SALT SPRINGS CHURCH ROAD SLOPE REHABILITATION OPTIONS

SITE CHARACTERIZATION AND ALTERNATIVE ASSESSMENT PRESENTATION

County of Brant, Ontario

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January 2025

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OVERVIEW

1- INTRODUCTION AND BACKGROUND

2- IDENTIFICATION OF ALTERNATIVE SOLUTIONS

- 1: Do nothing
- 2: Close road with new municipal access road
- 3: Realign road
- 4: Retain and protect road

3- EVALUATION OF ALTERNATIVE SOLUTIONS

- ALTERNATIVE 2B – INTERIM ACCESS

4- RECOMMENDATION

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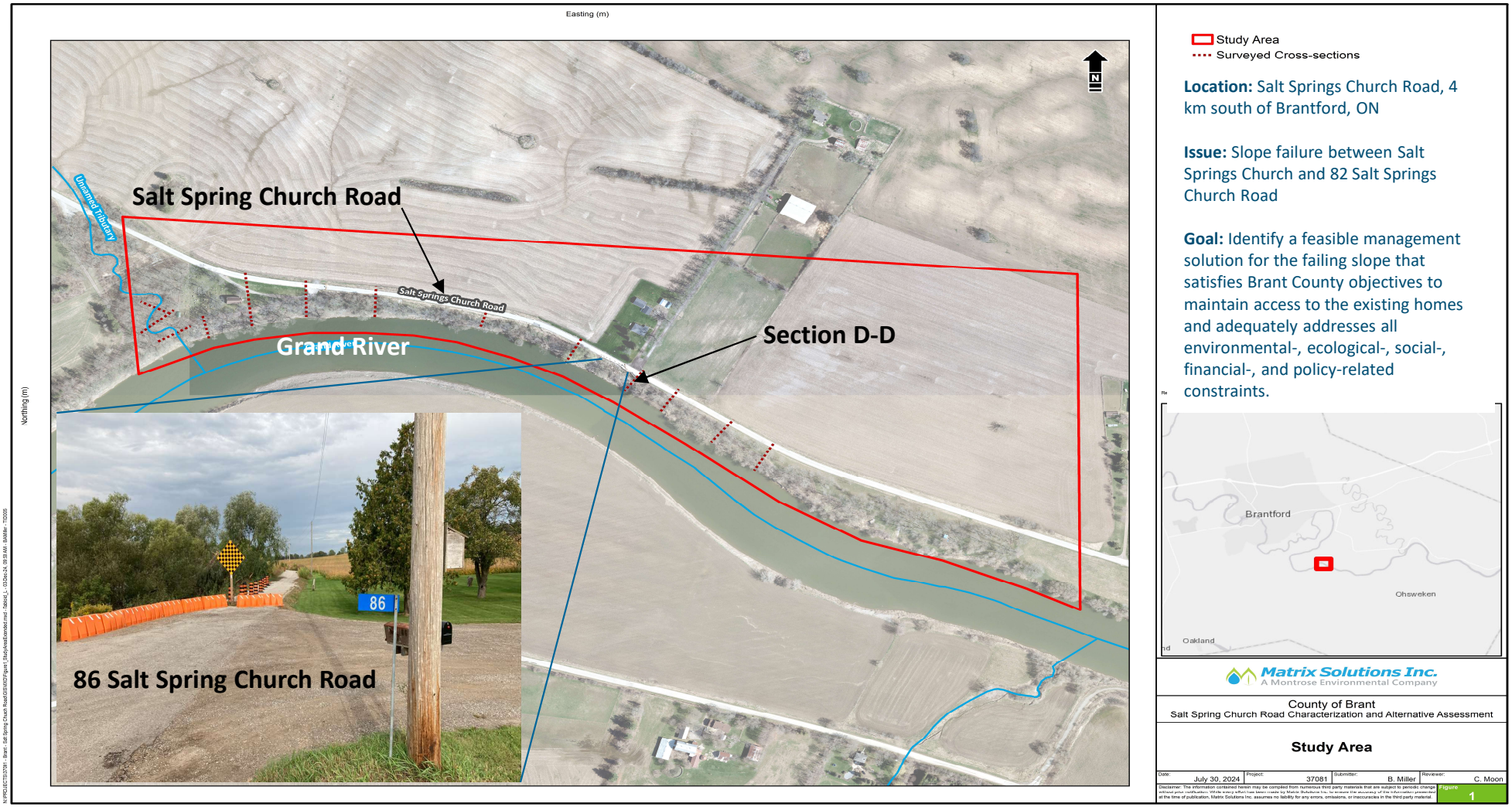
1- INTRODUCTION



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RELEVANT BACKGROUND STUDIES

Desktop Geotechnical Assessment

- Undertaken by Pinchin to find conservative stable slope setback (assessed to be between 4.2 and 4.7 H: 1V), based on local soil characteristics.

Existing Natural Heritage Conditions

- Desktop review completed by Matrix. SAR/SCC screening indicated candidate habitat is within the Study area.
- It is anticipated that permanent impacts to significant natural heritage features within the study area resulting from rehabilitation of the subject slope can generally be avoided through the implementation of mitigation measures and best management practices.

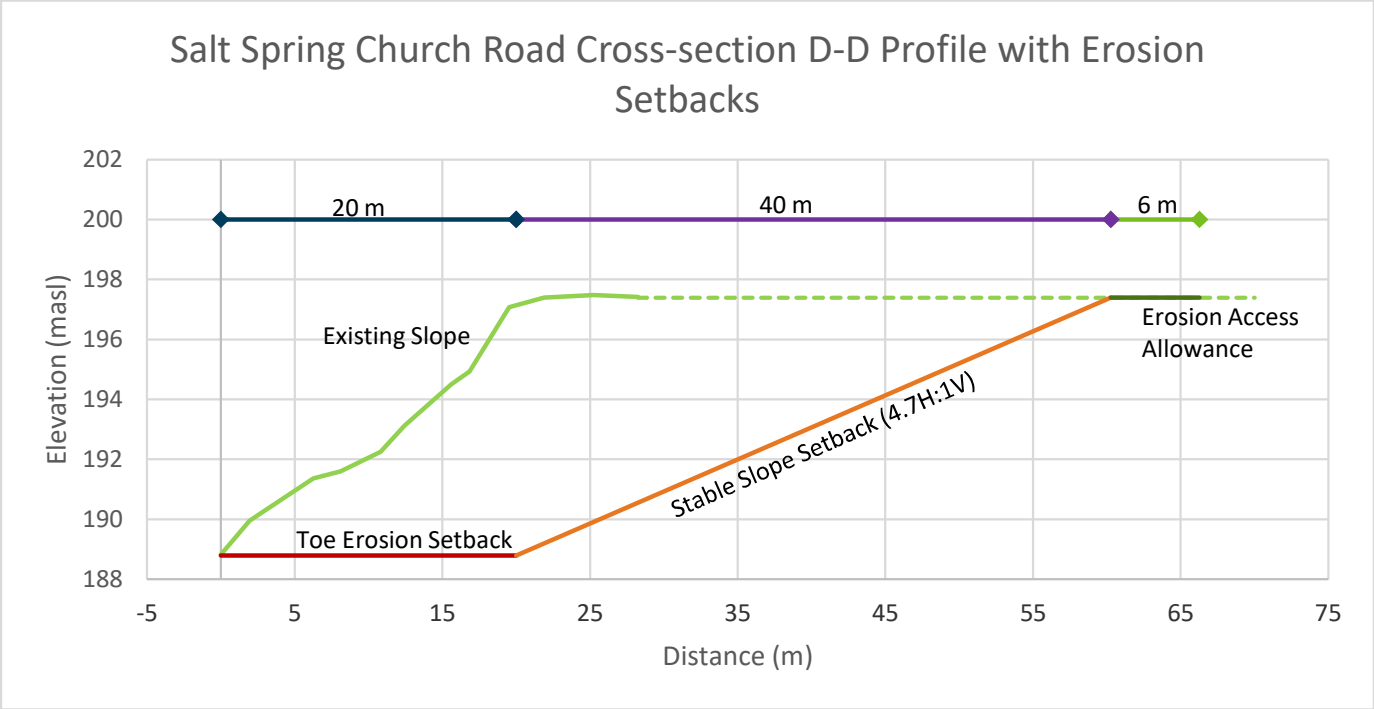
Geomorphic Review

- Undertaken by Matrix.
- Analysis of historical aerial photos of watercourse and site review to complete the determination of the erosion setback.

Cultural Heritage

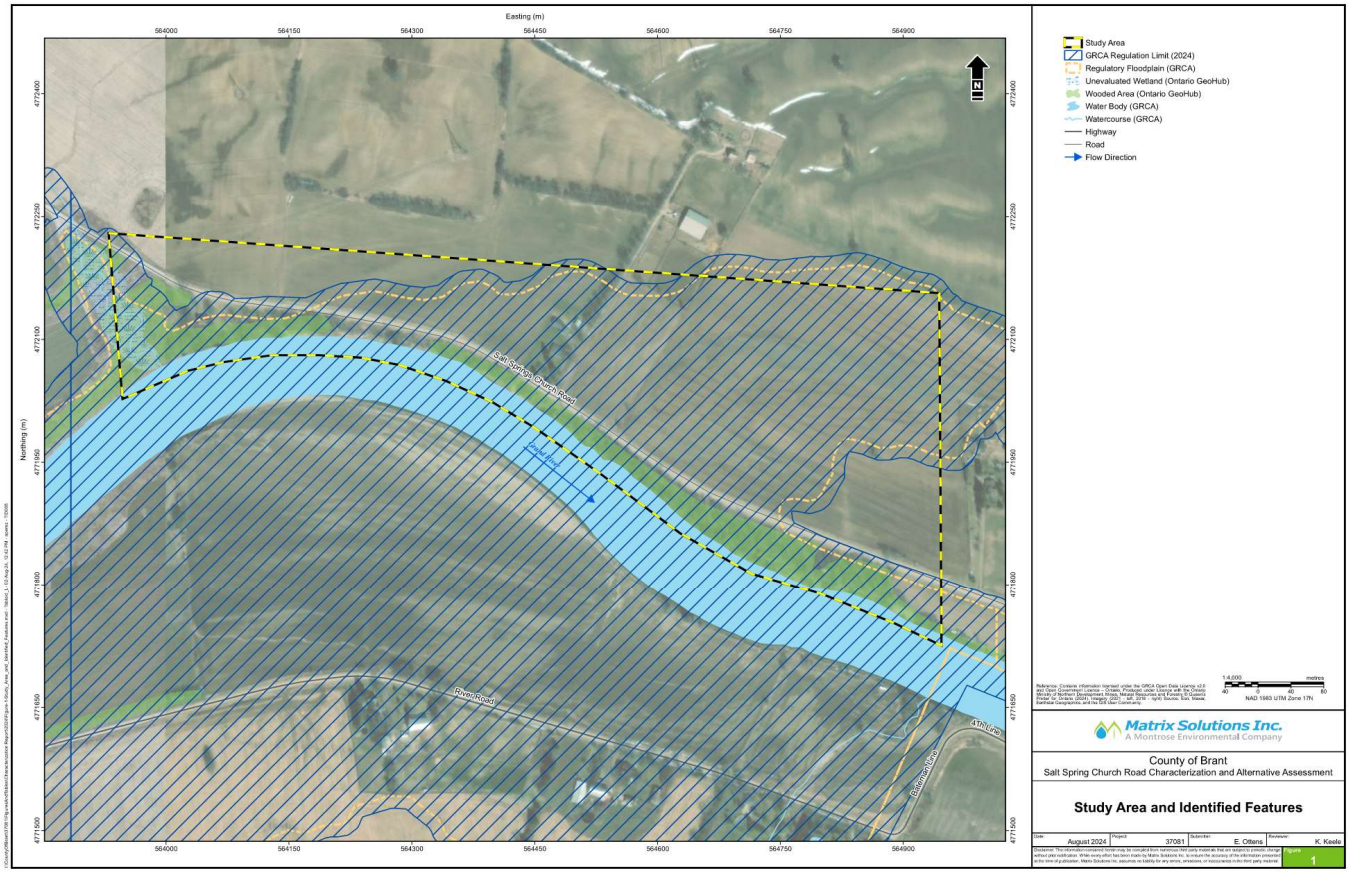
- Matrix have held preliminary discussions with a heritage consultant familiar with the area who provided preliminary comments for general consideration. There are several features within the study area that have high archeological potential.
- These features include: areas of early historic settlement, properties of local history (Salt Springs Church and Cemetery), primary water sources (Grand River).
- Further Archeological Assessment and First Nations engagement will be required though any EA process.

BACKGROUND - EROSION HAZARD ASSESSMENT



- The recommended average bank erosion rate determined for the site, based on historic aerial photo review, was determined to be 0.22 m/year, which serves as the basis of the toe erosion allowance of 22 m.
- Combined with the assessed geotechnical stable slope inclination of 4.7H to 1V (Pinchin 2023) and erosion access allowance of 6m as per MNR guidelines, the resulting erosion set back was determined.

BACKGROUND - EXISTING NATURAL HERITAGE CONDITIONS



- Study area falls within GRCA regulation limit and floodplain
- Other natural heritage features identified within the study area include woodlands, unevaluated wetland, unidentified watercourse, and the Grand River.

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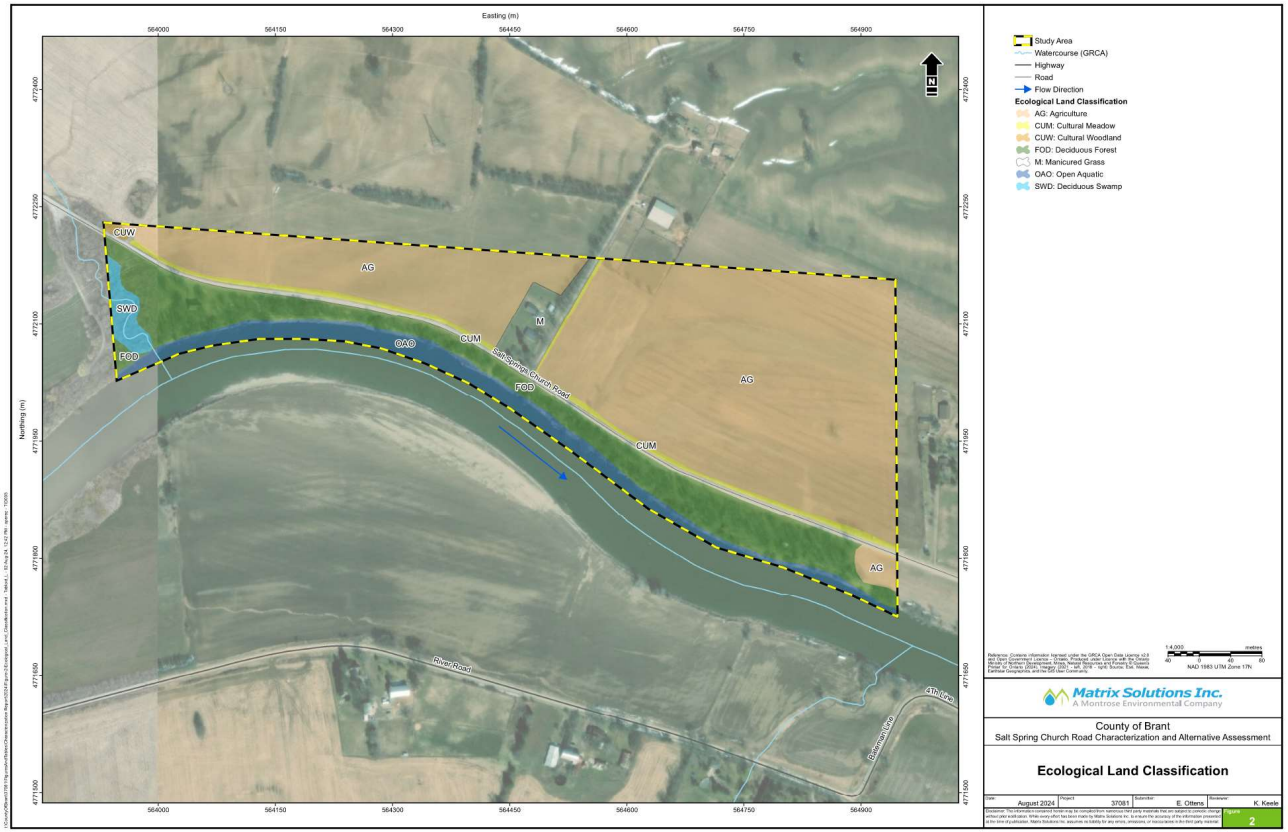
EXISTING NATURAL HERITAGE CONDITIONS



- The study area contains six ELC communities as identified through the desktop background review and aerial photo interpretation.
- SAR/SCC screening identified candidate habitat for eleven SCC species and five SAR species exist within the study area.
- Critical habitat for SAR and SCC fish and molluscs were identified within the Grand River. DFO Aquatic Species at Risk mapping identified several SAR and SCC fish and mollusc species potentially within the Grand River.

- It is anticipated that permanent impacts to significant natural heritage features within the study area resulting from rehabilitation of the subject slope can generally be avoided through the implementation of mitigation measures and best management practices.

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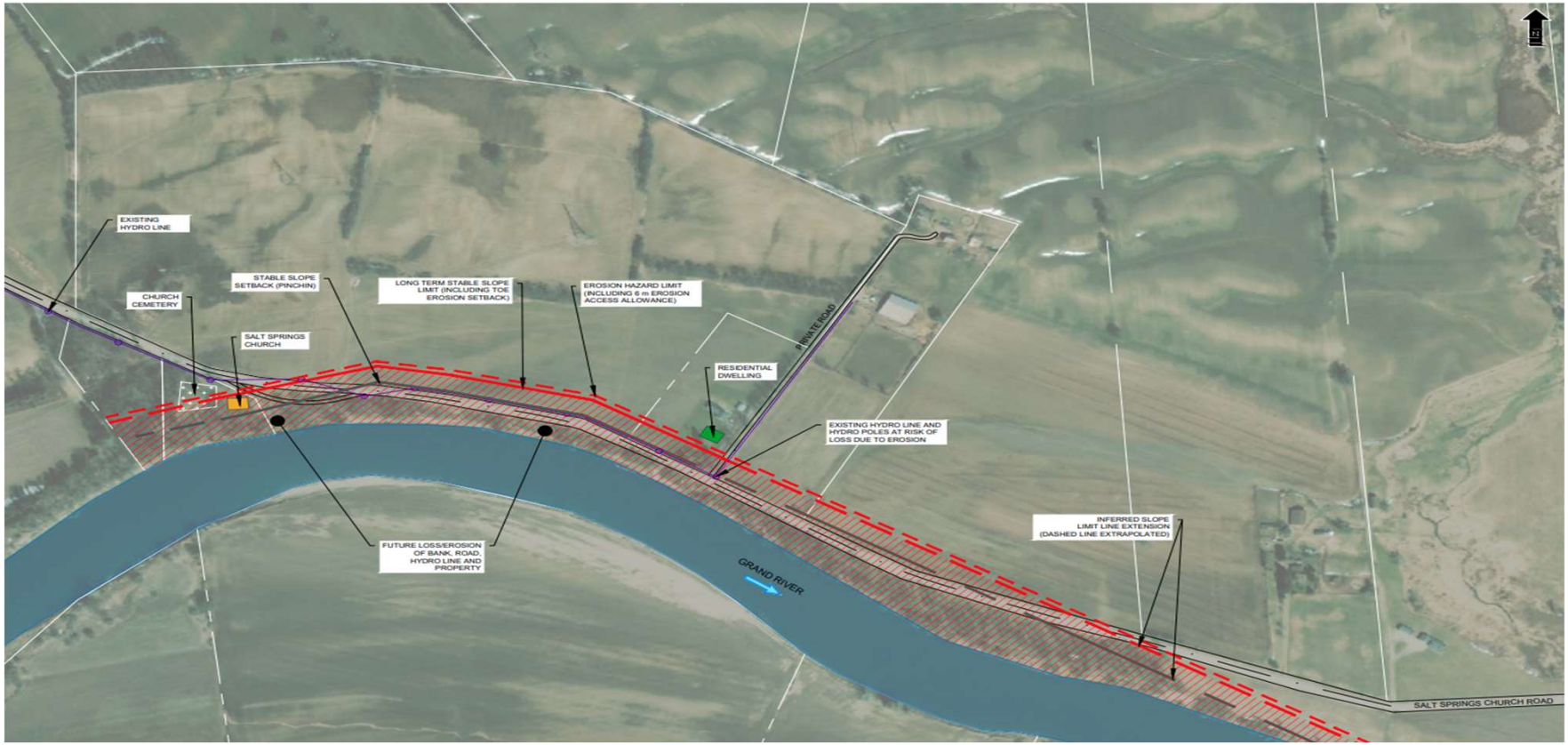
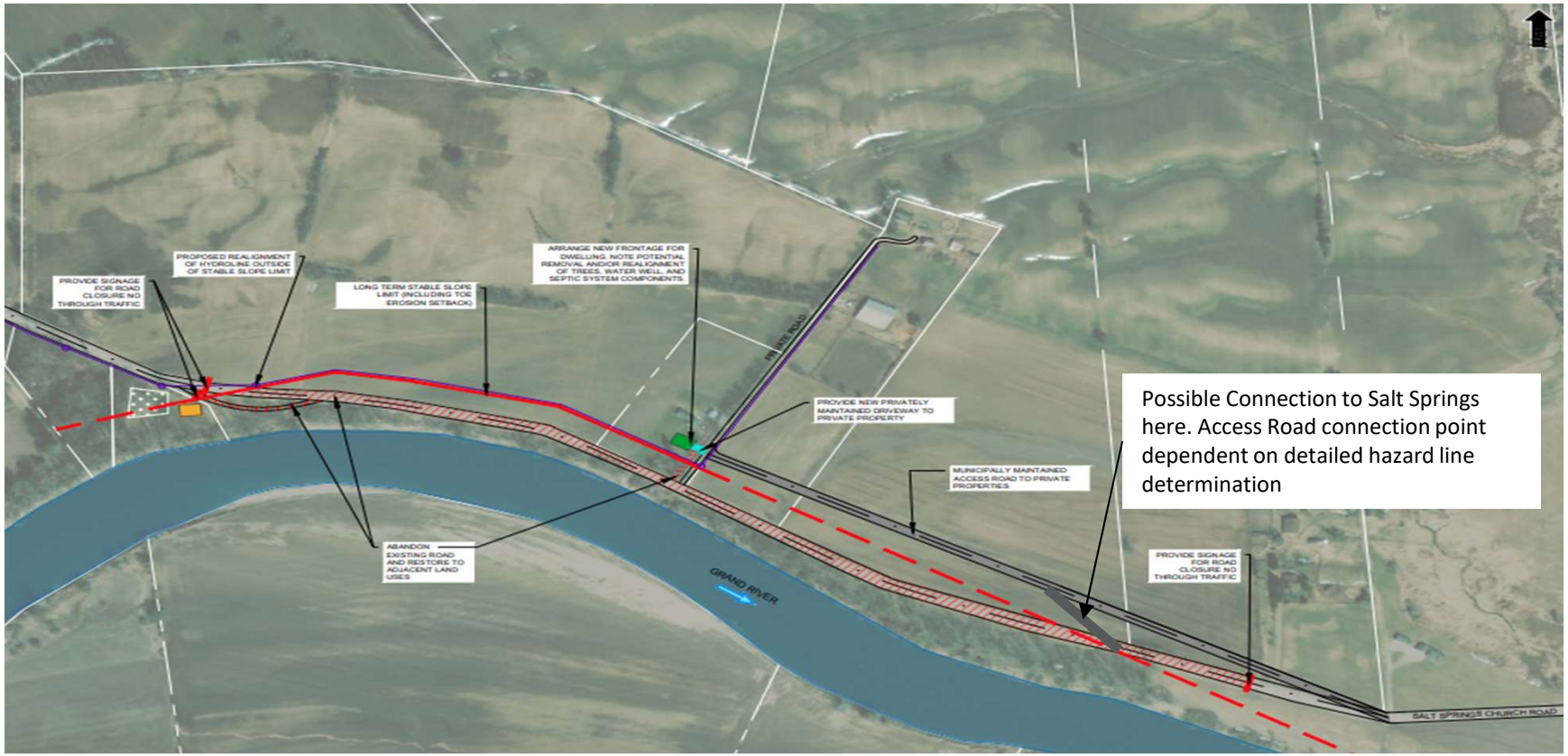
2- ALTERNATIVE 1: DO NOTHING



- Slope failure and erosion of the banks is expected to continue, along with the associated loss of infrastructure and private property.

2- ALTERNATIVE 2: CLOSE ROAD WITH NEW MUNICIPAL ACCESS ROAD



- New access road outside of the identified erosion hazard limit to 82 and 86 Salt Springs Church Road.
- Requires an easement or property acquisition.
- Installing signage to direct traffic and restoration of abandoned Roadway.
- Some private assets remain at risk, primarily Salt Springs Church and graveyard.
- Includes removal of asphalt and restoration of the area of closed road.

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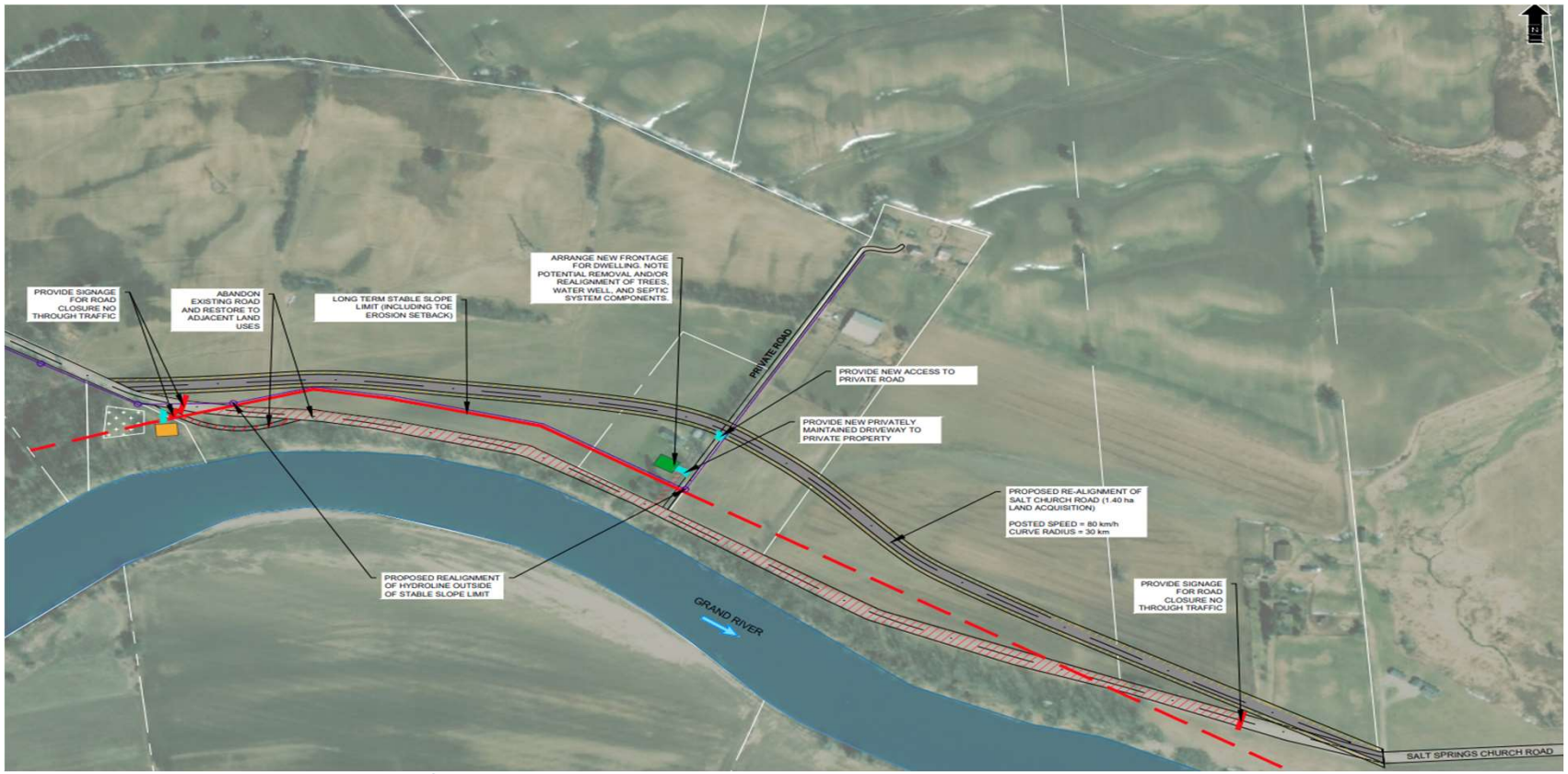
2- ALTERNATIVE 3: REALIGN ROAD



- Requires the acquisition of private lands to accommodate the new roadway.
- Traffic would be directed out of the erosion hazard.
- Still some private assets located within the erosion hazard would remain at risk, primarily Salt Springs Church and its associated graveyard.
- Includes the removal of asphalt and restoration of area of closed road.

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2- ALTERNATIVE 4: RETAIN AND PROTECT ROAD

- Repairing and protecting the existing alignment of Salt Springs Church Road.
- Implementing slope stabilization and erosion protection measures along the slope and riverbank.
- Installation of rock protection, slope regrading, surface water and groundwater drainage improvements.
- Regrading the slope to a flatter inclination will increase the stability of the slope.

3- EVALUATION OF ALTERNATIVE SOLUTIONS

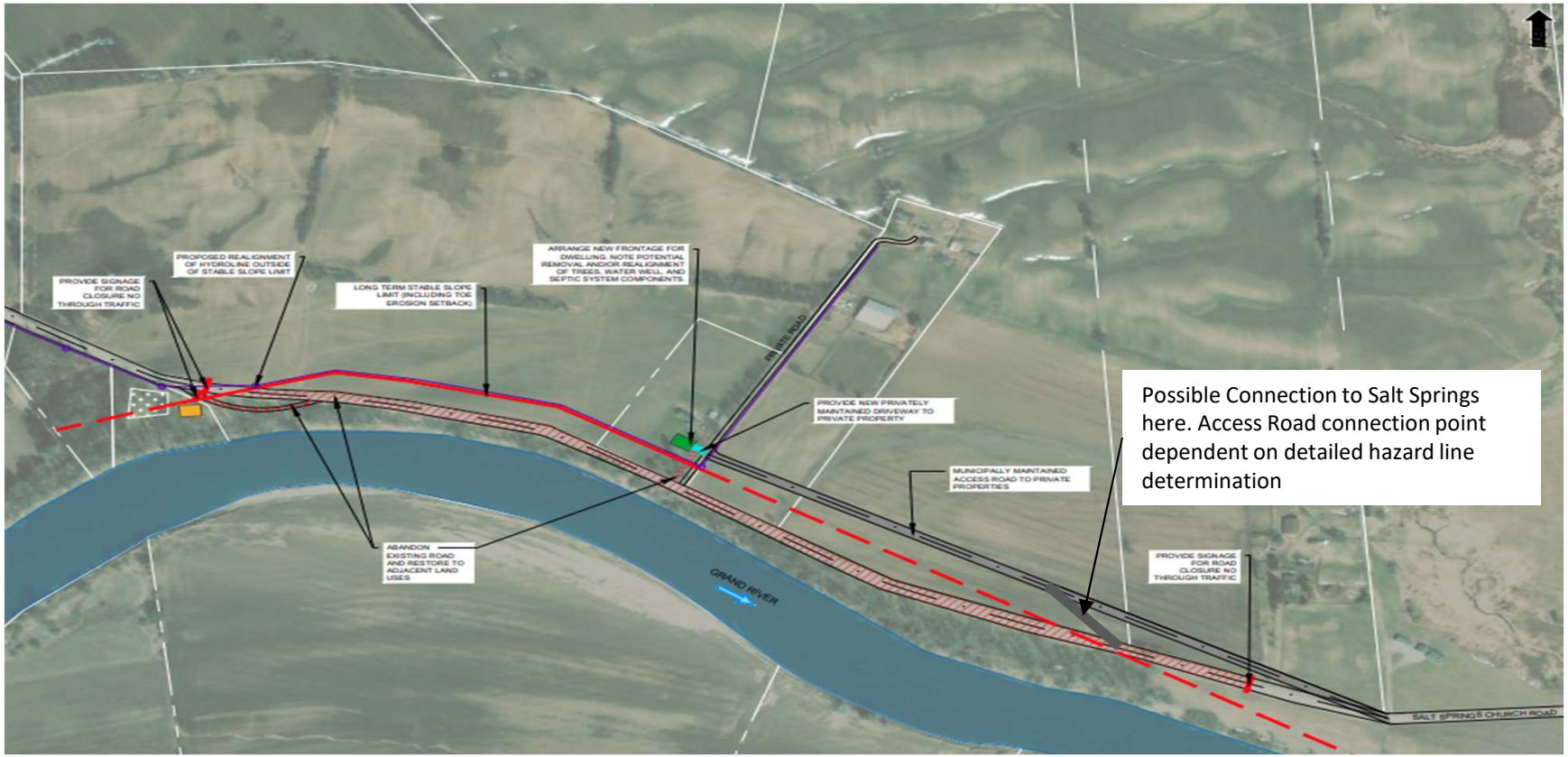
Category	Criteria	Indicator
Socio-Economic & Cultural	Archaeology, Cultural Heritage & Indigenous Rights	• Impacts to known archaeological resources • Impacts to significant cultural heritage resources and landscapes • Impacts to Indigenous treaty rights and issues
	Land Use	• Property requirements (land acquisition for right-of-way allowance, construction access) • Impacts to adjacent property (potential loss of land, loss of value, access) • Long-term transportation impacts • Temporary construction impacts (noise, access, dust)
	Public Safety	• Mitigation of existing safety hazards • Hazard prevention opportunities
Natural Environment	Terrestrial Environment	• Impacts to terrestrial environment including habitat and tree removal • Habitat enhancement and opportunities to increase stable vegetation along slope
	Aquatic Environment	• Impacts to aquatic environment including habitat and SAR • Water quality and reduced sediment loading to the Grand River
	Floodplain/ Riparian Habitat	• Enhancement or disturbance to Grand River Floodplain • Slope stability and riverine erosion hazards
Technical Environment	Design/Function	• Ability to address problem statement • Effectiveness of erosion protection for the riverbank • Long-term effectiveness of slope stabilization measures • Protection of adjacent infrastructure and public safety • Impact on upstream/downstream river conditions • Climate change and infrastructure resiliency
	Construction & Implementation	• Constructability (staging, grading constraints, utility conflicts) • Feasibility of construction in or adjacent to water • Maintenance/access considerations
	Approvals & Compliance	• Permitting requirements, including complexity (GRCA, DFO, MNRF, MECP)
Financial Environment	Cost	• Capital costs (total project costs - design/construction) • Maintenance costs

3- EVALUATION OF ALTERNATIVE SOLUTIONS

		Least Preferred								Most Preferred	
Legend		**Highest Impact** ○○○○		**Moderate to High Impact** ●○○○		**Moderate Impact** ●●○○		**Low to Moderate Impact** ●●●○		**Least Impact** ●●●●	**Most Preferred Option**

Criteria	Option 1: Do Nothing	Option 2: Close Road	Option 3: Re-align Road	Option 4: Retain and Protect Road
Socio-Economic & Cultural Summary	○○○○	●●○○	●●○○	●●●●
Natural Environment Summary	●●○○	●●●○	●●●○	●●○○
Technical Environment Summary	○○○○	●●●○	●●●○	●●○○
Financial Environment Summary	●●●○	●●●●	●●○○	●○○○
Overall Summary	●○○○	●●●○	●●○○	●●●○

PREFERRED ALTERNATIVE 2 - CLOSE ROAD WITH NEW MUNICIPAL ACCESS ROAD TO HOMES



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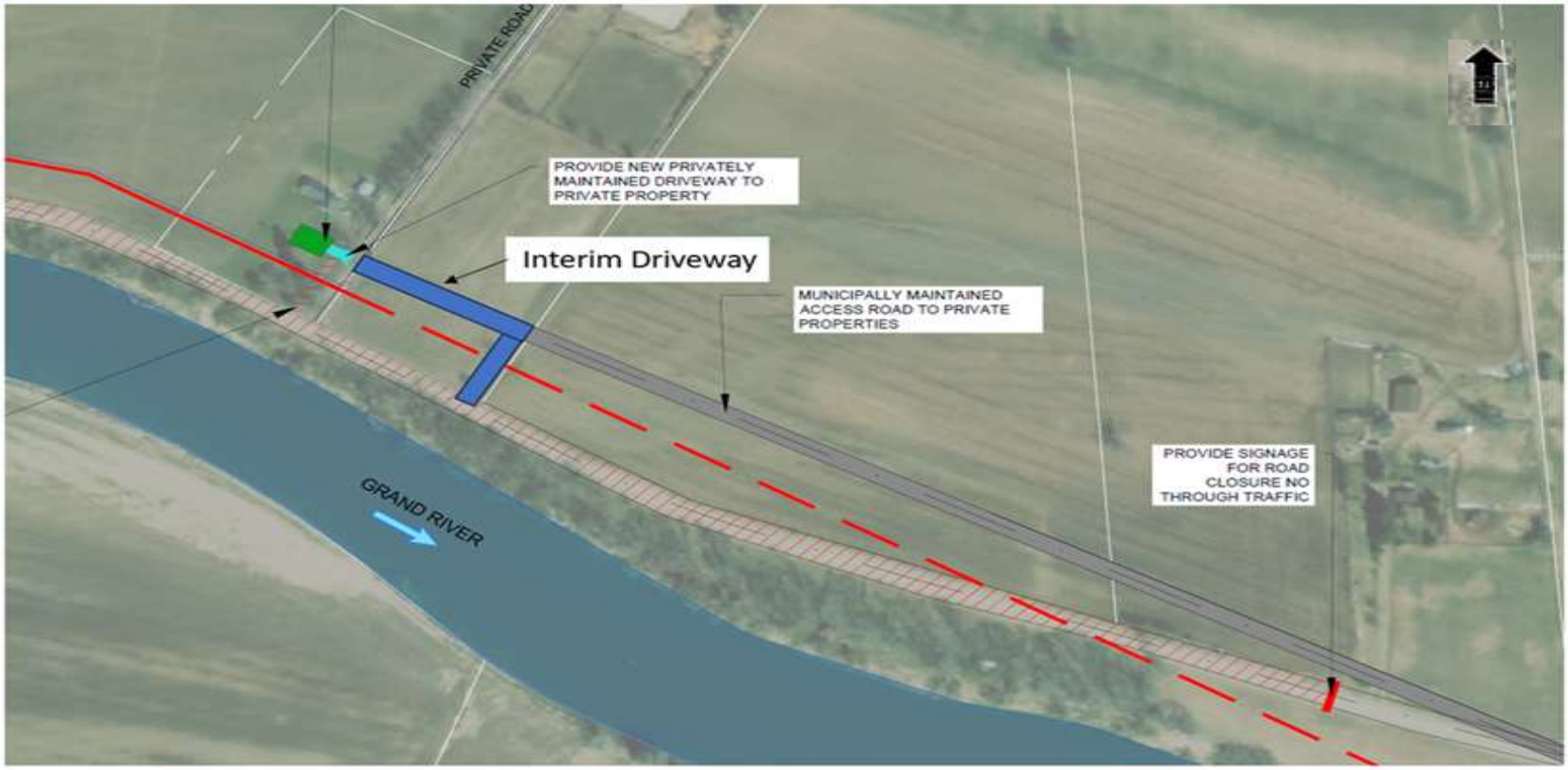
2- ALTERNATIVE 2B: INTERM DRIVEWAY



- Interim option developed that includes constructing an interim driveway.
- Smaller area or disruption, lower cost and shorter time investment.
- Continues to have infrastructure within erosion hazard area.
- This interim measure does not include removal of asphalt and restoration of the area of closed road.

COST ESTIMATES

- **ALTERNATIVE 1: DO NOTHING ~ $1,900,000** (Cost associated with potential property damage compensation)
- **ALTERNATIVE 2: CLOSE ROAD WITH NEW DRIVEWAY ~ $900,000**
- **ALTERNATIVE 2B: INTERM DRIVEWAY ~ $200,000** (Temporary condition to provide access to homes, does not include restoration of closed road alignment.)
- **ALTERNATIVE 3: ROAD RE-ALIGNMENT ~ $2,600,000**
- **ALTERNATIVE 4: RETAIN AND PROTECT ROAD ~ $5,720,000**

4- NEXT STEPS

Stakeholder Engagement (January 2025)
Finalization of Draft Report (Spring 2025)

Undertake additional engagement and study to refine preferred option and initiate design.

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