

**LAKE MANITOBA AND LAKE ST. MARTIN OUTLET CHANNELS PROJECT
RESPONSE TO IAAC TECHNICAL INFORMATION REQUESTS**

Question IAAC-10

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ABBREVIATIONS AND ACRONYMSII

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LAKE MANITOBA AND LAKE ST. MARTIN OUTLET CHANNELS PROJECT RESPONSE TO IAAC TECHNICAL INFORMATION REQUESTS

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Abbreviations and Acronyms

EIS	environmental impact statement
LMOC	Lake Manitoba outlet channel
LSMOC	Lake St. Martin outlet channel
PDA	project development area

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EIS Guideline Reference: 7.1.2 Geology and Geochemistry

EIS Reference: 6.3.2. Existing Conditions for Geology and Soils

Context and Rationale

Section 7.1.2 of the EIS Guidelines requires a description of the bedrock geology, geomorphology, topography, and geotechnical characteristics of all areas proposed for the construction of major project components, including a cross-section of appropriate scale.

This information in the EIS is sufficient in detail for the LMOC, which includes a cross-section (Figure 6.3B-5) showing borehole locations. However, several of the boreholes shown in the cross-section are offset from the section. No plan view map has been provided to locate these boreholes.

The information provided in the EIS for the LSMOC is not specific to the area of construction, and no information is available for the Manitoba Hydro distribution line (although it is inferred that nearby data should be applicable). A cross section showing geology, topography, and preliminary channel design is not provided for the LSMOC.

Cross-sections and plan view maps will demonstrate the availability of geological data required to assess effects of the channels on groundwater quantity.

Information Requests

- a) Provide plan view maps showing the locations of all major project components and the locations of boreholes/drillholes used to develop the description of the geology.
- b) Provide a geological/stratigraphic cross-section in the area of the LSMOC which includes the boreholes/drillholes and preliminary channel invert, similar to Figure 6.3B-5.

Response IAAC-10

- a) Plan view maps, showing the locations of all major project components and the locations of boreholes/drillholes used to develop the description of the geology for Lake Manitoba Outlet Channel (LMOC), are shown on Plates D.4-6 through D.4-9 within the Assessment of Existing Well Use and Suitability as Drinking Water Report (KGS 2017) submitted as supporting information for the environmental impact statement (EIS) see Appendix IAAC-10-1.
- b) No hydrogeological information was available within the Lake St. Martin Outlet Channel (LSMOC) Project development area (PDA) prior to the EIS filing in August 2019. In 2019, a geotechnical and hydrogeological field investigation program was initiated within the LSMOC PDA as part of the Preliminary Design field study phase of the Project. However, the technical reporting portion of this

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program is not yet complete, and these data are not yet available for analysis and interpretation. The results, when available, will be made available to regulators and used in developing detailed design plans as well as groundwater / surface water monitoring programs. For the purposes of geological characterization, overburden and bedrock deposits within the LSMOC PDA were considered to be similar to that observed within the LMOC PDA. The glacial till soils and underlying limestone bedrock is generally considered to be regionally extensive and expected to extend across most of the LSMOC PDA.

References

KGS Group Consulting Engineers. May 2017. Investigations and Preliminary Engineering for LMB Outlet Channels Options C and D Summary Report, Appendix A – Deliverable D4. Assessment of Existing Well Use and Suitability as Drinking Water.

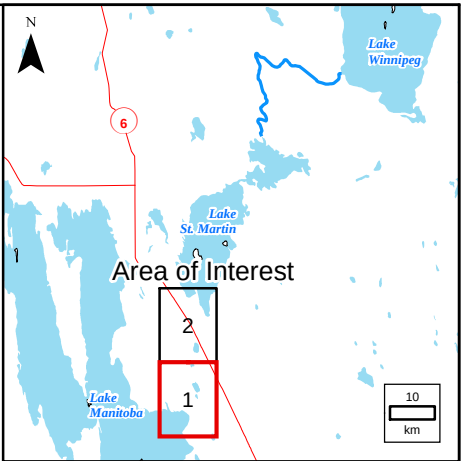
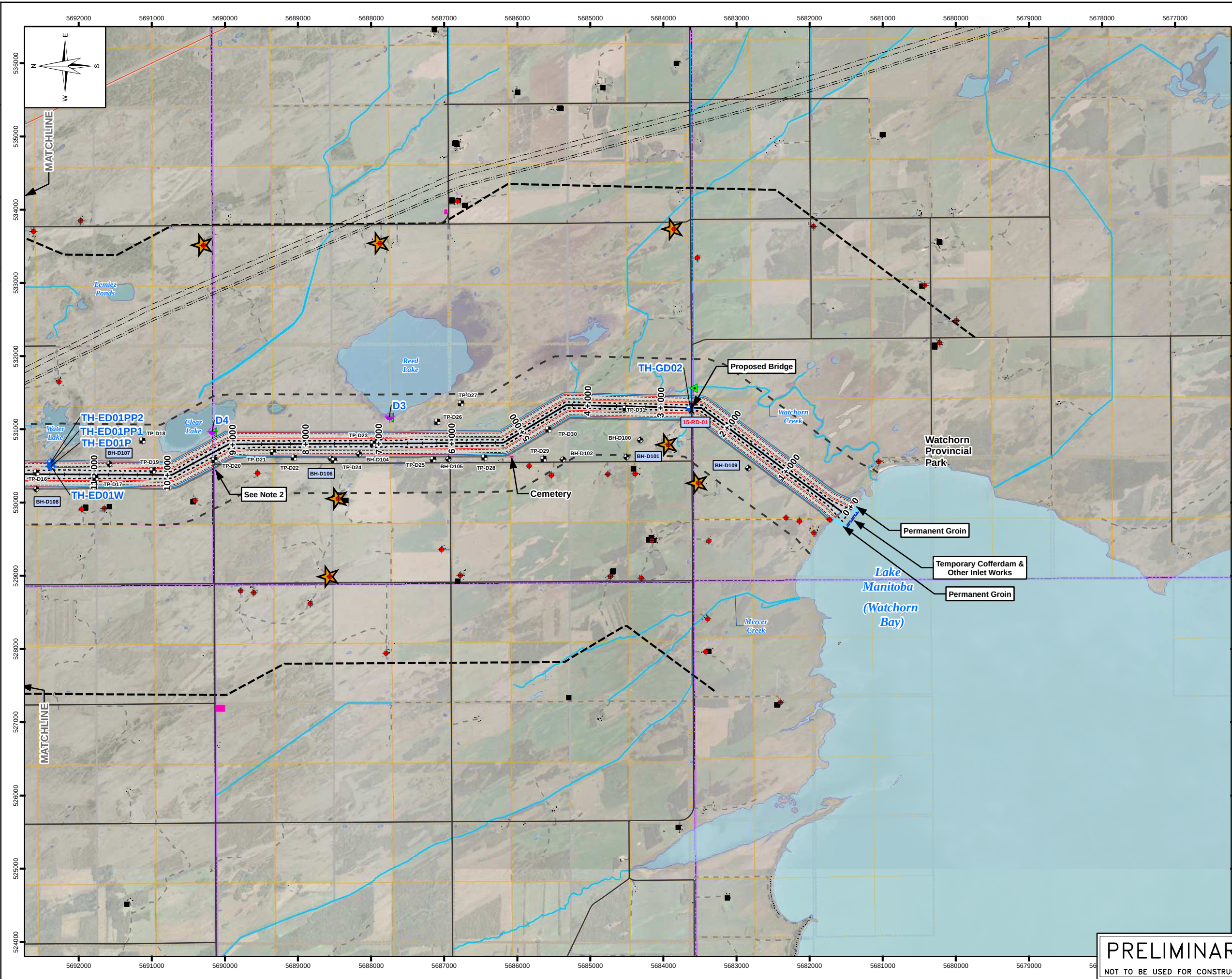
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RESPONSE TO IAAC TECHNICAL INFORMATION REQUESTS**

Appendix IAAC-10 Plates

Appendix IAAC-10 PLATES

File Name: P:\Projects\2016\16-0300-006\DWG\GIS\MXD\Rev0\D4\16-0300-006_Plate_D4-6_Rev0.mxd
11"x17" PLOT SCALE 1:1

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 - 3 km channel buffer
 - 500m distance from Channel ROW

- NOTES:**
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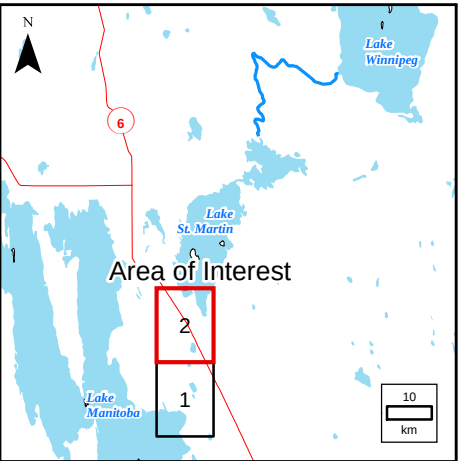
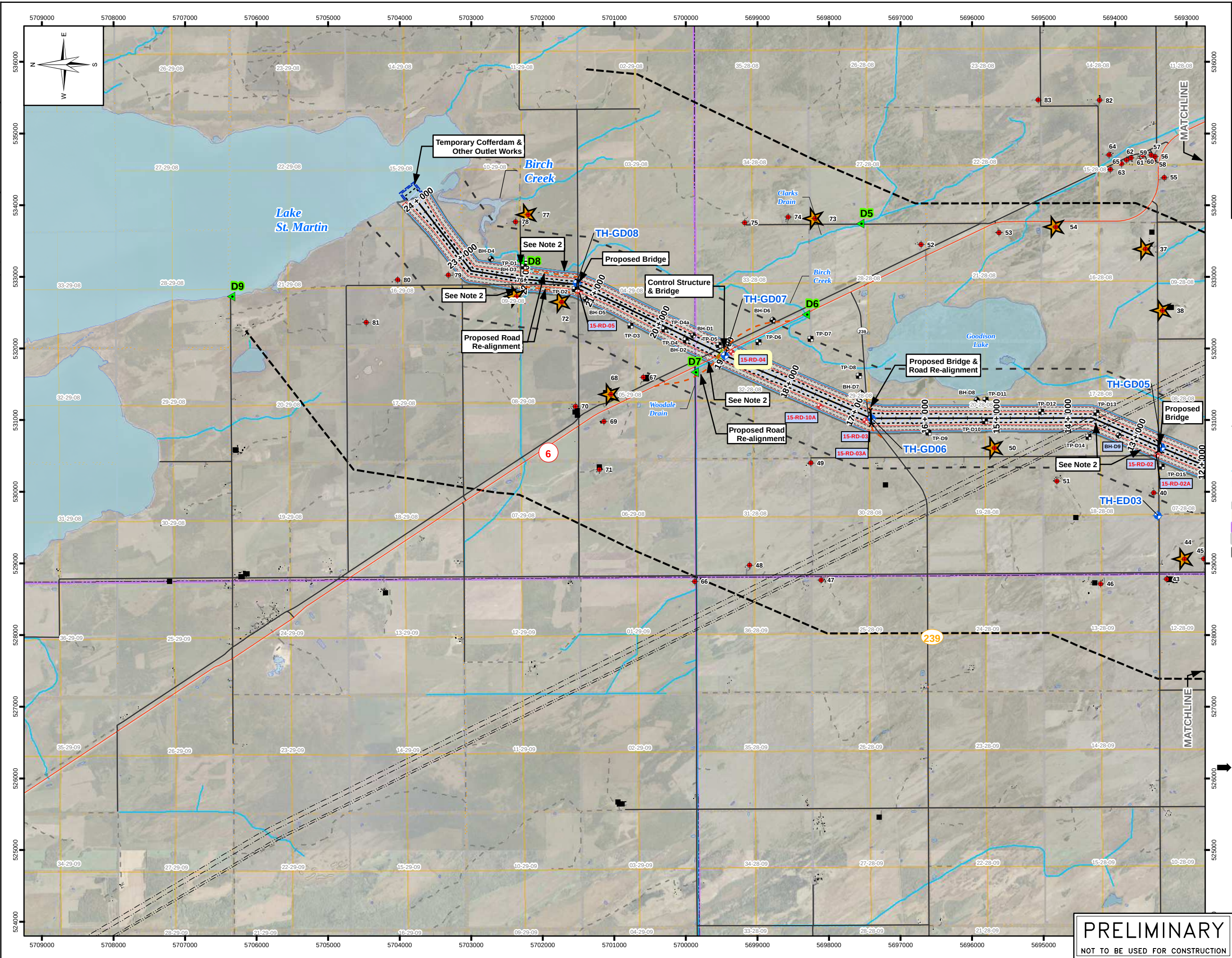
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INVESTIGATIONS & PRELIMINARY
ENGINEERING FOR LMB OUTLET
CHANNELS OPTIONS C&D
POTENTIAL THIRD-PARTY WELL AND
INVENTORY LOCATIONS
ROUTE D

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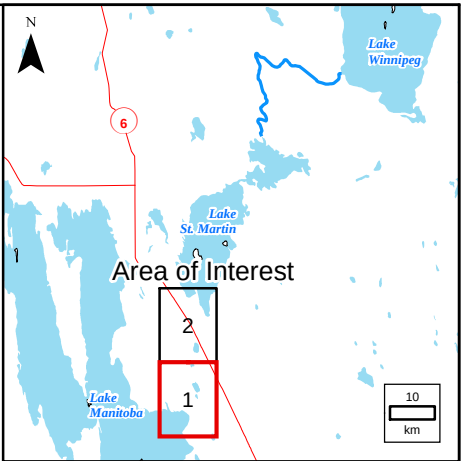
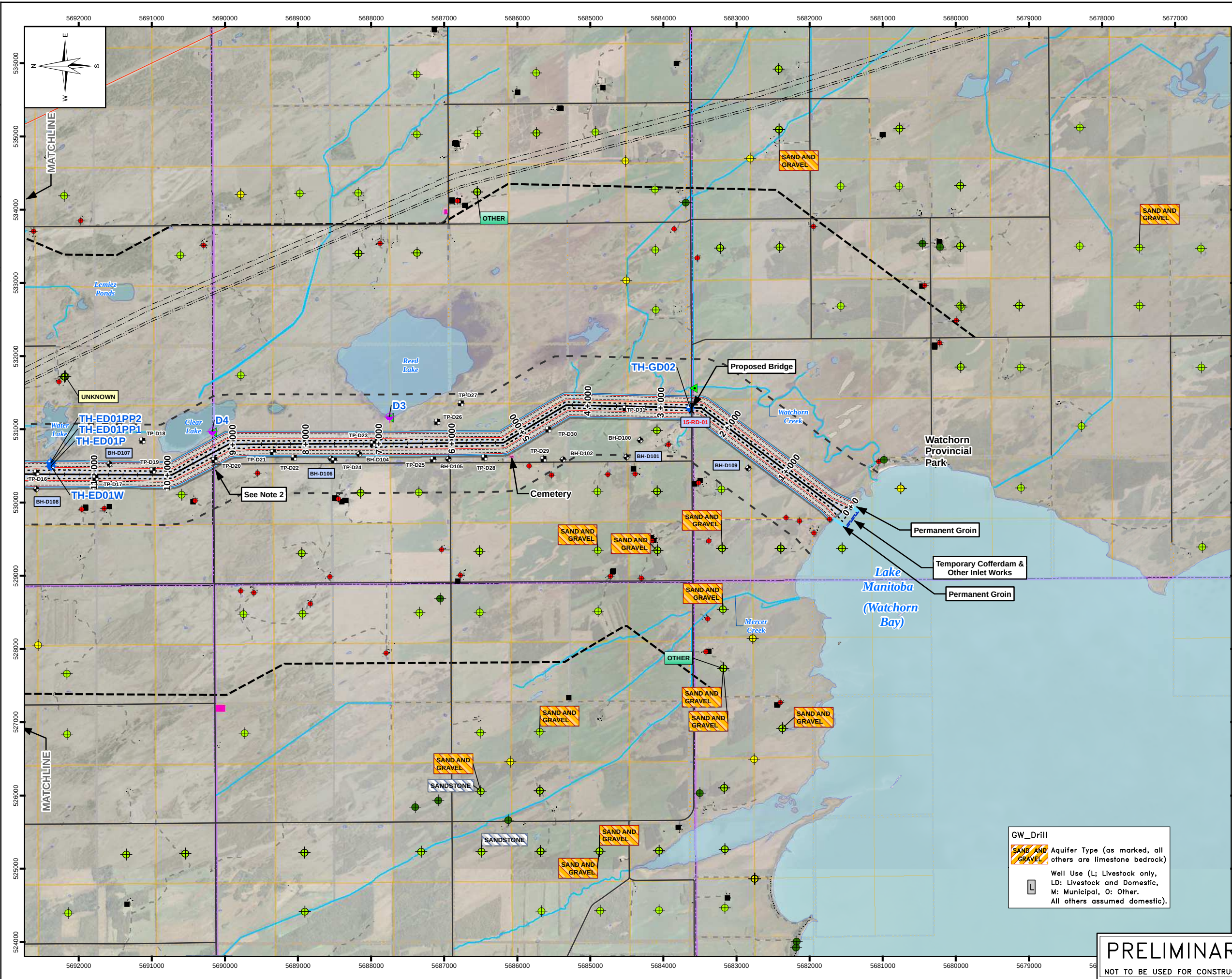
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POTENTIAL THIRD-PARTY WELL AND
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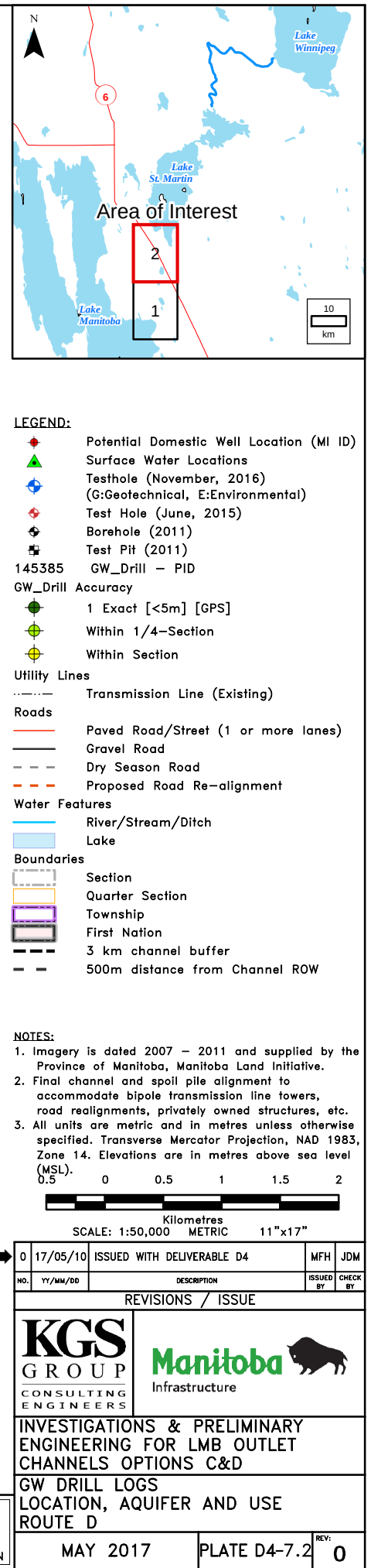
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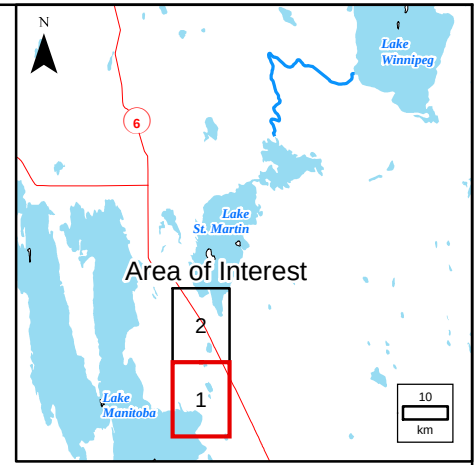
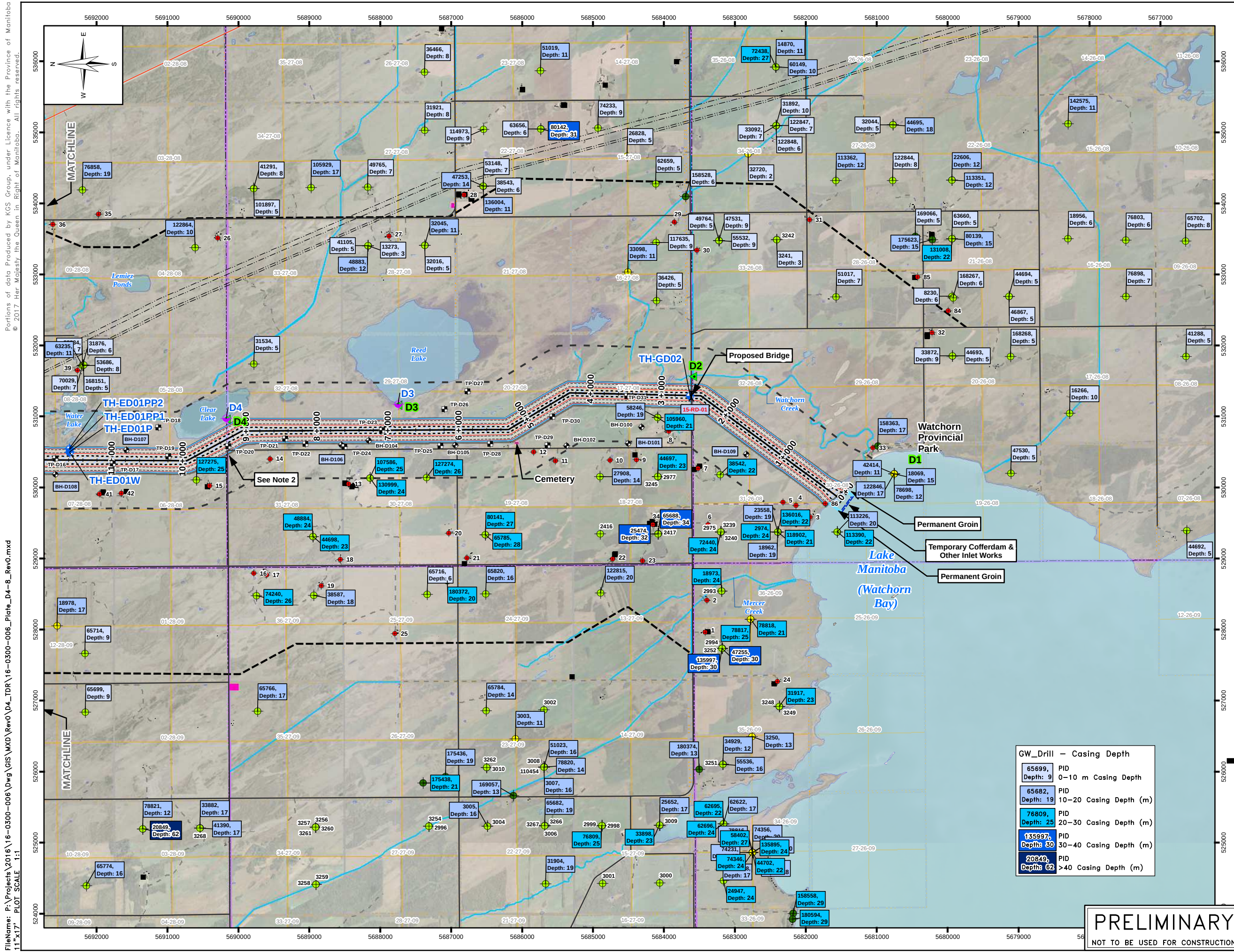
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GW DRILL LOGS
LOCATION, AQUIFER AND USE
ROUTE D

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GW DRILL LOGS CASING DEPTH ROUTE D

PRELIMINARY

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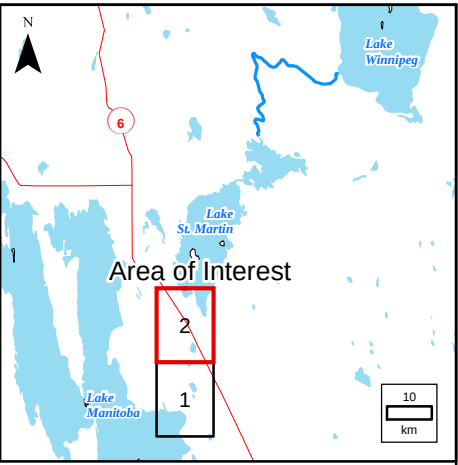
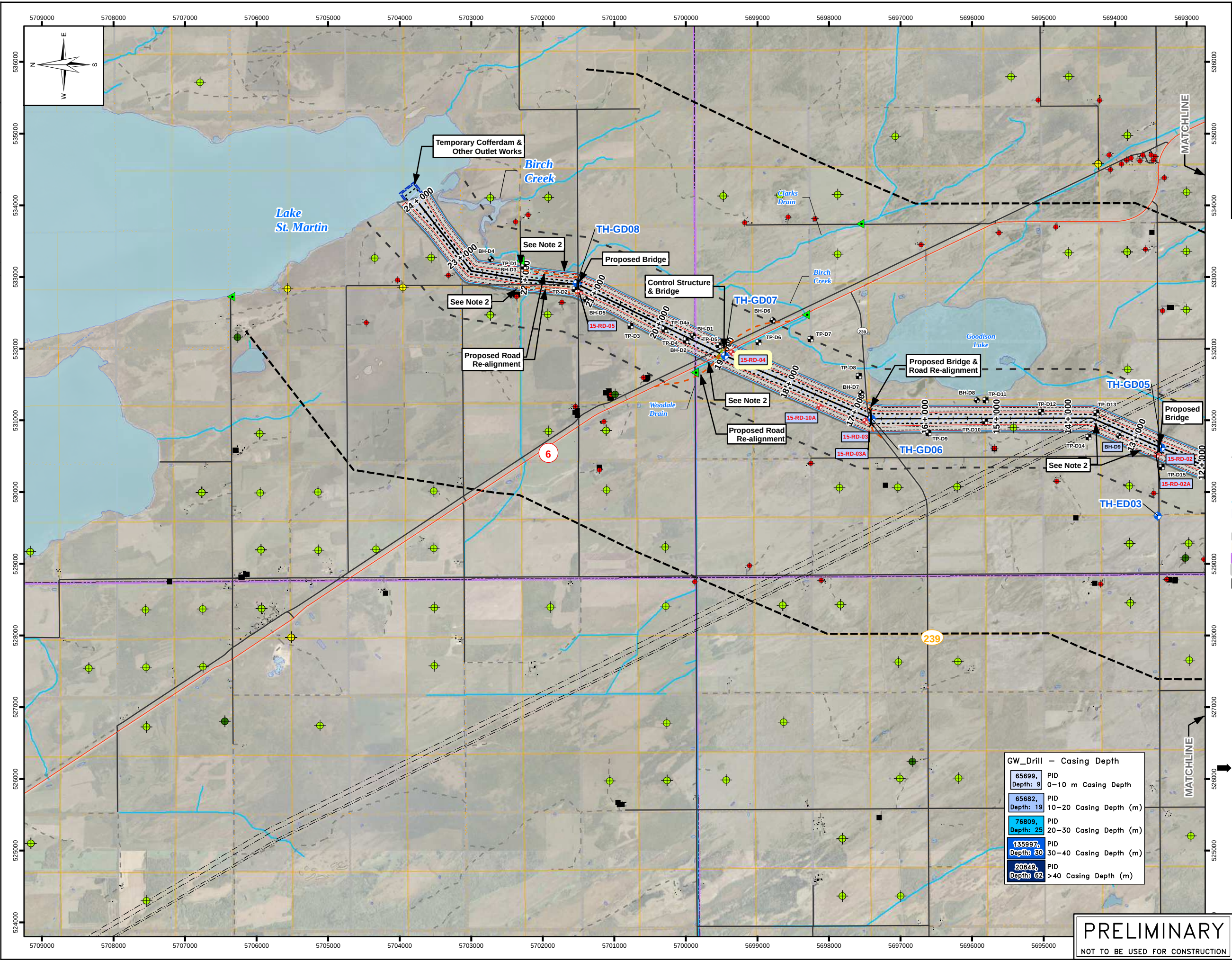
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PLATE D4-8.1

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GW_Drill - Casing Depth	
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65682, Depth: 19	PID 10-20 Casing Depth (m)
76809, Depth: 25	PID 20-30 Casing Depth (m)
135997, Depth: 30	PID 30-40 Casing Depth (m)
20849, Depth: 62	PID >40 Casing Depth (m)

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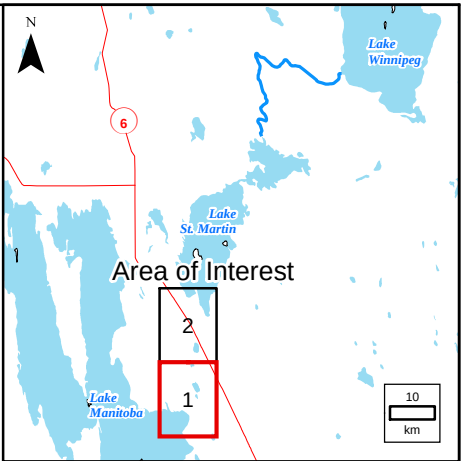
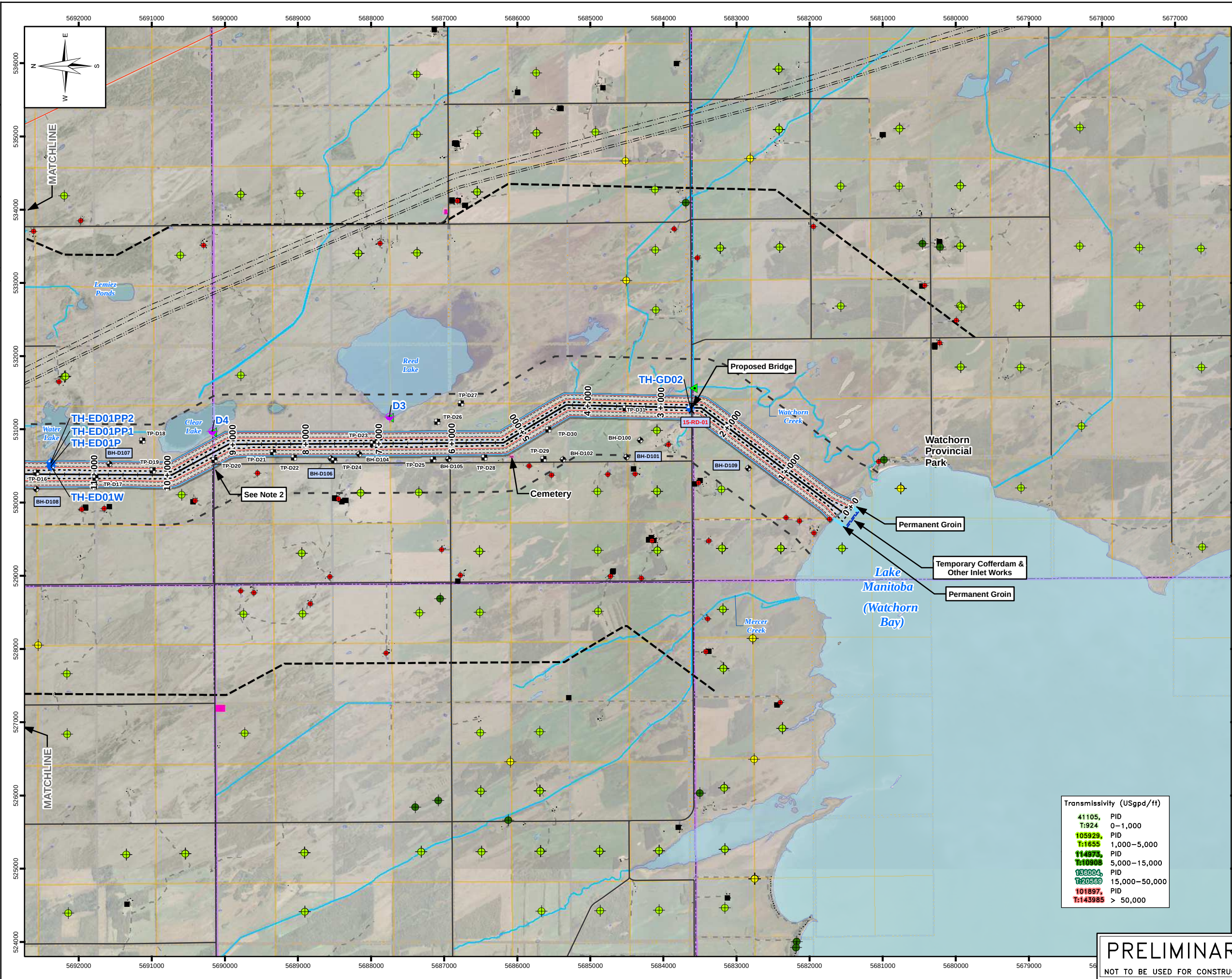
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PLATE D4-8.2

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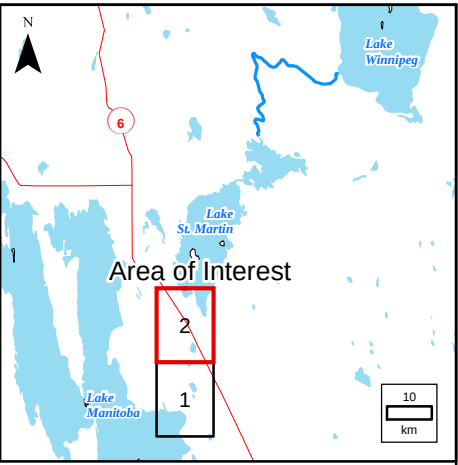
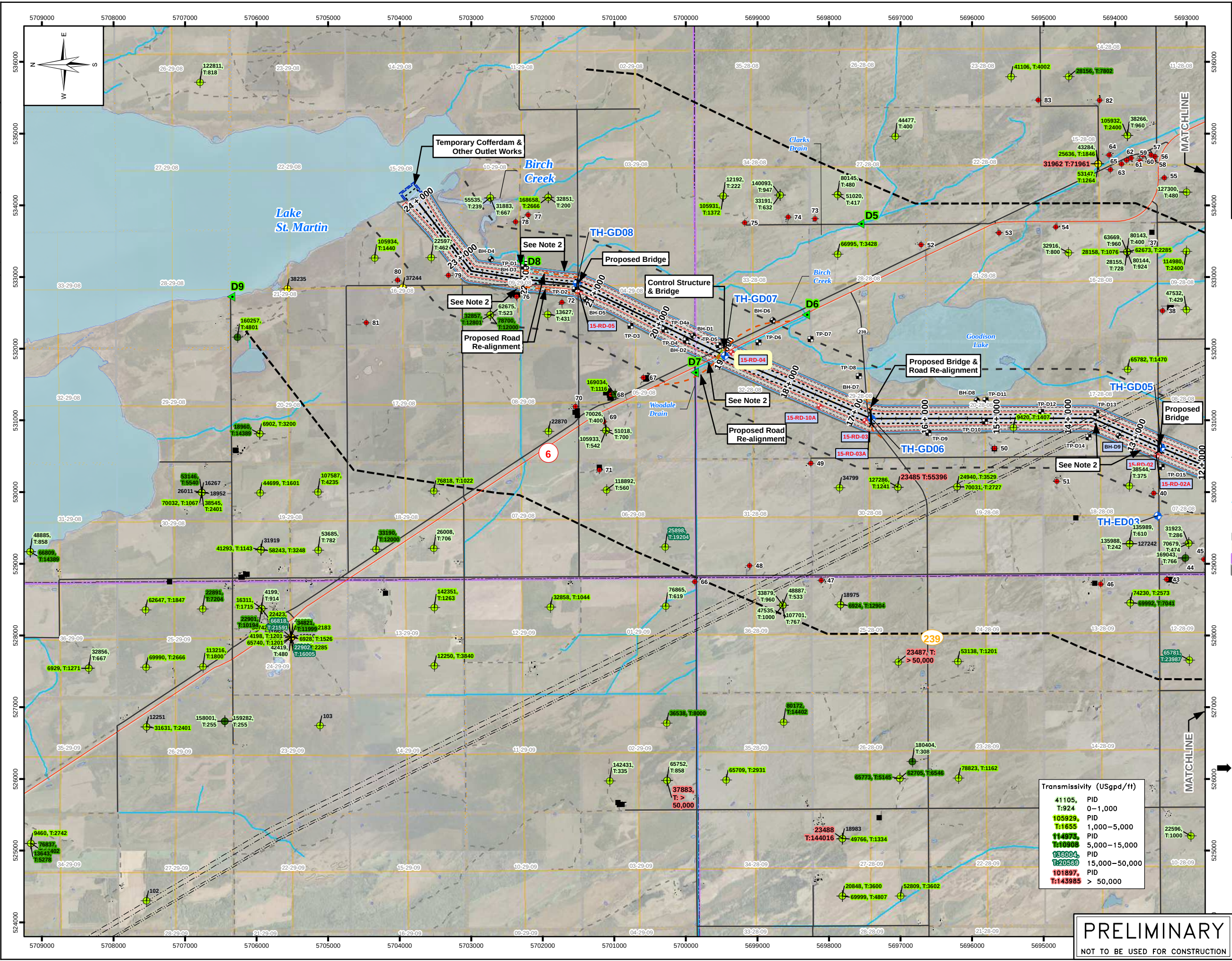
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Transmissivity (USgpd/ft)	
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114973, T:10908	PID 5,000-15,000
163004, T:20569	PID 15,000-50,000
101897, T:143985	PID > 50,000

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ESTIMATED AQUIFER TRANSMISSIVITY ROUTE D							
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CHANNELS OPTIONS C&D**

**ESTIMATED AQUIFER TRANSMISSIVITY
ROUTE D**

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