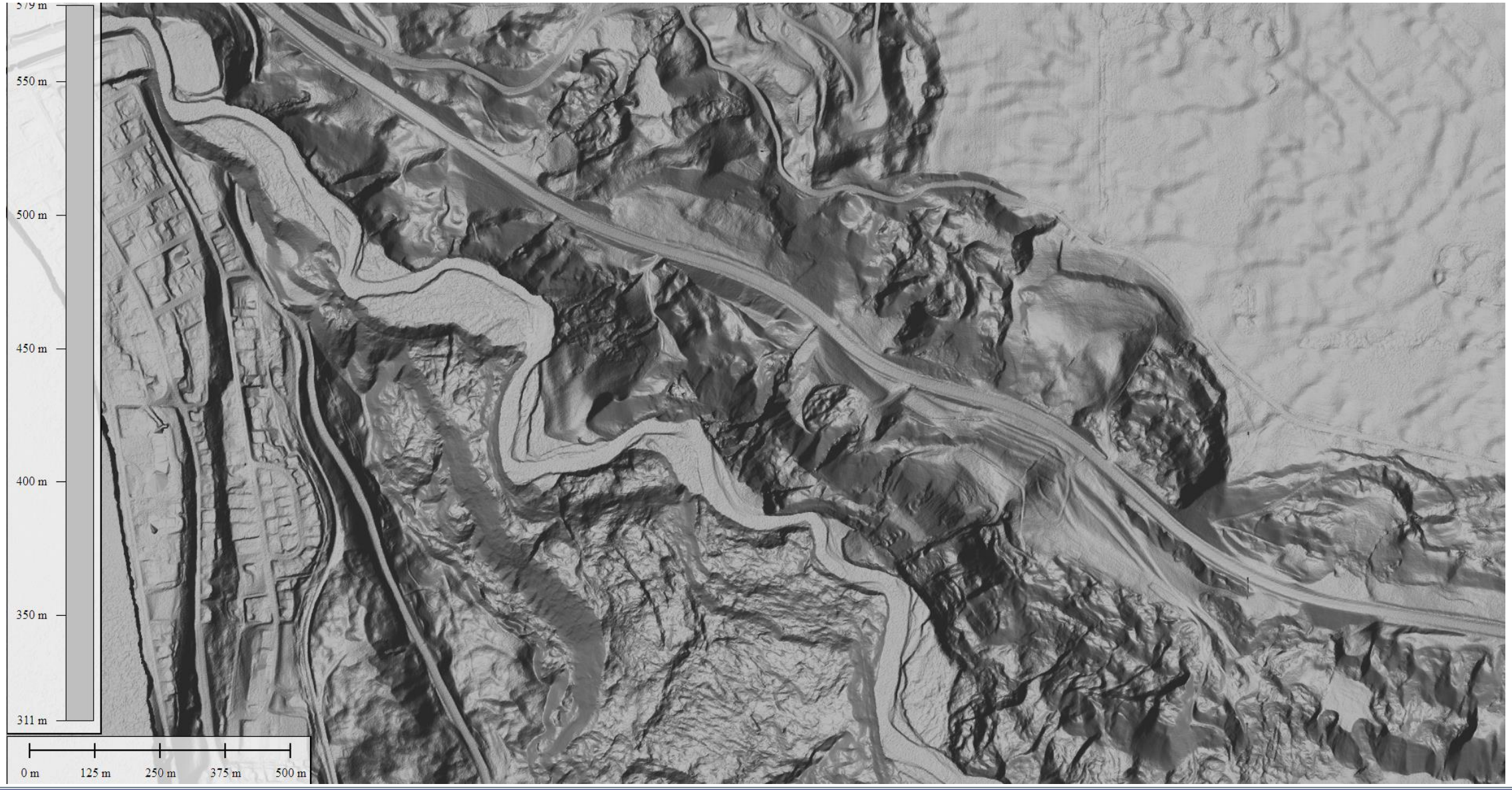

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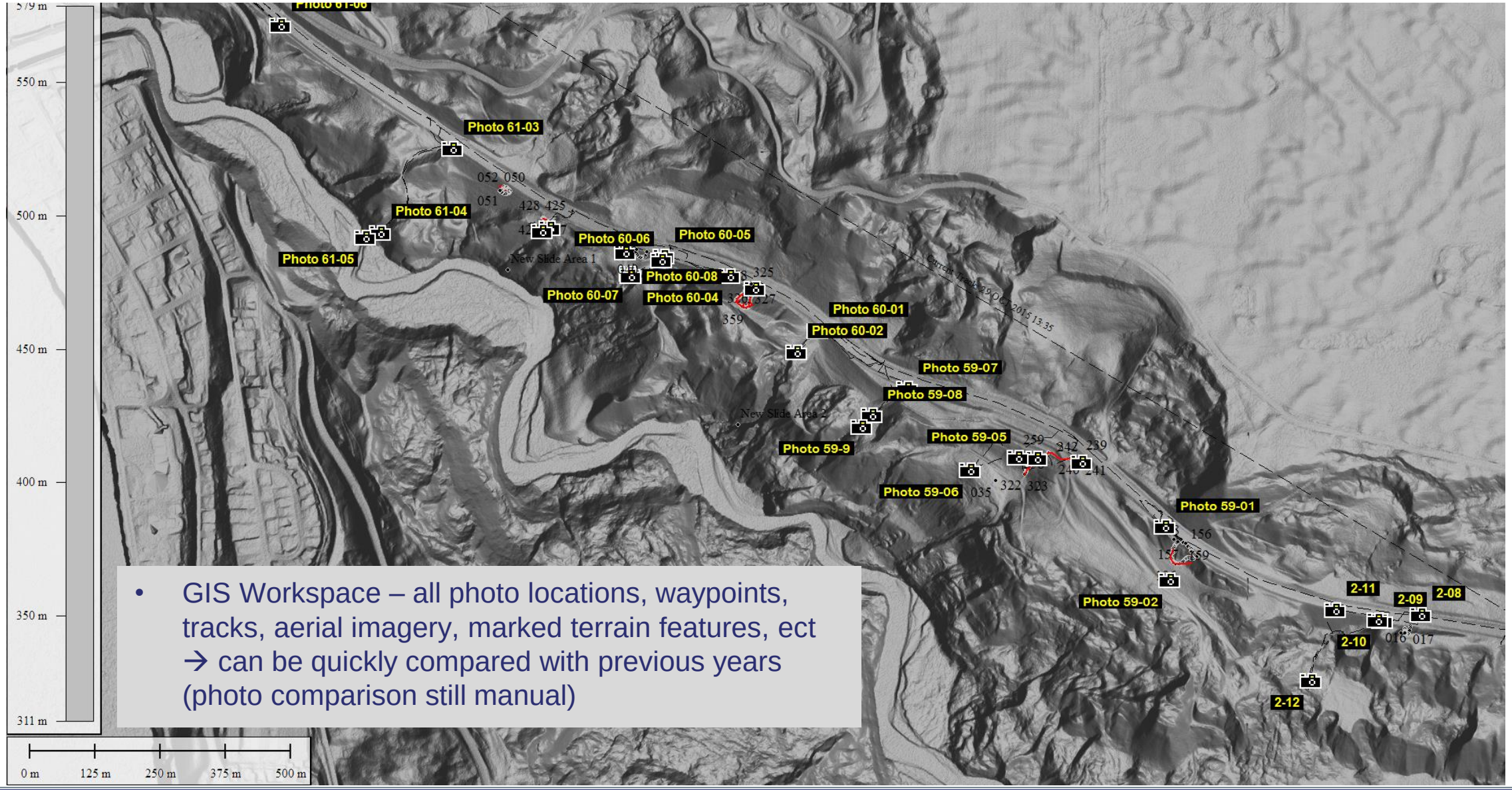

- GIS Workspace – all photo locations, waypoints, tracks, aerial imagery, marked terrain features, ect → can be quickly compared with previous years (photo comparison still manual)

Photo Comparison

2009

2017

Photo Comparison

2009

2017

Photo Comparison

2014

2016

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Photo Comparison

2009

2017

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Historic Satellite Imagery

2002

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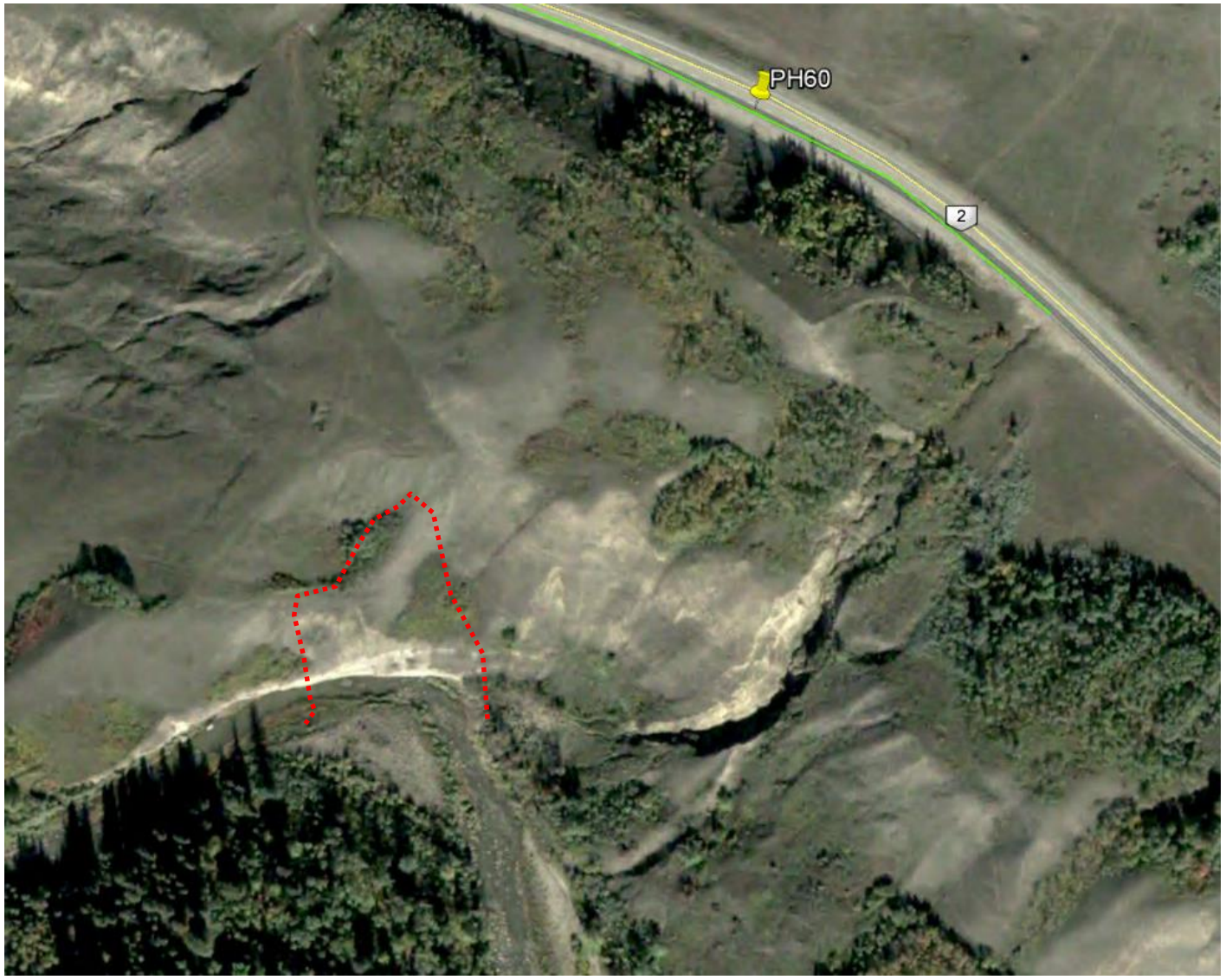
Historic Satellite Imagery

2002



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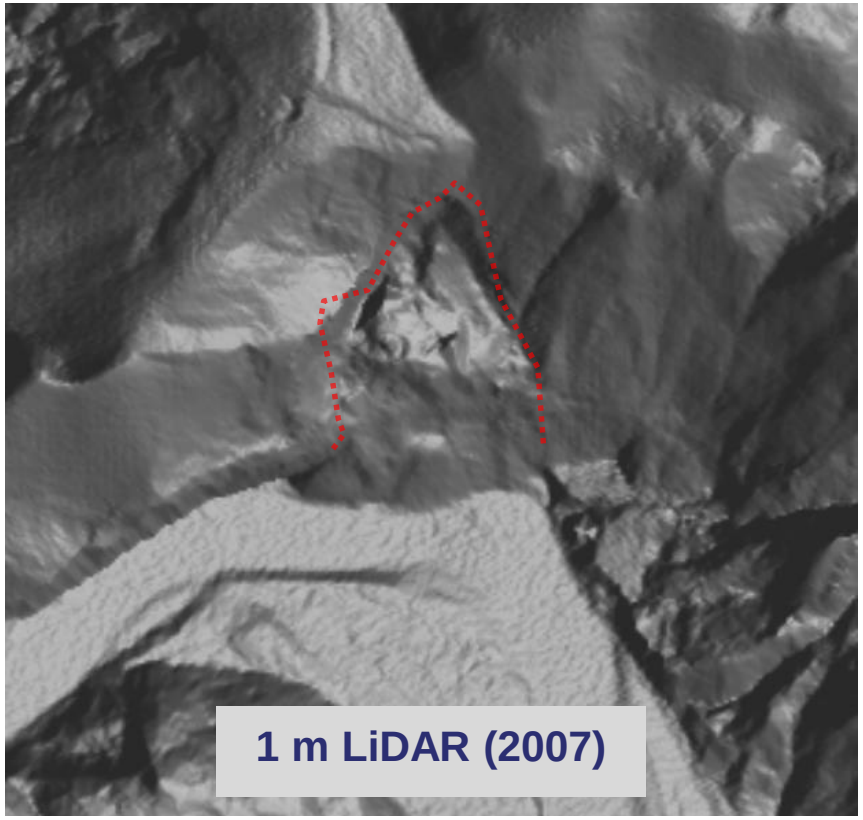
Historic Satellite Imagery



2012

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Historic Satellite Imagery

2013

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Historic Satellite Imagery

2016

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Photo Comparison

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Historic Satellite Imagery

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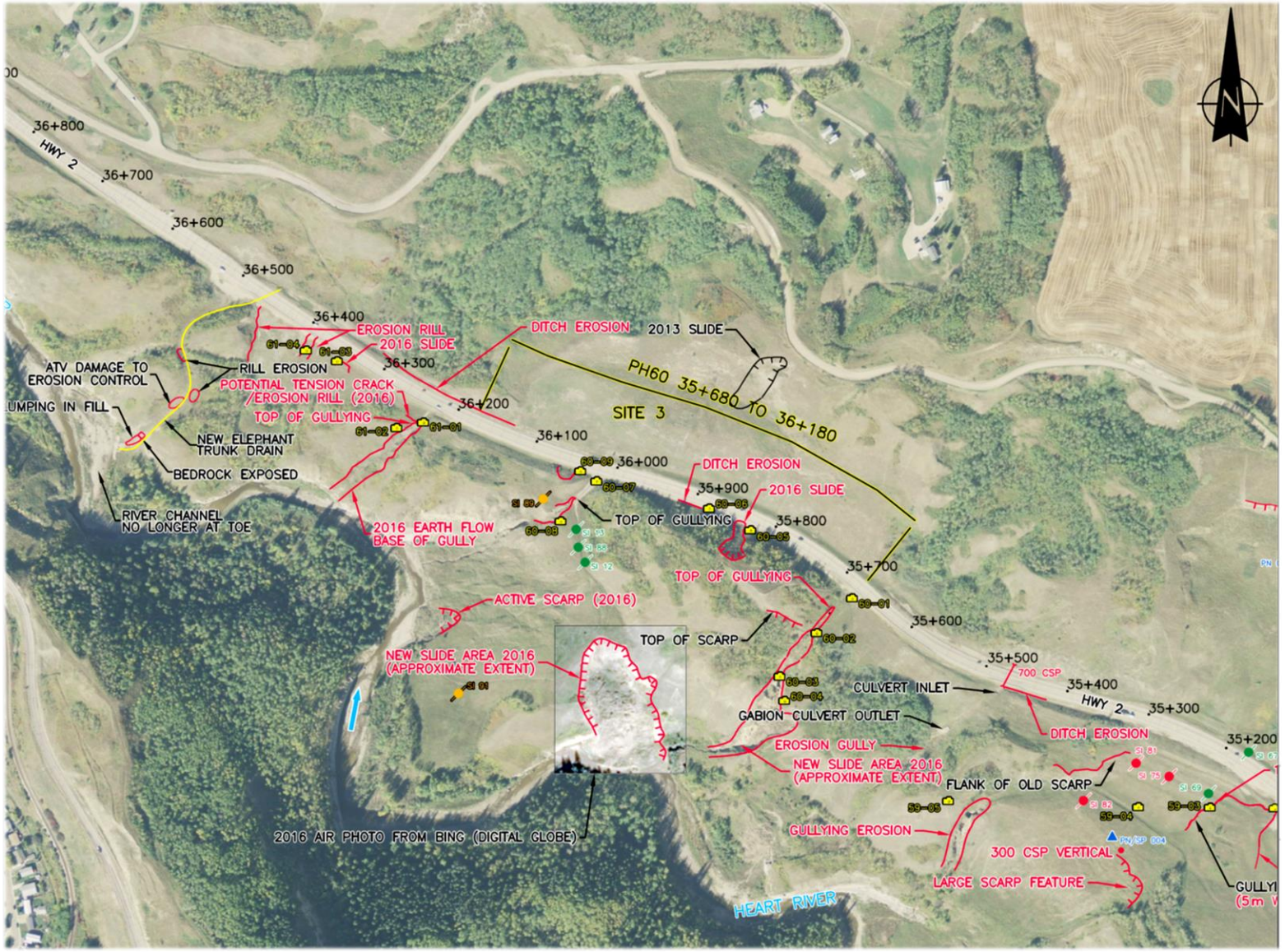
Conclusions

- Comparison methodology used in the development of the site plan with focus on areas that have observable rates of activity and/or future potential to cause instability or hazard to the highway
- Combination of LiDAR and satellite/aerial imagery allows broader view of site processes
- Historic imagery provides better context to the development process and rate of mass waste events
- Helps create target areas for next year and guide the inspection process, esp. for future inspectors
- Process could be refined with new technology and more frequent data gathering (e.g. drone survey)



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