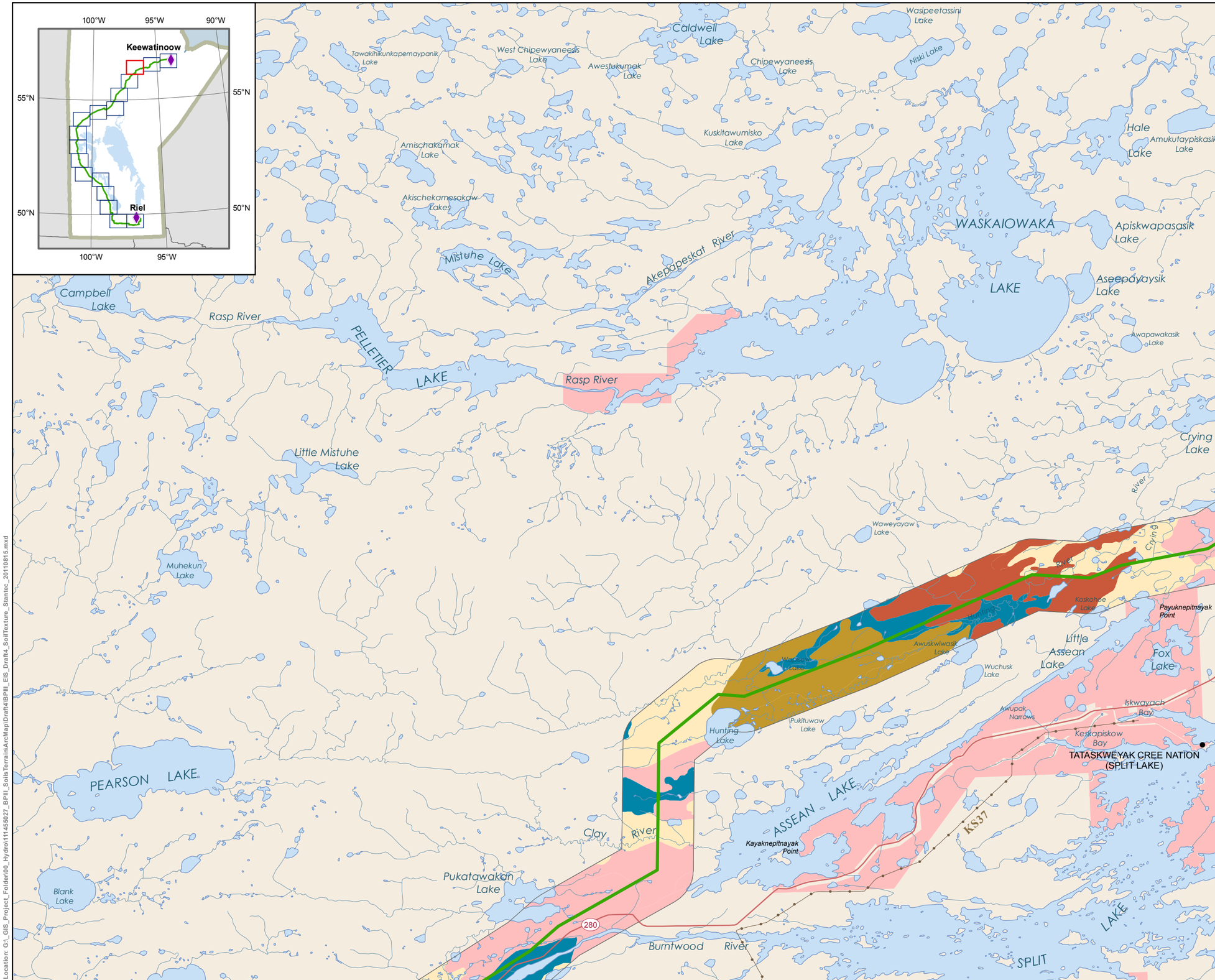

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 3

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrainArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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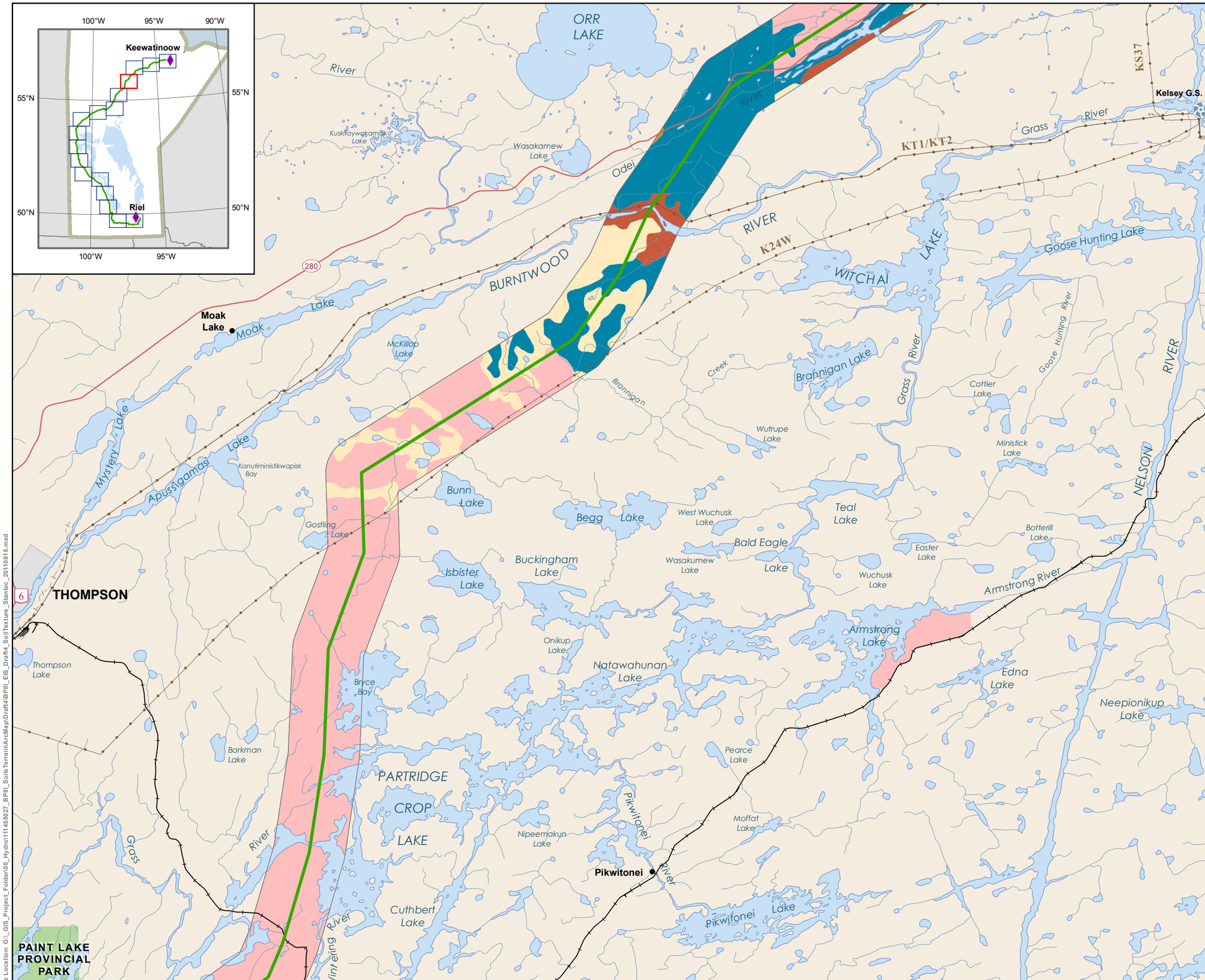

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Generating Station
- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 4

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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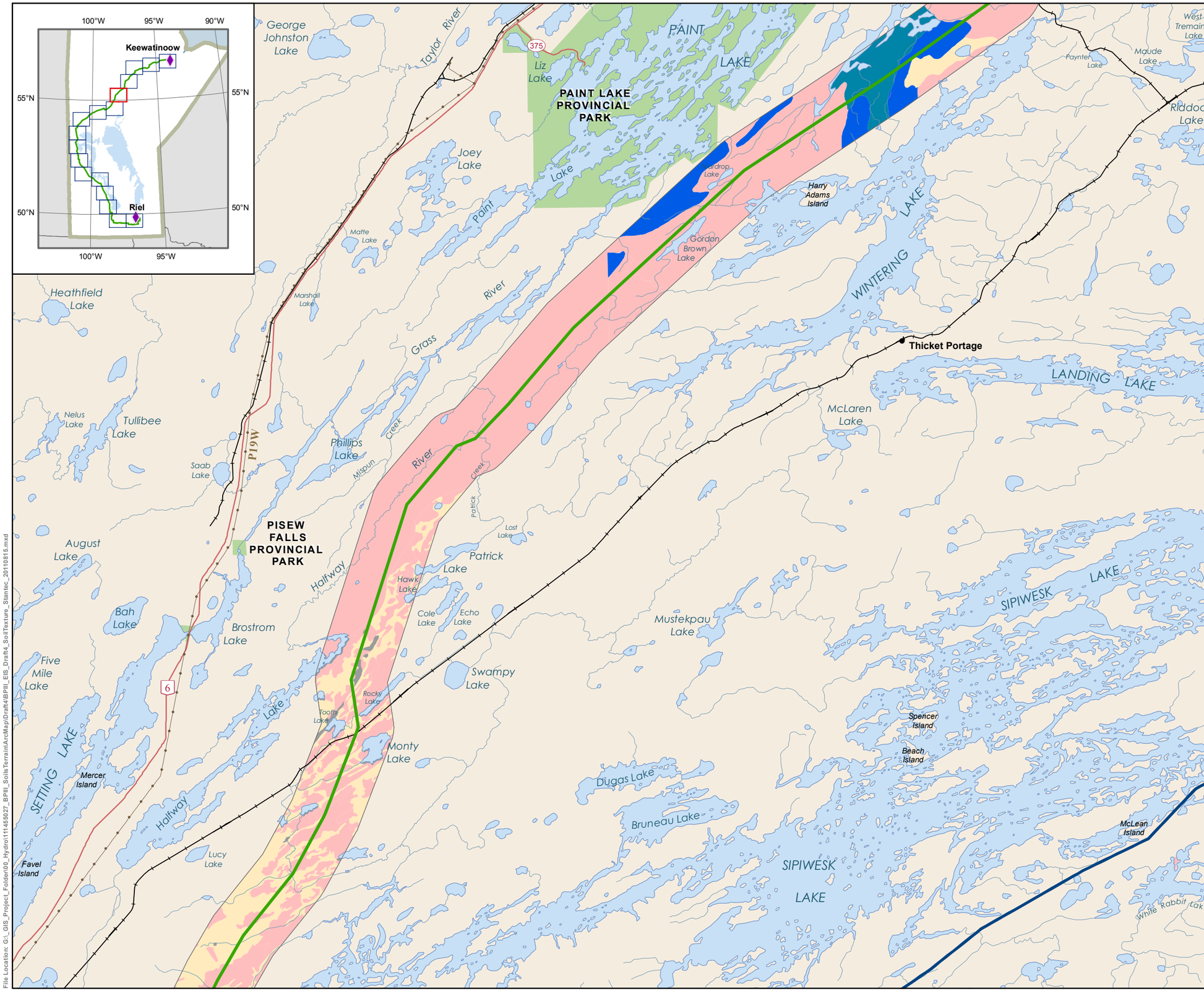

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Created By: Stantec

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure
- Final Preferred Route
- Local Study Area

Infrastructure
- Bipole I and II
- Transmission Line

Soil Texture
- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase
- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

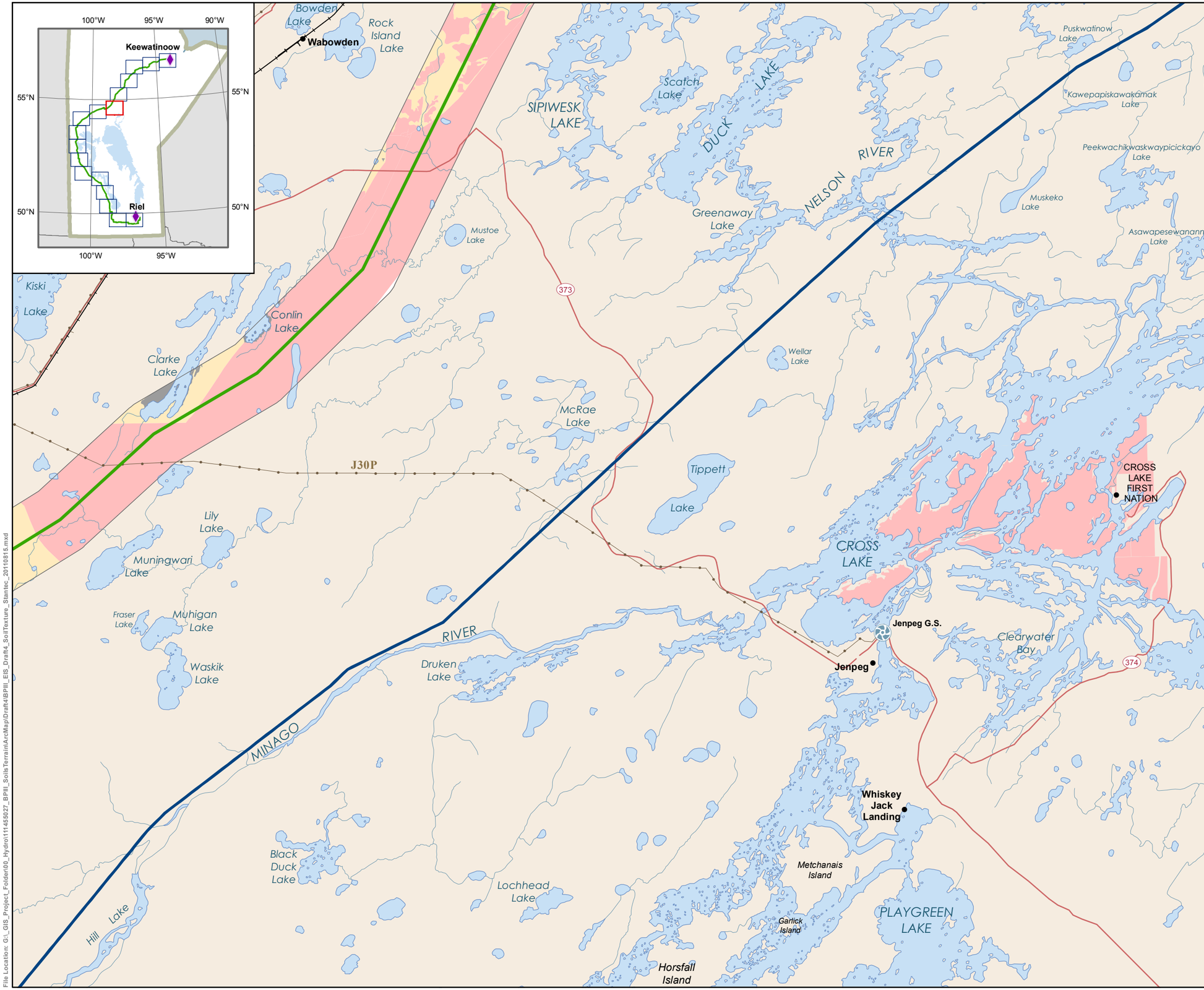
N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 5



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Created By: Stantec

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Generating Station
- Bipole I and II
- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

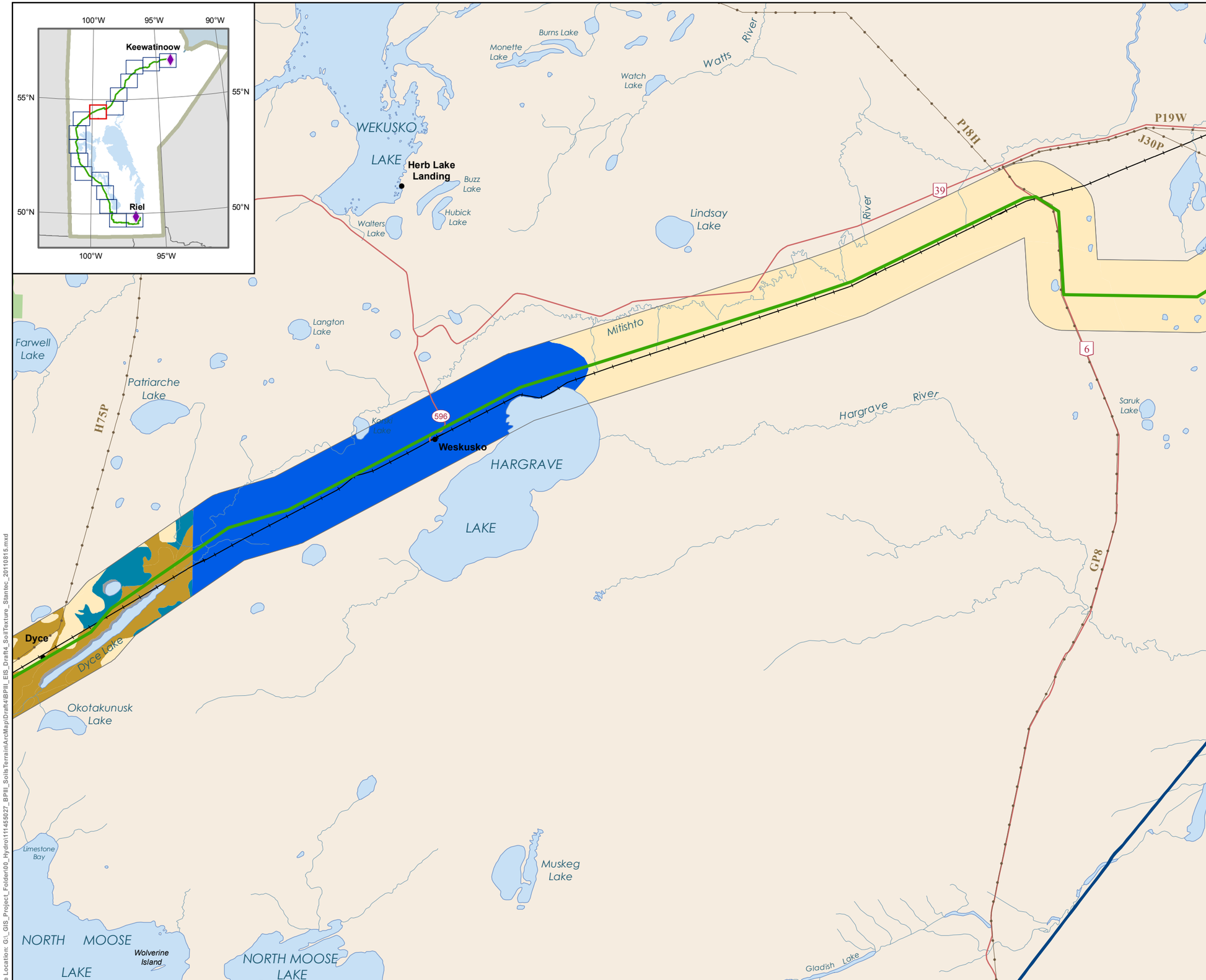
0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 6



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure
- Final Preferred Route
- Local Study Area

Infrastructure
- Bipole I and II
- Transmission Line

Soil Texture
- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase
- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 7

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrainArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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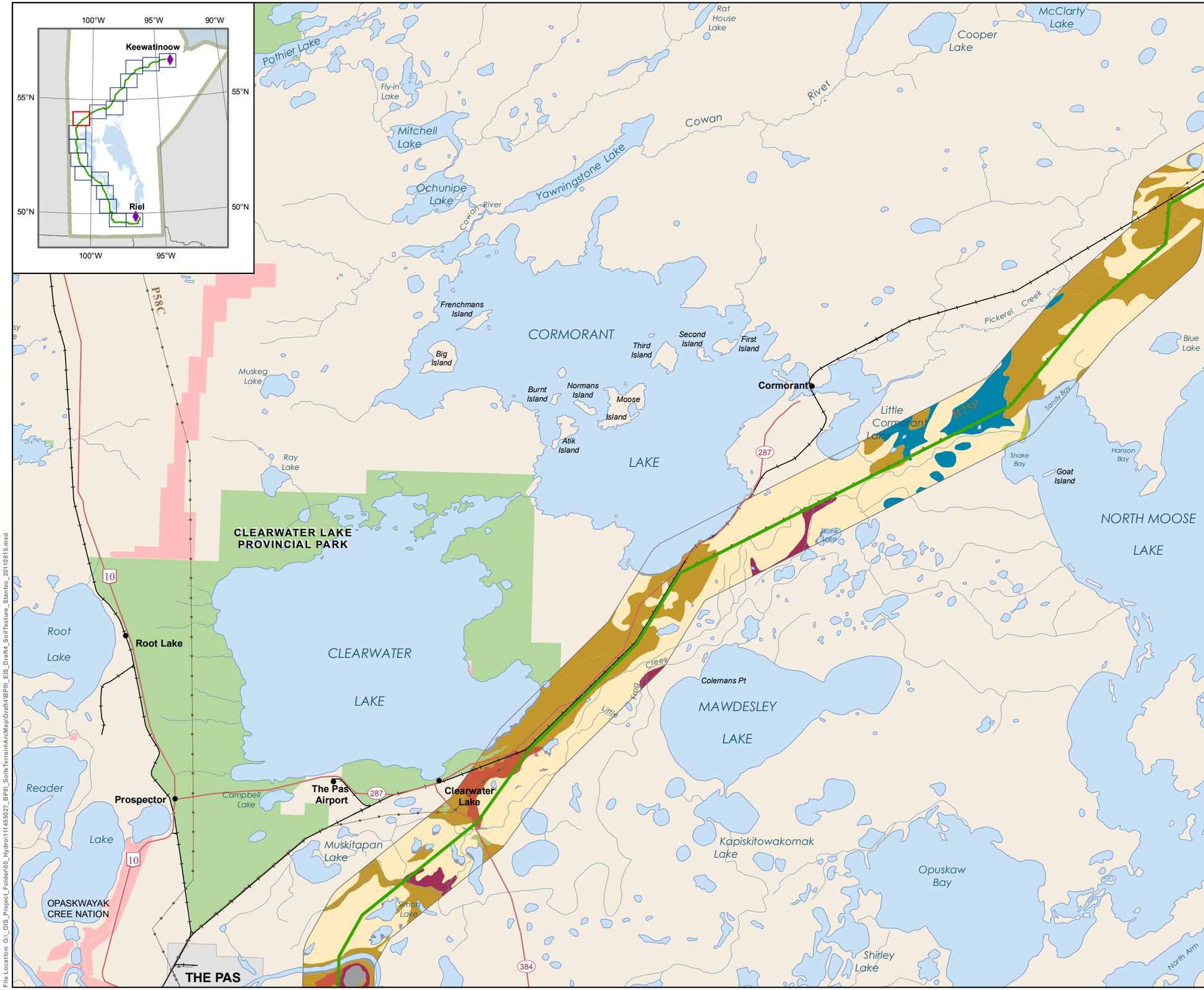

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 8

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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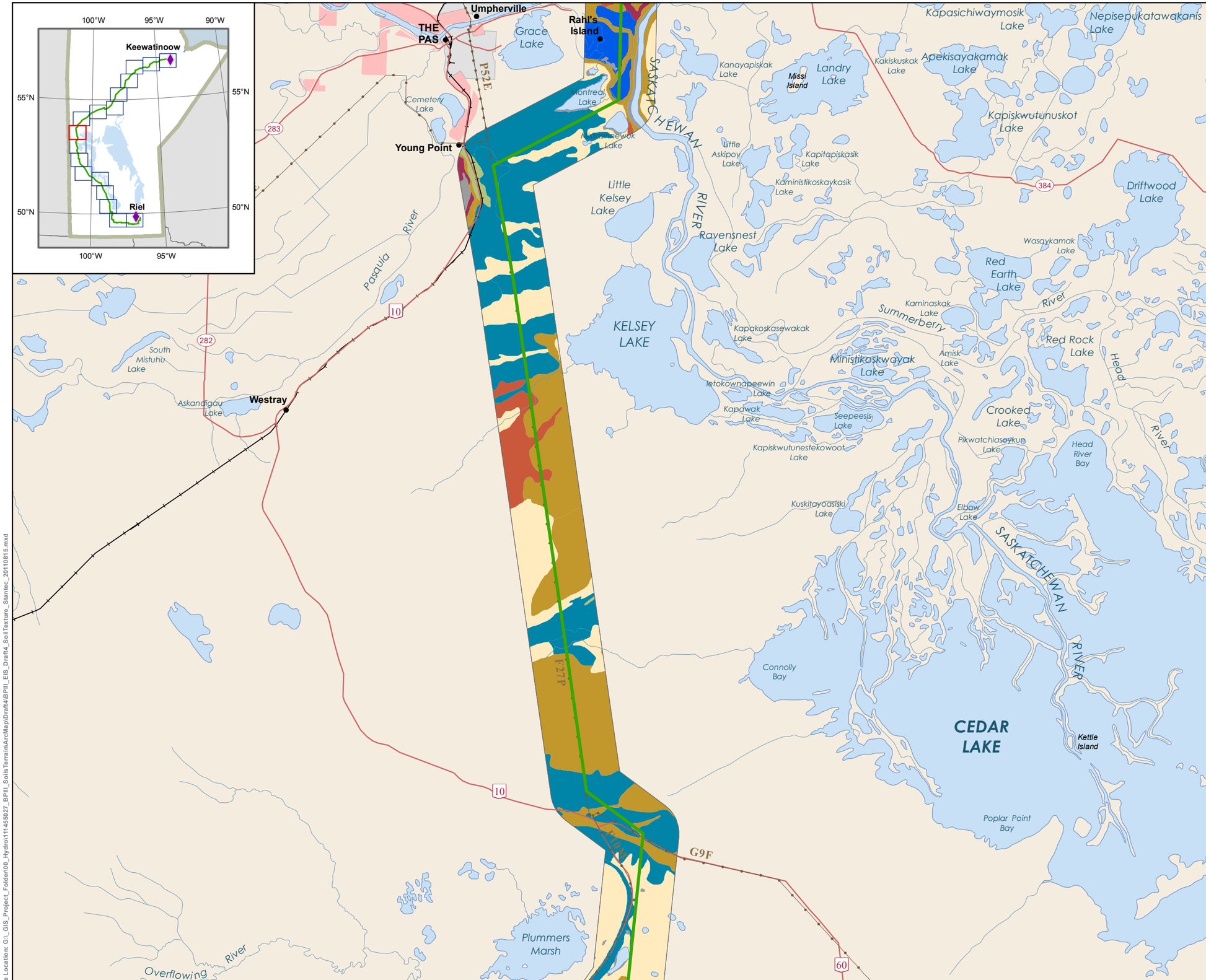

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 9

File Location: G:_GIS_Project_Folder\00_Hydro\111445027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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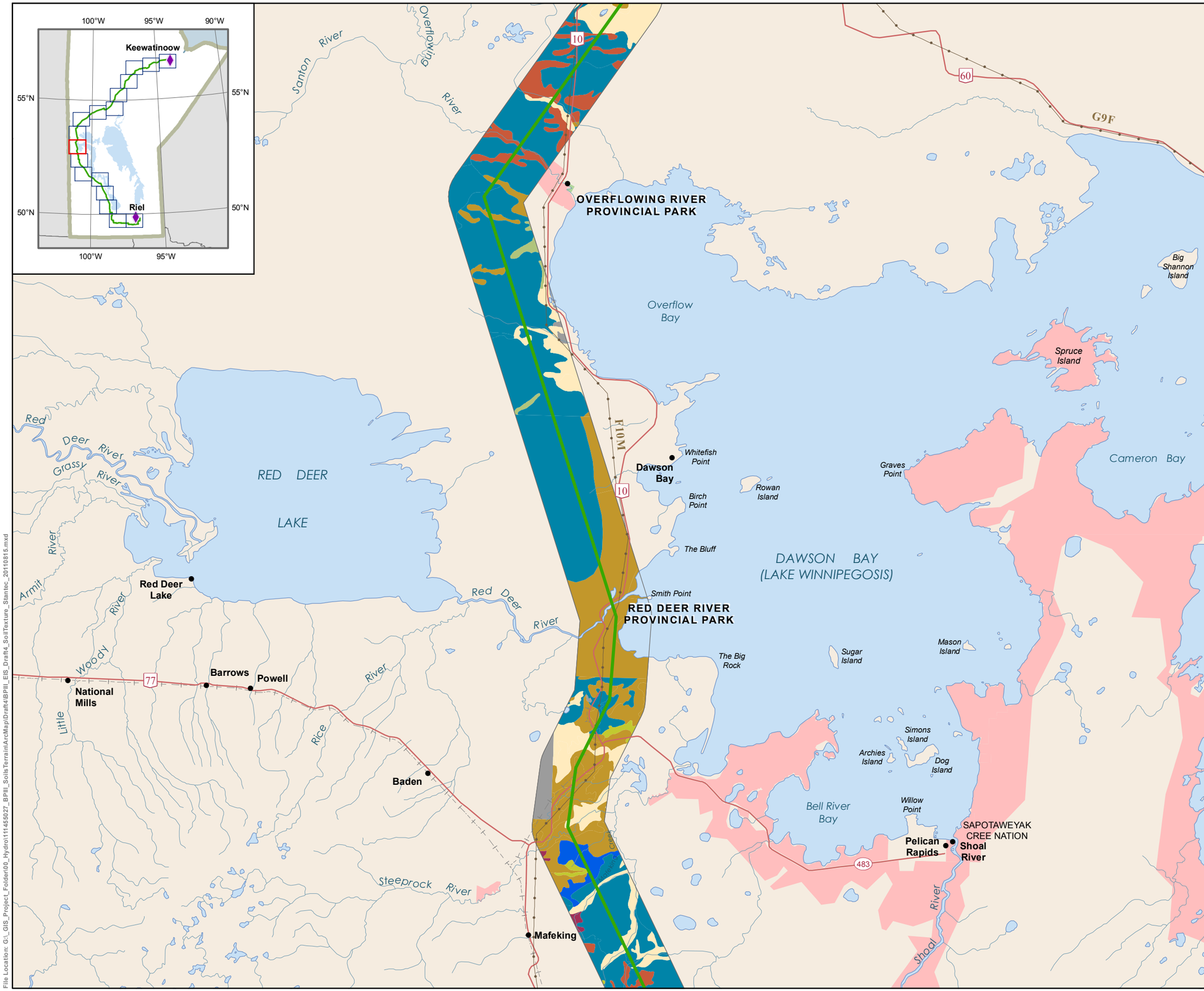


Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

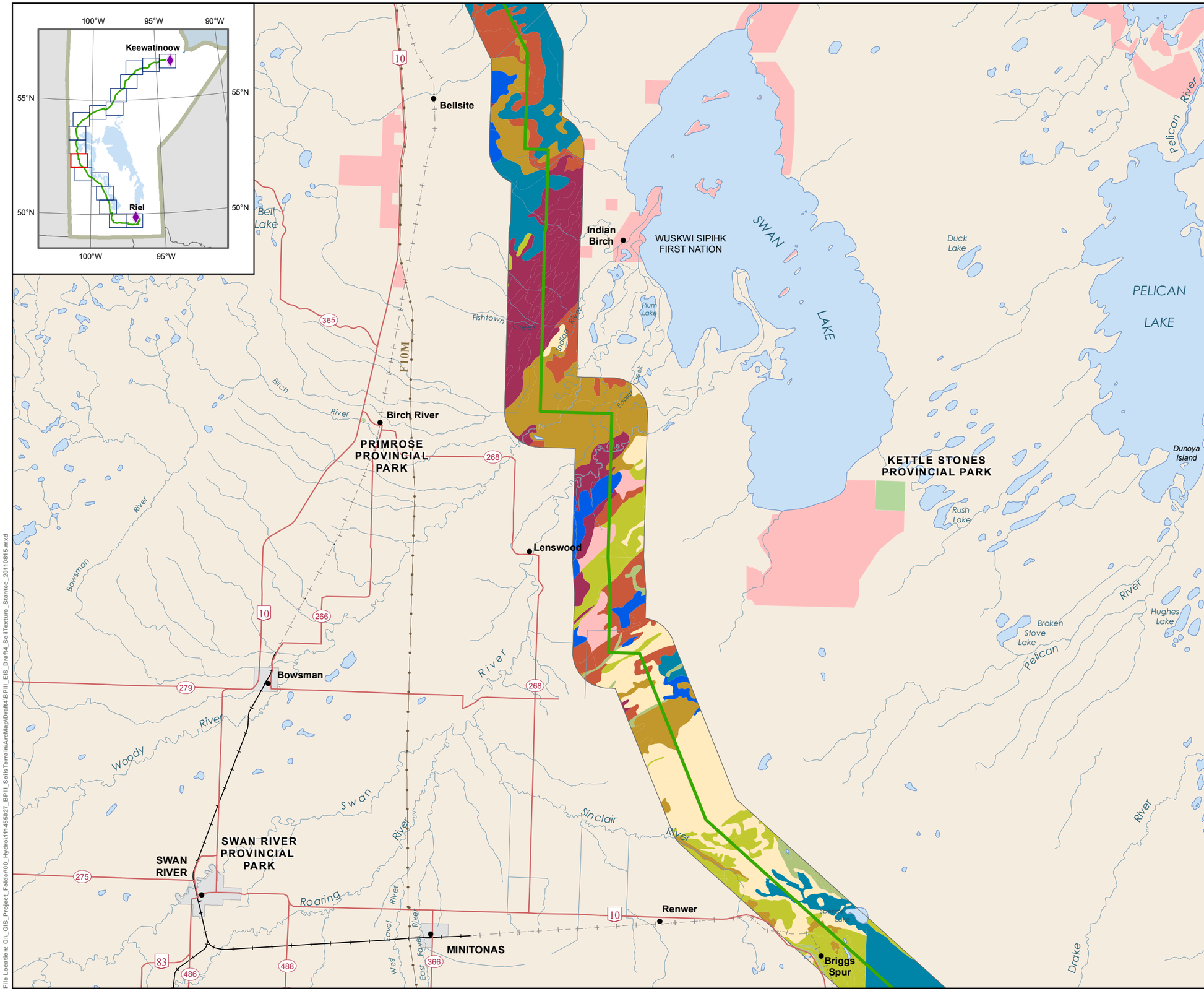
Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 10

Created By: Stantec

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 11

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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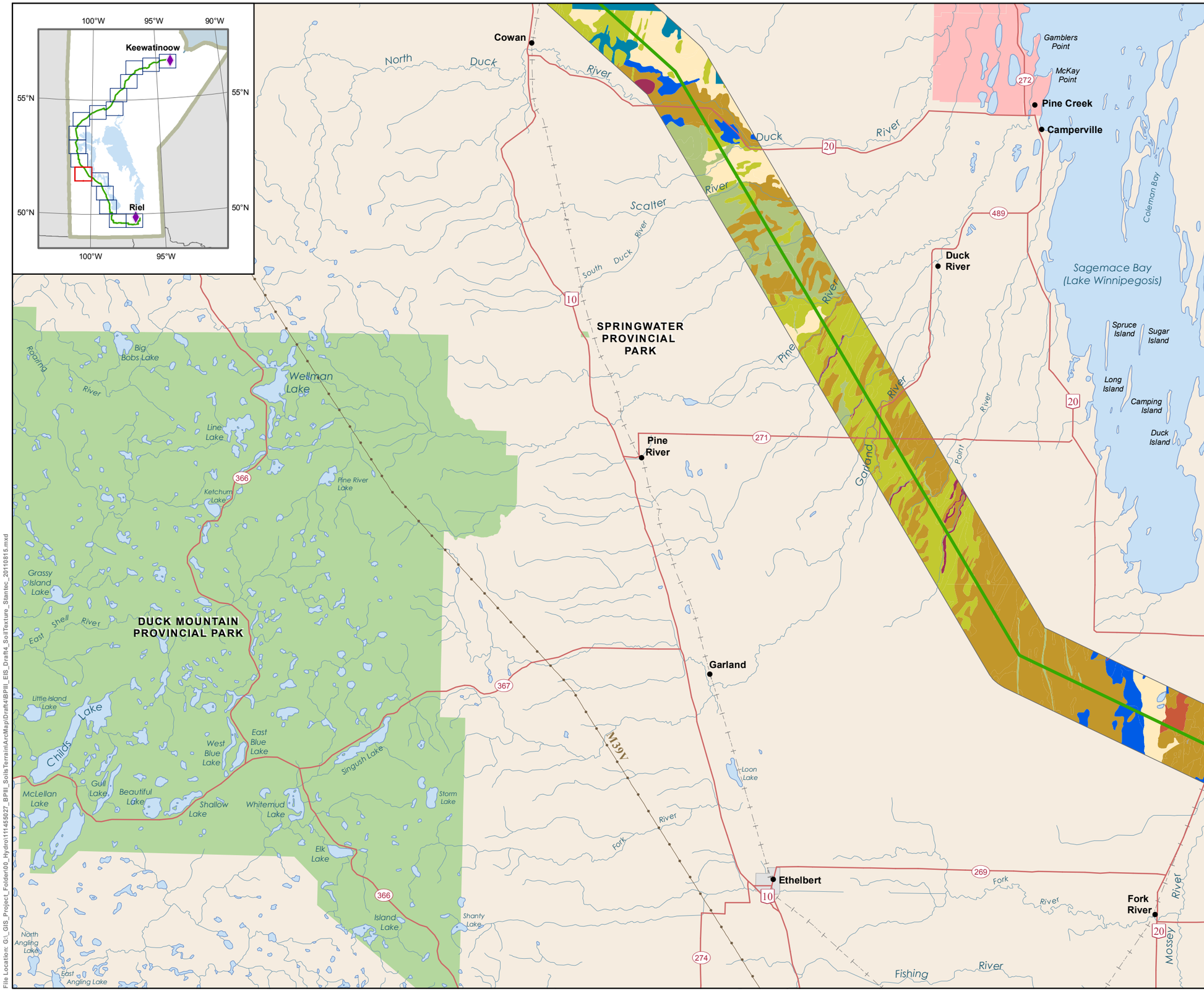

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 12

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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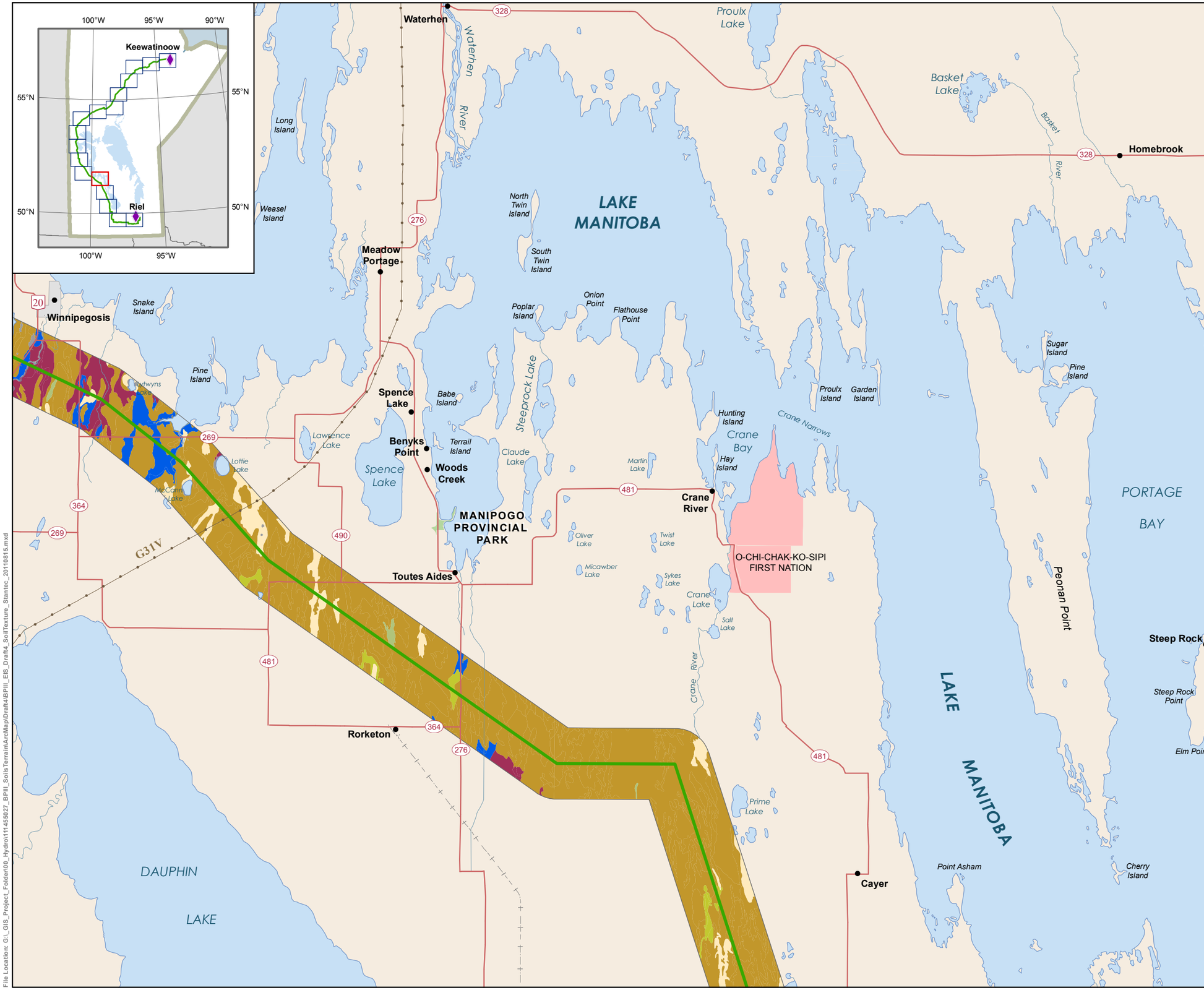

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 13

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrainArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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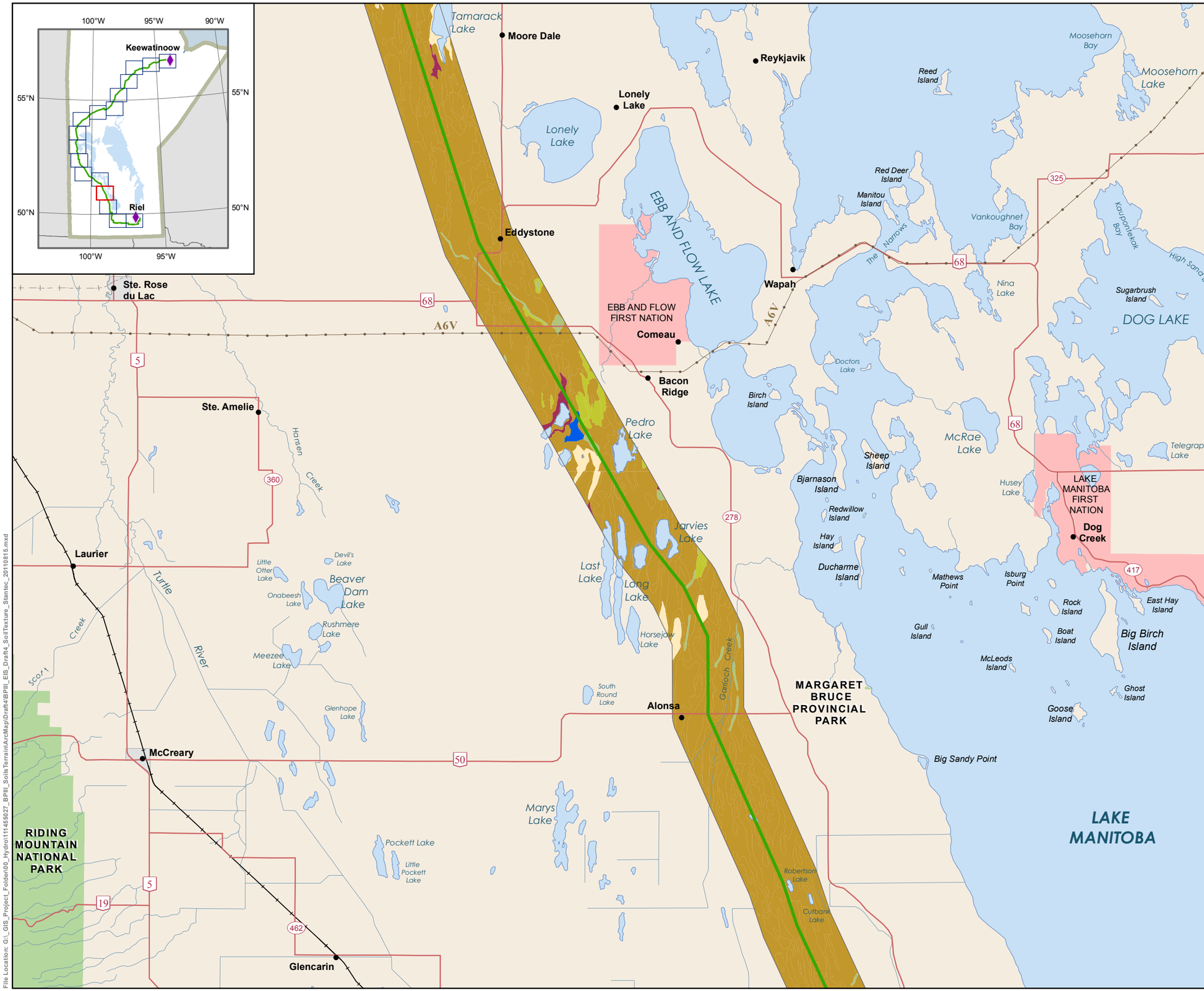


Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure
- Final Preferred Route
- Local Study Area

Infrastructure
- Transmission Line

Soil Texture
- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase
- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

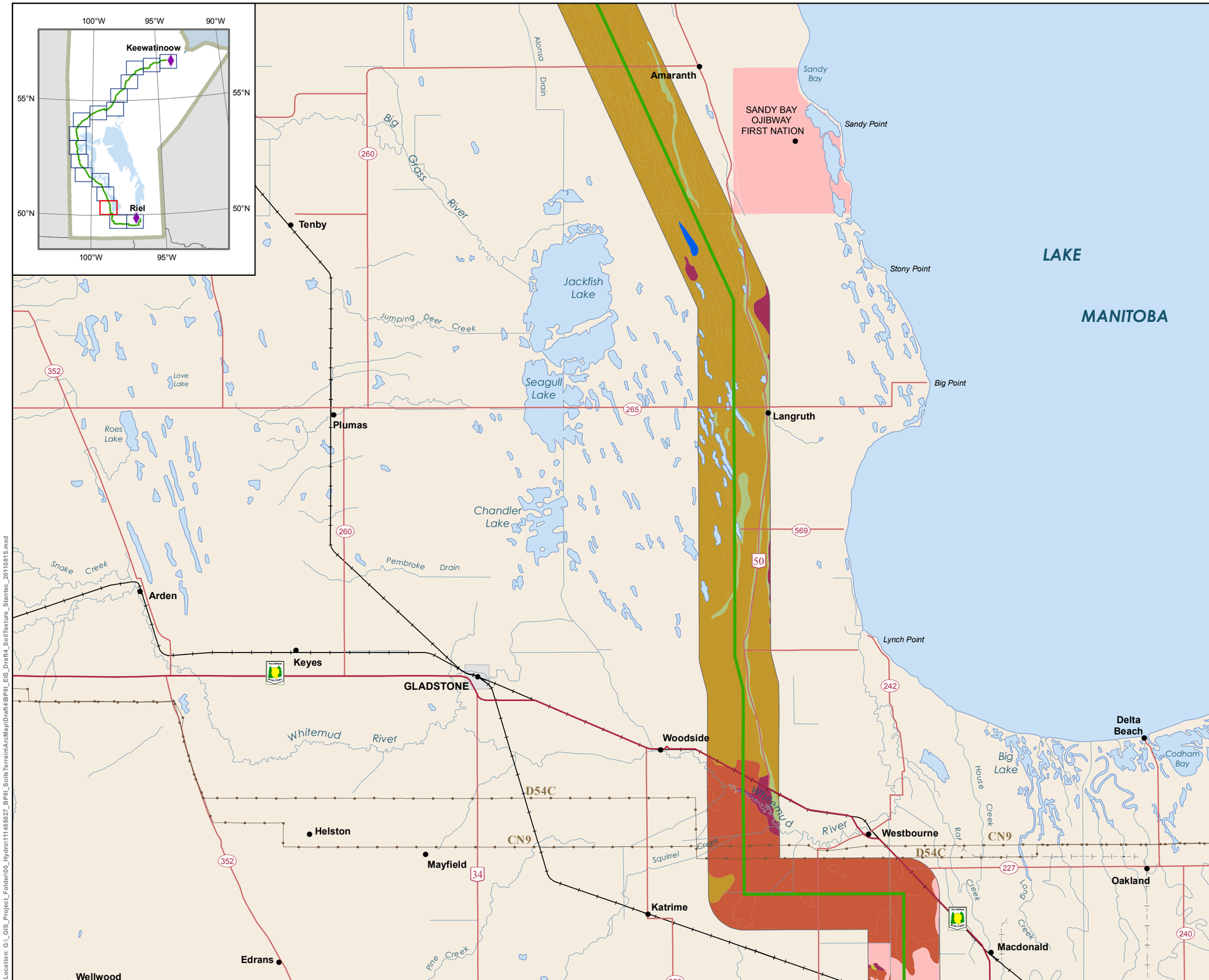
Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 14

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

Created By: Stantec



Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 15

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrainArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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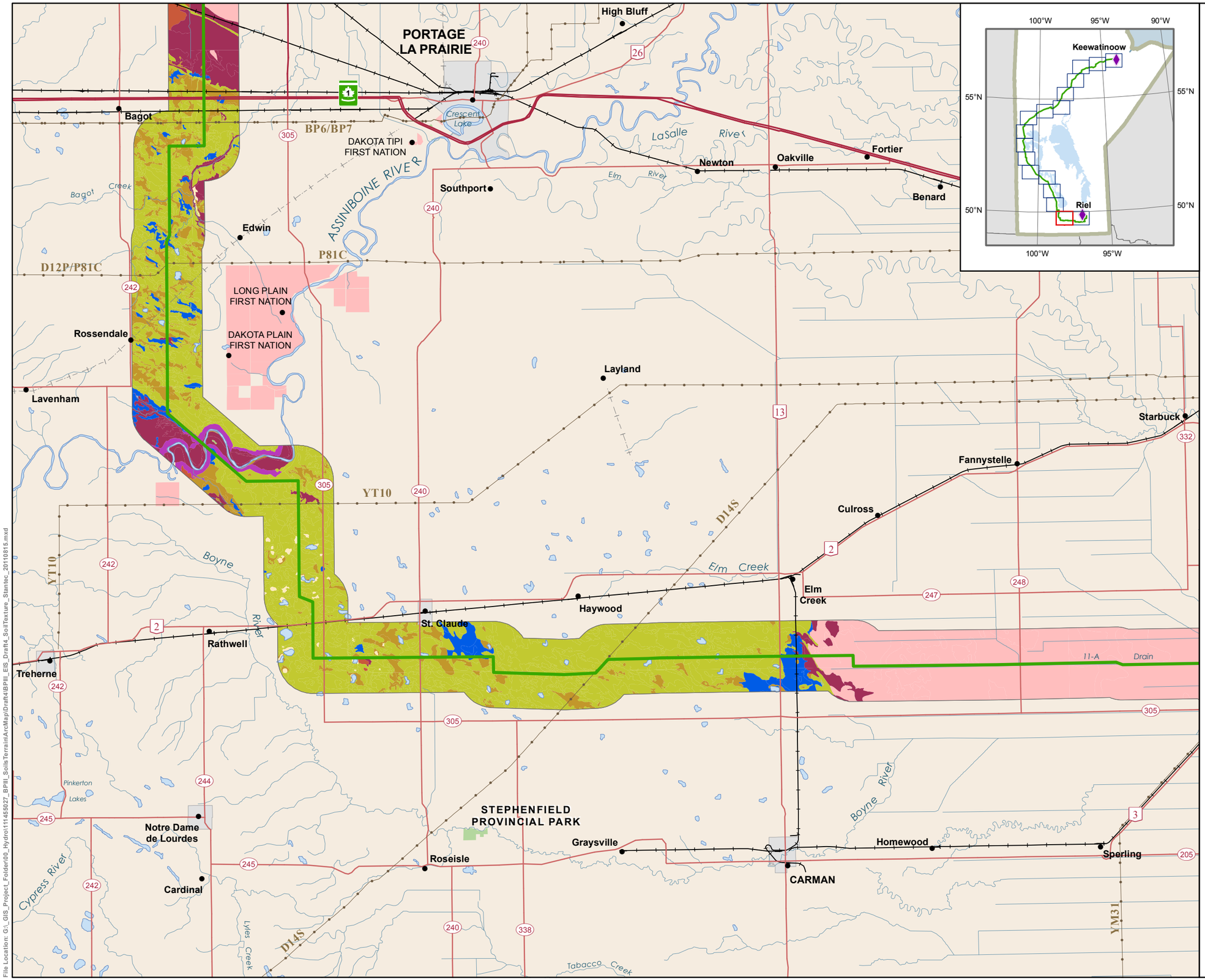

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Created By: Stantec

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

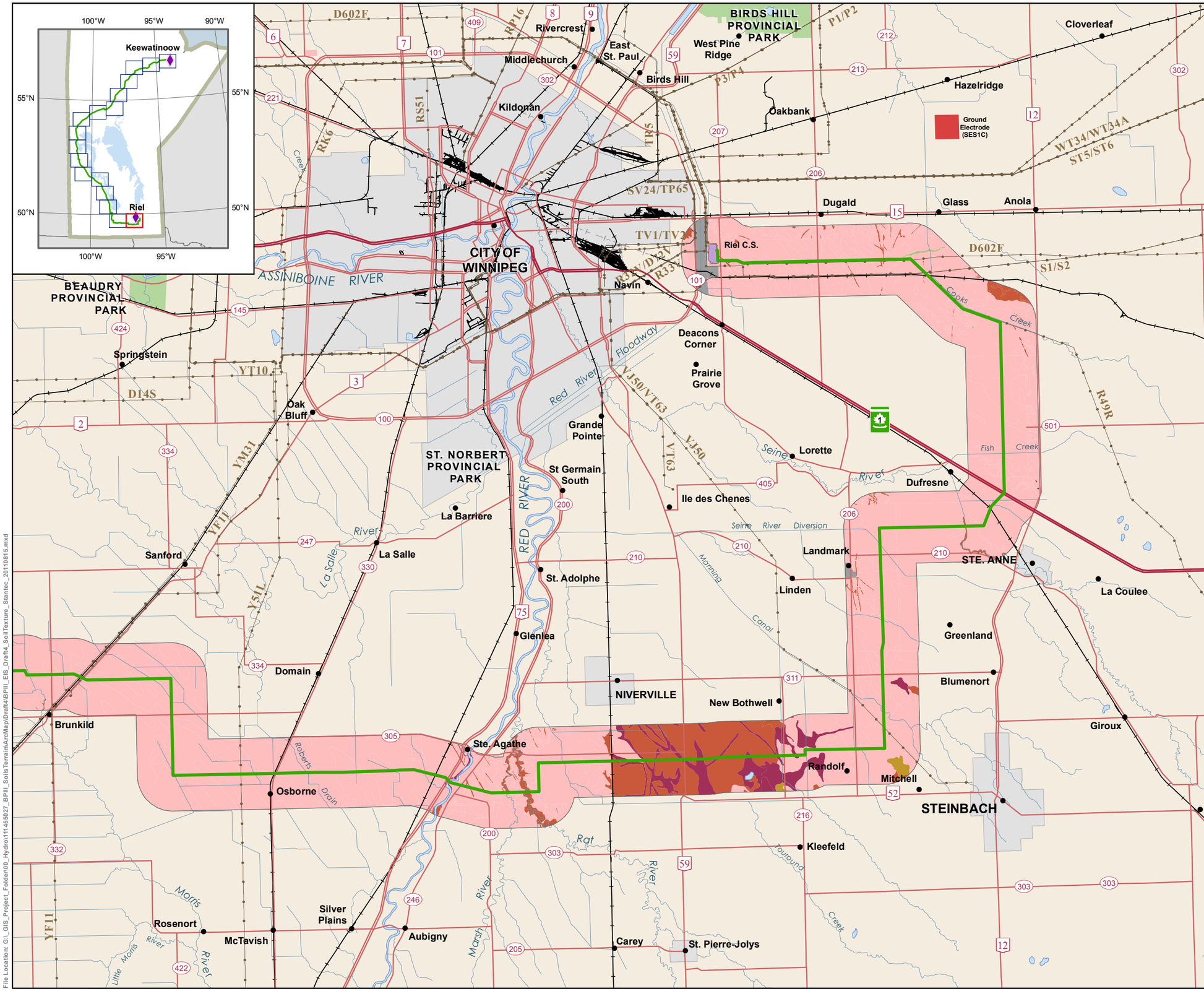
0 5 10 Kilometres
0 3 6 Miles

1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 16



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Converter Station Site
- Ground Electrode Site
- Local Study Area

Infrastructure

- Transmission Line

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

Soil Texture

Draft: For Discussion Purposes Only

Map 300 - 17

File Location: G:_GIS_Project_Folder\00_Hydro\1111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_SoilTexture_Stantec_20110815.mxd

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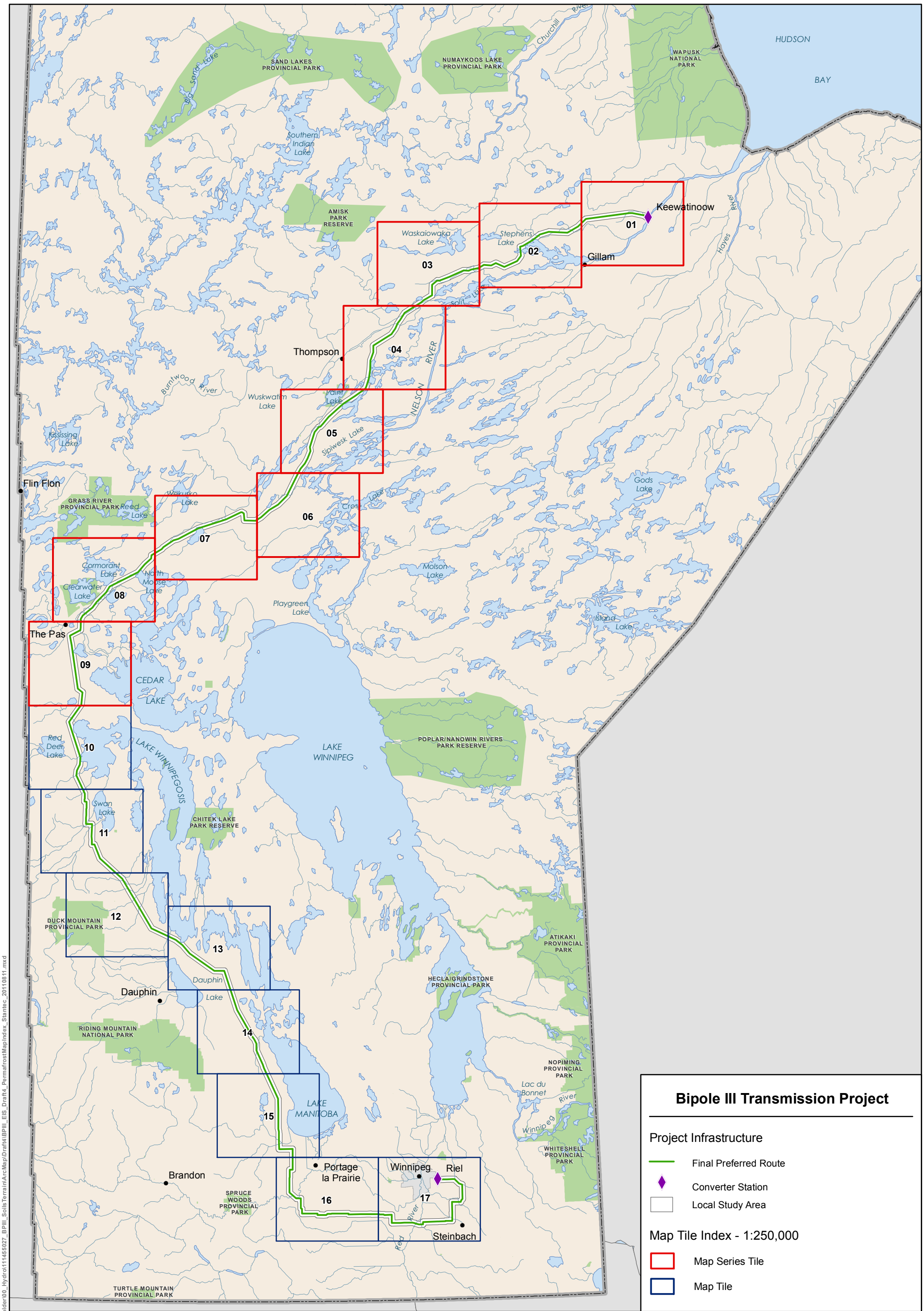


Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Converter Station
- Local Study Area

Map Tile Index - 1:250,000

- Map Series Tile
- Map Tile

Manitoba Hydro

Coordinate System: UTM Zone 14N NAD83
Data Source: MB Hydro, MMM, ProvMB
Date Created: August 11, 2011

0 25 50 Kilometres
0 25 50 Miles

1:2,750,000

N

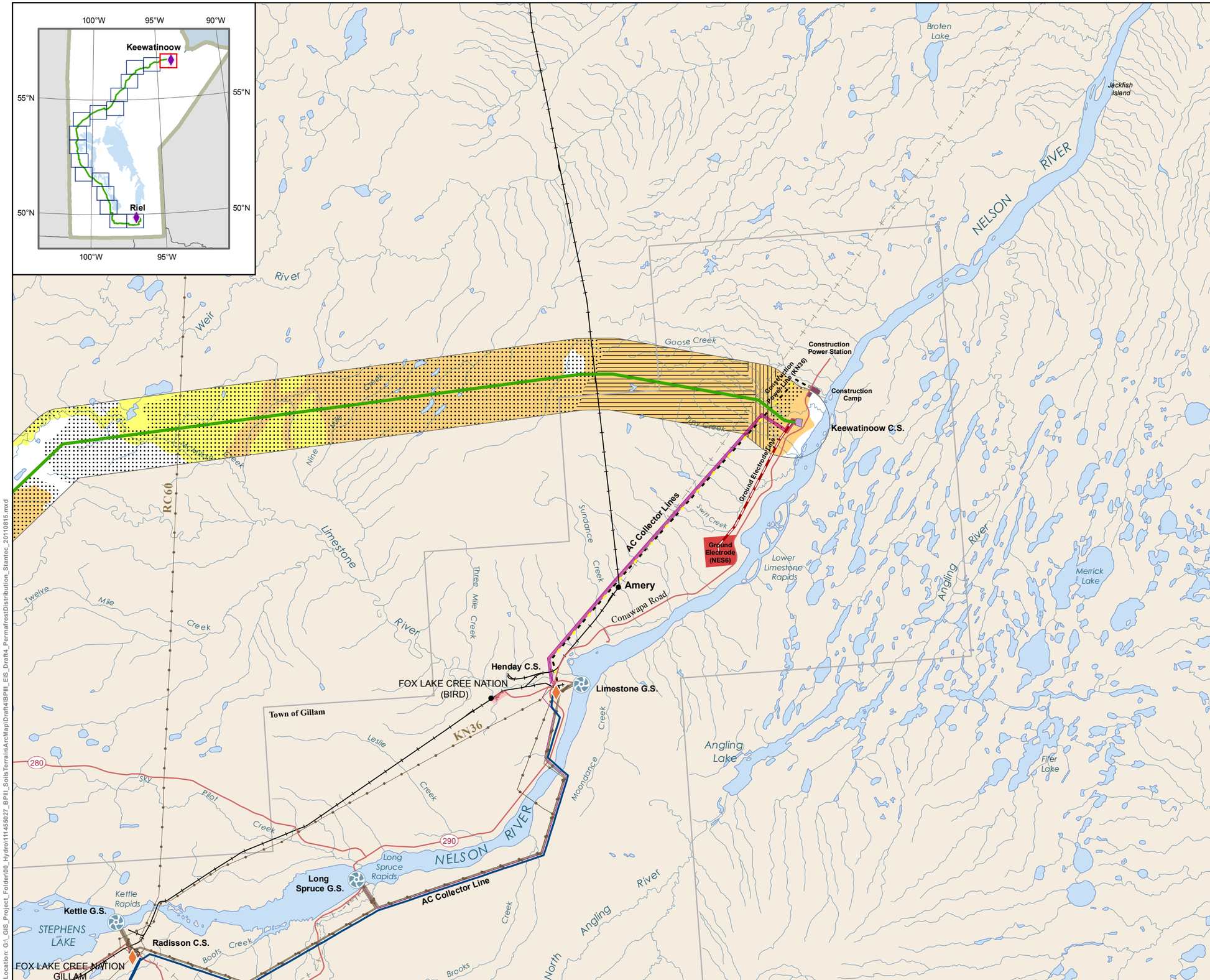
Index of Map Series

Permafrost Distribution

Draft: For Discussion Purposes Only

Map Series 400

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_PermafrostMapIndex_Stantec_20110811.mxd



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Created By: Stantec

Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Converter Station Site
- AC Collector Line
- Ground Electrode Line
- Ground Electrode Site
- Construction Power (KN36)
- Construction Power Site
- Construction Camp Site
- Local Study Area

Infrastructure

- Converter Station
- Generating Station
- Bipole I and II
- Transmission Line

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase

- Community
- City / Town
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

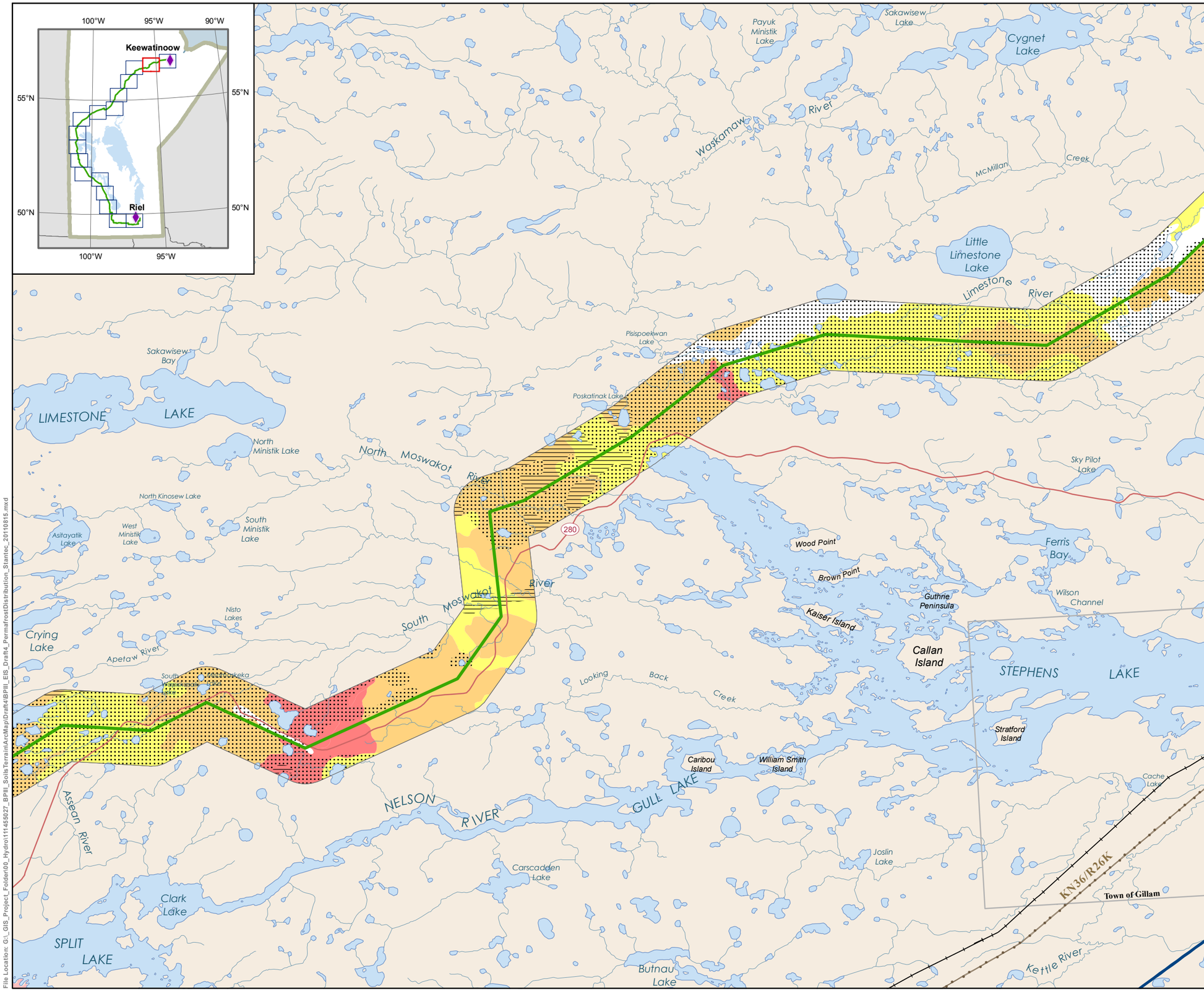
N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 1



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Bipole I and II
- Transmission Line

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 2

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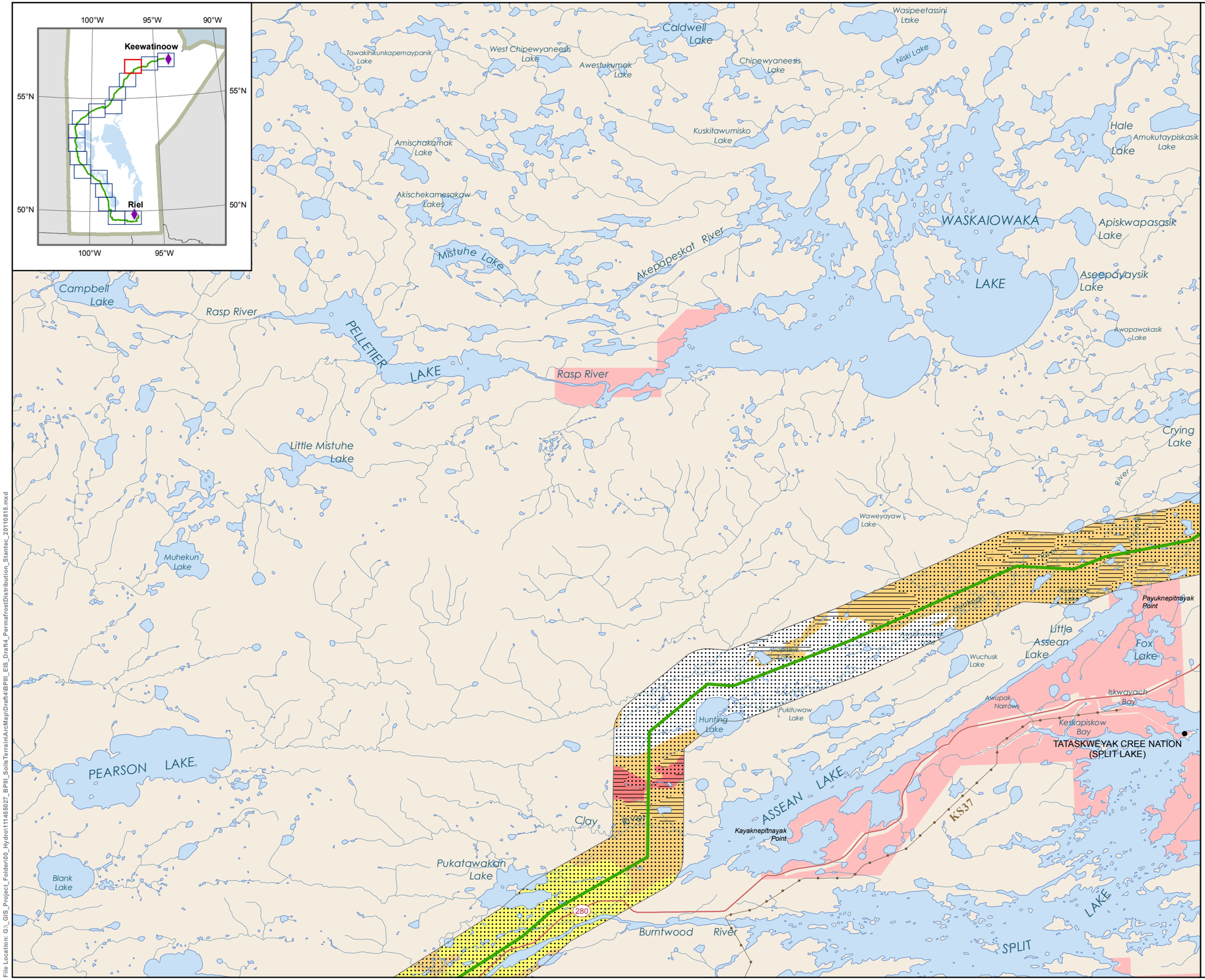


Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

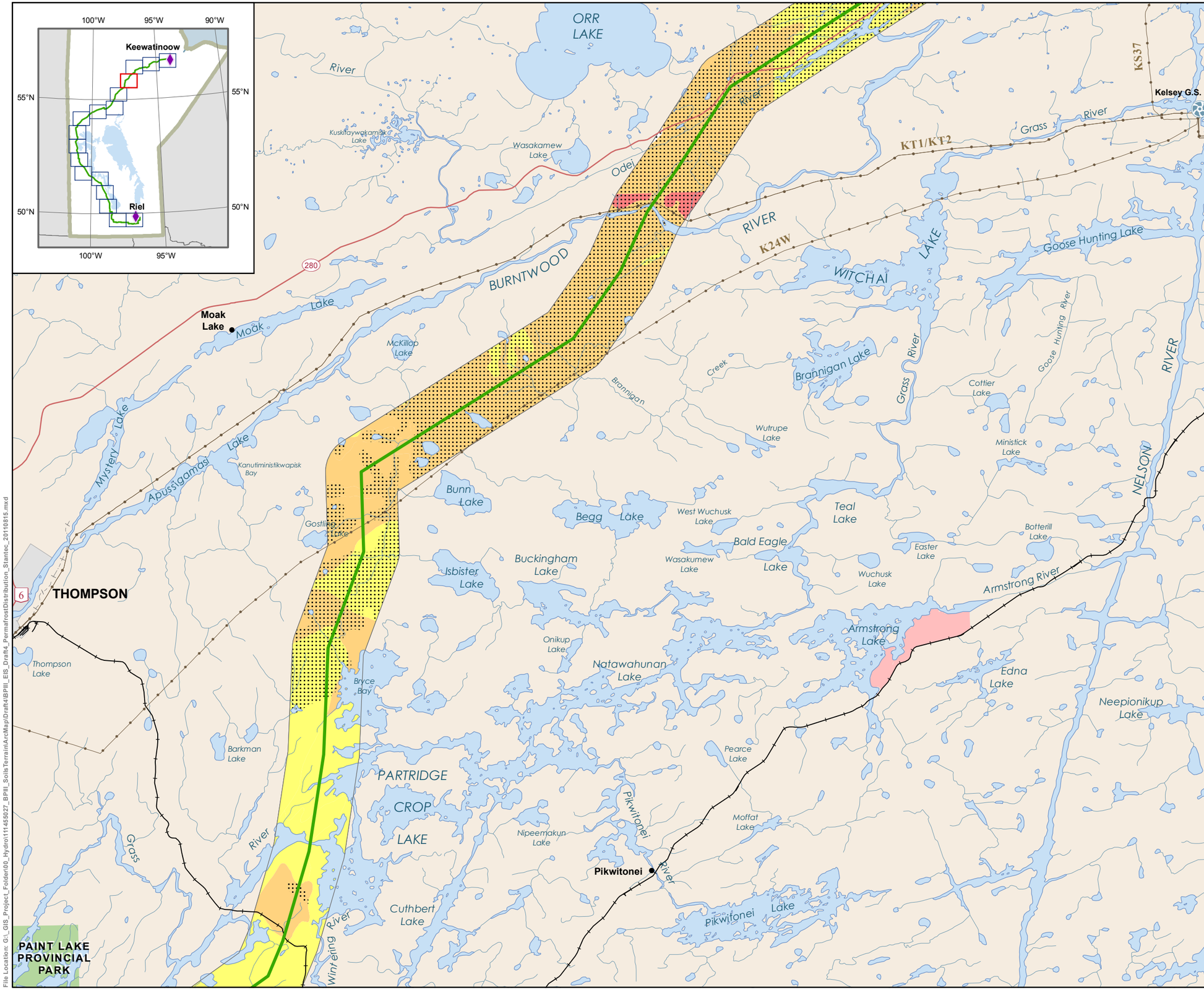
Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 3

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrainArcMapDraft4\BPIII_EIS_Draft4_PermafrostDistribution_Stantec_20110815.mxd

Created By: Stantec



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Generating Station
- Transmission Line

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

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Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

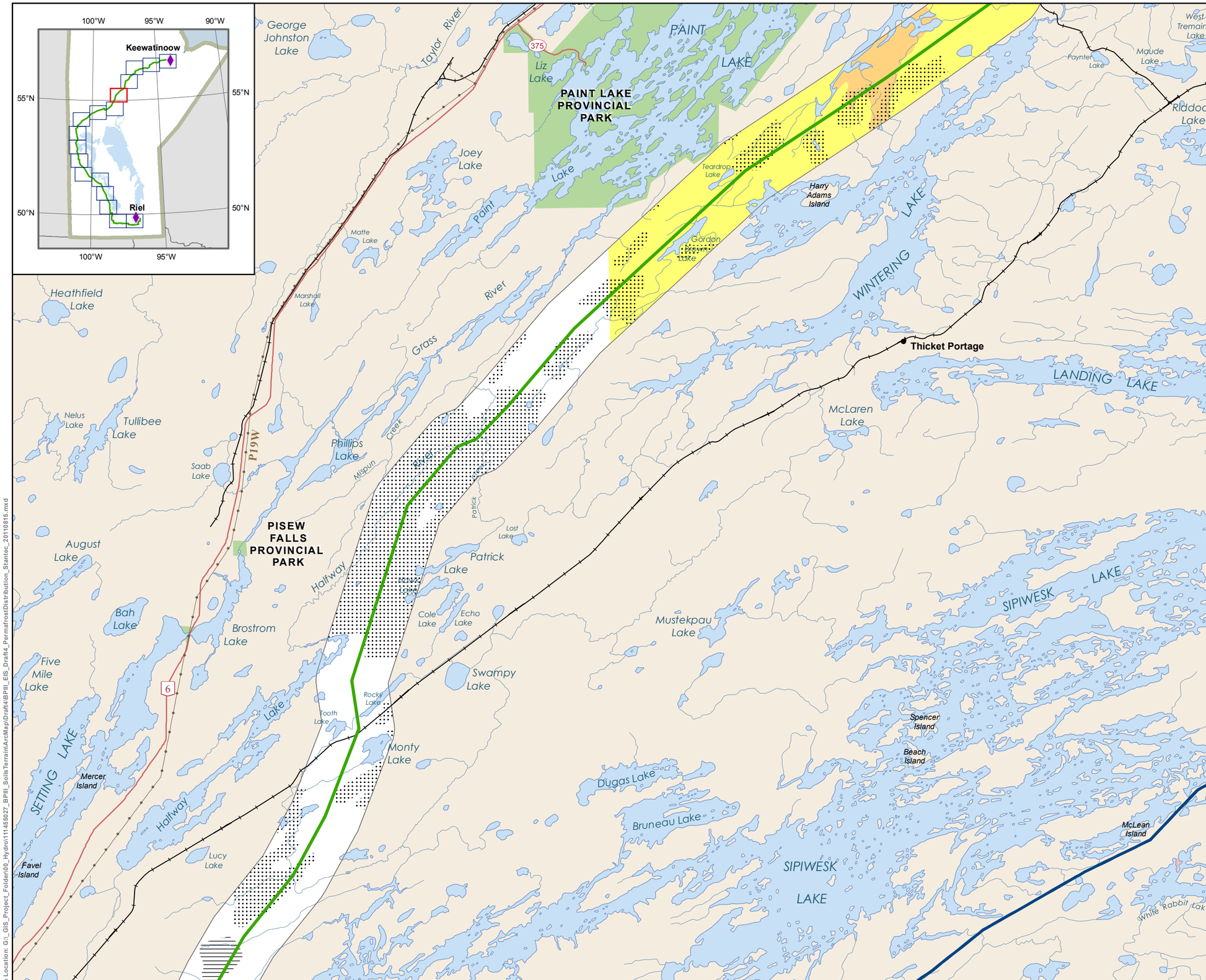
Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 4

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_PermafrostDistribution_Stantec_20110815.mxd

Created By: Stantec



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure
- Final Preferred Route
- Local Study Area

Infrastructure
- Bipole I and II
- Transmission Line

Permafrost Distribution
Wetlands Database
- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database
- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase
- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

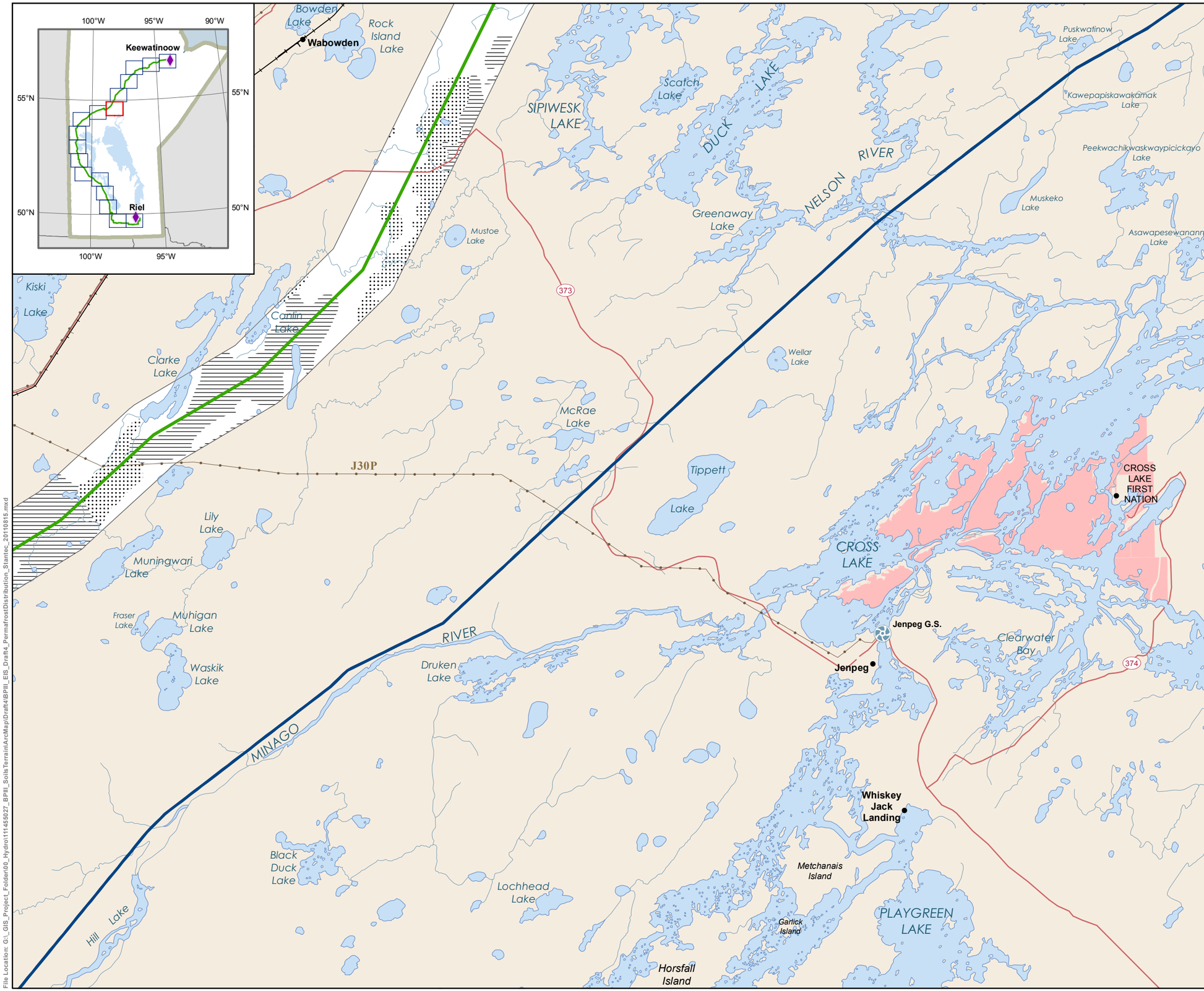
Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 5

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_PermafrostDistribution_Stantec_20110815.mxd

Created By: Stantec



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Generating Station
- Bipole I and II
- Transmission Line

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

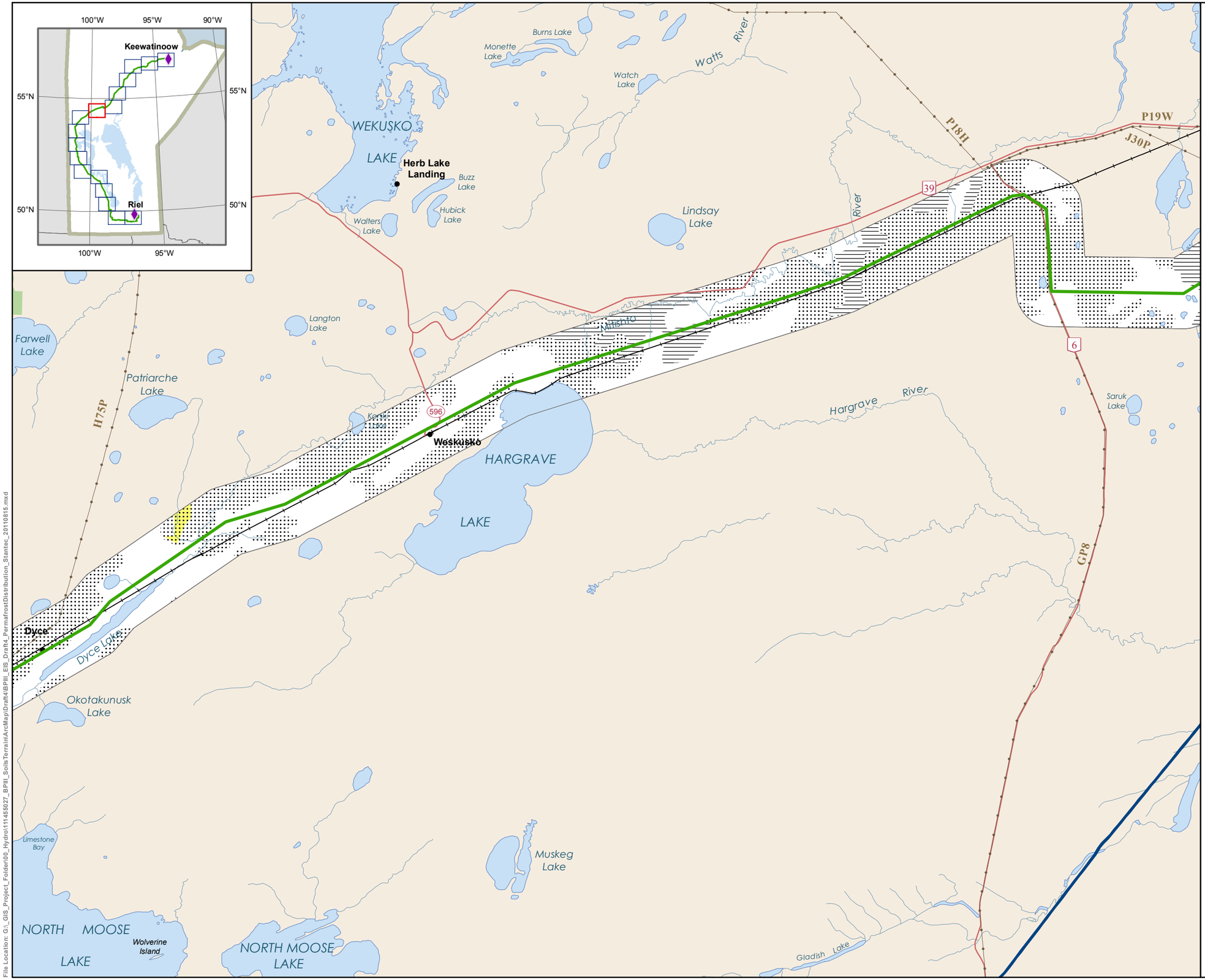
Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 6

File Location: G:_GIS_Project_Folder\00_Hydro\111445027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_PermafrostDistribution_Stantec_20110815.mxd

Created By: Stantec



Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Bipole I and II
- Transmission Line

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

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Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

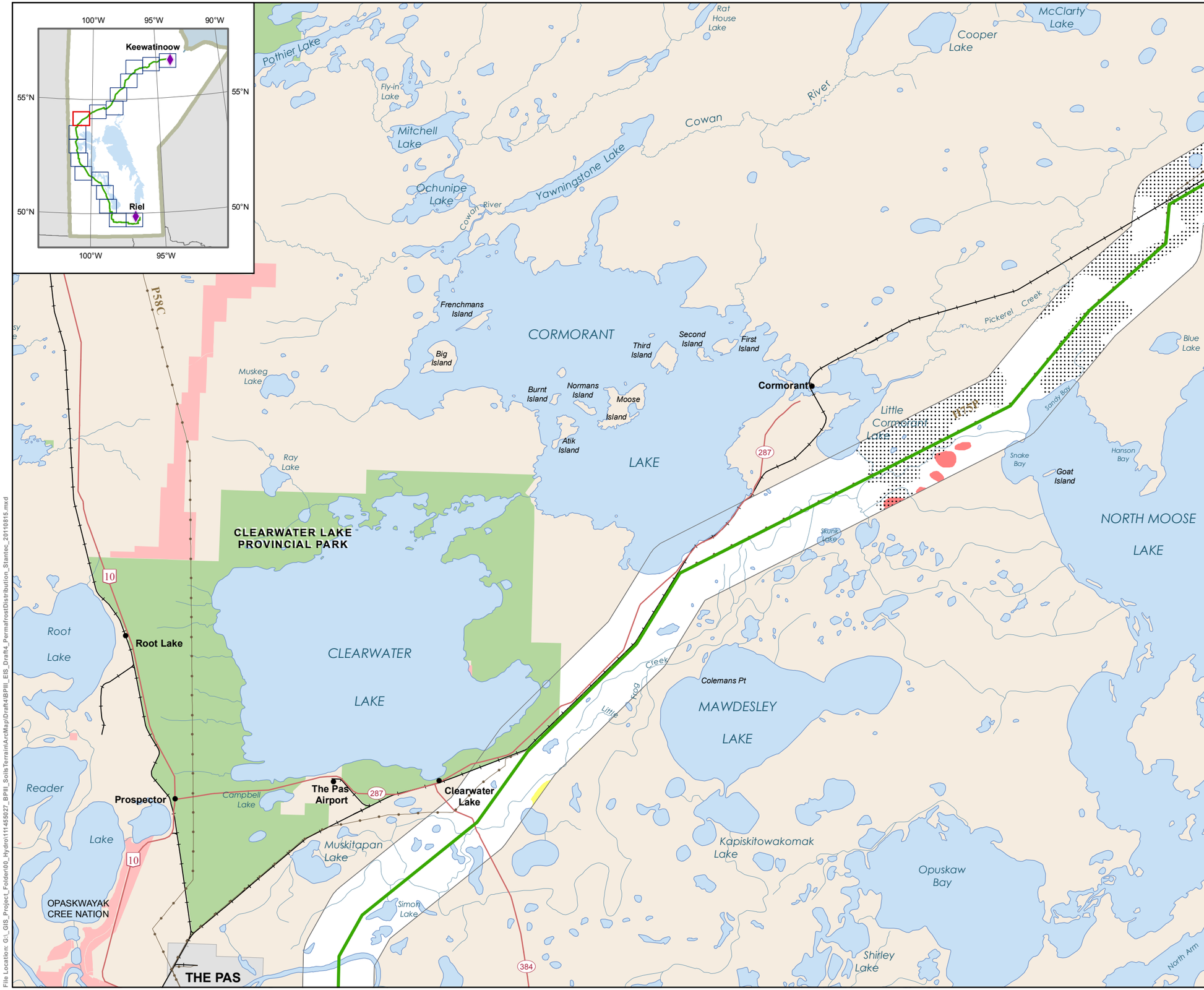
Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 7

Created By: Stantec

File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrainArcMapDraft4\BPIII_EIS_Draft4_PermafrostDistribution_Stantec_20110815.mxd



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure
- Final Preferred Route
- Local Study Area

Infrastructure
- Transmission Line

Permafrost Distribution
Wetlands Database
- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database
- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase
- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles
1:250,000

Permafrost Distribution

Draft: For Discussion Purposes Only

Map 400 - 8

File Location: G:_GIS_Project_Folder\00_Hydro\111145027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_PermafrostDistribution_Stantec_20110815.mxd

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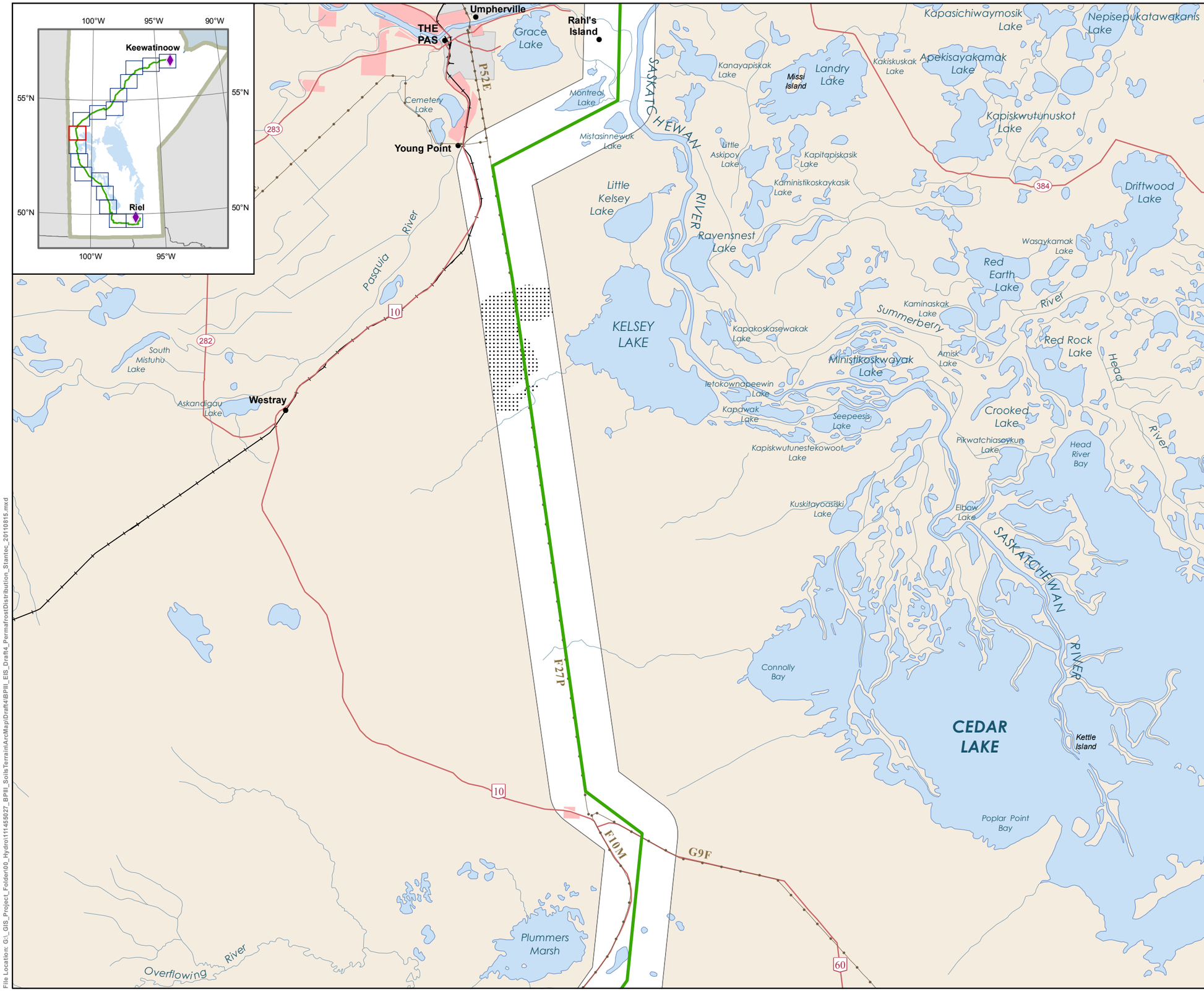


Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Local Study Area

Infrastructure

- Transmission Line

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soil Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Landbase

- Community
- City / Town
- First Nation
- National/Provincial Park

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, Stantec, ProvMB, NRCAN
Date Created: August 15, 2011

N

0 5 10 Kilometres
0 3 6 Miles

1:250,000

Permafrost Distribution

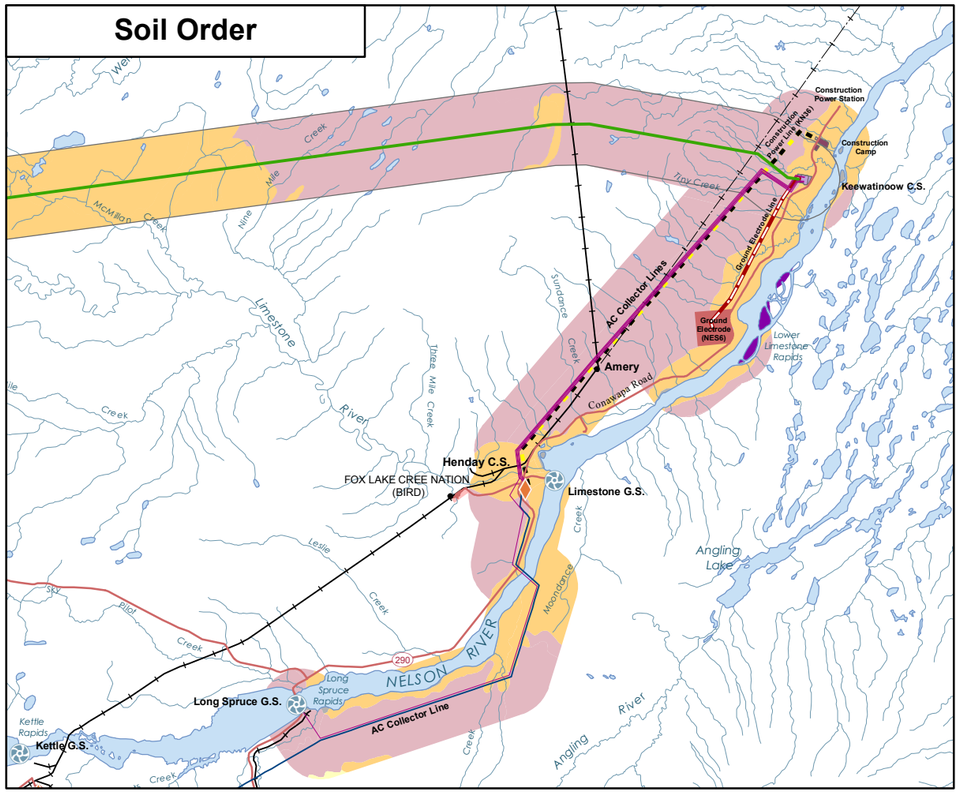
Draft: For Discussion Purposes Only

Map 400 - 9

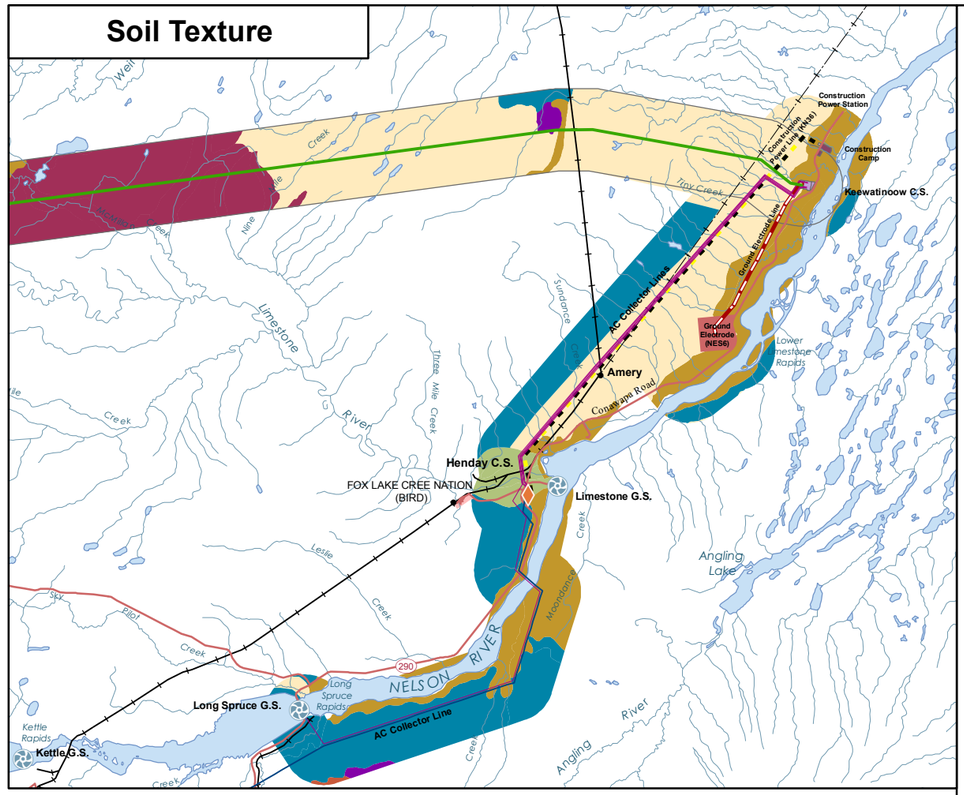
File Location: G:_GIS_Project_Folder\00_Hydro\111455027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_PermafrostDistribution_Stantec_20110815.mxd

Created By: Stantec

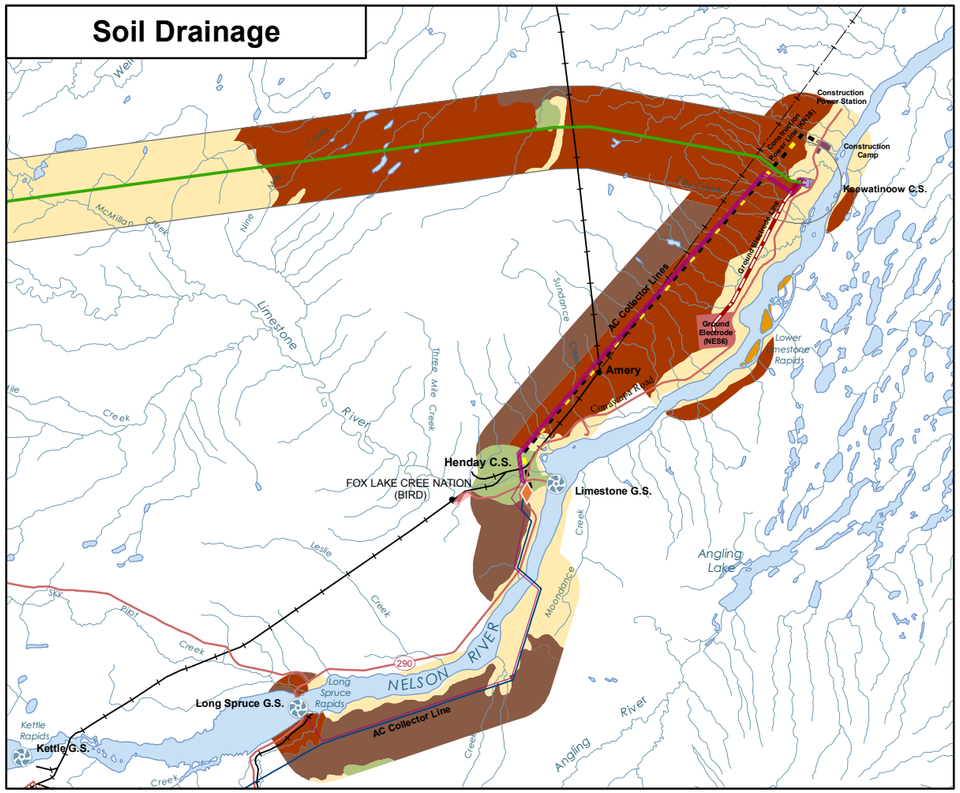
Soil Order



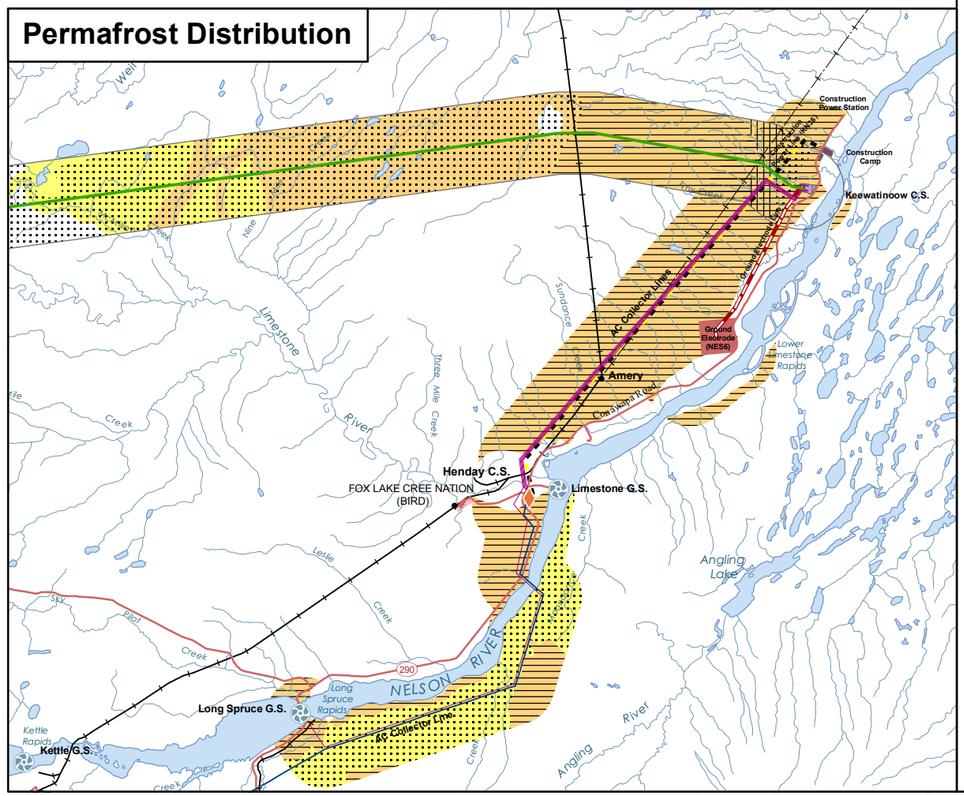
Soil Texture



Soil Drainage



Permafrost Distribution



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Final Preferred Route
- Converter Station Site
- AC Collector Line
- Ground Electrode Line
- Ground Electrode Site
- Construction Power (KN36)
- Construction Power Site
- Construction Camp Site
- Local Study Area

Infrastructure

- Converter Station
- Generating Station
- Bipole I and II

Soil Order

- Brunisols
- Chernozems
- Cryosols
- Gleysols
- Luvisols
- Organics
- Regosols
- Vertisols
- Non-Soil

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Soil Drainage

- Rapid
- Well
- Moderately Well
- Imperfect
- Poor
- Very Poor
- Non-Soil

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soils Database

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 - 50%)

Coordinate System: UTM Zone 14N NAD83
Data Source: MBHydro, MMM, ProvMB, Stantec
Date Created: August 11, 2011

N

Northern Infrastructure Lines

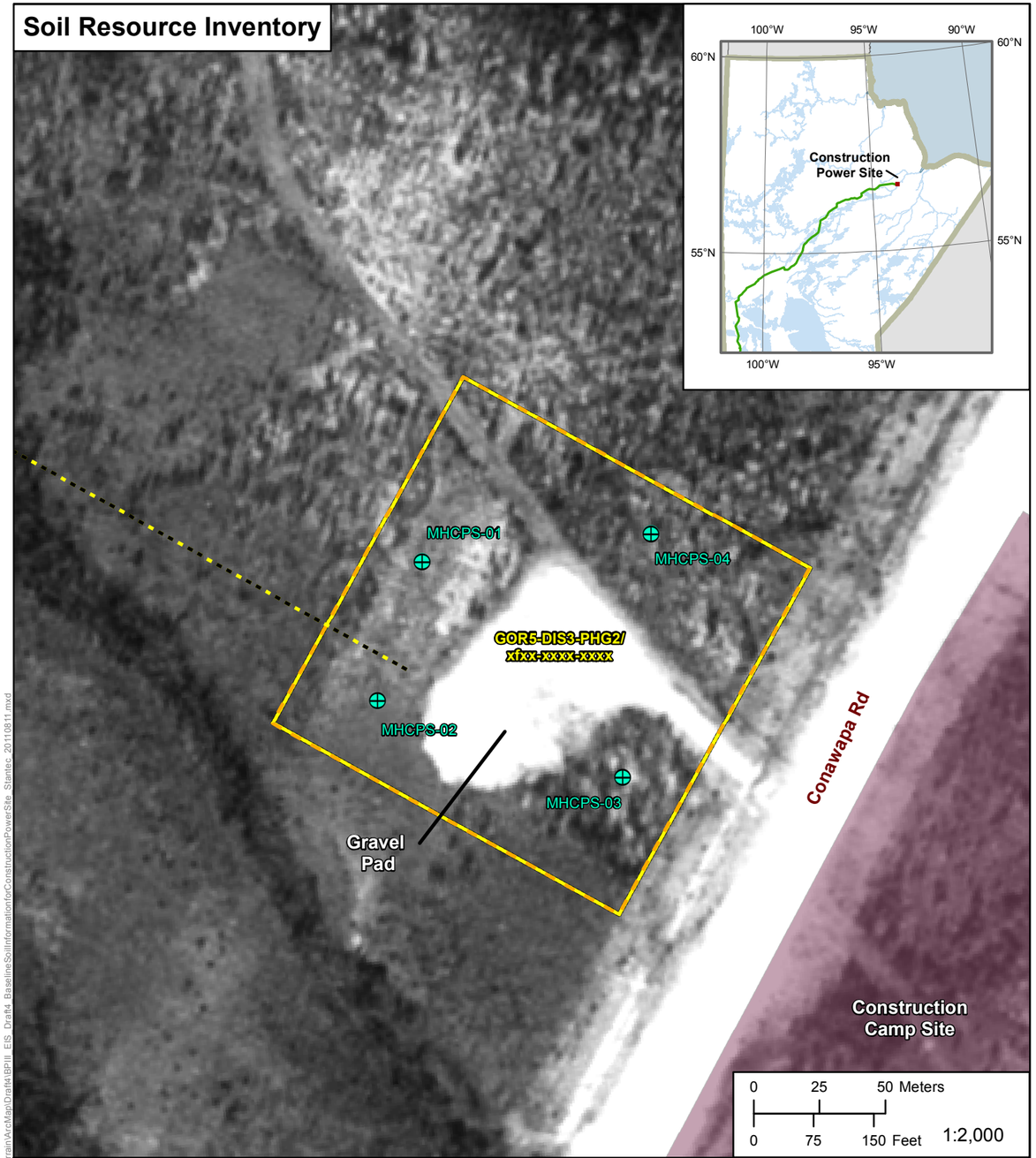
Soil Baseline Conditions

Draft: For Discussion Purposes Only

Map 5

Created By: Stantec

Soil Resource Inventory



Soil Unit Boundary with Soil Map Unit

Soil and Terrain Inspections

Simple Map Units

ABC — Soil Series Symbol

xb1s — Degree of erosion; Degree of Salinity; Slope Gradient Class; Degree of Stoniness

DEF — Soil Series with no phases

Compound Map Units

ABC (7) — DEF (3) — Decile extent of soil series within the polygon

xc1x — xbxx — Units with different phases associated with each series

ABC(7) – DEF(3) — xbxx — Units with same phases associated with each series

Degree of Erosion

x	non-eroded or minimal
1	slightly eroded
2	moderately eroded
3	severely eroded
o	overblown

Degree of Stoniness

		Surface Covered
x	non-stony	<0.01%
1	slightly stony	0.01-.1%
2	moderately stony	0.1-3%
3	very stony	3-15%
4	exceedingly stony	15-50%
5	excessively stony	>50%

Topography (Slope Gradient Class)

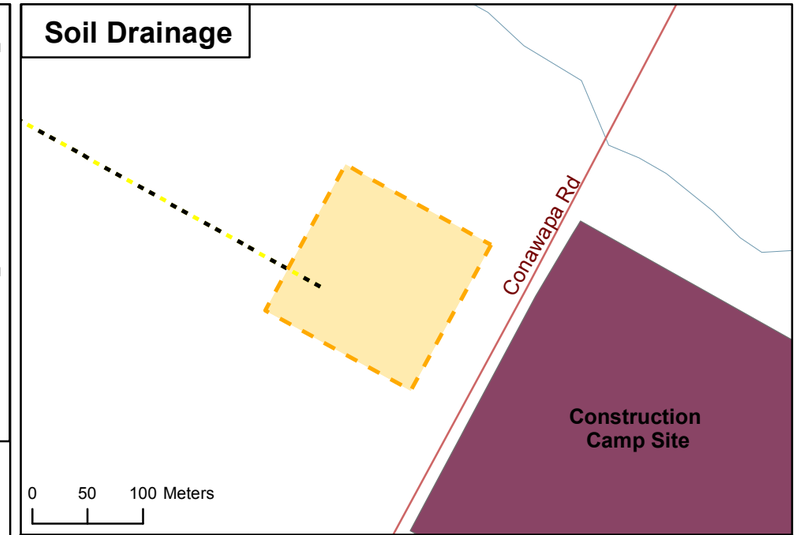
Slope Gradient

x	0-0.5%	level to nearly level
b	0.5-2%	nearly level
c	2-5%	very gently sloping
d	5-9%	gently sloping
e	9-15%	moderately sloping
f	15-30%	strongly sloping
g	30-45%	very strongly sloping
h	45-70%	extremely sloping

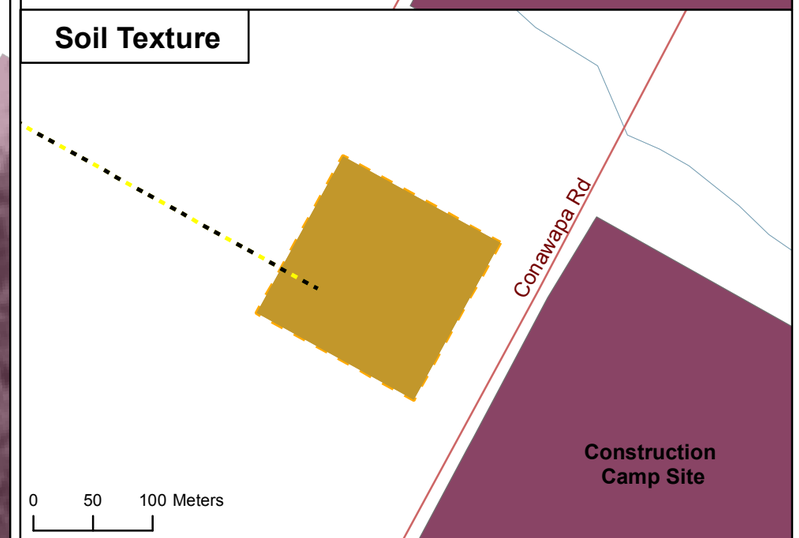
Degree of Salinity

		Conductivity (mS/cm)
x	non-saline	0-4
s	weakly saline	4-8
t	moderately saline	8-15
u	strongly saline	15+

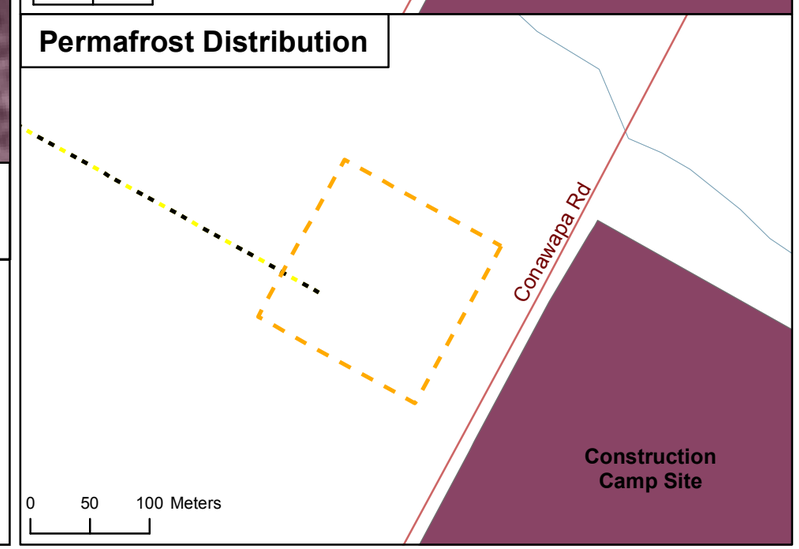
Soil Drainage



Soil Texture



Permafrost Distribution



Manitoba Hydro

Bipole III Transmission Project

Project Infrastructure

- Construction Power (KN36)
- Construction Camp Site
- Construction Power Site Study Area

Soil Baseline Conditions

Soil Drainage

- Rapid
- Well
- Moderately Well
- Imperfect
- Poor
- Very Poor
- Non-Soil

Soil Texture

- Coarse Skeletal
- Very Coarse
- Coarse
- Moderately Coarse
- Medium
- Moderately Fine
- Fine
- Very Fine
- Fibric
- Mesic
- Undifferentiated
- Non-Soil

Permafrost Distribution

Wetlands Database

- Continuous (> 90%)
- Extensive Discontinuous (50 - 90%)
- Sporadic Discontinuous (10 to 50%)

Soils Permafrost

- Continuous (> 90 %)
- Extensive Discontinuous (50 - 90%)
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Coordinate System: UTM Zone 14N NAD83
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Date Created: August 11, 2011

N

Construction Power Site

Soil Baseline Conditions

Draft: For Discussion Purposes Only

Map 6

Created By: Stantec

G:\GIS_Project_Folder\00_Hydro\111456027_BPIII_SoilsTerrain\ArcMap\Draft4\BPIII_EIS_Draft4_BaselineSoilInformationforConstructionPowerSite_Stantec_20110811.mxd