

TSIGEHCHIC

Mackenzie River
Arctic Red River

Our Vision for our River

The river has always been changing routes and changing. The river will thus always change.

WHERE WE ARE TODAY

☒ STEP 1
(Recognize the Problem)

RIVERBANK EROSION CHURCH + CEMETERY

☐ STEP 2
(Manage the Threat)

☐ STEP 3
(Gather/Assess Info)

☐ STEP 4
(Evaluate Options & Make Plan)

☐ STEP 5
(Take Action)

Plan 14
North -
study with
six feasible
steps

Already been done

LOOKING FORWARD

CHALLENGES
&
BARRIERS

Moving across
the land is
taking longer
& is more
dangerous

Concern

MORE COMMUNITY
AWARENESS

- Radio
- Gatherings

Who
threat do we
talk to about
exposed graves?
do we need
permission

IDEAS
&
SOLUTIONS

Ferry landing
contributing
to the bank
extending?
Concern:

Concerns
about steep
drop (church
& cemetery)

Questions
&
Needs

Would like a
community
workshop on
how to read
& understand
water

Question:
Water cannons:
spray the slope
and then you've
got a sheet
of "armour"
through the
winter & spring.
Protects from
spring breakup
& scouring?

Priorities
&
Next Steps

TSIGEHCHIC
Slope stability review and evaluation of stabilization options Church Hill (2011)
Findings:
• All the slopes on Church Hill, to the northeast, the west, and southwest, are defined as high risk. They are prone to slope failures that potentially could affect the structures and other features present on the hill, including the church and the cemetery.
• The likelihood of a landslide reaching the cemetery and the old church is high, and the likelihood of a landslide reaching the new church is moderate.
• The consequences of a landslide reaching either the church or the cemetery is high. If a landslide did reach any of these elements, there could be property damage to lands, to human life or loss.
• The threat, due to a combination of likelihood and consequences, is therefore, high to very high.
Recommendations:
• A monitoring program must be developed based on the immediate needs of the community and available funding.
• Detailed site investigation is required to understand the subsurface conditions and install instruments to monitor the ground temperature and water content.
• Options for the cemetery should be considered first as the cemetery and exposed graves represent the most significant threat to the community.
• Detailed review of previous studies and analysis of options and potential solutions.

Erosion-related Considerations
• Community located on terrace between Peel River and ancient channel
• Nearby ponds are becoming larger and connected in response to thaw of ice-rich permafrost that surrounds them
• Gully and landslide near cemetery and church
• Flood (side) channel at the bottom of the western slope likely contributing to

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TSIIGETCHIC
Slope stability review and evaluation of stabilization options Church Hill (2011)
Findings:
• All the slopes on Church Hill, to the northeast, the west, and southwest, are defined as hazards; that is, they are prone to slope instabilities that potentially could affect the structures and other features present on the hill, including the churches and the cemetery.
• The likelihood of a landslide reaching the cemetery and the old church is high, while the likelihood of a landslide reaching the new church is moderate.
• The consequence of a landslide reaching either the churches or the cemetery is high; that is, if a landslide did reach any of these elements, there could be property damage or loss, or human injury or loss.
• The overall risk, which is a combination of likelihood and consequence, is therefore, high to very high.
Recommendations:
• A monitoring program must be developed based on the immediate needs of the Community and available funding.
• A detailed site investigation is required to understand the subsurface conditions and install instruments to monitor the ground temperatures and slope movements.
• Options for the cemetery should be considered first as the cemetery and especially the graves nearest the west edge of the cemetery appear to be at the greatest immediate risk.
Tsigehtichic Slope Stability Review and Options Analysis (2024)
Detailed review of previous studies and analysis of options and potential solutions.

LOOKING FORWARD

Moving across

MORE COMMUNITY

IDEAS

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MORE COMMUNITY AWARENESS..

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IDEAS & SOLUTION

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←

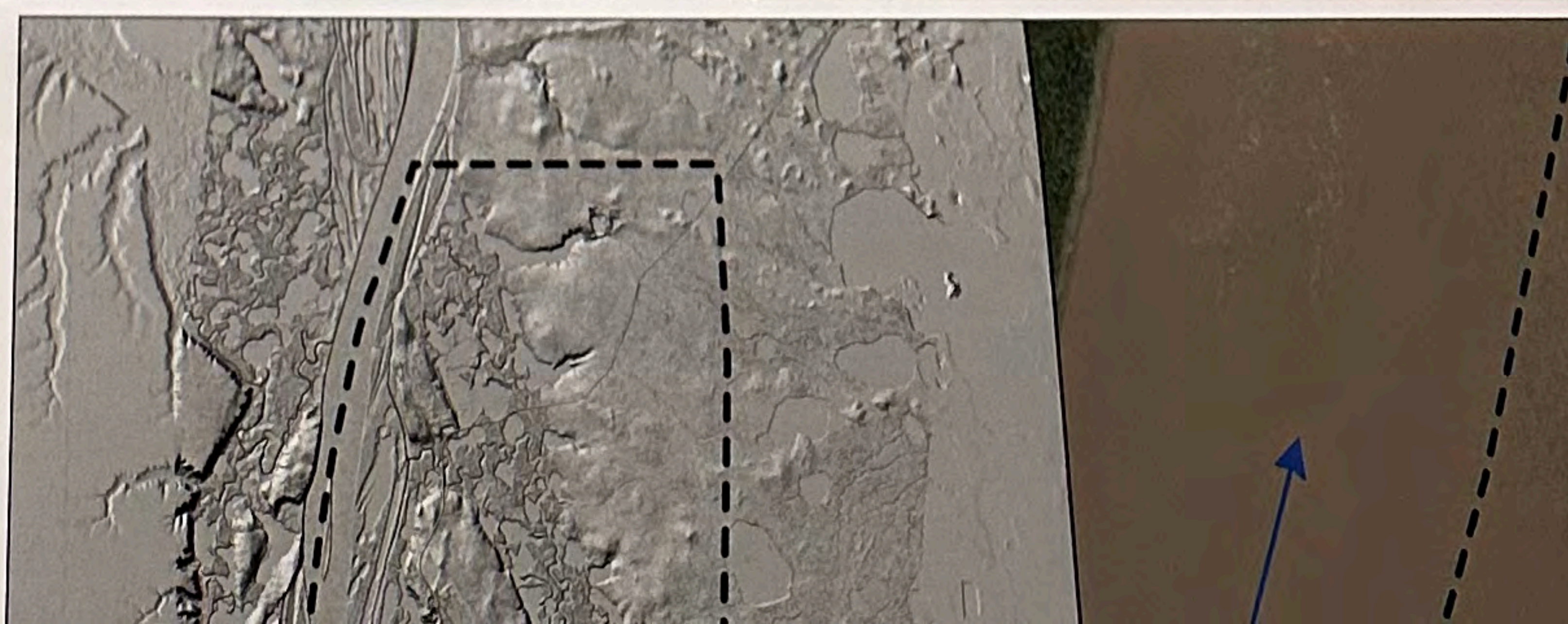
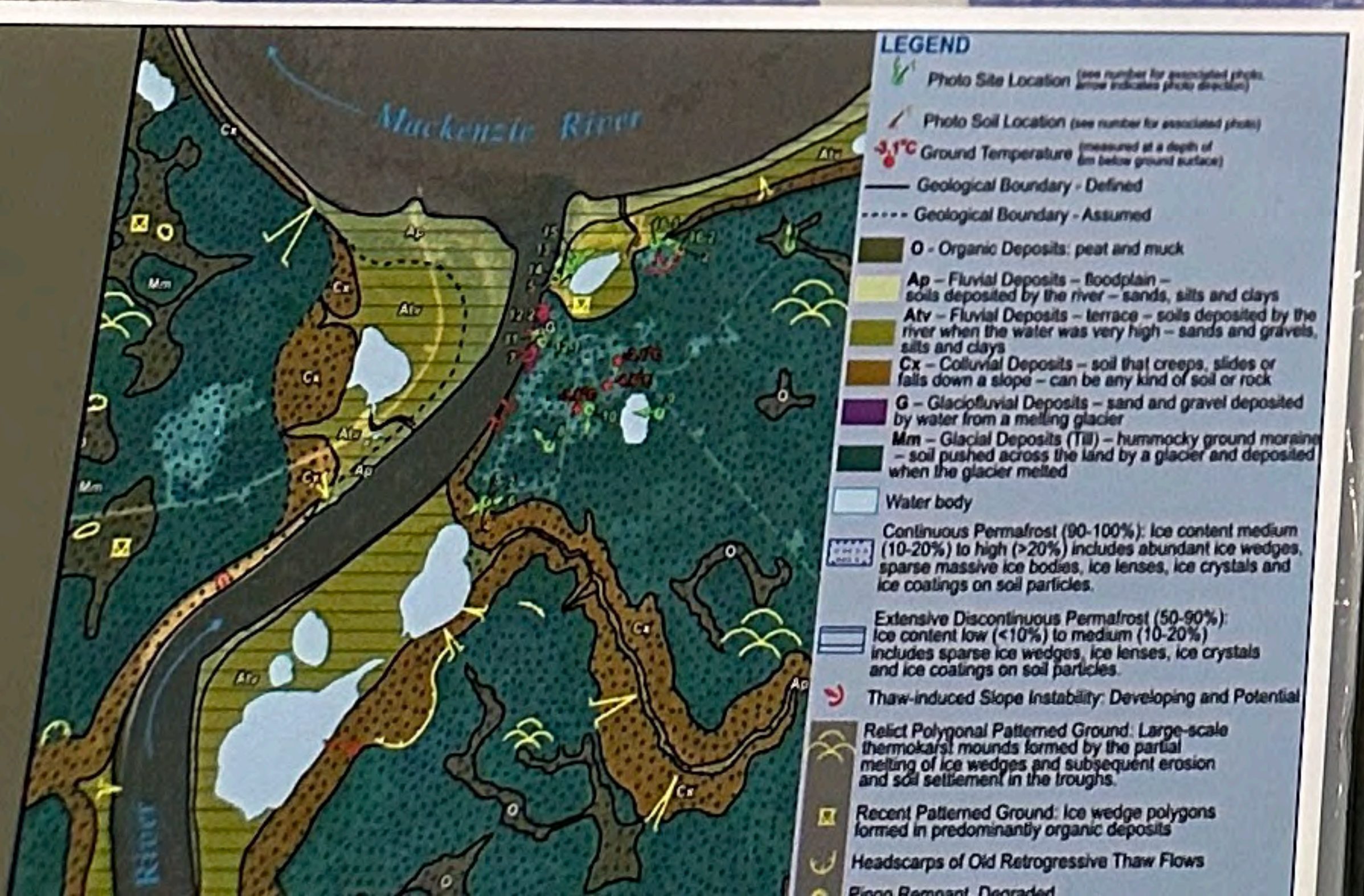
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Priorities & Next Steps



Erosion-related Considerations

- Community located on terrace channel
- Nearby ponds are becoming thaw of ice-rich permafrost
- Gully and landslide
- Flood (side) channel
- Thaw of permafrost and instability