



Appendix J.4

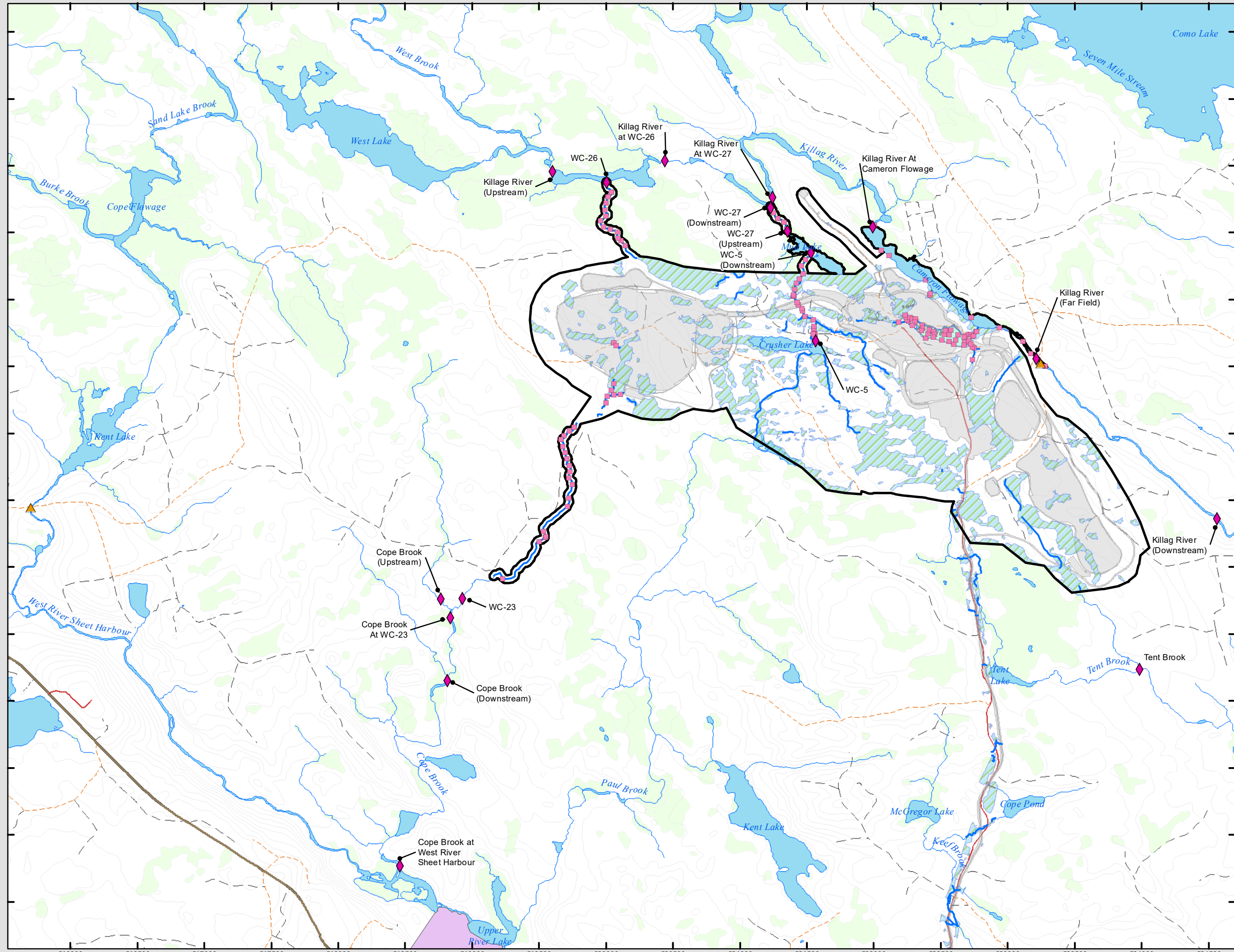
Detailed Figures (as referenced in Fish and Fish Habitat EA [Section 6.9])

May 2021

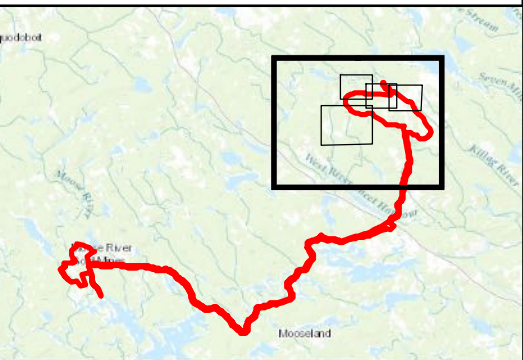
Completed for the Updated 2021 Beaver Dam Mine EIS

FIGURE J.4-1 A

**Beaver Dam Mine Project
Fish Habitat Evaluation
Methodology: Beaver
Dam Mine Site**



- Daily Flow Assessment Points
- Transect Locations
- Lime Doser
- Collector Road
- Local Road
- Dry Weather / Seasonal Road
- Diveways (>300 m)
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Beaver Lake IR 17
- Fish Habitat Assessment Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:26,500 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
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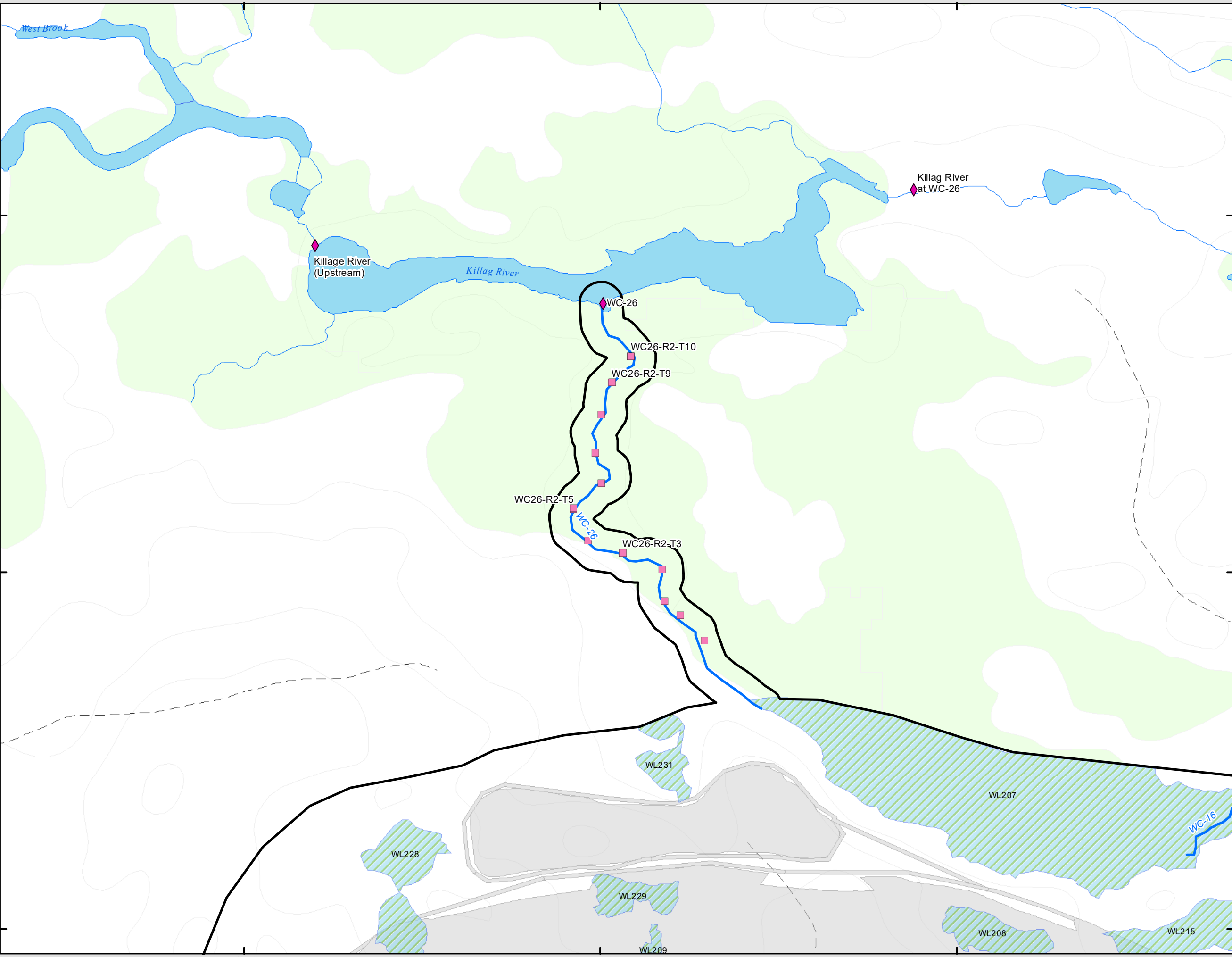


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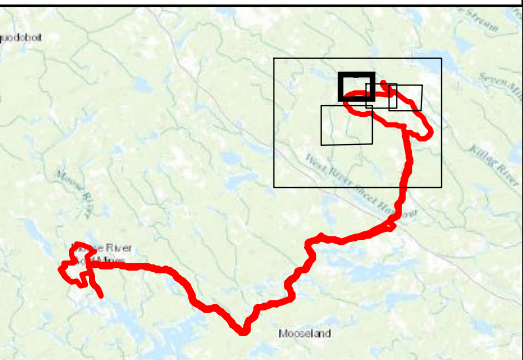


FIGURE J.4-1 B


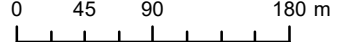
**Beaver Dam Mine Project
Fish Habitat Evaluation
Methodology: Beaver
Dam Mine Site**



- Daily Flow Assessment Points
- Transect Locations
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

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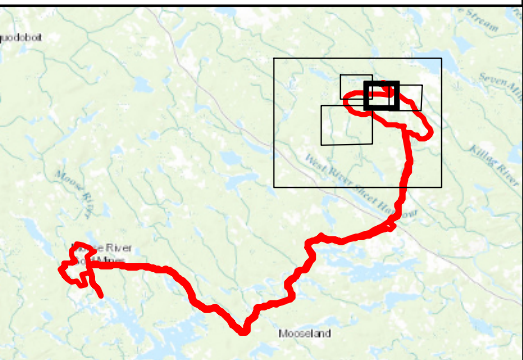
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FIGURE J.4-1 C

Beaver Dam Mine Project
Fish Habitat Evaluation
Methodology: Beaver
Dam Mine Site

- Daily Flow Assessment Points
- Transect Locations
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

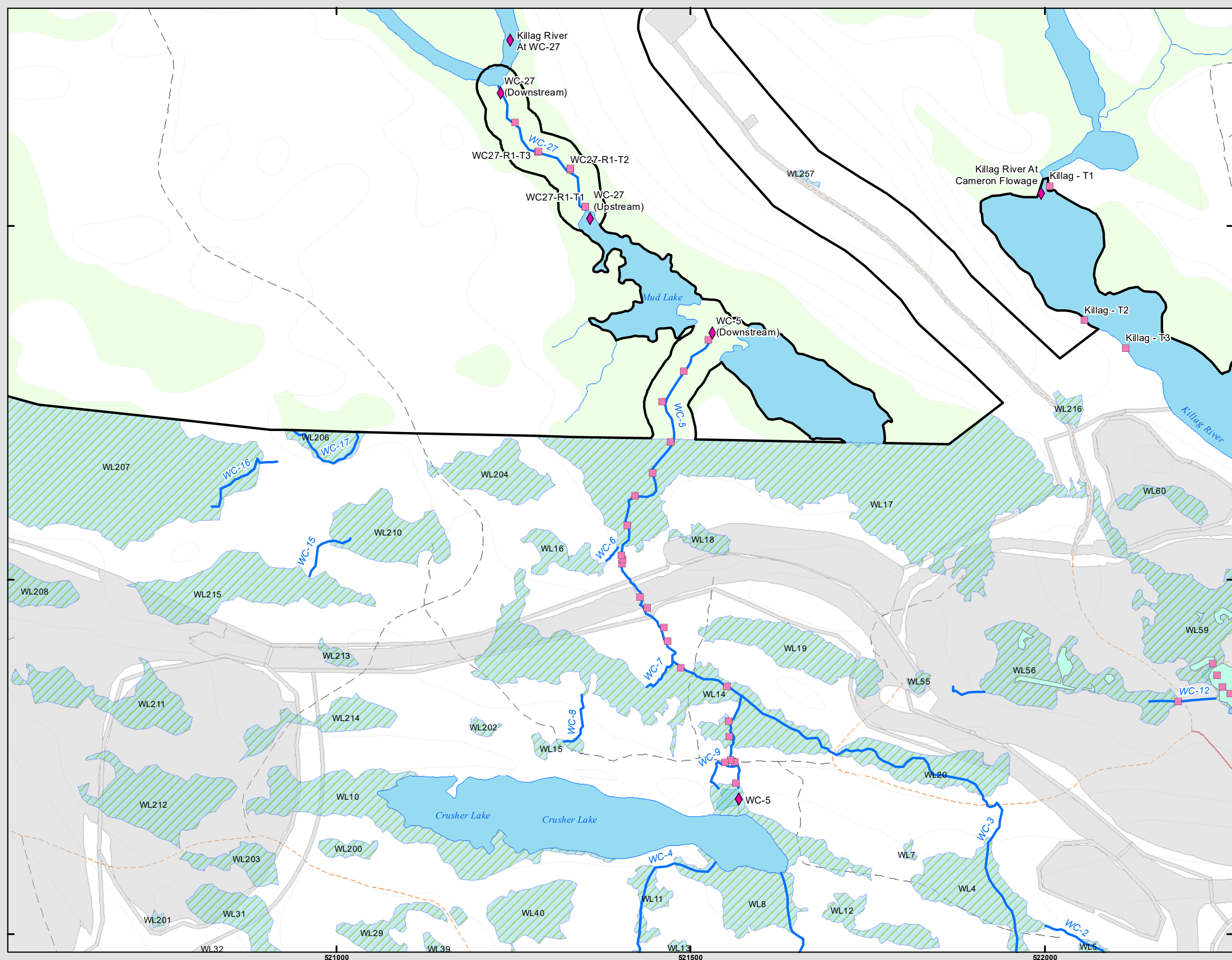
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Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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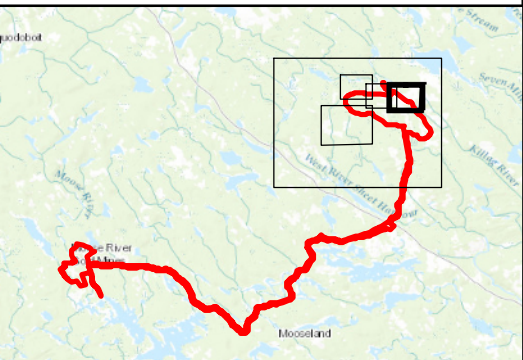
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FIGURE J.4-1 D

Beaver Dam Mine Project
Fish Habitat Evaluation
Methodology: Beaver
Dam Mine Site

- Daily Flow Assessment Points
- Transect Locations
- Lime Doser
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter



0 45 90 180 m

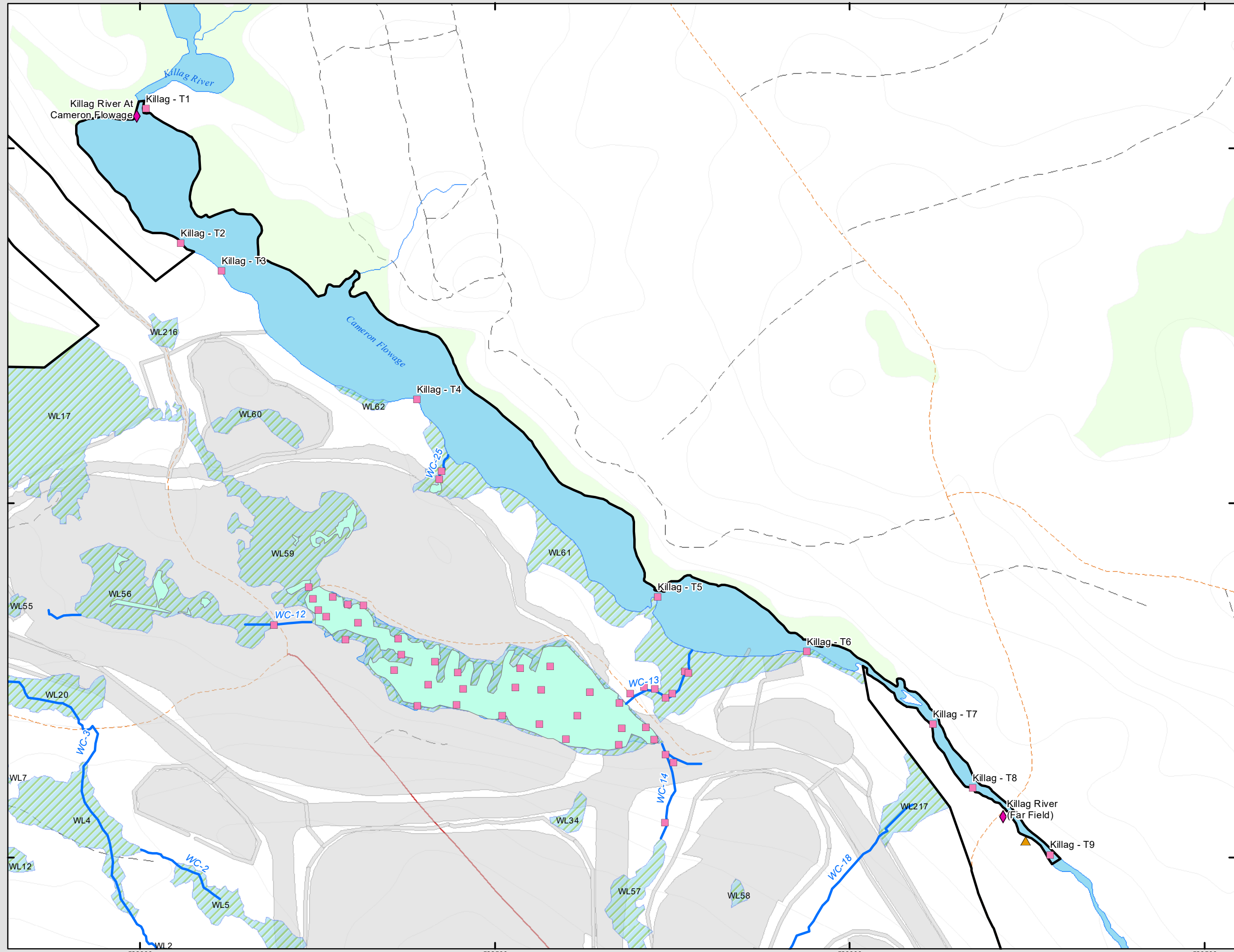
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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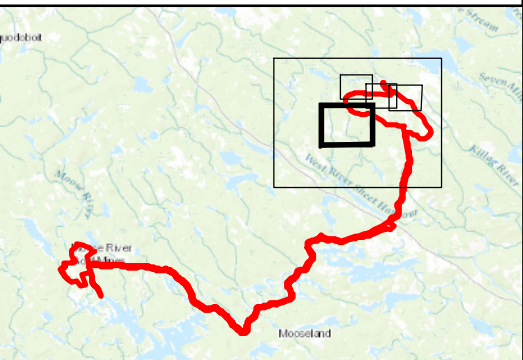


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FIGURE J.4-1 E

**Beaver Dam Mine Project
Fish Habitat Evaluation
Methodology: Beaver
Dam Mine Site**

-  Daily Flow Assessment Points
-  Transect Locations
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Field Delineated Watercourses within PA
-  NSTDB Mapped Watercourses outside PA
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Planned Infrastructure
-  Fish Habitat Assessment Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 75 150 300 m

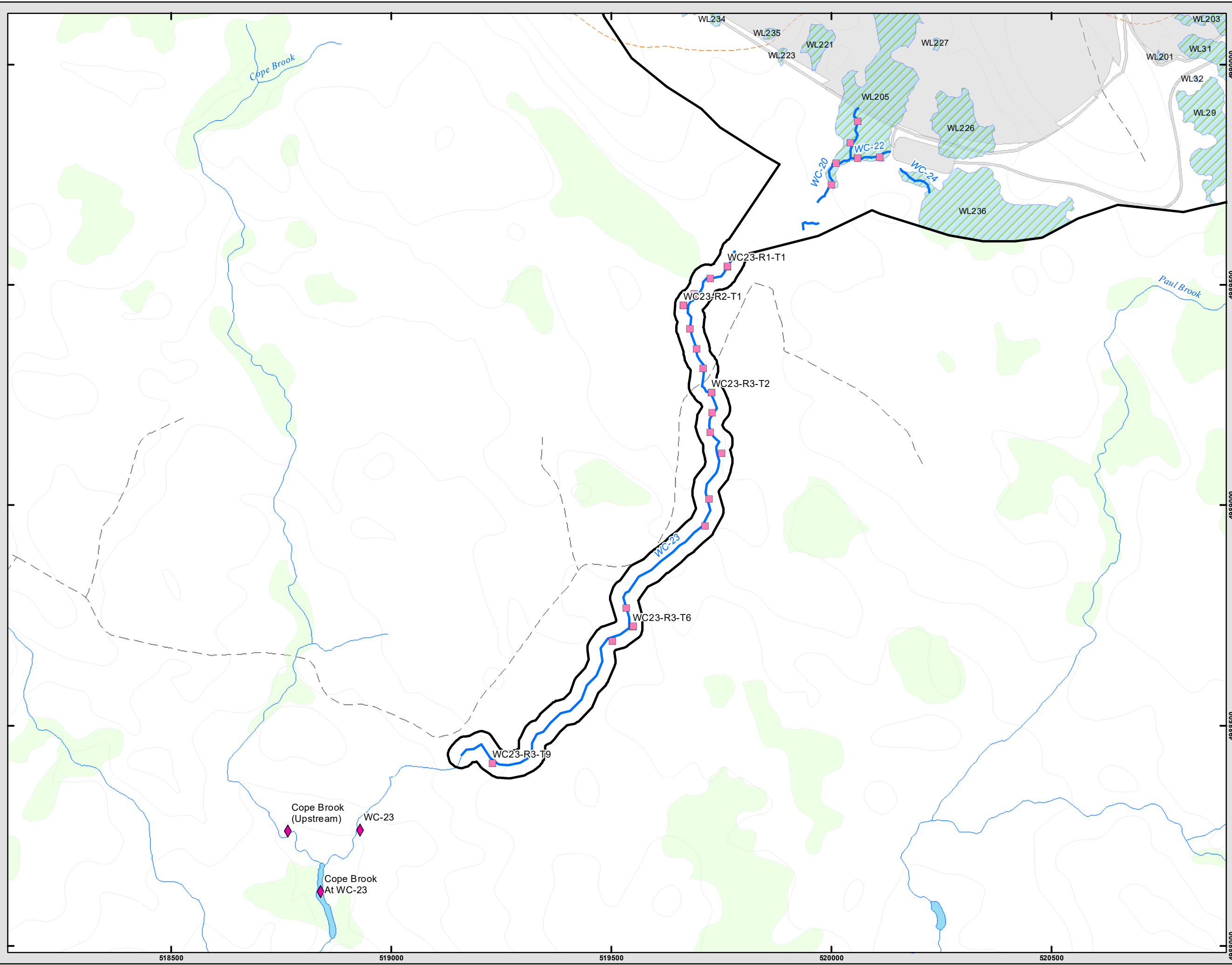
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Drawn By: LP Date: 2021-04-14
 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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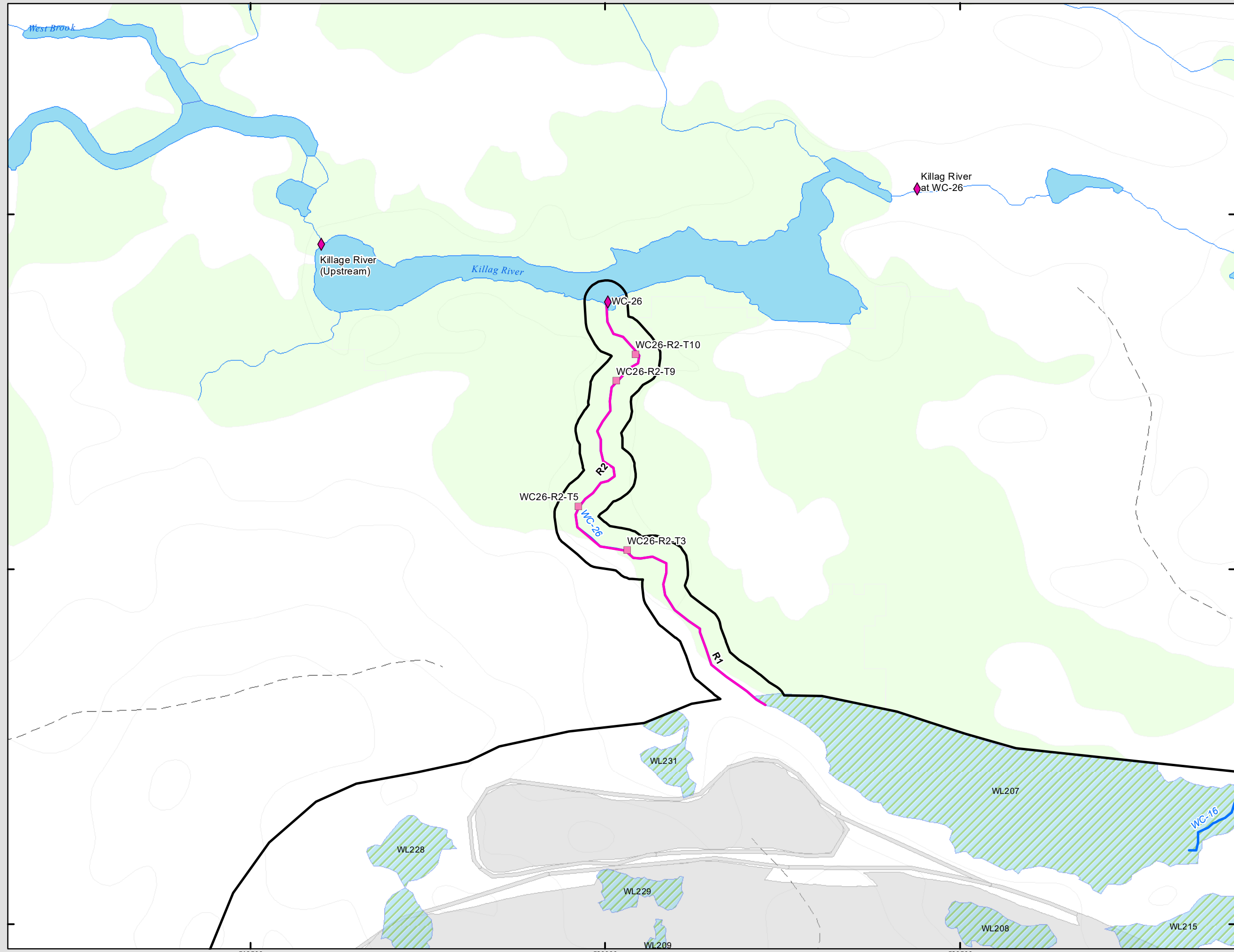


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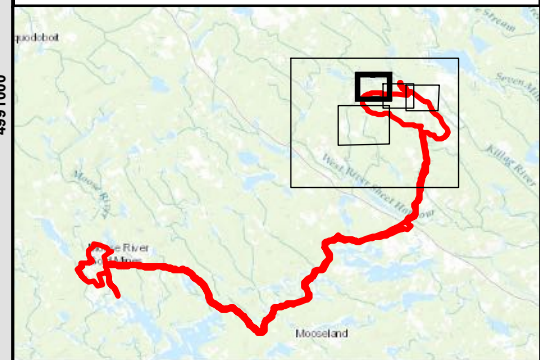
FIGURE J.4-2 A

Beaver Dam Mine Project Fish Habitat Evaluation Results: Beaver Dam Mine Site



Fish Habitat Quantification: Dominant Habitat Type by Reach (R)

- ◆ Daily Flow Assessment Points
- Transect Locations
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area (FHAA)



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

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Reviewed By: XX

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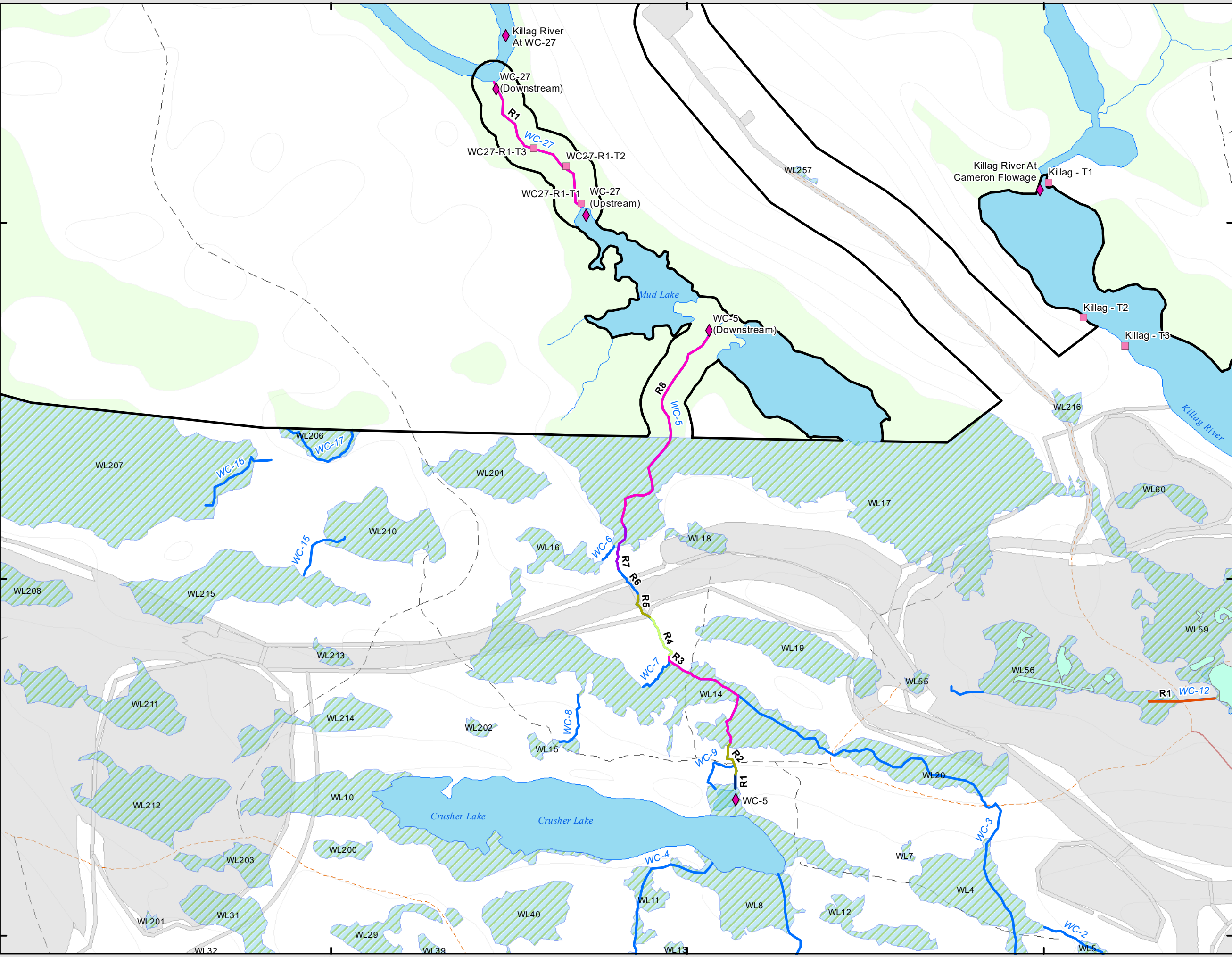
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FIGURE J.4-2 B

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Beaver Dam
Mine Site



Fish Habitat Quantification:

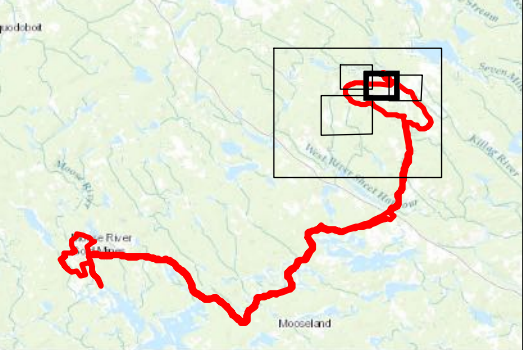
- Cascade
- Rapid
- Run
- Pool
- Flat
- No Defined Channel
- Seep

Dominant Habitat Type by Reach (R)

- Cascade
- Rapid
- Run
- Pool
- Flat
- No Defined Channel
- Seep

Legend:

- Daily Flow Assessment Points
- Transect Locations
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area (FHAA)



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 45 90 180 m

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP
Reviewed By: XX
Date: 2021-04-14

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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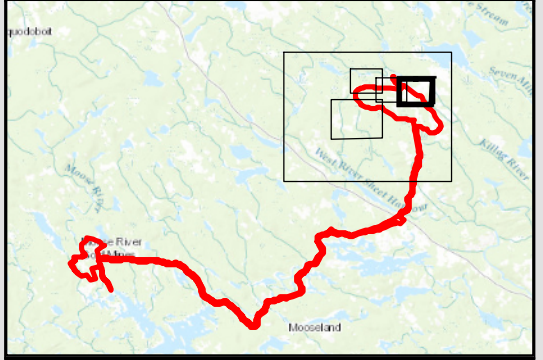
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FIGURE J.4-4 C

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Beaver Dam
Mine Site

- Fish Habitat Quantification:**
- Step-pool
 - Run
 - Riffle
 - Pool
 - Flat
 - Seep
- Dominant Habitat Type by Reach (R)**
- Reach R1
 - Reach R4
 - Reach R5
 - Reach R1A
 - Reach R1B
- Legend:**
- Daily Flow Assessment Points
 - Transect Locations
 - Lime Doser
 - Local Road
 - Dry Weather / Seasonal Road
 - Track
 - Topo Contours (5 m)
 - Field Delineated Watercourses within PA
 - NSTDB Mapped Watercourses outside PA
 - Open Water
 - Lake
 - Field Delineated Wetlands within PA
 - NSE Mapped Wetlands outside PA
 - Planned Infrastructure
 - Fish Habitat Assessment Area (FHAA)



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 45 90 180 m

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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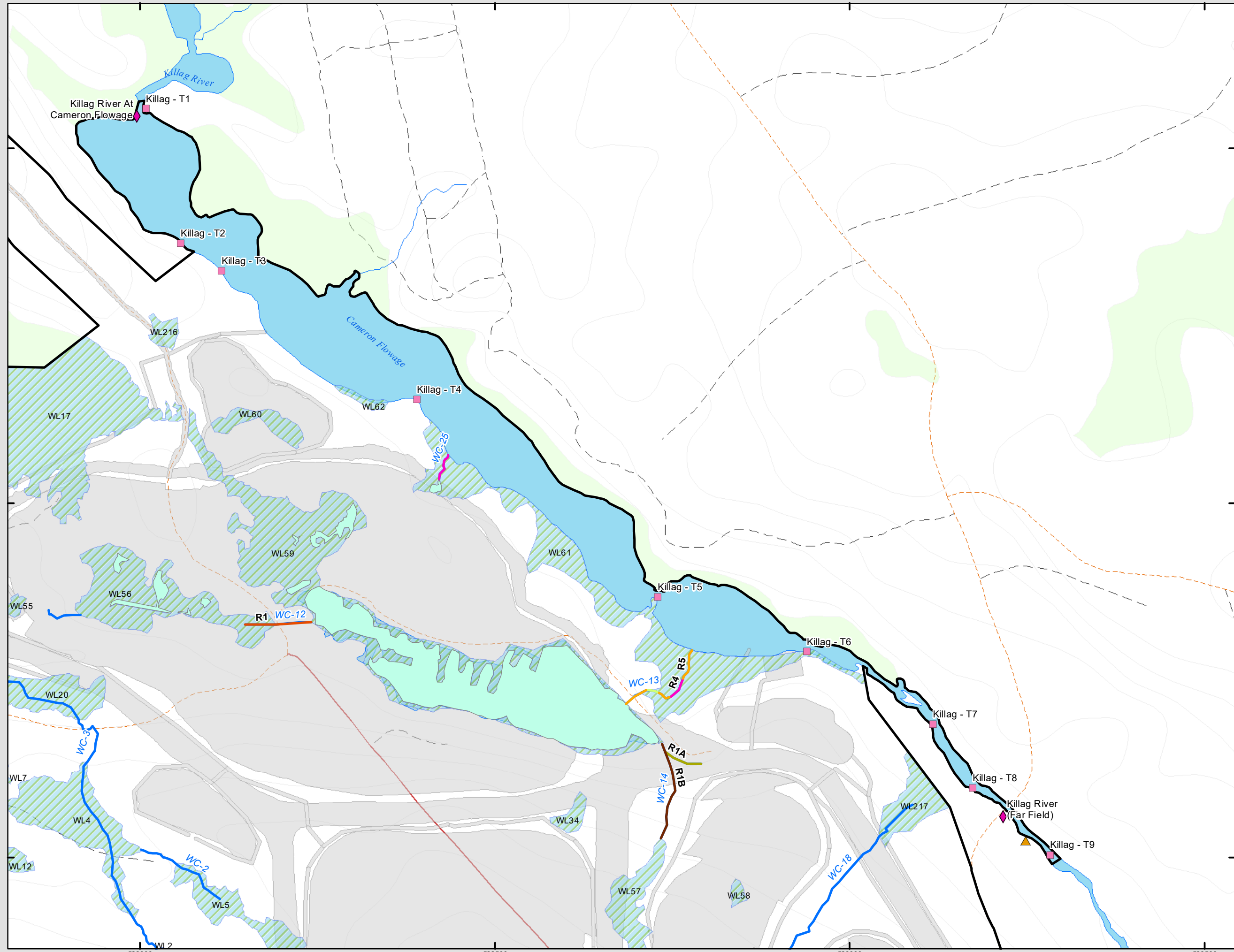
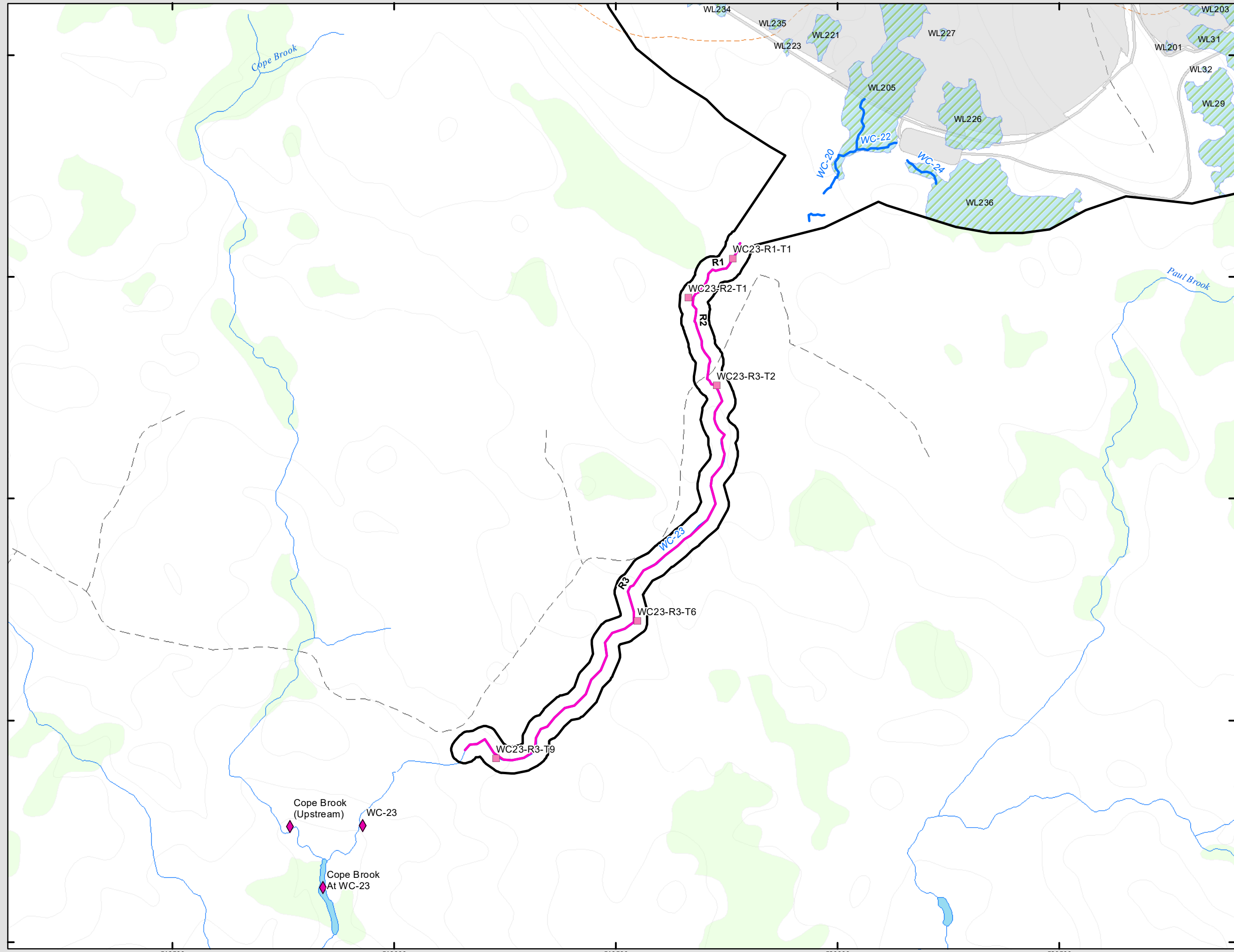


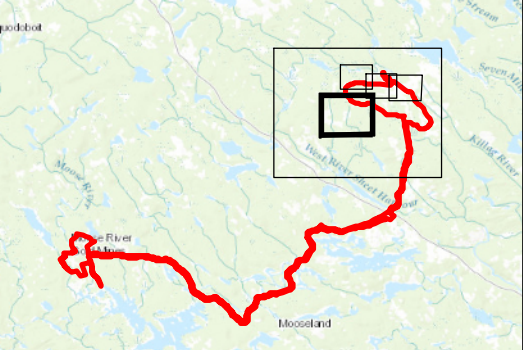
FIGURE J.4-4 D

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Beaver Dam
Mine Site



**Fish Habitat Quantification:
Dominant Habitat Type by
Reach (R)**

- Daily Flow Assessment Points
- Transect Locations
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area (FHAA)



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 75 150 300 m

1:8,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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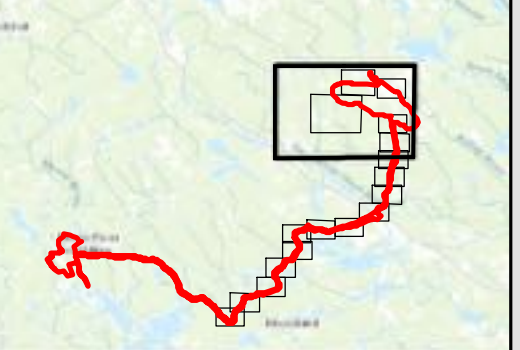
FIGURE J.4-3A

Beaver Dam Mine Project

Fisheries Resources

- Lime Doser
- Fisheries Resources
- Provincially Regulated Watercourses
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Collector Road
- Local Road
- Dry Weather / Seasonal Road
- Diveways (>300 m)
- Track
- Topo Contours (5 m)
- Open Water
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area (FHAA)
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

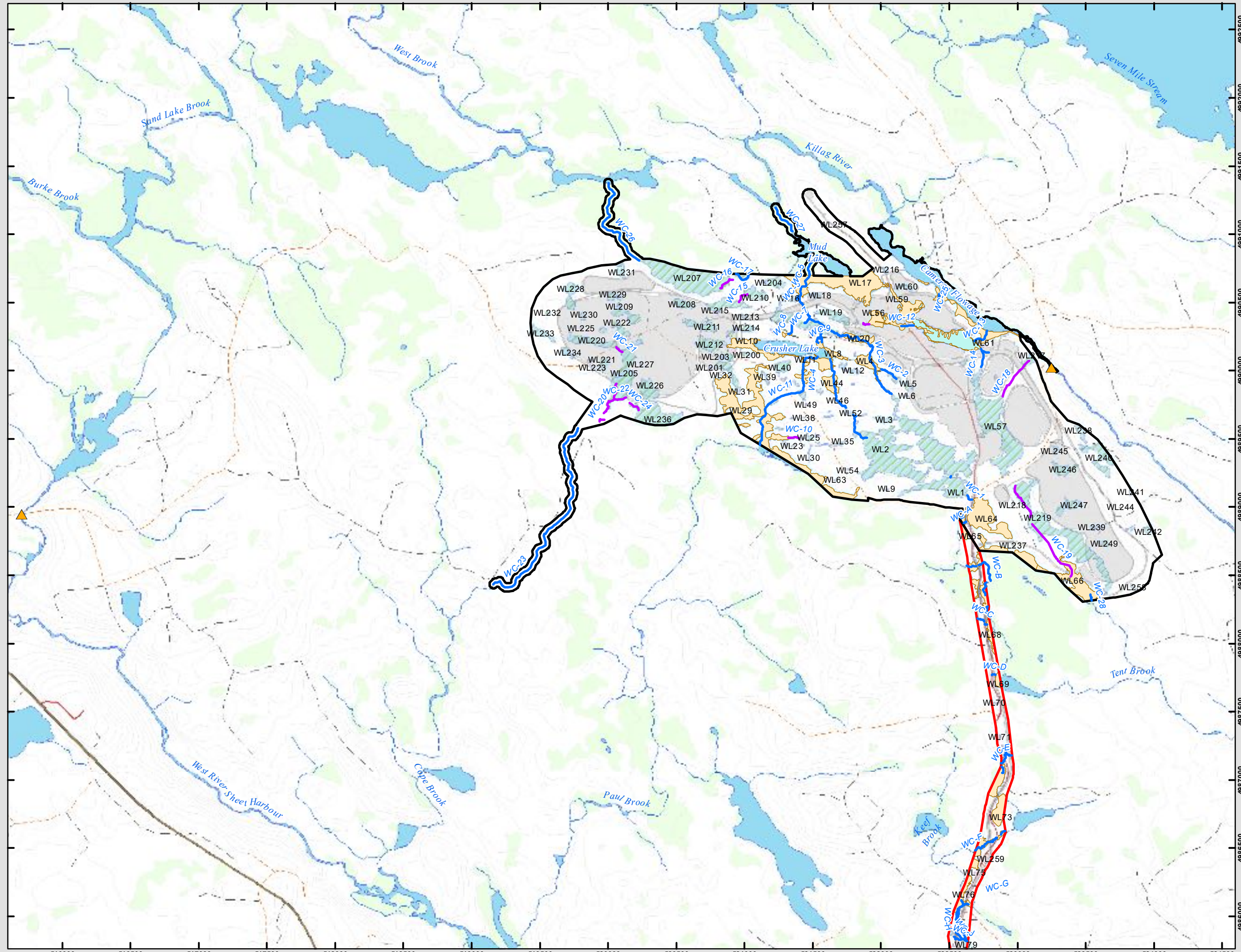
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FIGURE J.4-3B

Beaver Dam Mine Project
Fisheries Resources

- Lime Doser
- Fisheries Resources
- Provincially Regulated Watercourses
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Open Water
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area (FHAA)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



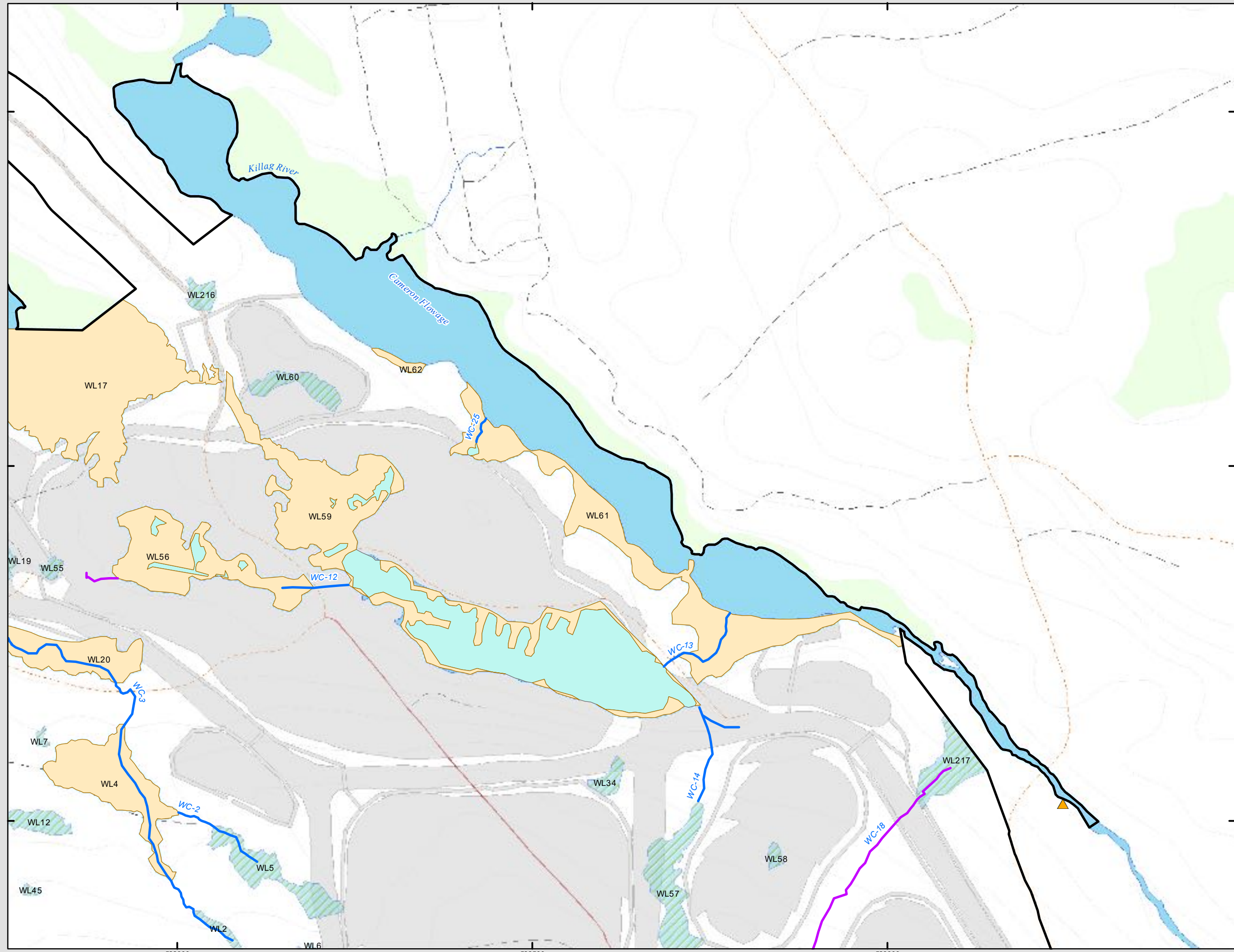
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 Datum: North American 1983 CSRS
 Units: Meter
 0 50 100 200 m
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Date: 2021-04-14

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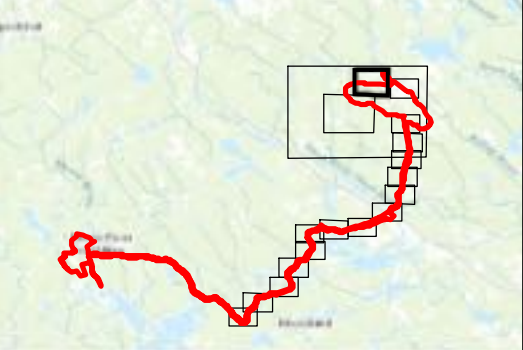
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FIGURE J.4-3C

**Beaver Dam Mine Project
Fisheries Resources**

- Fisheries Resources
- Provincially Regulated Watercourses
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area (FHAA)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 65 130 260 m

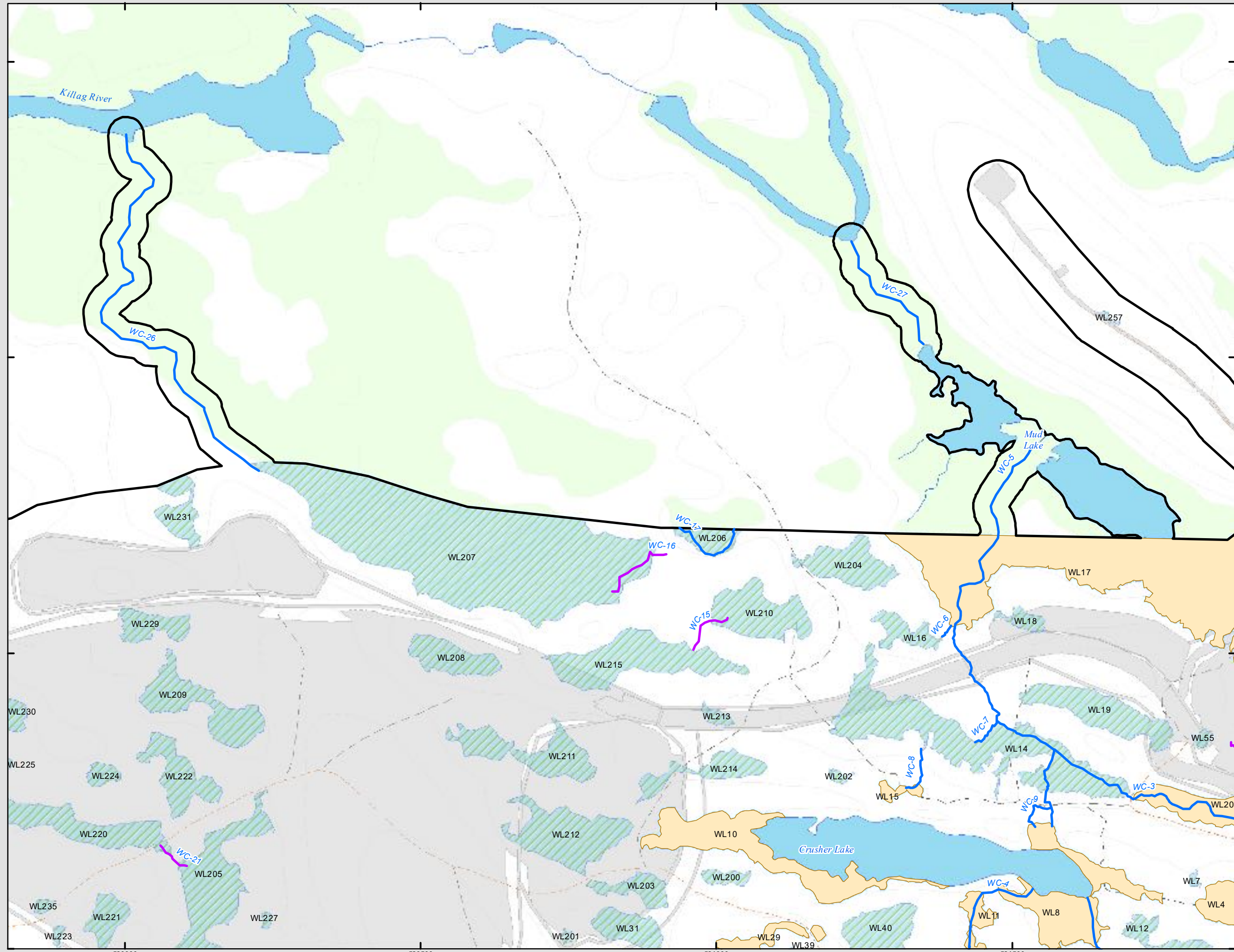
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FIGURE J.4-3D

Beaver Dam Mine Project
Fisheries Resources

- Fisheries Resources
- Provincially Regulated Watercourses
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Fish Habitat Assessment Area (FHAA)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:8,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
Reviewed By: XX

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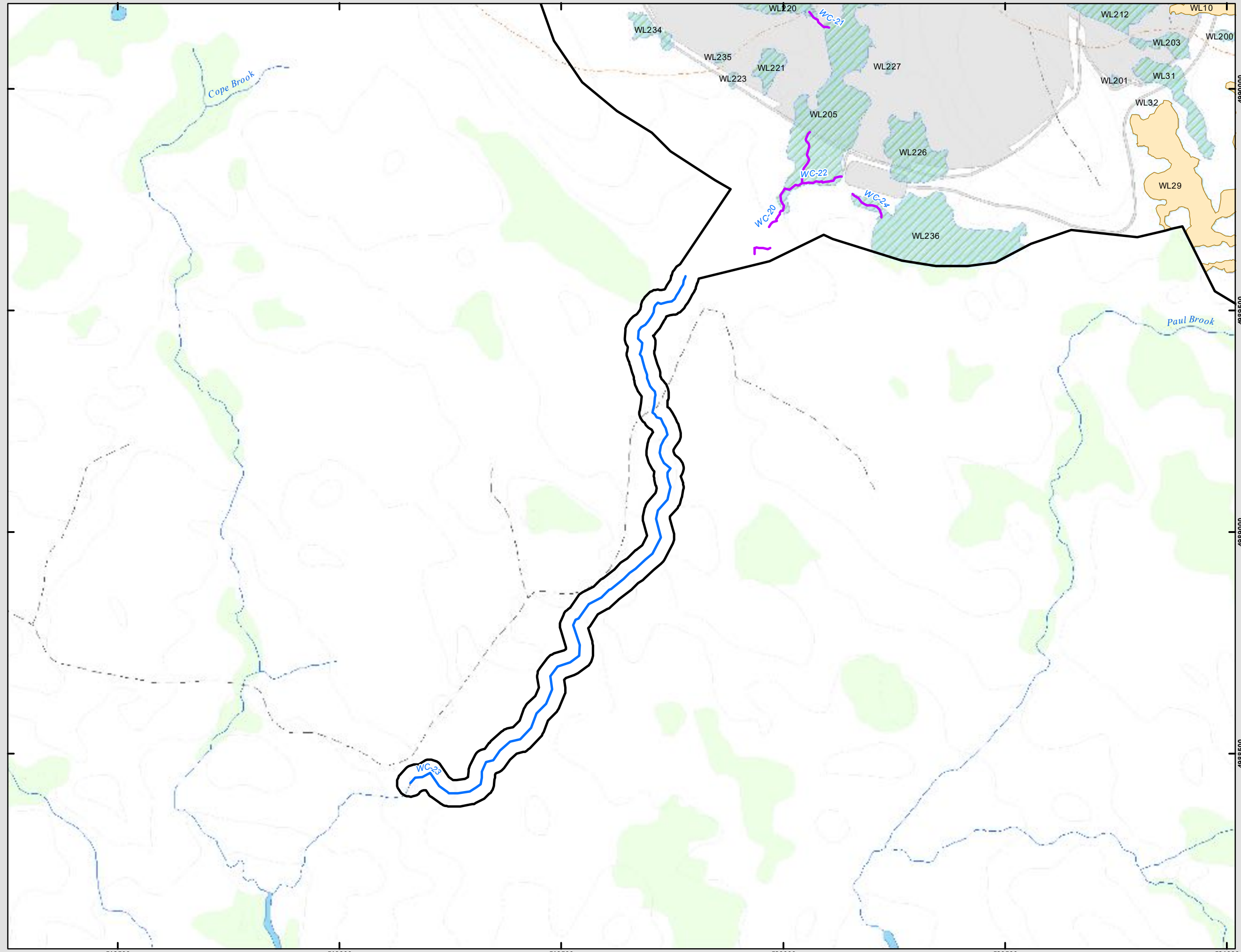
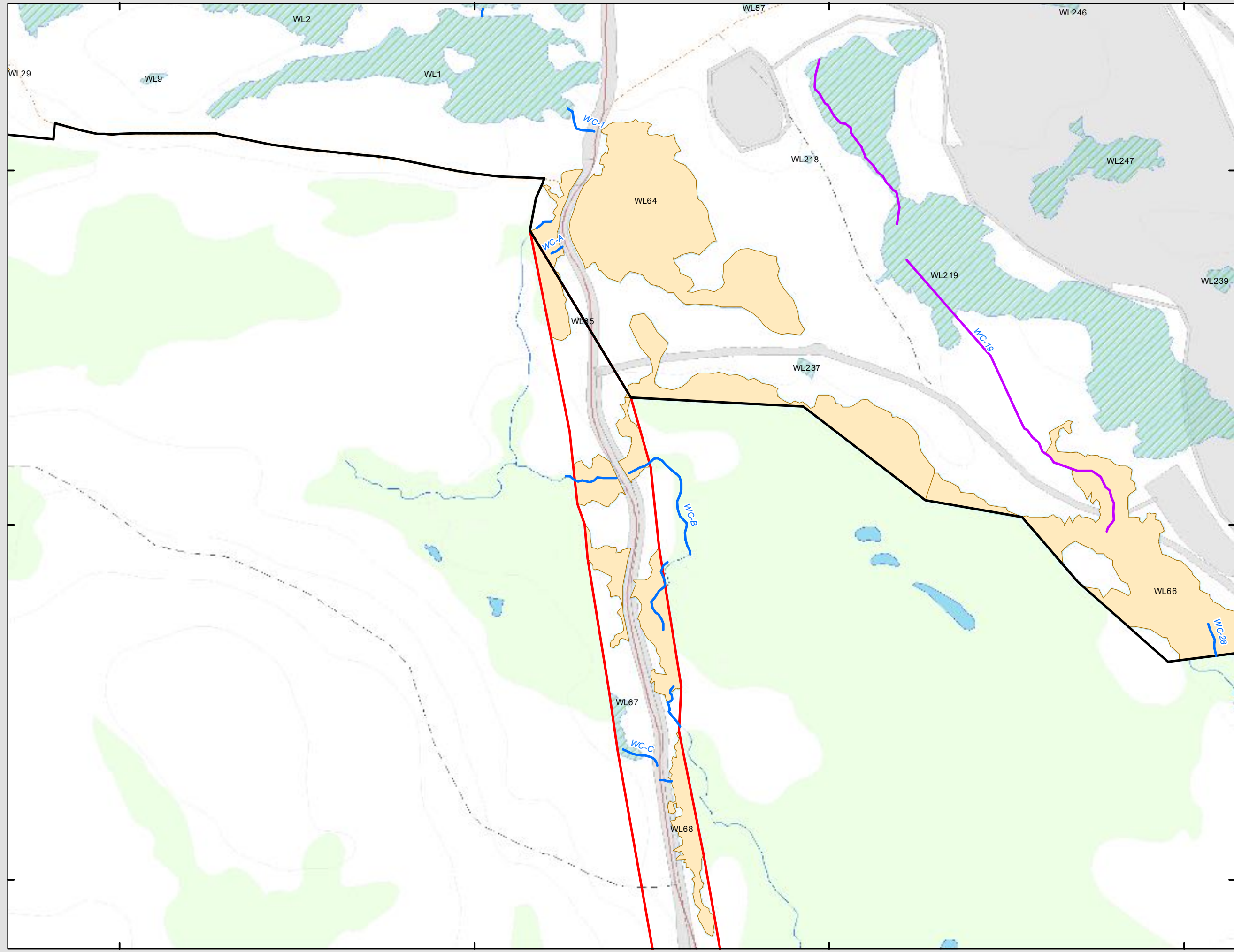















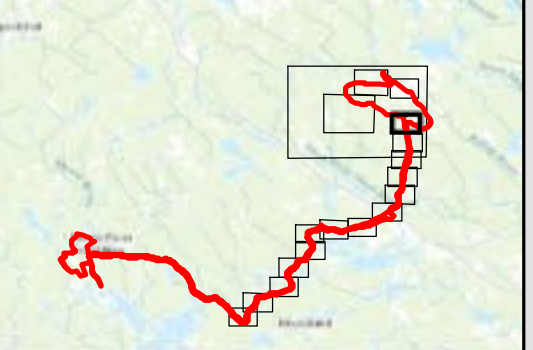
FIGURE J.4-3E

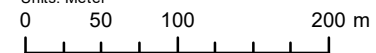
**Beaver Dam Mine Project
 Fisheries Resources**



-  Fisheries Resources
-  Provincially Regulated Watercourses
-  Wetland Providing Fish Habitat*
-  NSTDB Mapped Watercourses outside PA
-  Local Road
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Planned Infrastructure
-  Fish Habitat Assessment Area (FHAA)
-  Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

 1:5,000 Scale when printed @ 11" x 17"

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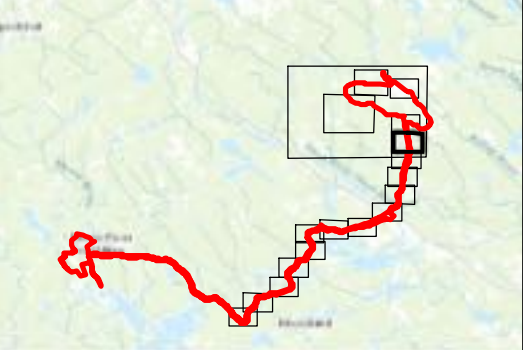


FIGURE J.4-3F

Beaver Dam Mine Project
Fisheries Resources

- Fisheries Resources
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



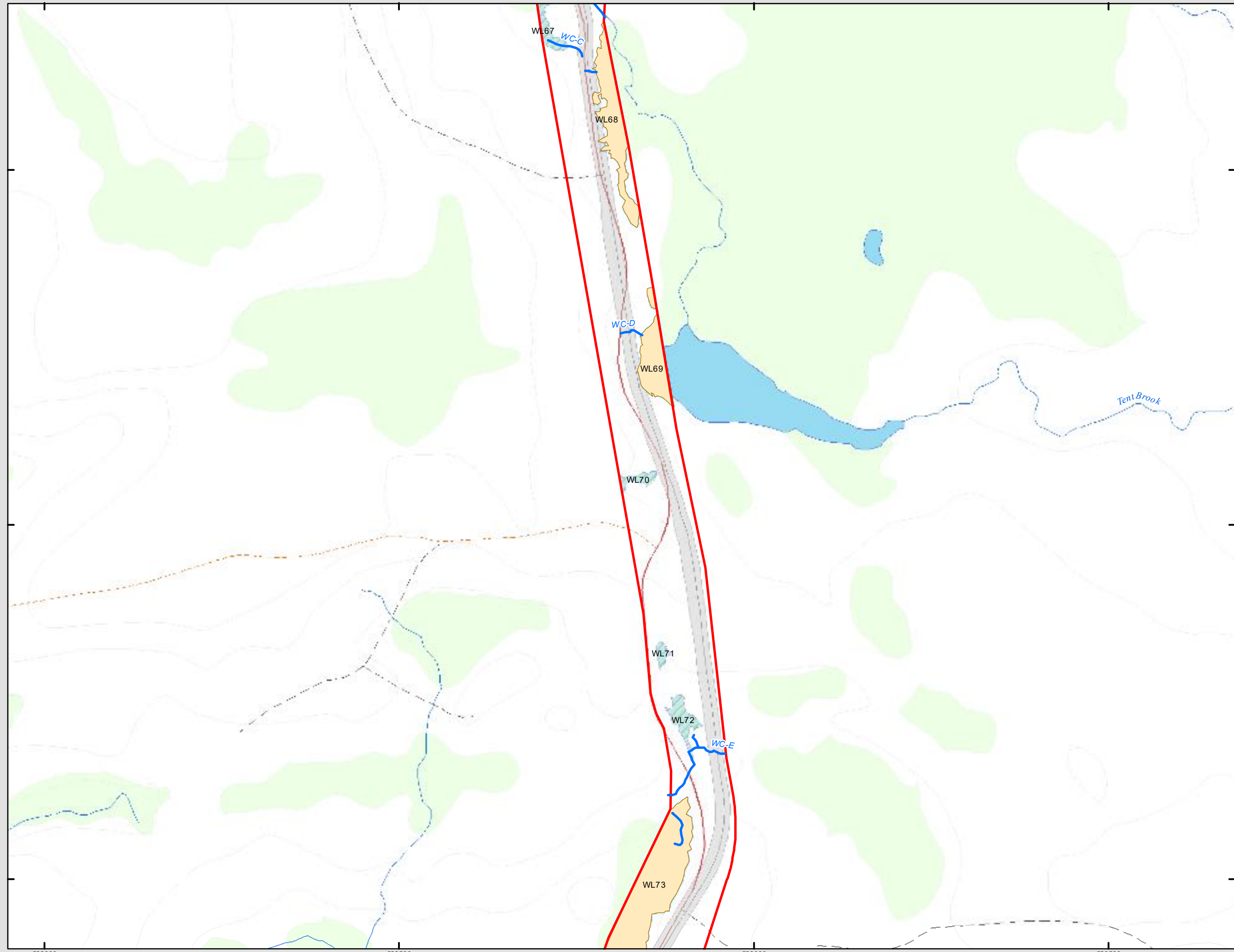
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 Datum: North American 1983 CSRS
 Units: Meter
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 1:5,000 Scale when printed @ 11" x 17"

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4987000

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FIGURE J.4-3G

Beaver Dam Mine Project
Fisheries Resources

- Fisheries Resources
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Open Water
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter
 0 50 100 200 m
 1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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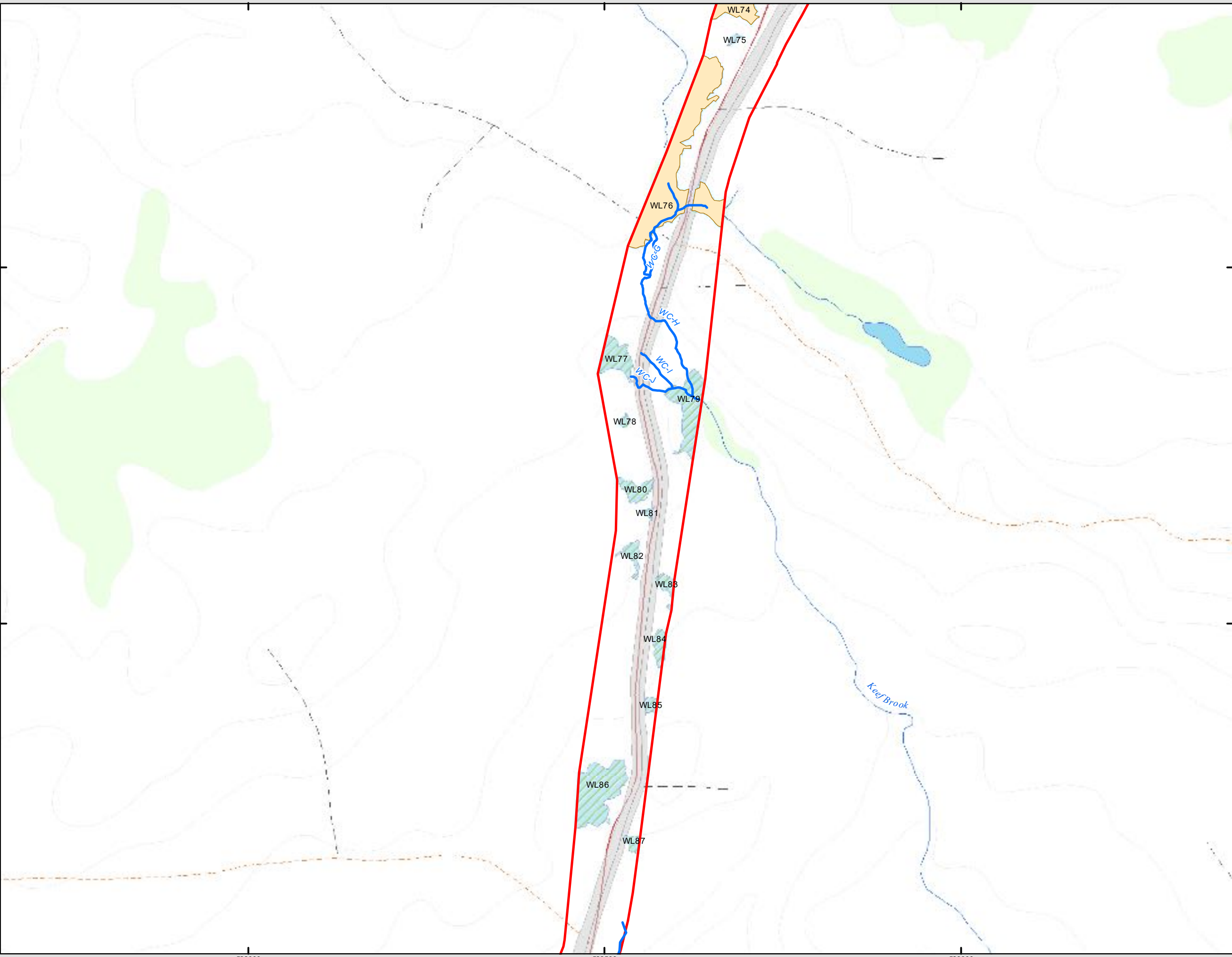


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FIGURE J.4-3H

Beaver Dam Mine Project
Fisheries Resources



- Fisheries Resources
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors,



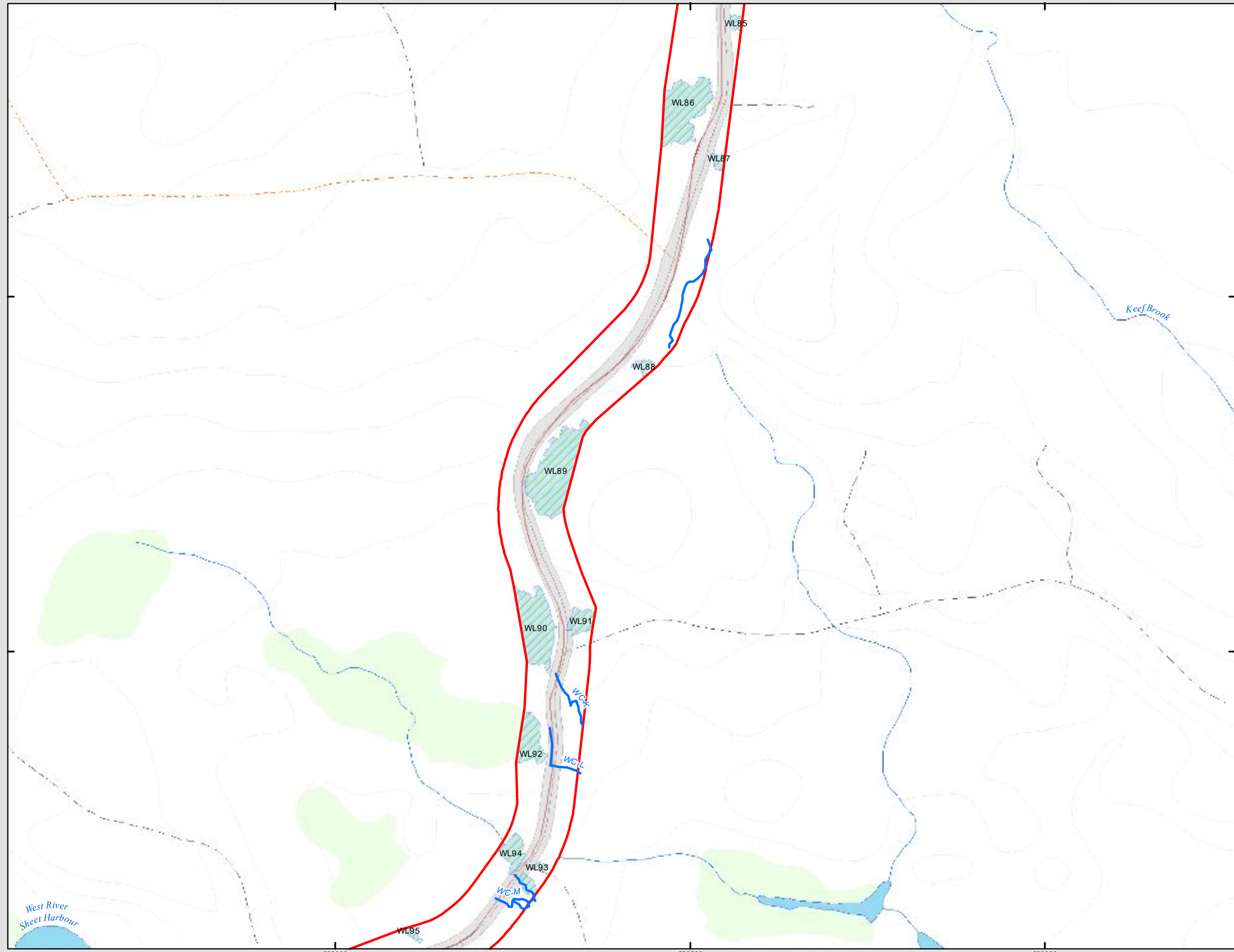
McCallum Environmental Ltd.

Prepared For:



FIGURE J.4-3I

Beaver Dam Mine Project
Fisheries Resources



- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter
 0 50 100 200 m
 1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
Reviewed By: XX

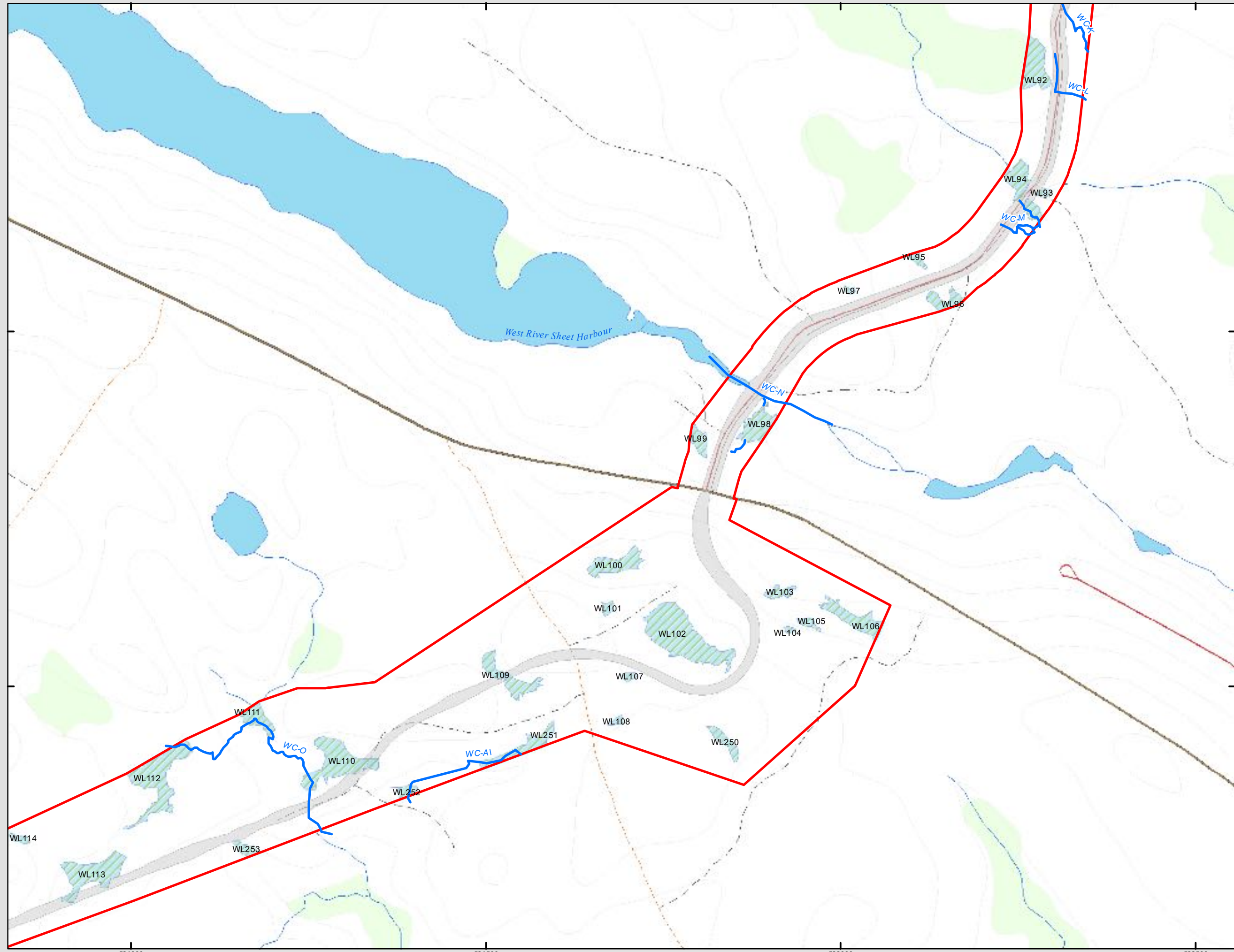
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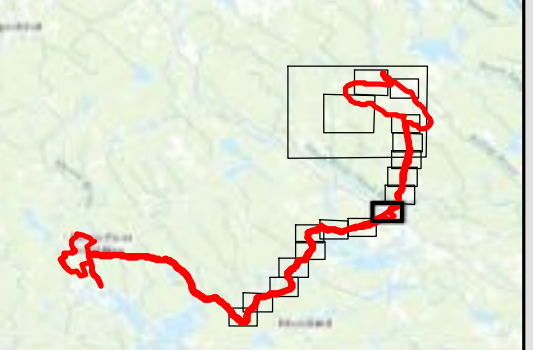
FIGURE J.4-3J

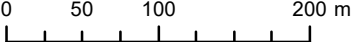
**Beaver Dam Mine Project
 Fisheries Resources**



-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Collector Road
-  Local Road
-  Dry Weather / Seasonal Road
-  Diveways (>300 m)
-  Track
-  Topo Contours (5 m)
-  Field Delineated Wetlands within PA
-  NSTDB Mapped Wetlands outside PA
-  Planned Infrastructure
-  Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

 1:5,000 Scale when printed @ 11" x 17"

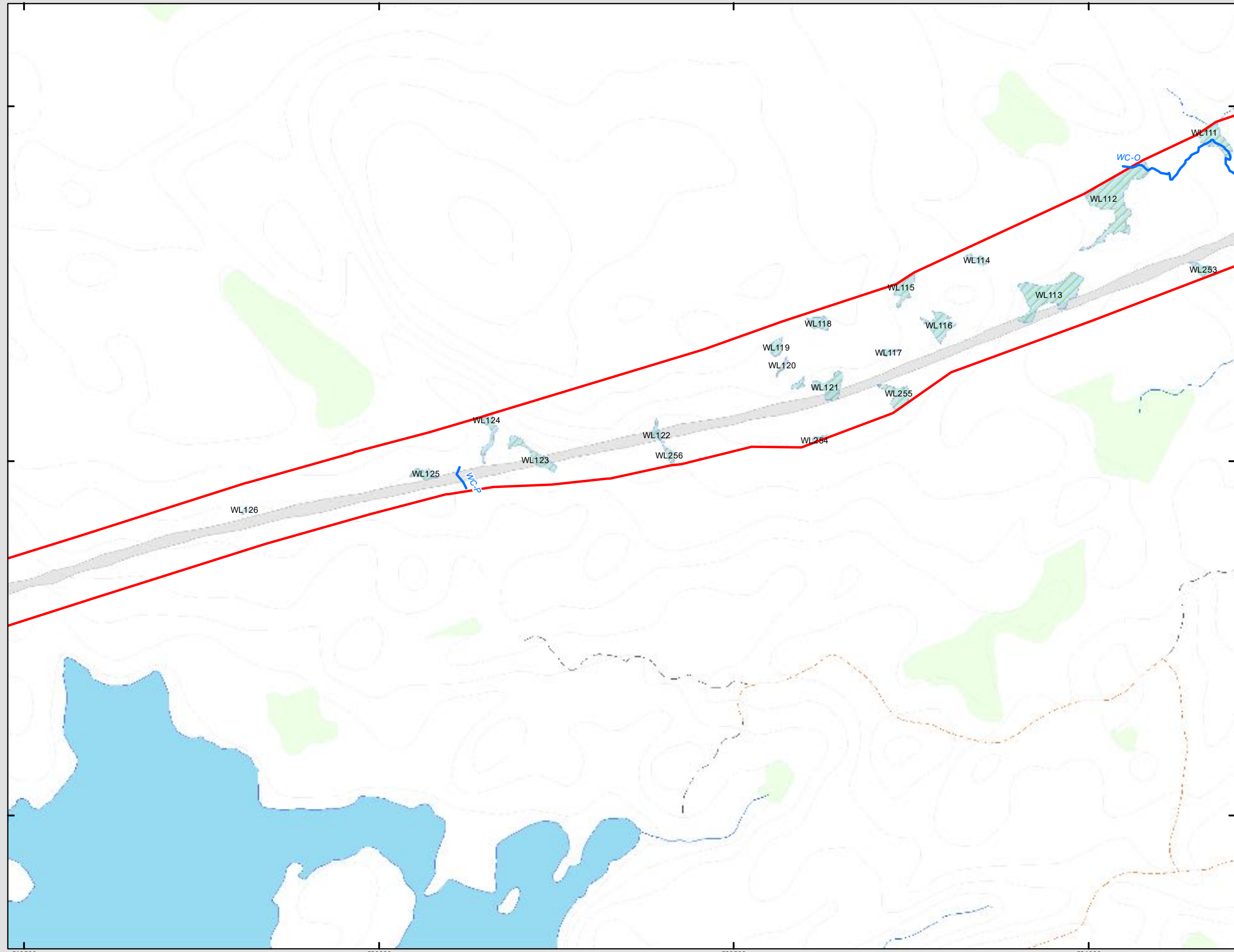
Drawn By: EP Date: 2021-04-14
 Reviewed By: XX










Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



FIGURE J4-3K

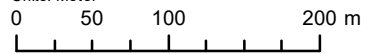
**Beaver Dam Mine Project
 Fisheries Resources**



-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Planned Infrastructure
-  Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

 1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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FIGURE J.4-3L

Beaver Dam Mine Project
Fisheries Resources

- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



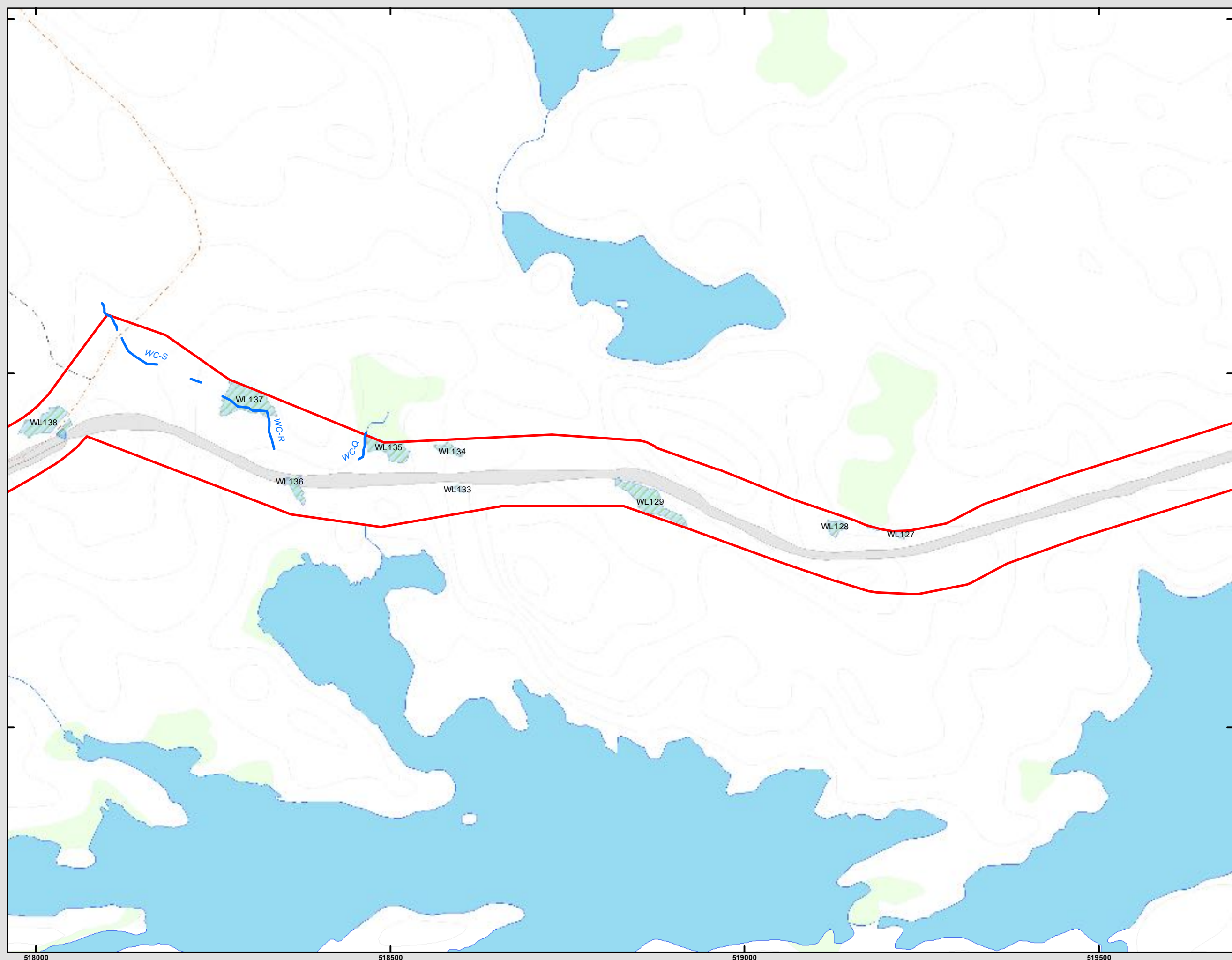
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 Datum: North American 1983 CSRS
 Units: Meter
 0 50 100 200 m
 1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP
Reviewed By: XX
Date: 2021-04-14

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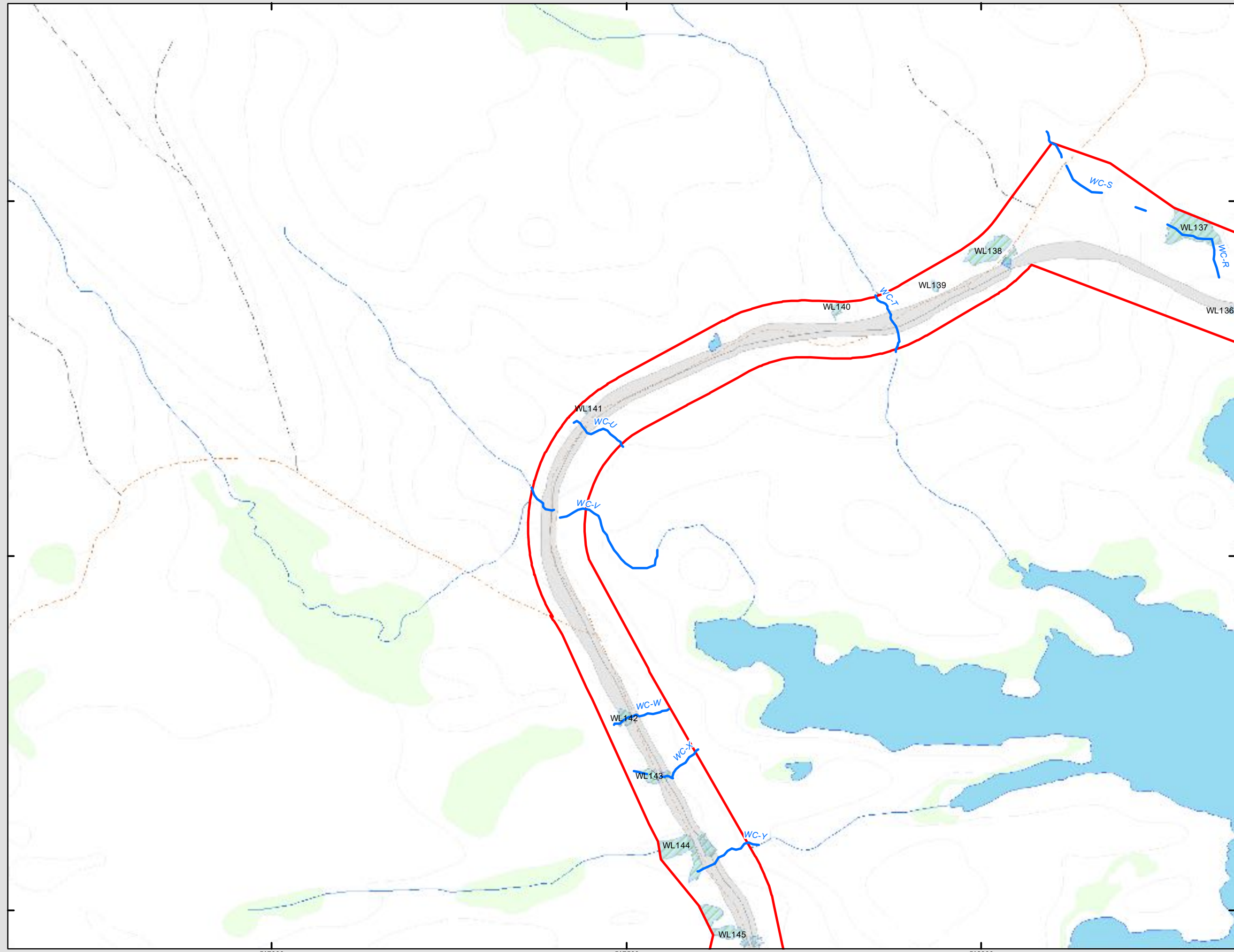


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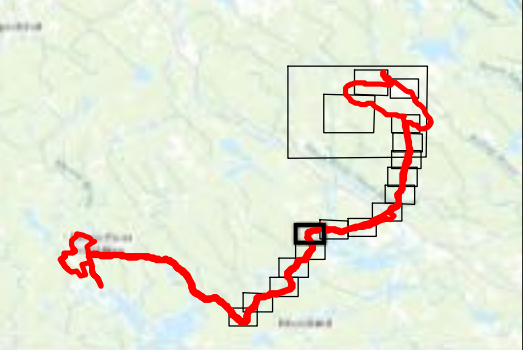
FIGURE J.4-3M

Beaver Dam Mine Project
Fisheries Resources



- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- - Dry Weather / Seasonal Road
- - Track
- - Topo Contours (5 m)
- Open Water
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter
 0 50 100 200 m
 1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
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FIGURE J.4-3N

Beaver Dam Mine Project
Fisheries Resources

- Fisheries Resources
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Open Water
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



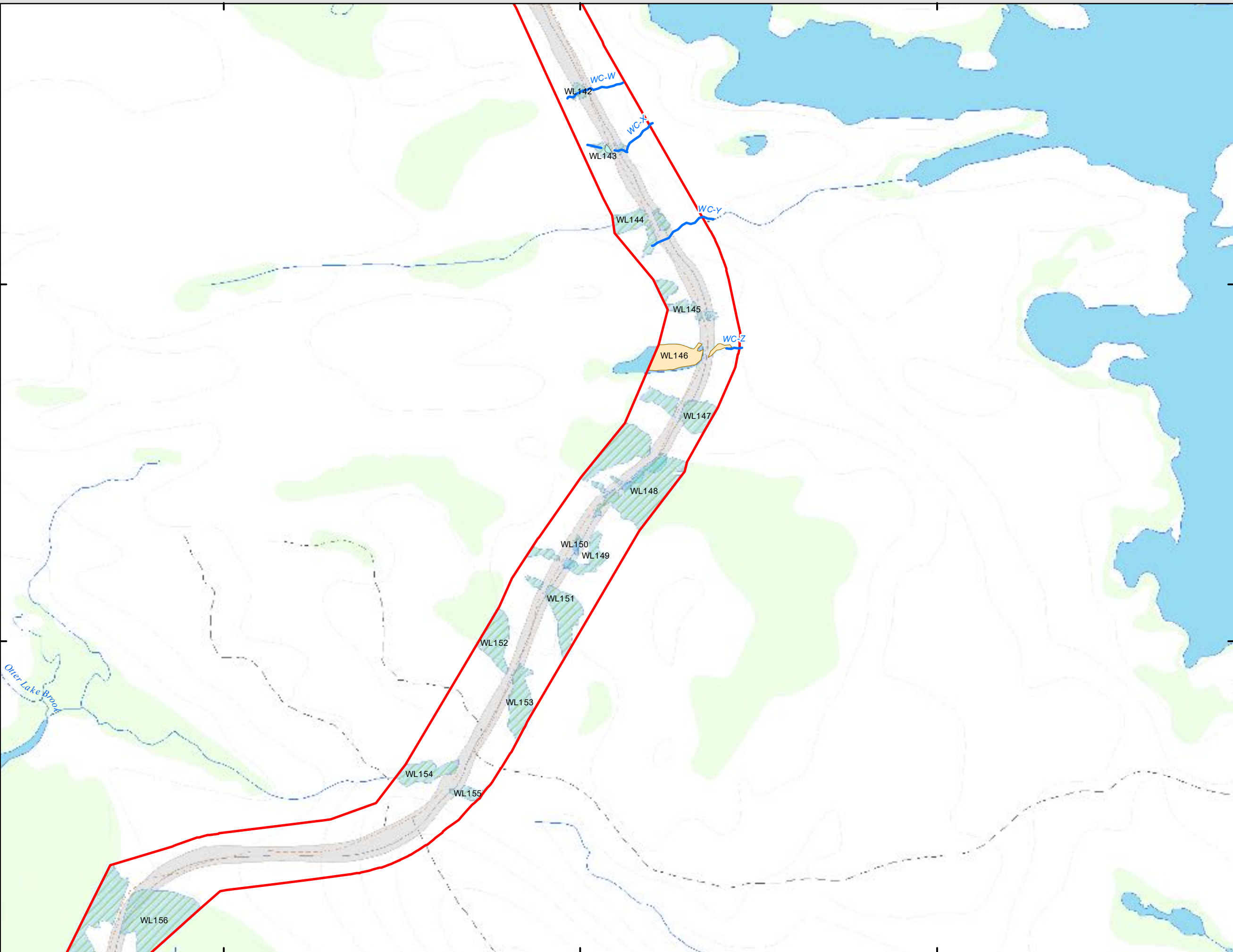
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Drawn By: EP Date: 2021-04-14
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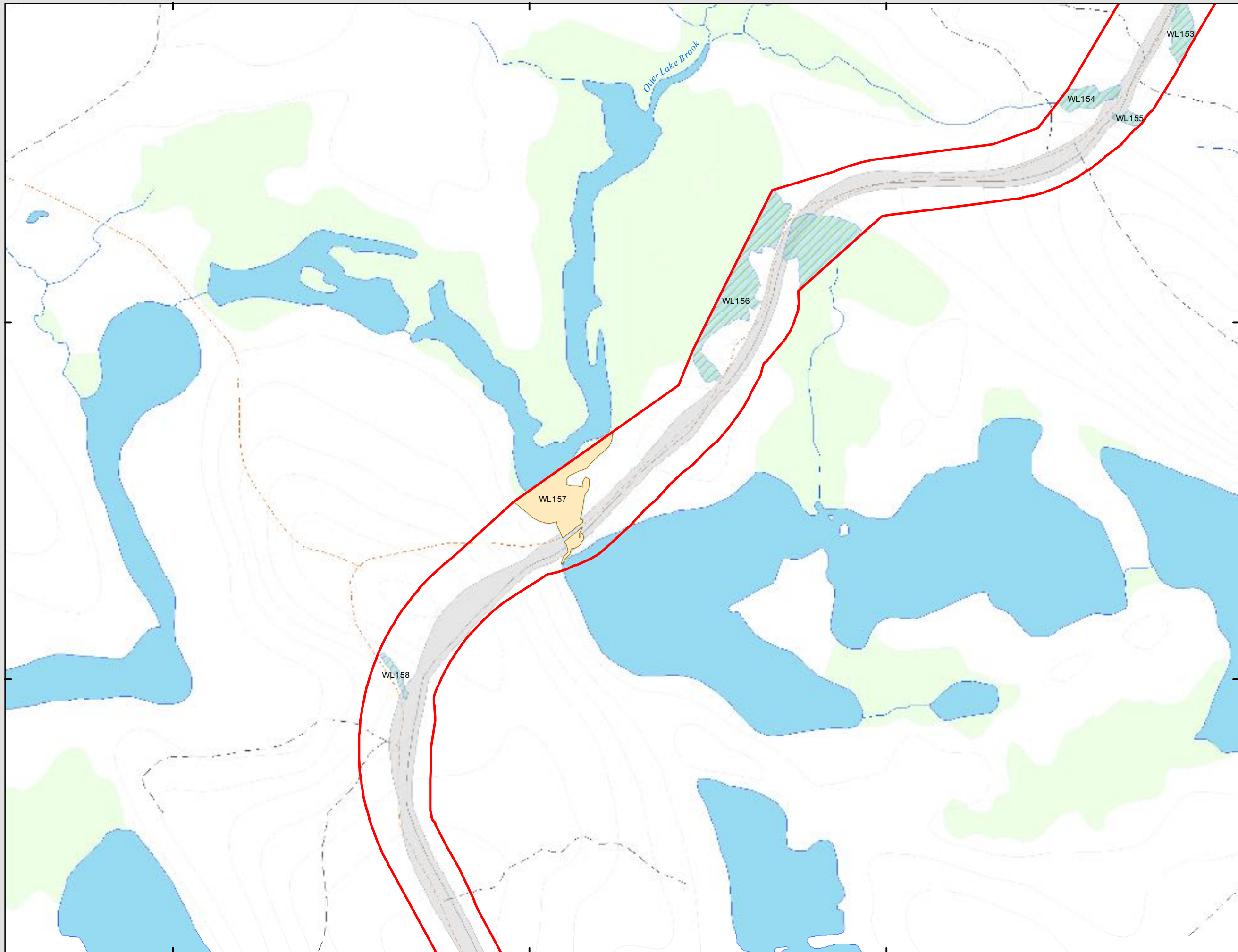


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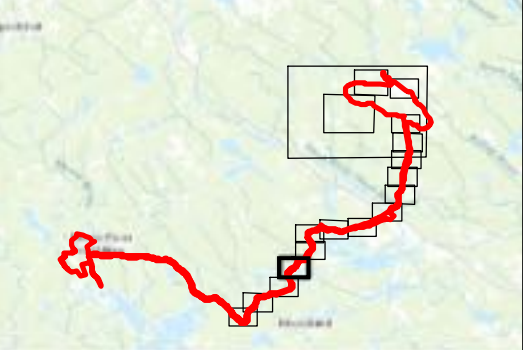
FIGURE J.4-30

Beaver Dam Mine Project
Fisheries Resources



- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



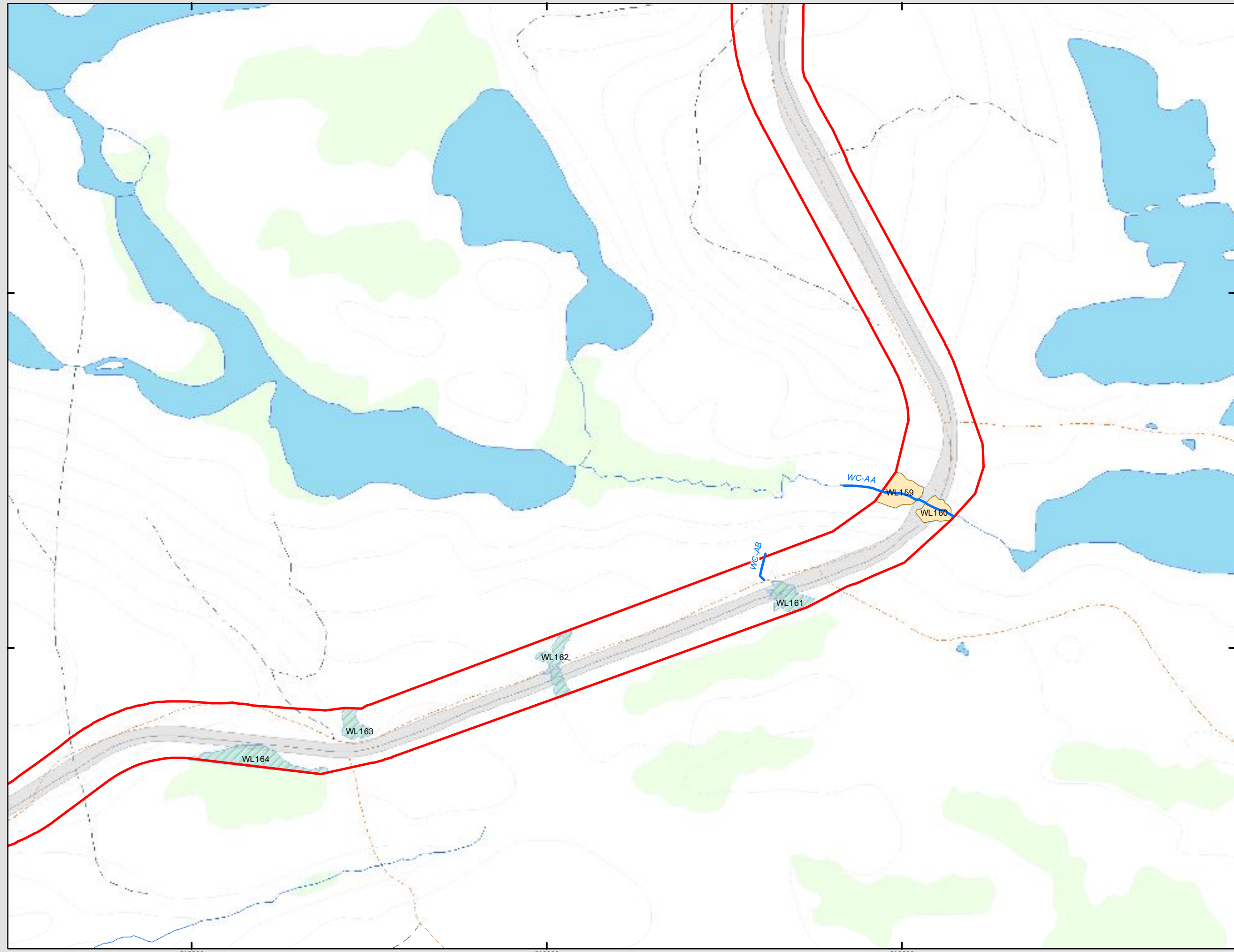
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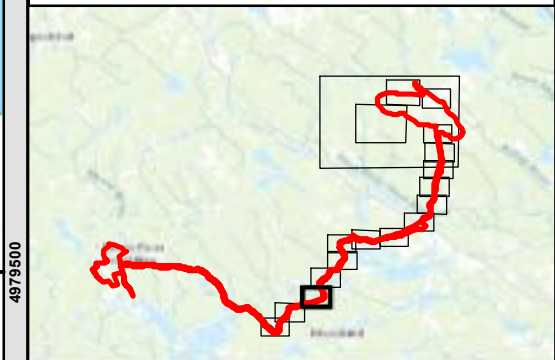
FIGURE J.4-3

Beaver Dam Mine Project
Fisheries Resources



- Fisheries Resources
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Open Water
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter
 0 50 100 200 m
 1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors,



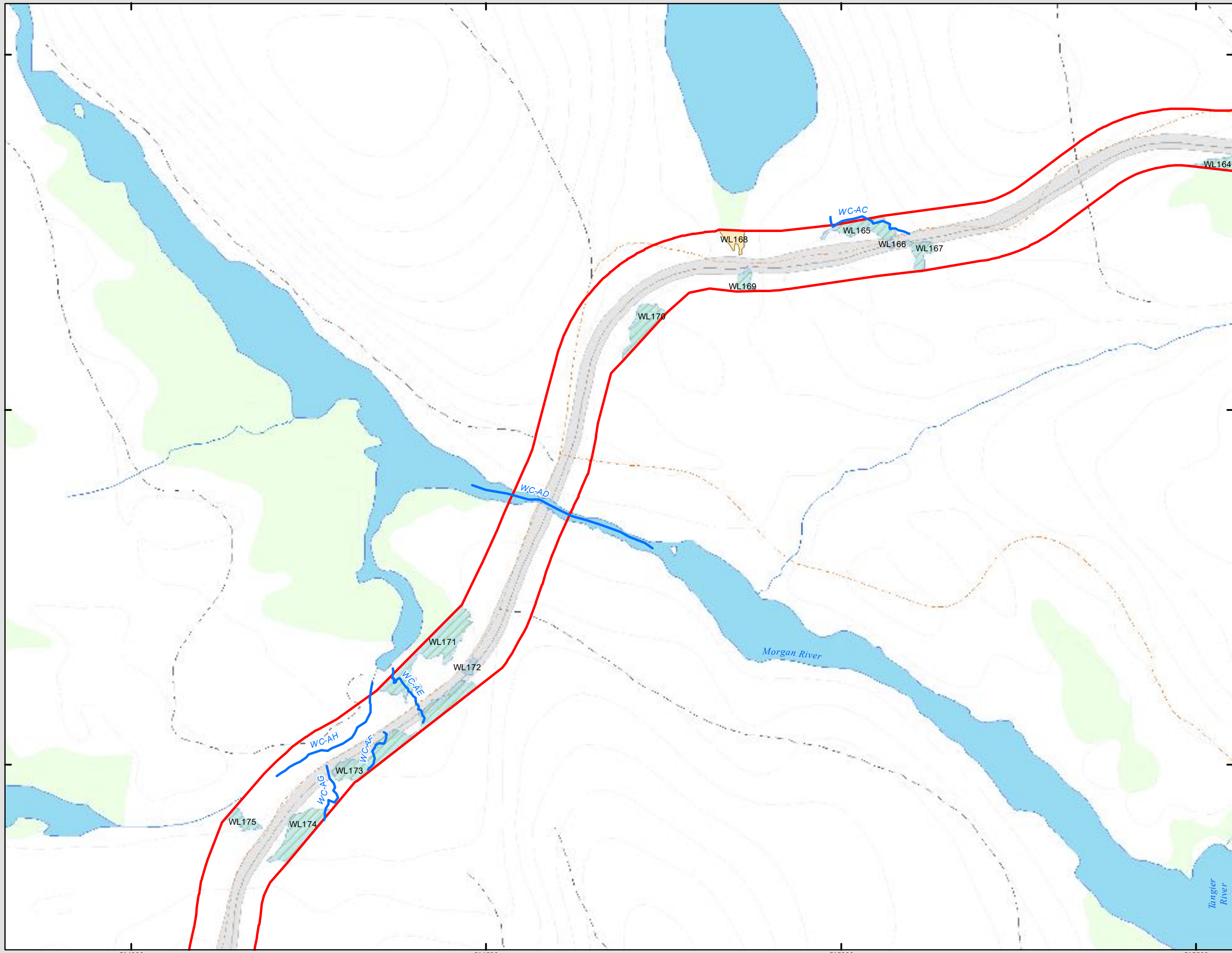
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FIGURE J.4-3Q

Beaver Dam Mine Project
Fisheries Resources



- Fisheries Resources
- Wetland Providing Fish Habitat*
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP
Reviewed By: XX

Date: 2021-04-14

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



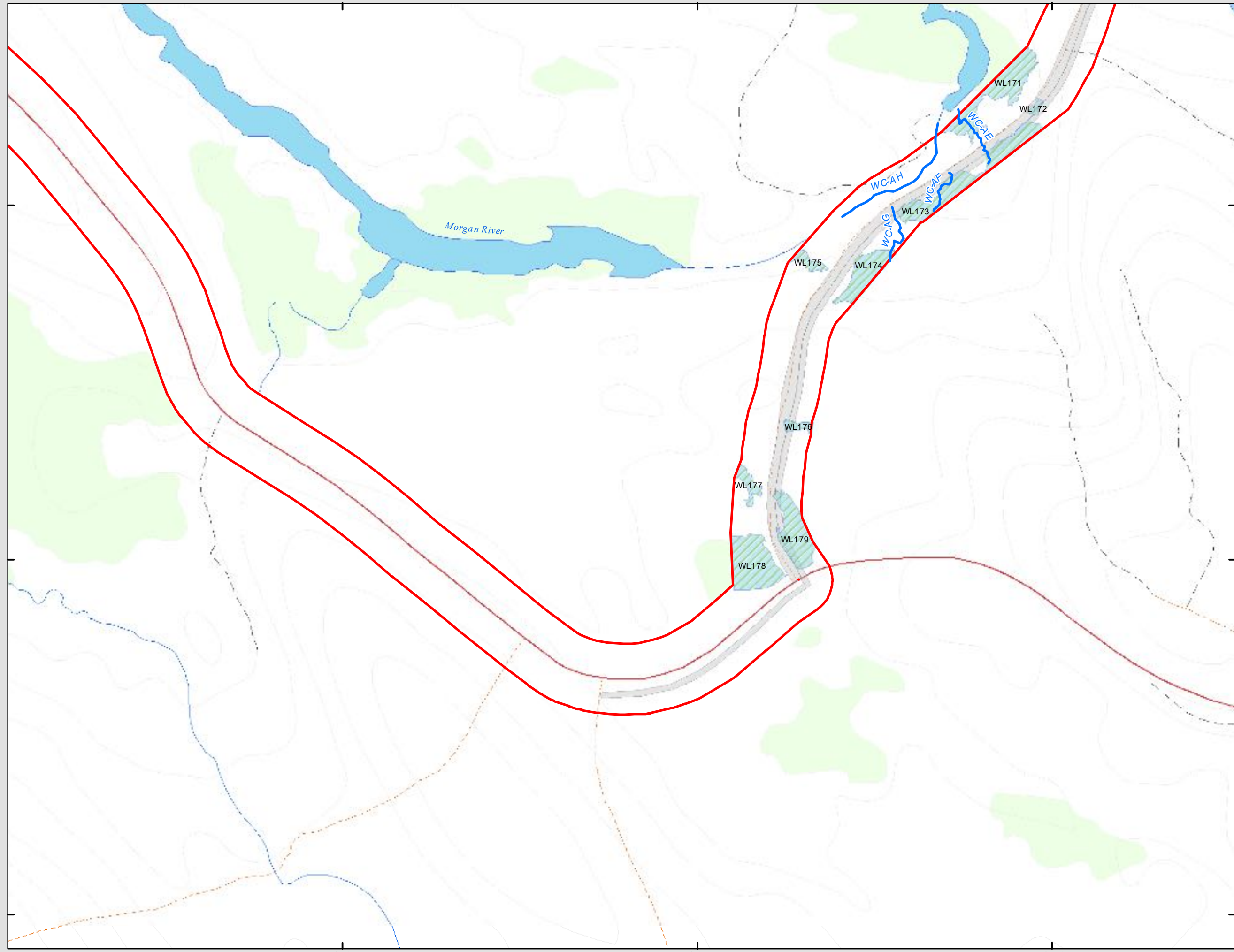
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FIGURE J.4-3R

Beaver Dam Mine Project
Fisheries Resources



- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area (used for assessment along Haul Road)

*NOTE: Fish habitat provided in surface water features within these wetland boundaries only



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter
 0 50 100 200 m
 1:5,000 Scale when printed @ 11" x 17"

Drawn By: EP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Gamin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors,



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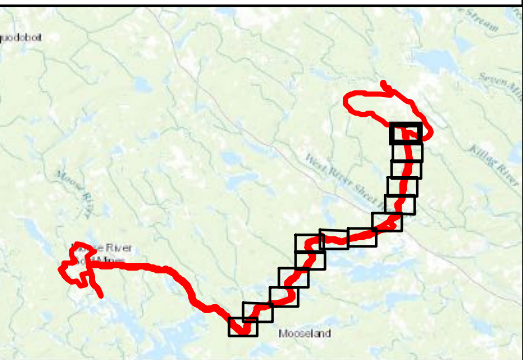
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FIGURE J.4-4A

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road

- Buried Culvert
- Crushed Culvert
- Functioning Culvert
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Planned Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

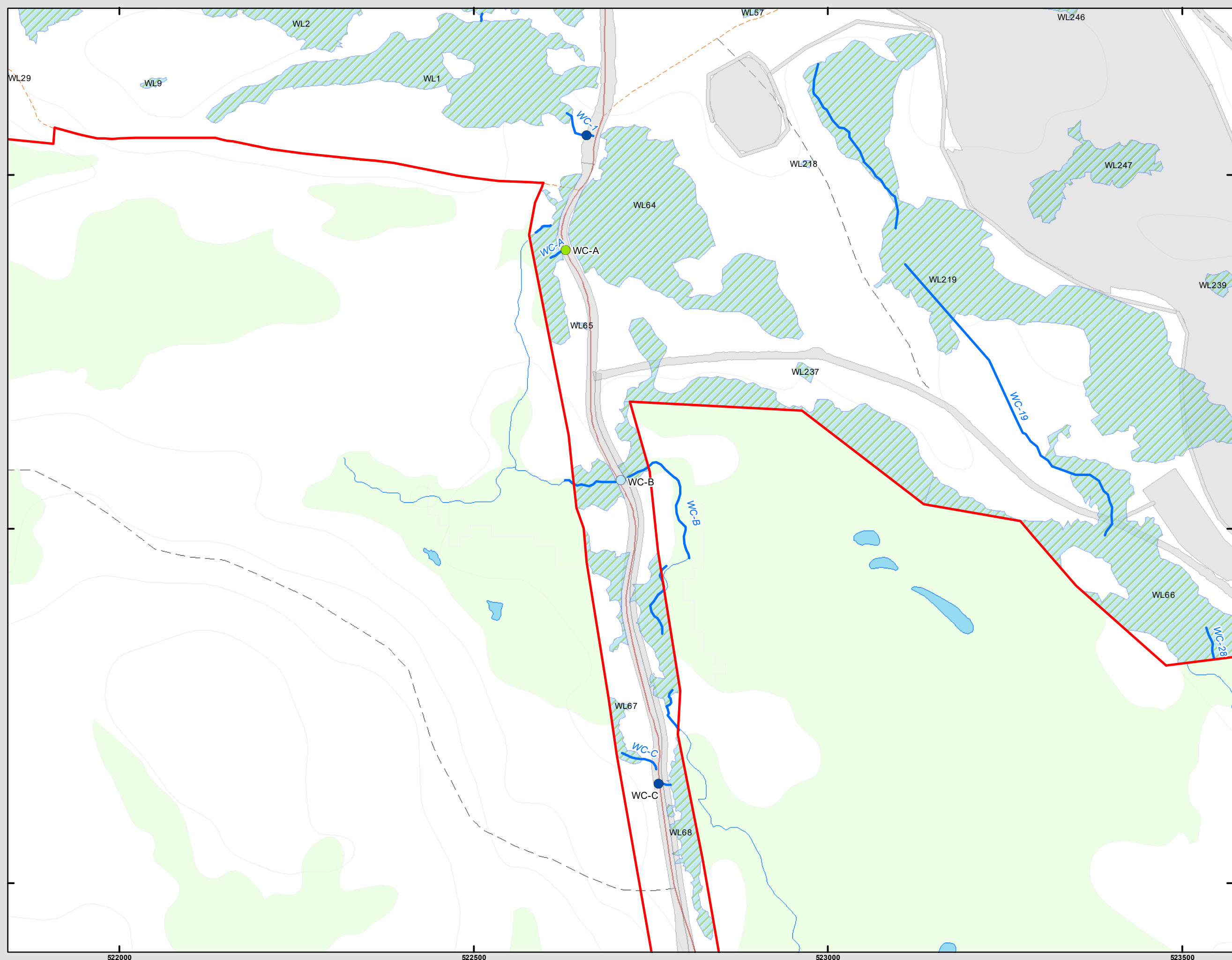
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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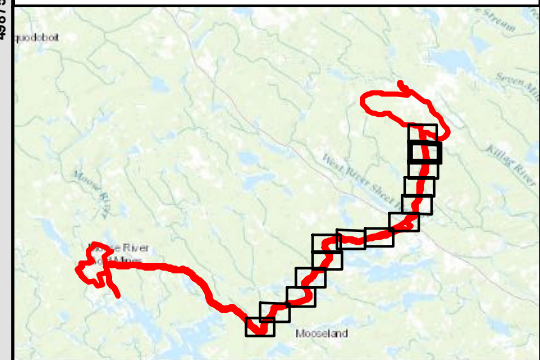
Prepared For:



FIGURE J.4-4 B

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road

- Blocked Culvert
- Functioning Culvert
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

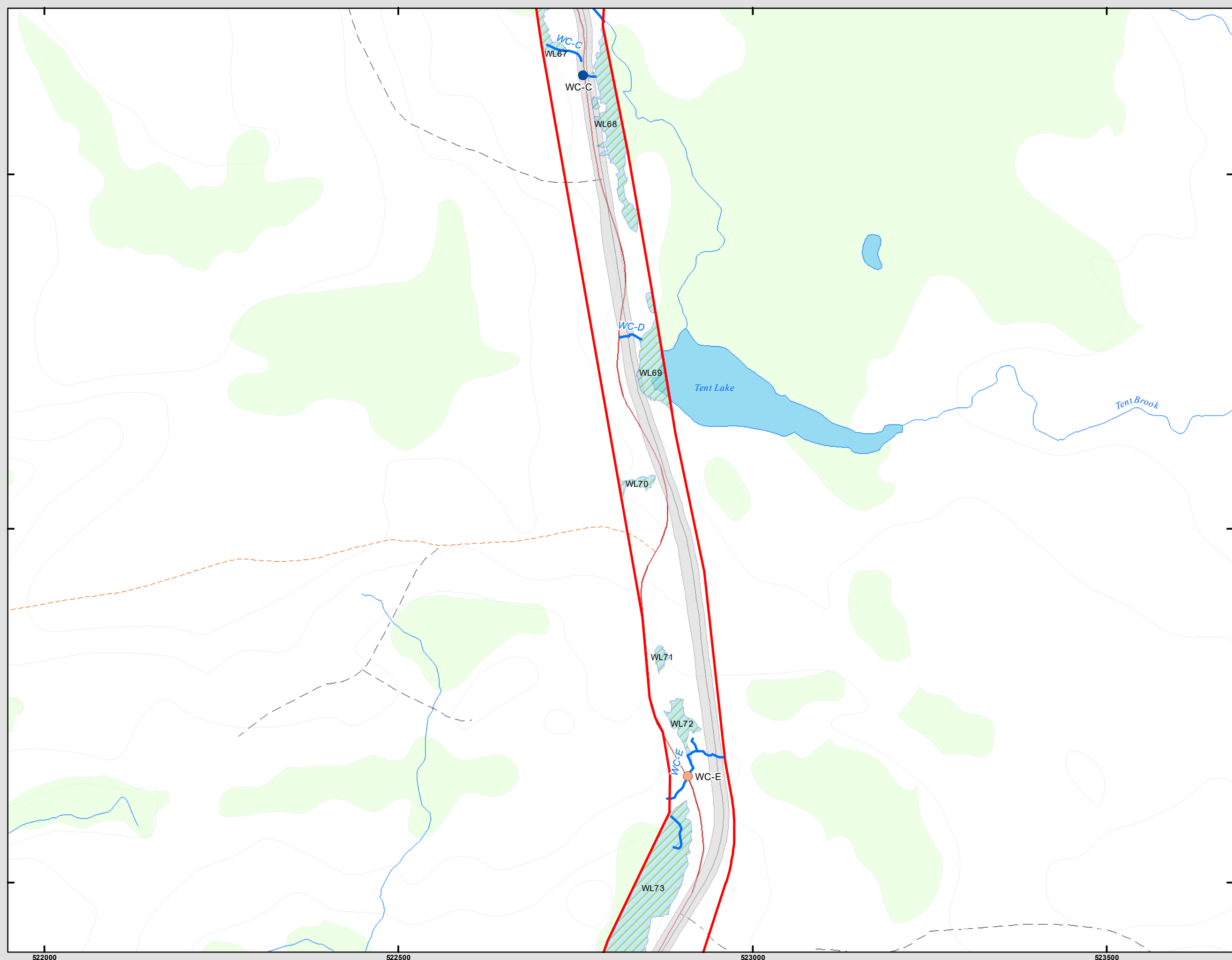
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Drawn By: LP Date: 2021-04-14
 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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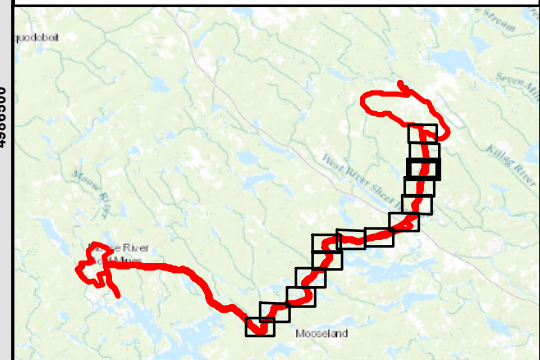
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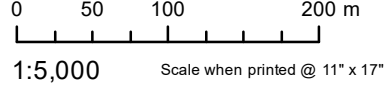
FIGURE J.4-4 C

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road

- Blocked Culvert
- Crushed Culvert
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

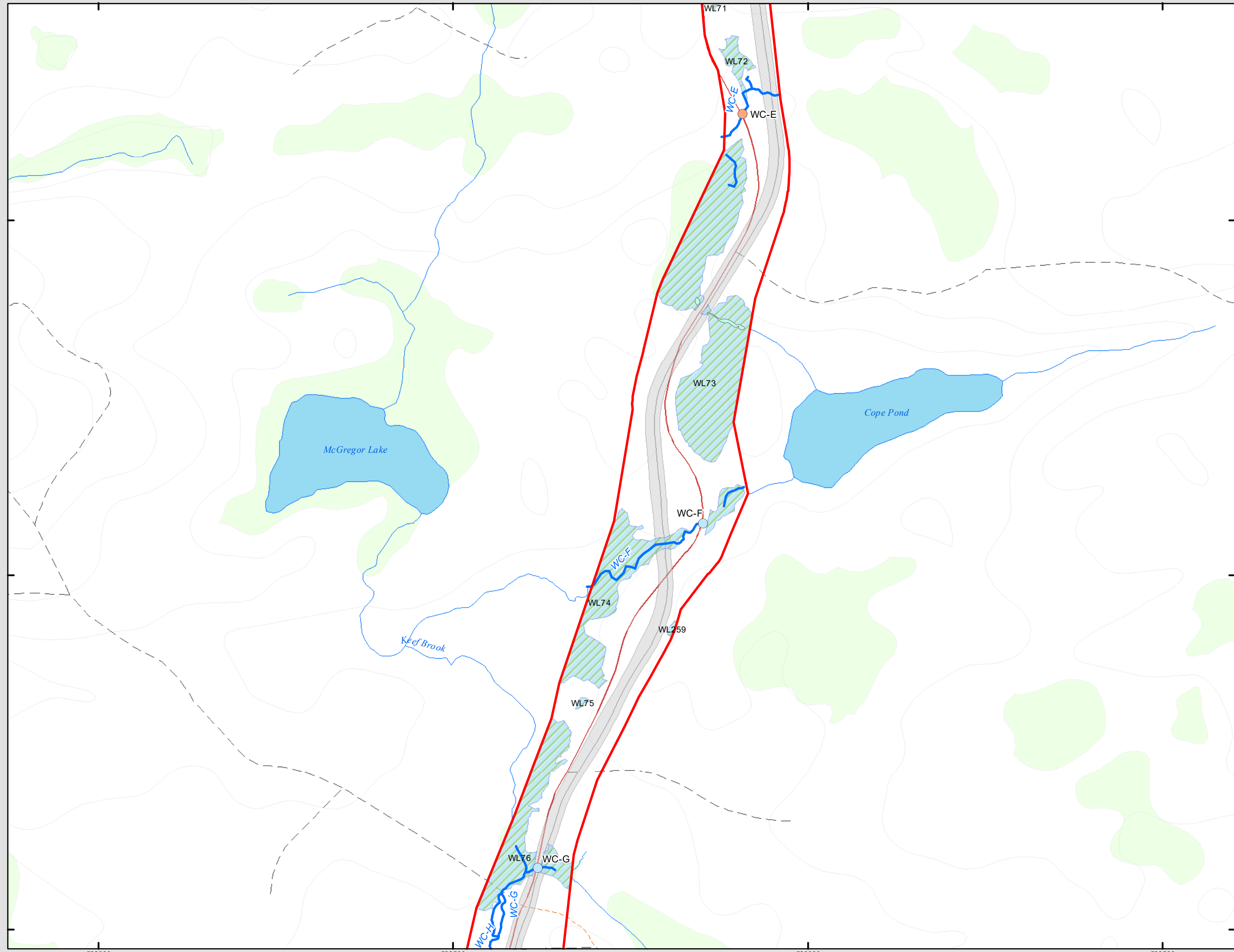


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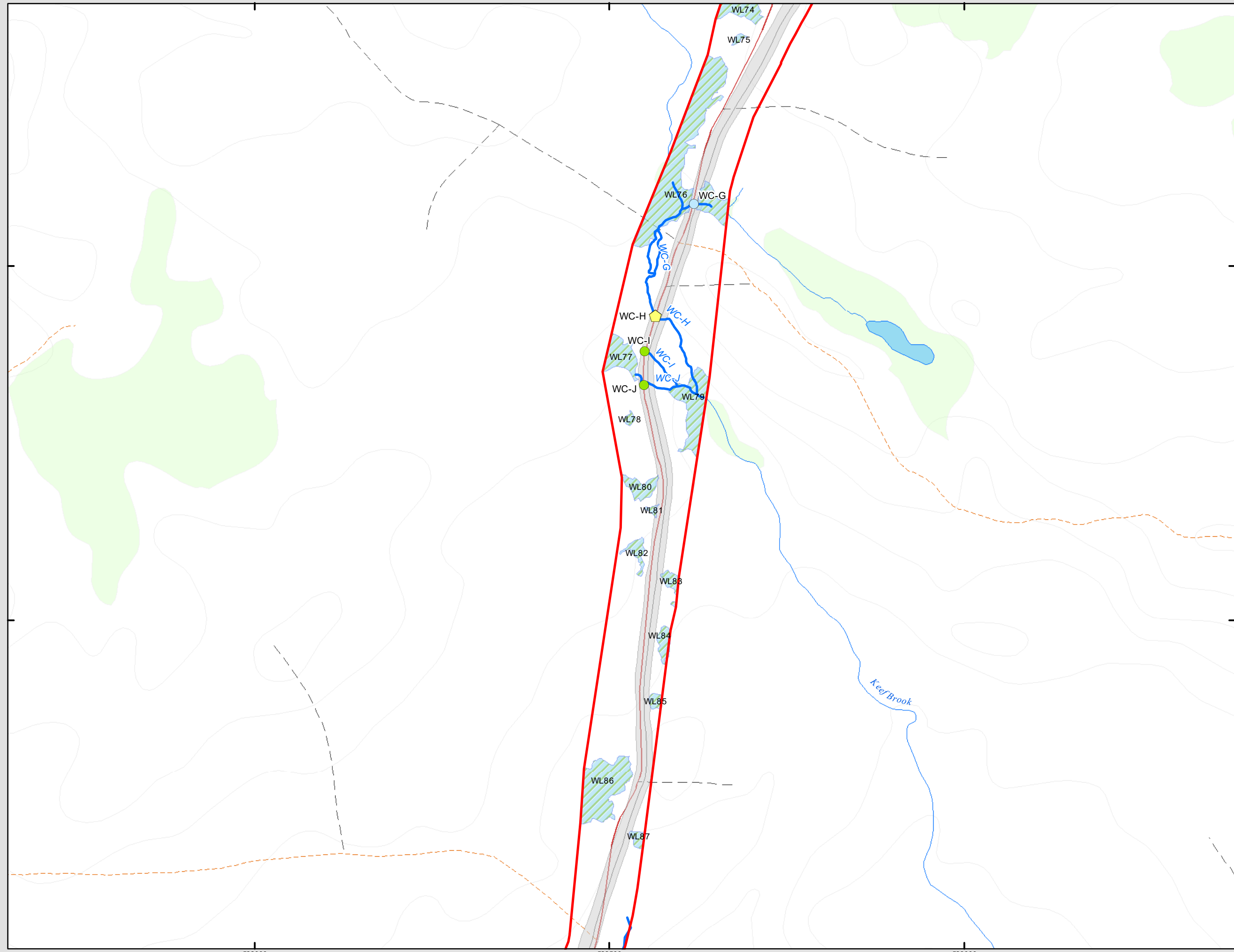


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FIGURE J.4-4 D

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road



- Bridge - no barrier
- Buried Culvert
- Crushed Culvert
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors,



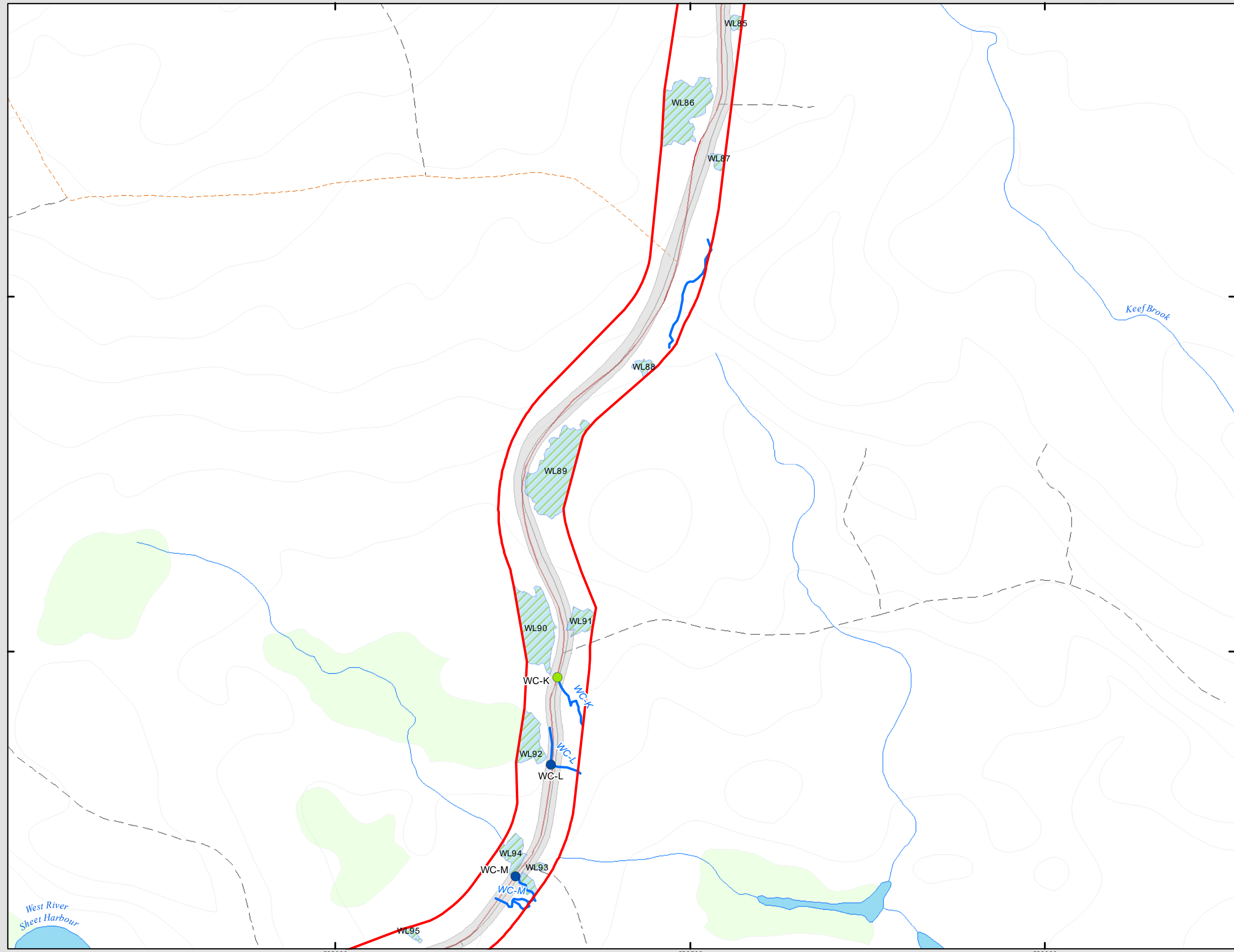
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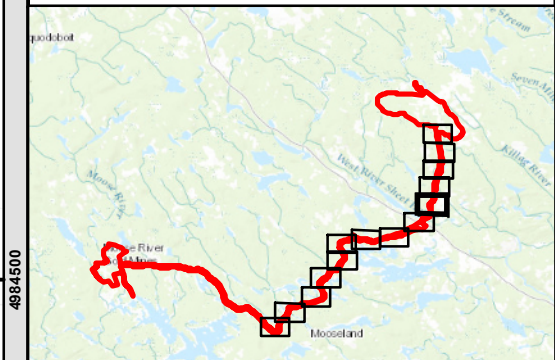


FIGURE J.4-4E

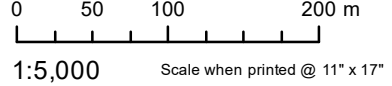
Beaver Dam Mine Project
FFish Habitat Evaluation
Results: Haul Road



- Buried Culvert
- Functioning Culvert
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter



Drawn By: LP Date: 2021-04-14
 Reviewed By: XX
















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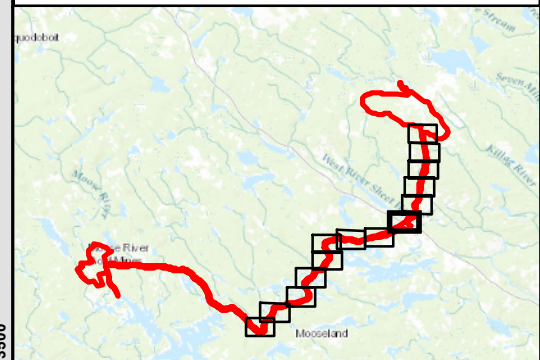


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FIGURE J.4-4 F

**Beaver Dam Mine Project
 Fish Habitat Evaluation
 Results: Haul Road**

-  Bridge - no barrier
-  Buried Culvert
-  Functioning Culvert
-  Collector Road
-  Local Road
-  Dry Weather / Seasonal Road
-  Diveways (>300 m)
-  Track
-  Topo Contours (5 m)
-  Field Delineated Watercourses within PA
-  NSTDB Mapped Watercourses outside PA
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

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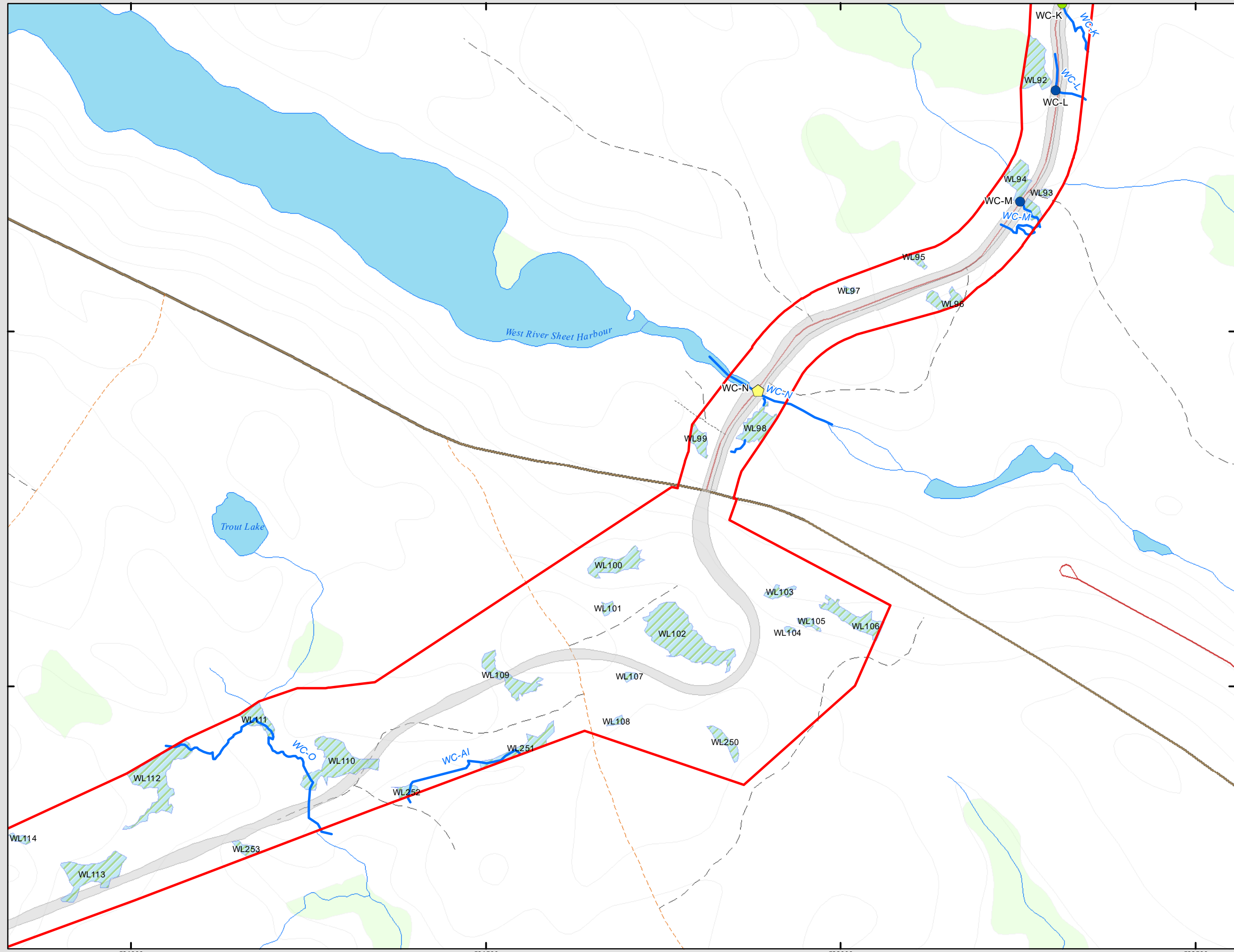
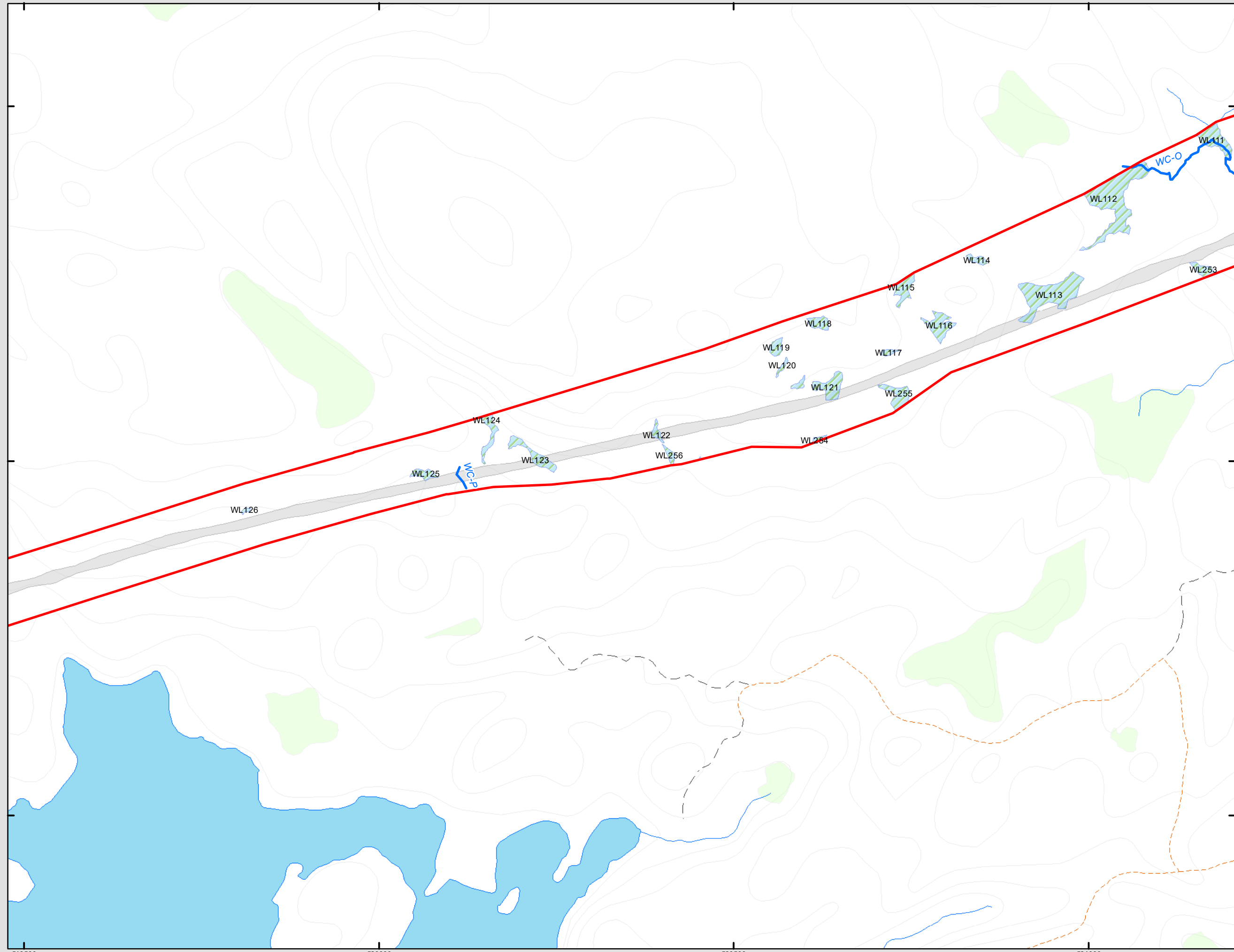











FIGURE J.4-4G


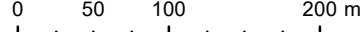
**Beaver Dam Mine Project
 Fish Habitat Evaluation
 Results: Haul Road**



-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Field Delineated Watercourses within PA
-  NSTDB Mapped Watercourses outside PA
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
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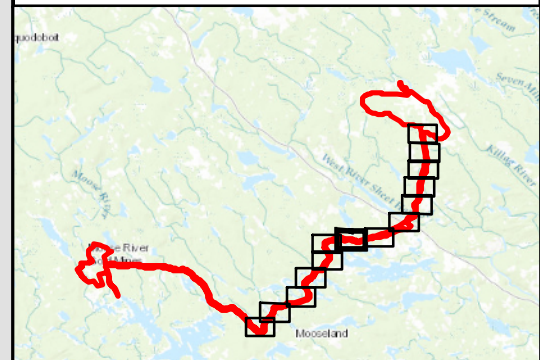
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FIGURE J.4-4 H

**Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road**

- Hung Culvert
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

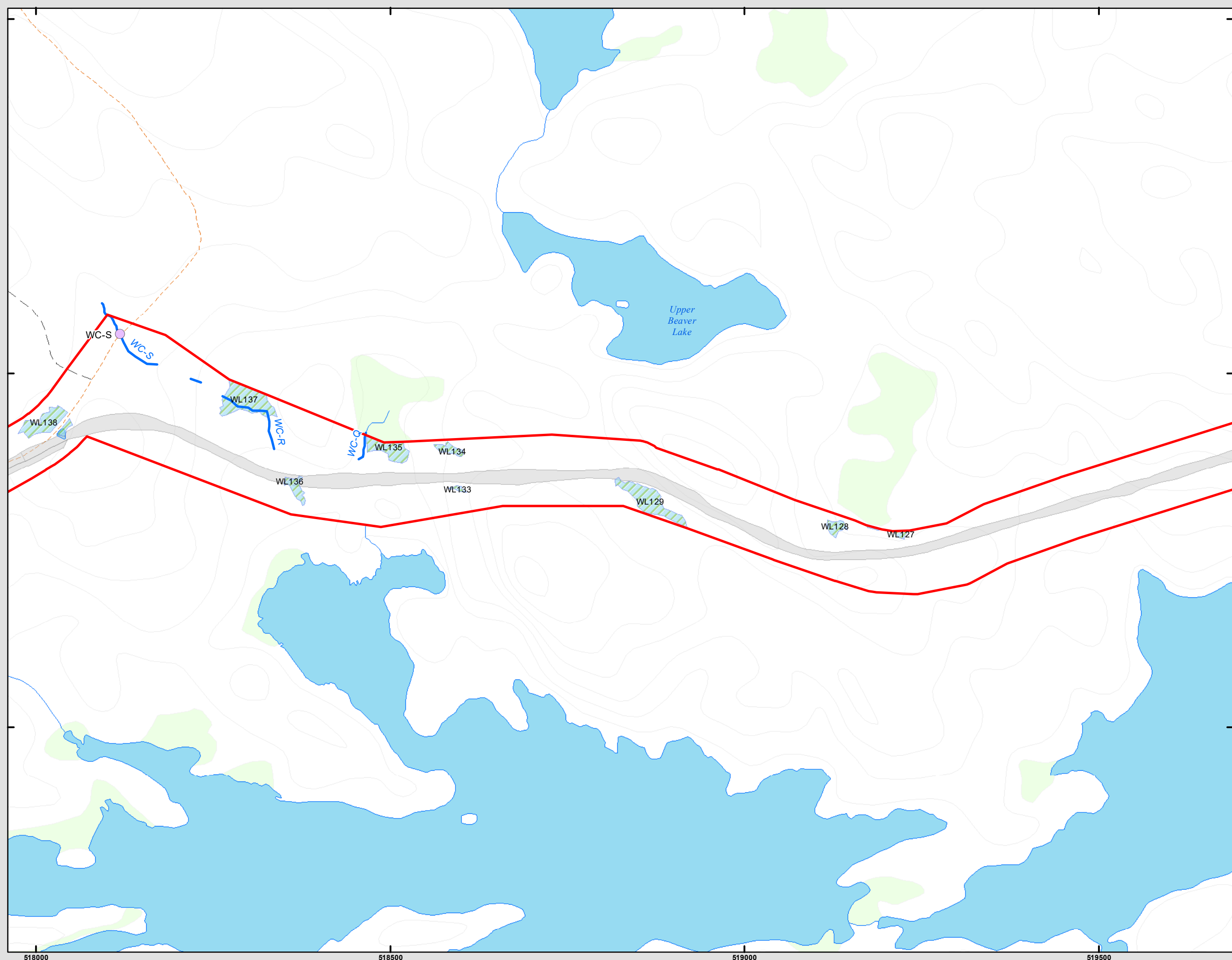
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Drawn By: LP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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FIGURE J.4-4 I

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road

- Buried Culvert
- Functioning Culvert
- Hung Culvert
- - - Dry Weather / Seasonal Road
- - - Track
- - - Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

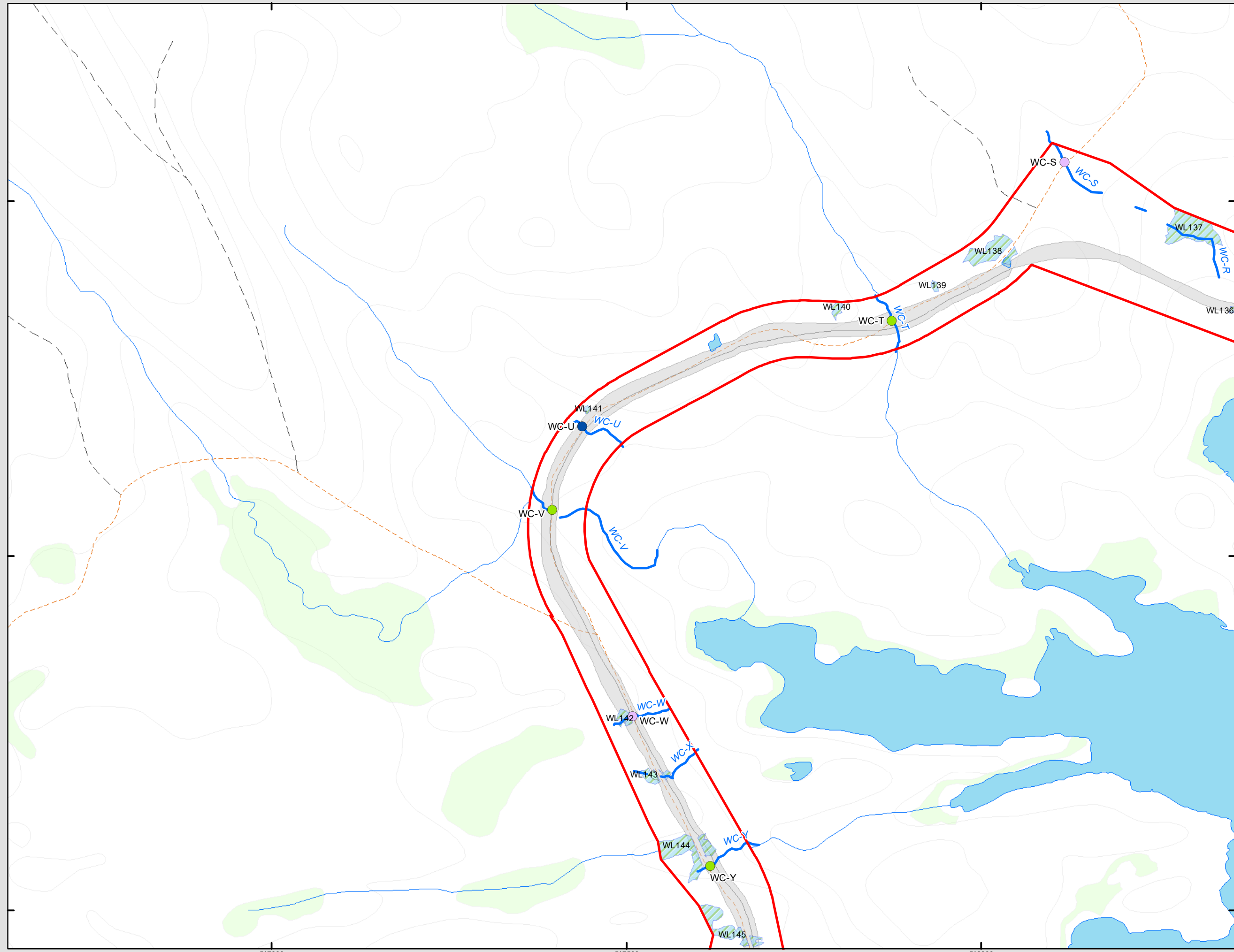
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Drawn By: LP Date: 2021-04-14
 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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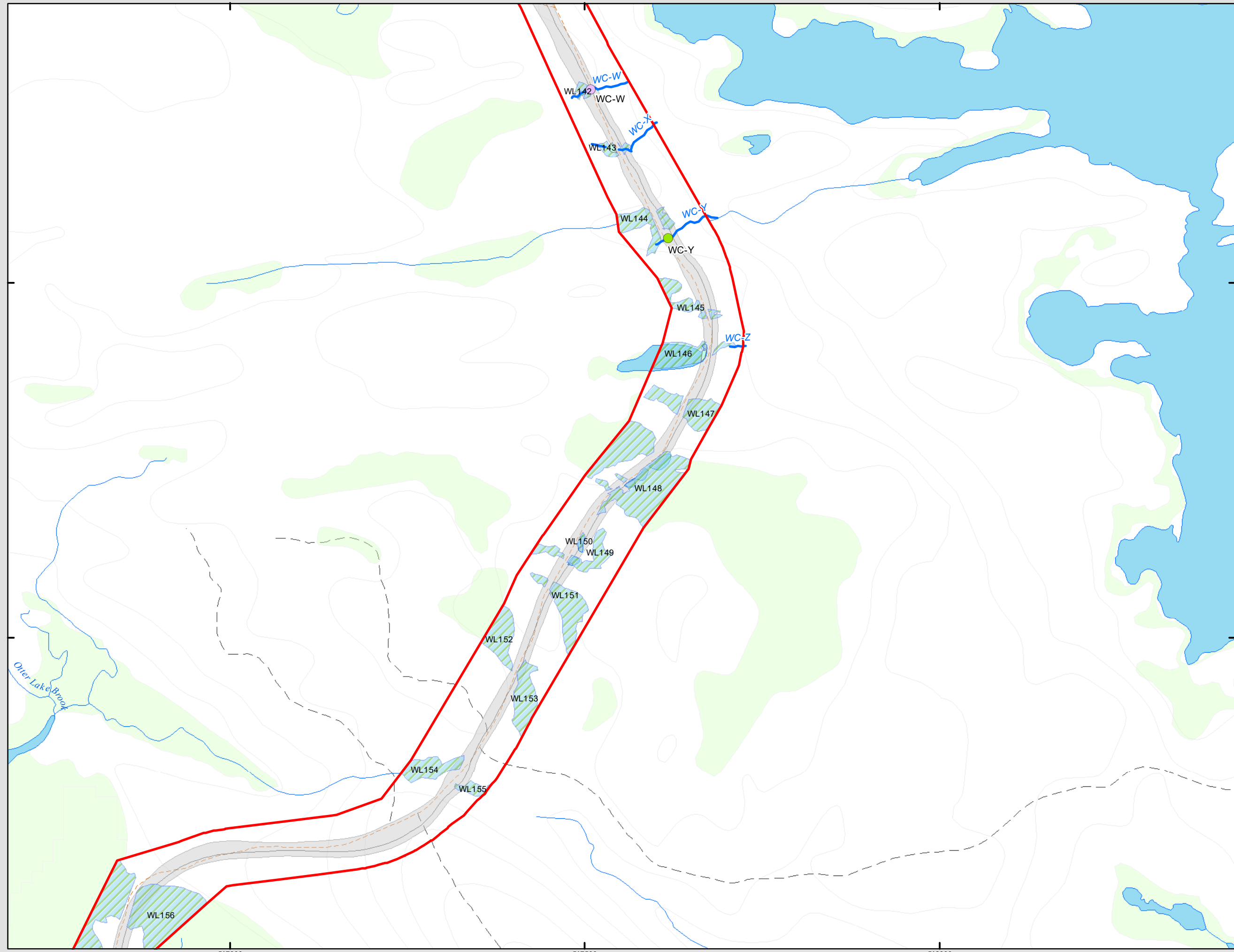


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FIGURE J.4-4 J

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road



- Buried Culvert
- Hung Culvert
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Gamin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



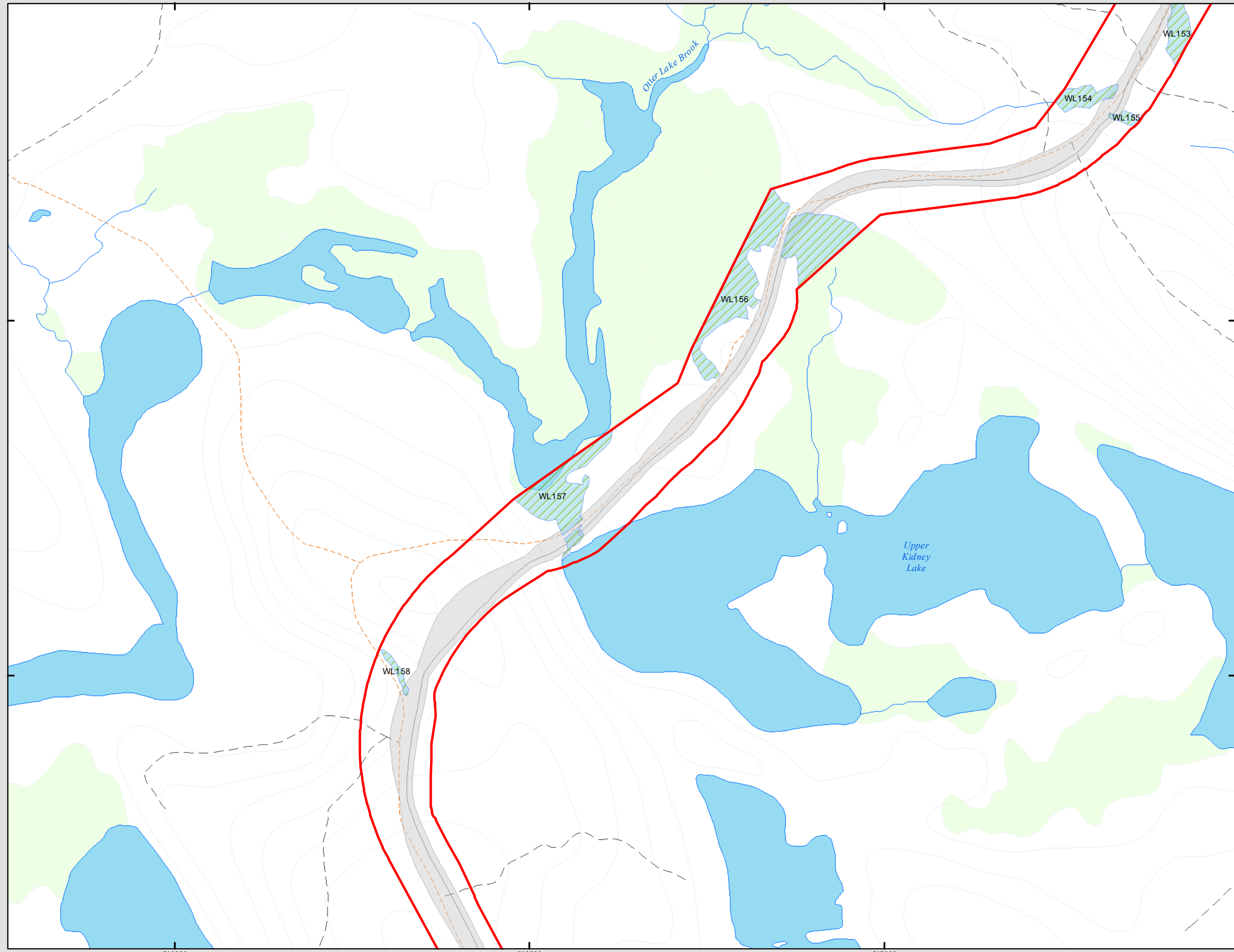
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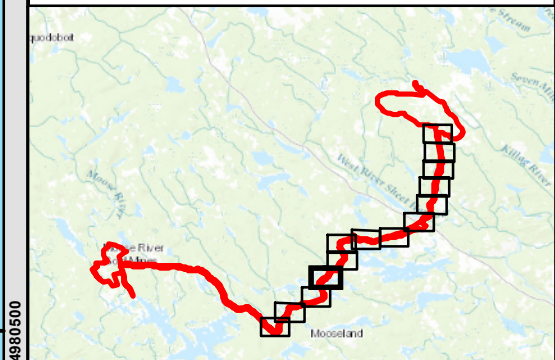


FIGURE J.4-4 K

Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road



- Dry Weather / Seasonal Road
- - - Track
- Topo Contours (5 m)
- NSTDB Mapped Watercourses outside PA
- Lake
- ▨ Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



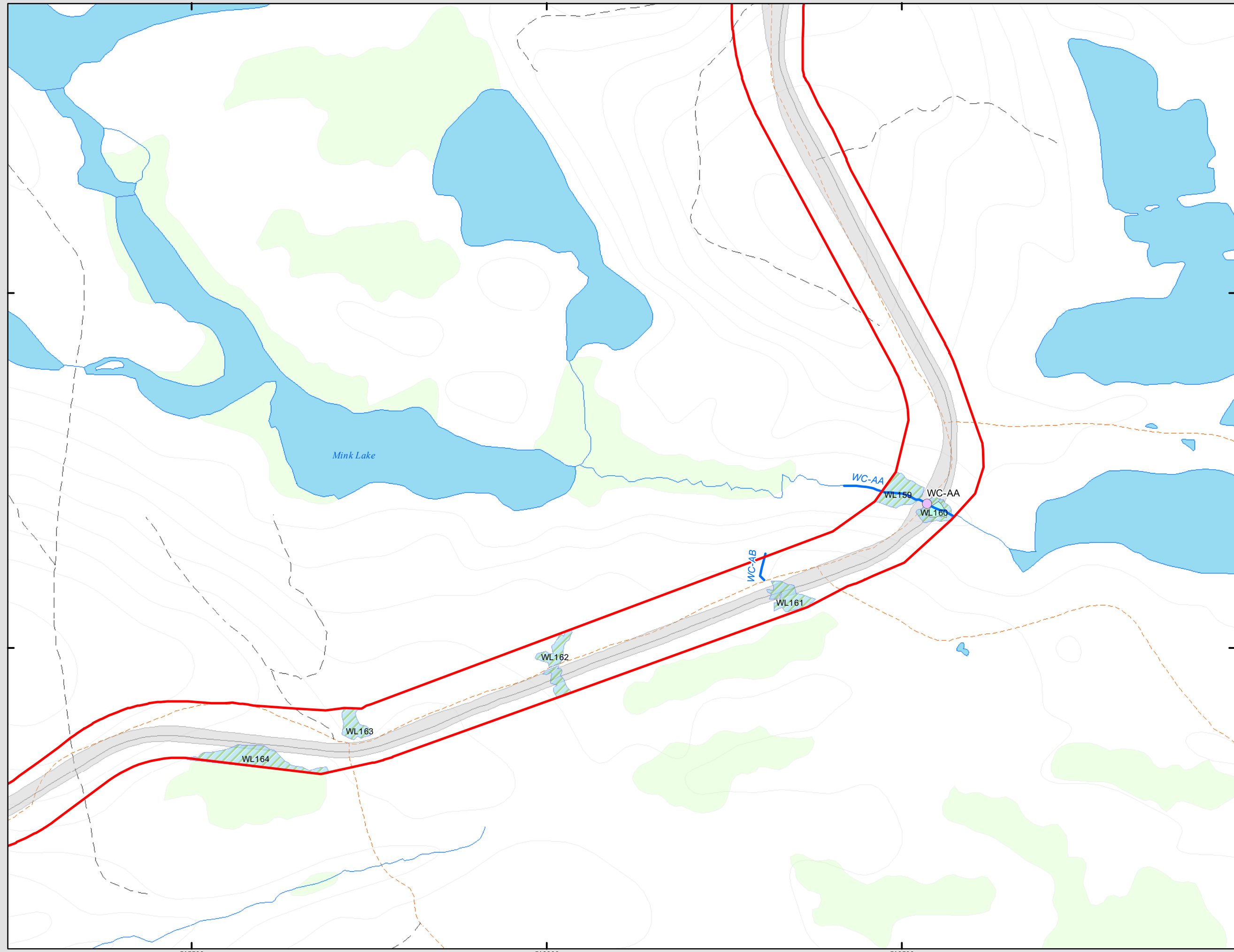
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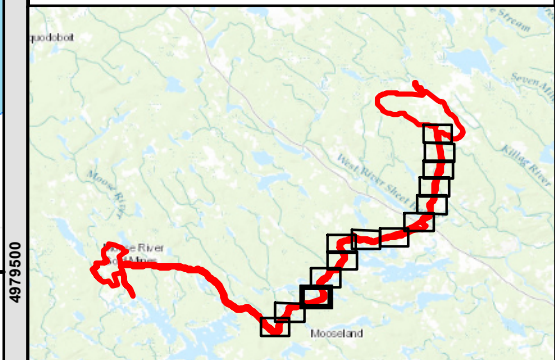


FIGURE J.4-4 L



**Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road**



- Hung Culvert
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
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515500

516000

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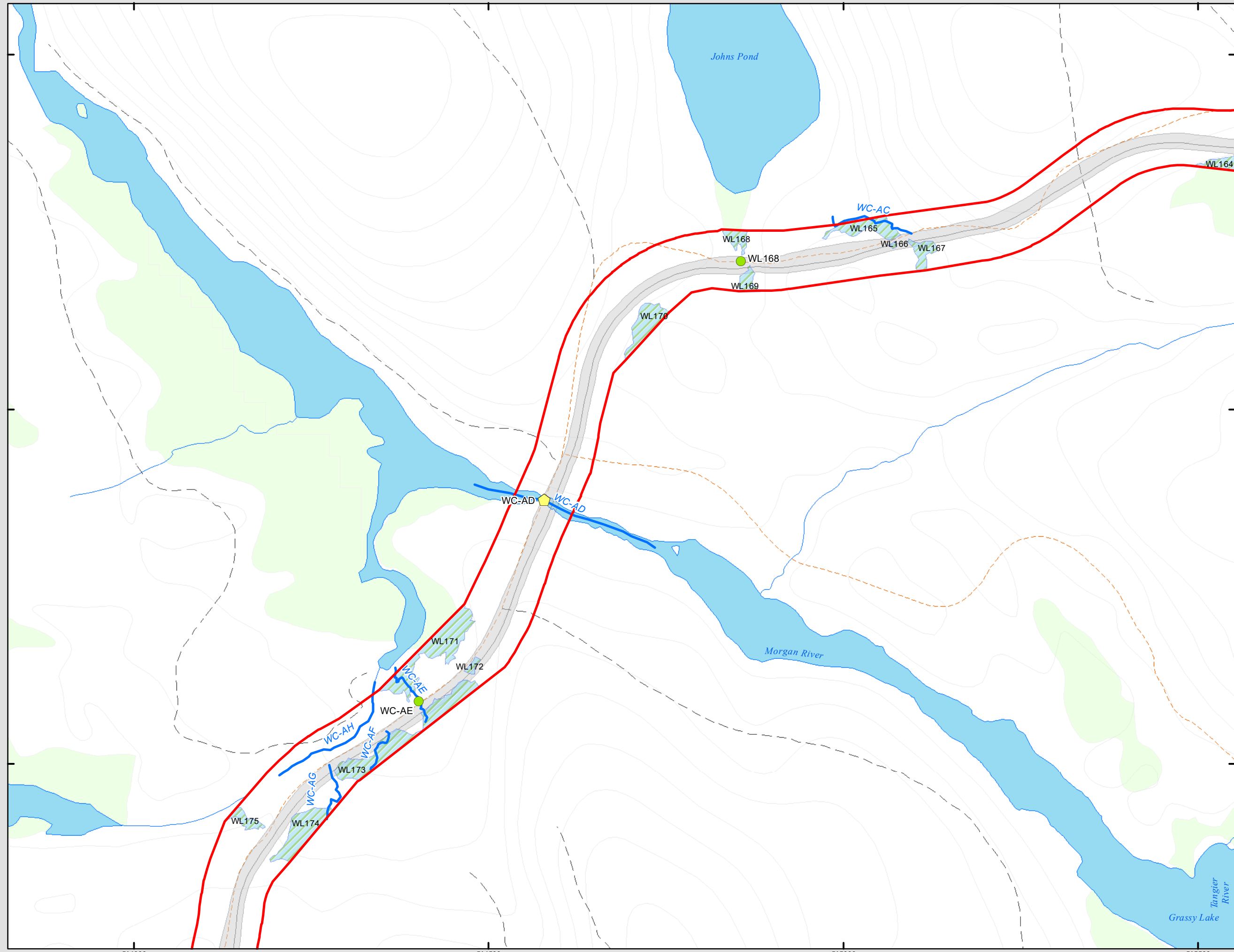
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FIGURE J.4-4 M



**Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road**



- Bridge - no barrier
- Buried Culvert
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
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Atlantic Gold

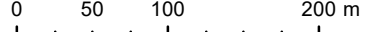
FIGURE J.4-4 N

**Beaver Dam Mine Project
Fish Habitat Evaluation
Results: Haul Road**

-  Buried Culvert
-  Local Road
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Field Delineated Watercourses within PA
-  NSTDB Mapped Watercourses outside PA
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter



1:5,000 Scale when printed @ 11" x 17"

Drawn By: LP Date: 2021-04-14
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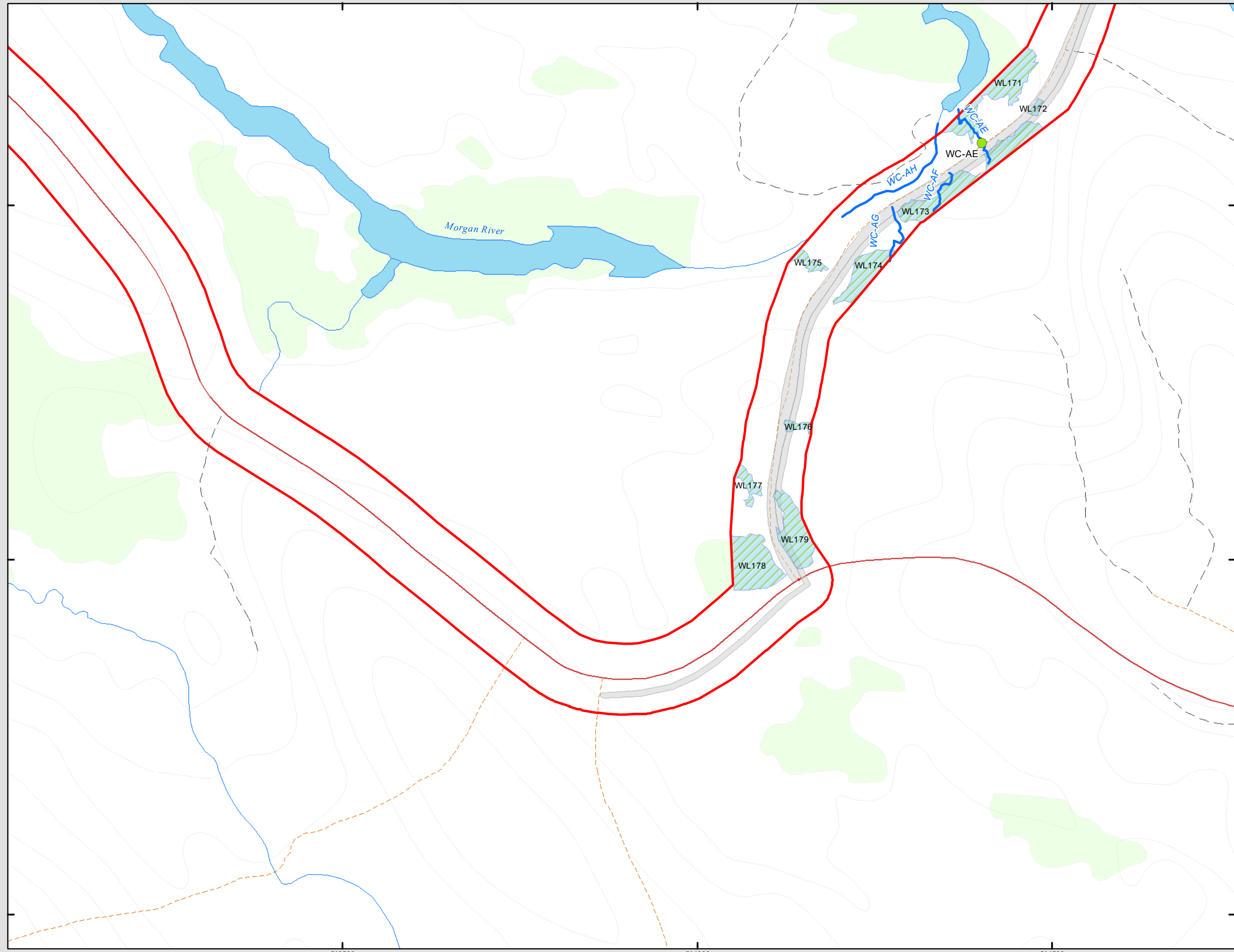
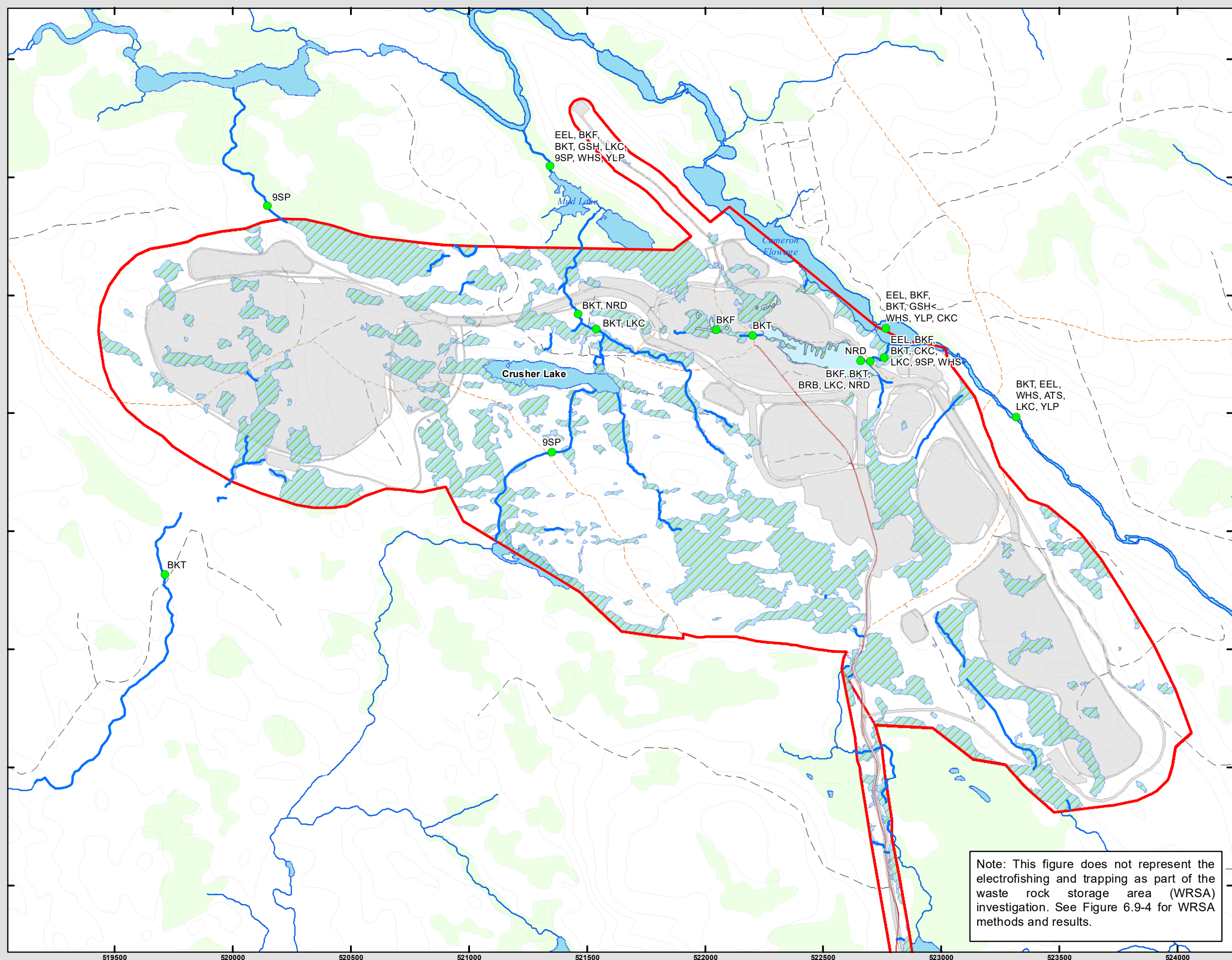
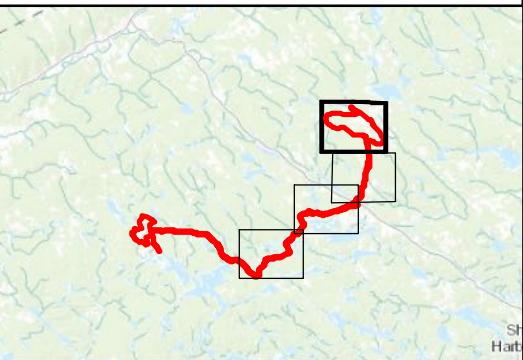


FIGURE J.4-5A

Beaver Dam Mine Project
Fish Capture Results



- Fish Capture Results
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Local Road
- - - Dry Weather / Seasonal Road
- - - Track
- Topo Contours (5 m)
- Open Water
- Lake
- ▨ Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 190 380 760 m

1:15,000 Scale when printed @ 11" x 17"

Drawn By: AS Date: 2021-04-14
 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



Note: This figure does not represent the electrofishing and trapping as part of the waste rock storage area (WRSA) investigation. See Figure 6.9-4 for WRSA methods and results.

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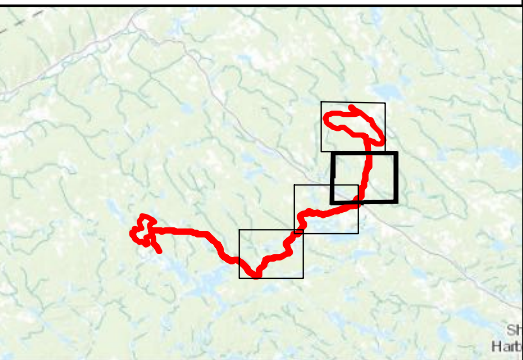
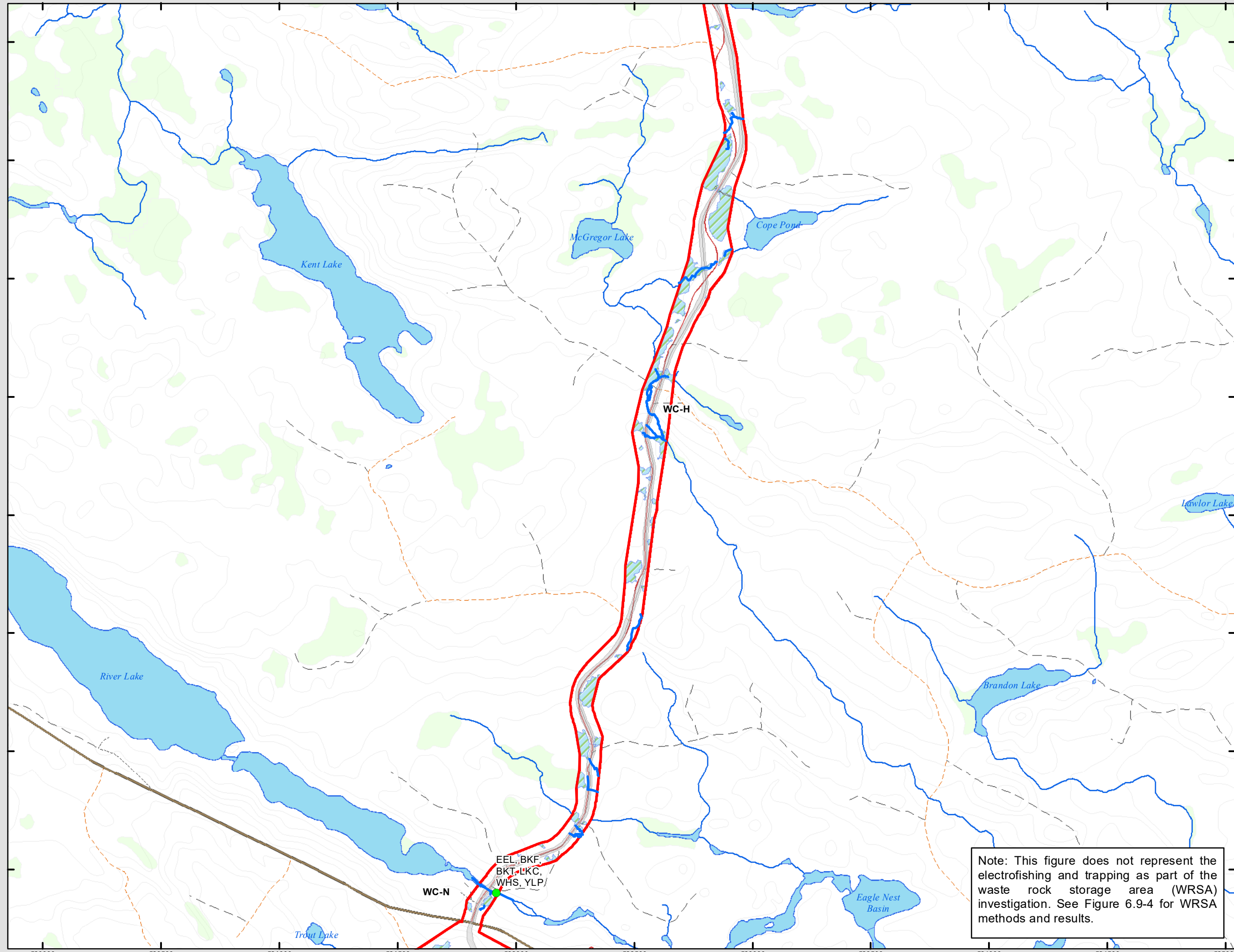


FIGURE J.4-5 B

Beaver Dam Mine Project

Fish Capture Results

- Fish Capture Results
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Collector Road
- Local Road
- - - Dry Weather / Seasonal Road
- - - Diveways (>300 m)
- - - Track
- Topo Contours (5 m)
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 190 380 760 m

1:15,000 Scale when printed @ 11" x 17"

Drawn By: AS Date: 2021-04-14
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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Note: This figure does not represent the electrofishing and trapping as part of the waste rock storage area (WRSA) investigation. See Figure 6.9-4 for WRSA methods and results.

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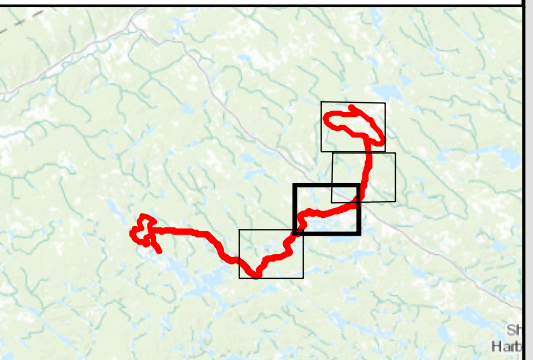


FIGURE J.4-5 C

Beaver Dam Mine Project

Fish Capture Results

- Fish Capture Results
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Collector Road
- Local Road
- - - Dry Weather / Seasonal Road
- - - Diveways (>300 m)
- - - Track
- Topo Contours (5 m)
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 190 380 760 m

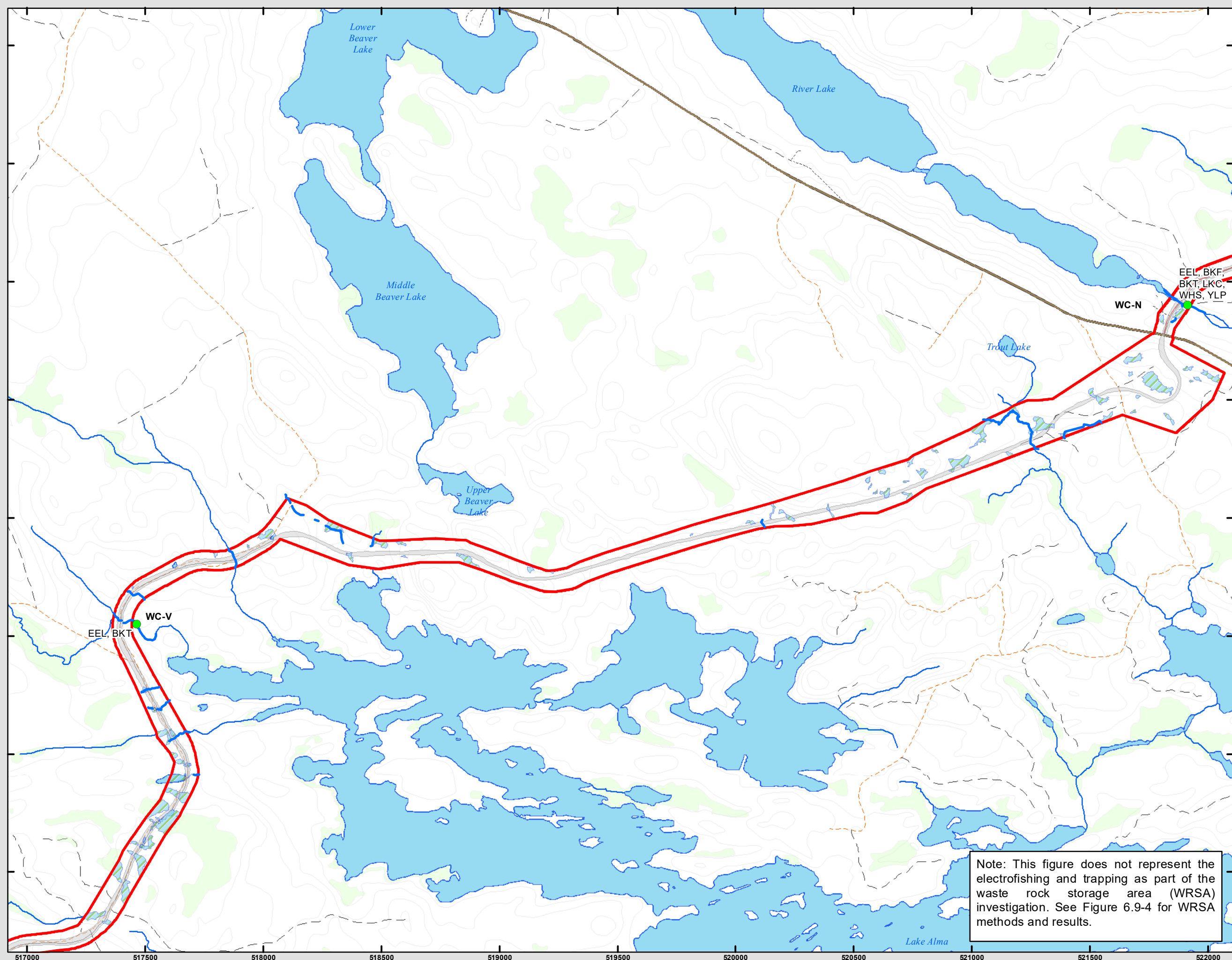
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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Note: This figure does not represent the electrofishing and trapping as part of the waste rock storage area (WRSA) investigation. See Figure 6.9-4 for WRSA methods and results.

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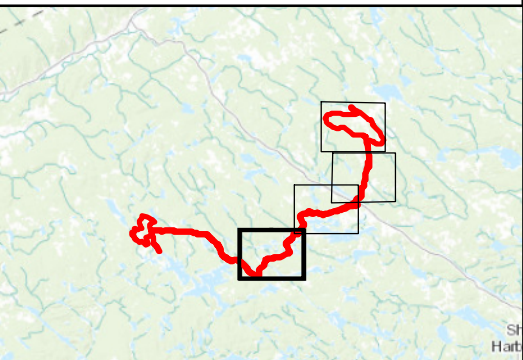
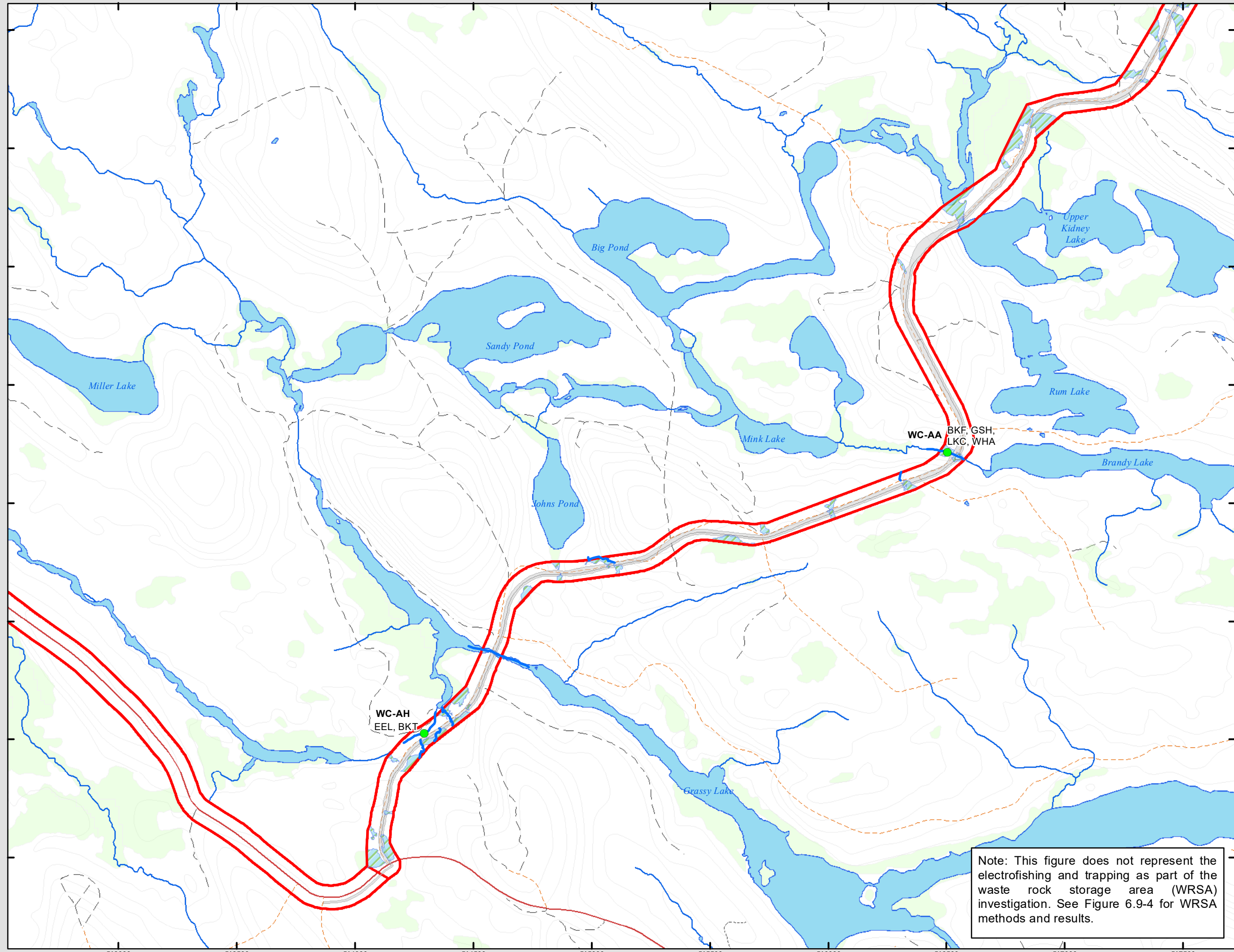


FIGURE J.4-5 D

Beaver Dam Mine Project

Fish Capture Results

- Fish Capture Results
- Field Delineated Watercourses within PA
- NSTDB Mapped Watercourses outside PA
- Local Road
- - - Dry Weather / Seasonal Road
- - - Diveways (>300 m)
- - - Track
- Topo Contours (5 m)
- Open Water
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 190 380 760 m

1:15,000 Scale when printed @ 11" x 17"

Drawn By: AS Date: 2021-04-14
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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Note: This figure does not represent the electrofishing and trapping as part of the waste rock storage area (WRSA) investigation. See Figure 6.9-4 for WRSA methods and results.

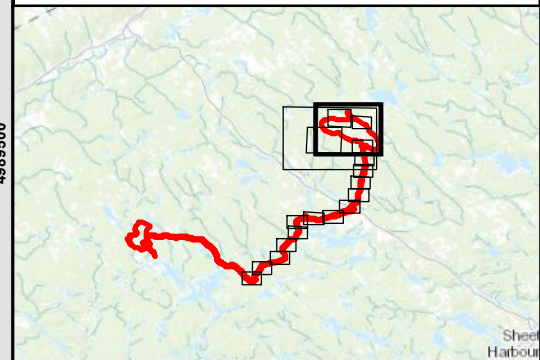
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FIGURE J.4-6 A

Beaver Dam Mine Project Anticipated Fish Habitat Impact Areas by Type

- Buried Culvert
- Crushed Culvert
- Functioning Culvert
- Direct Impact: Watercourses
- Indirect Impact: Surface Flow Reduction
- Fisheries Resources
- Provincially Regulated Watercourses
- NSTDB Mapped Watercourses outside PA
- Direct Impact: Wetland Fish Habitat
- Local Road
- - - Dry Weather / Seasonal Road
- - - Track
- Topo Contours (5 m)
- Lake
- ▨ Field Delineated Wetlands within PA
- ▨ NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

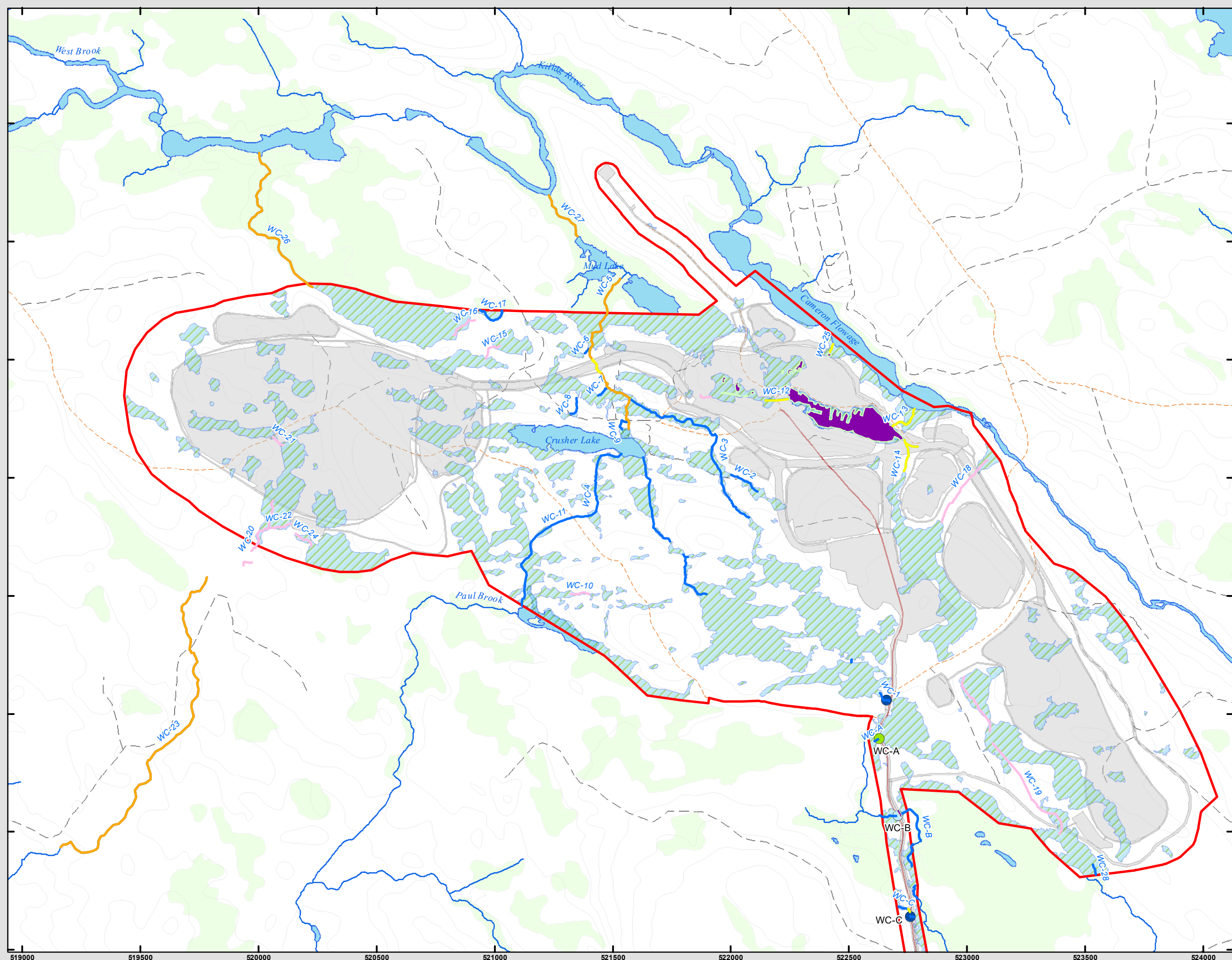
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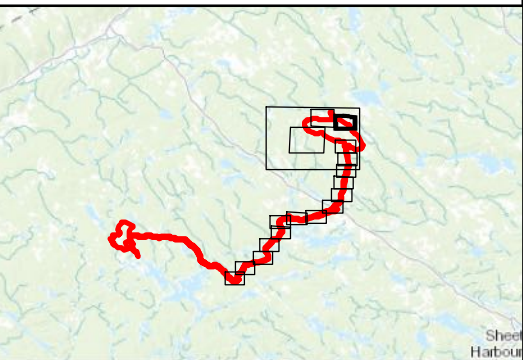
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FIGURE J.4-6 B

Beaver Dam Mine Project Anticipated Fish Habitat Impact Areas by Type

- Fisheries Resources
- Provincially Regulated Watercourses
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

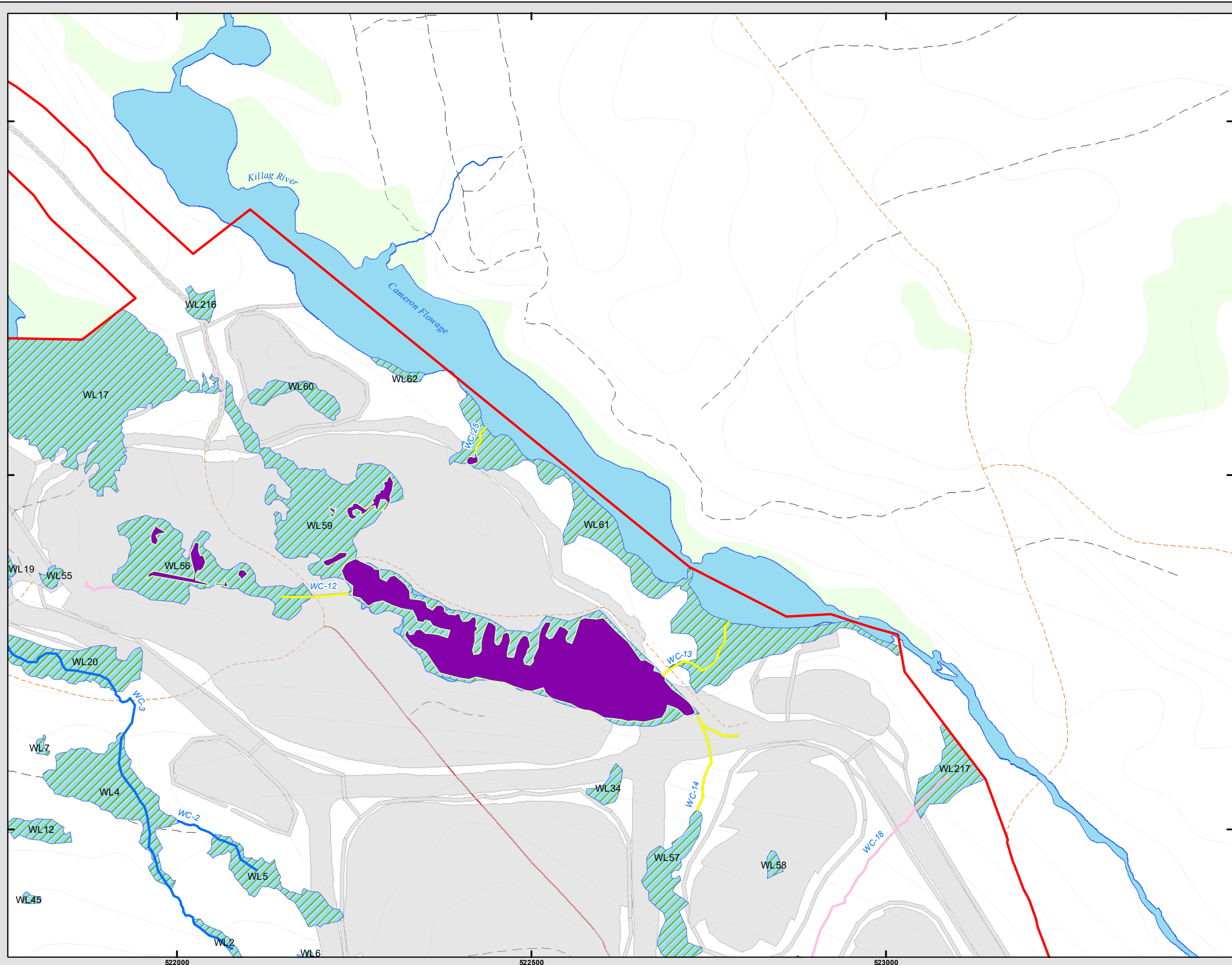
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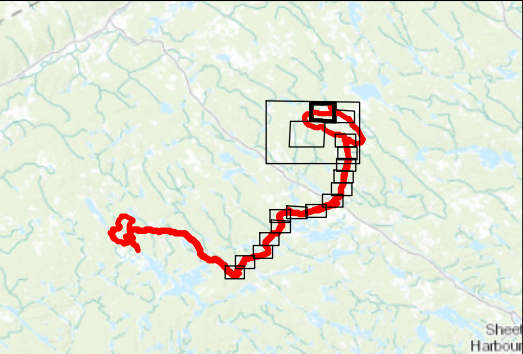
Atlantic Gold

FIGURE J.4-6C


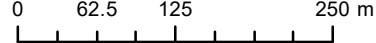
Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type

-  Indirect Impact: Surface Flow Reduction
-  Fisheries Resources
-  Provincially Regulated Watercourses
-  NSTDB Mapped Watercourses outside PA
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

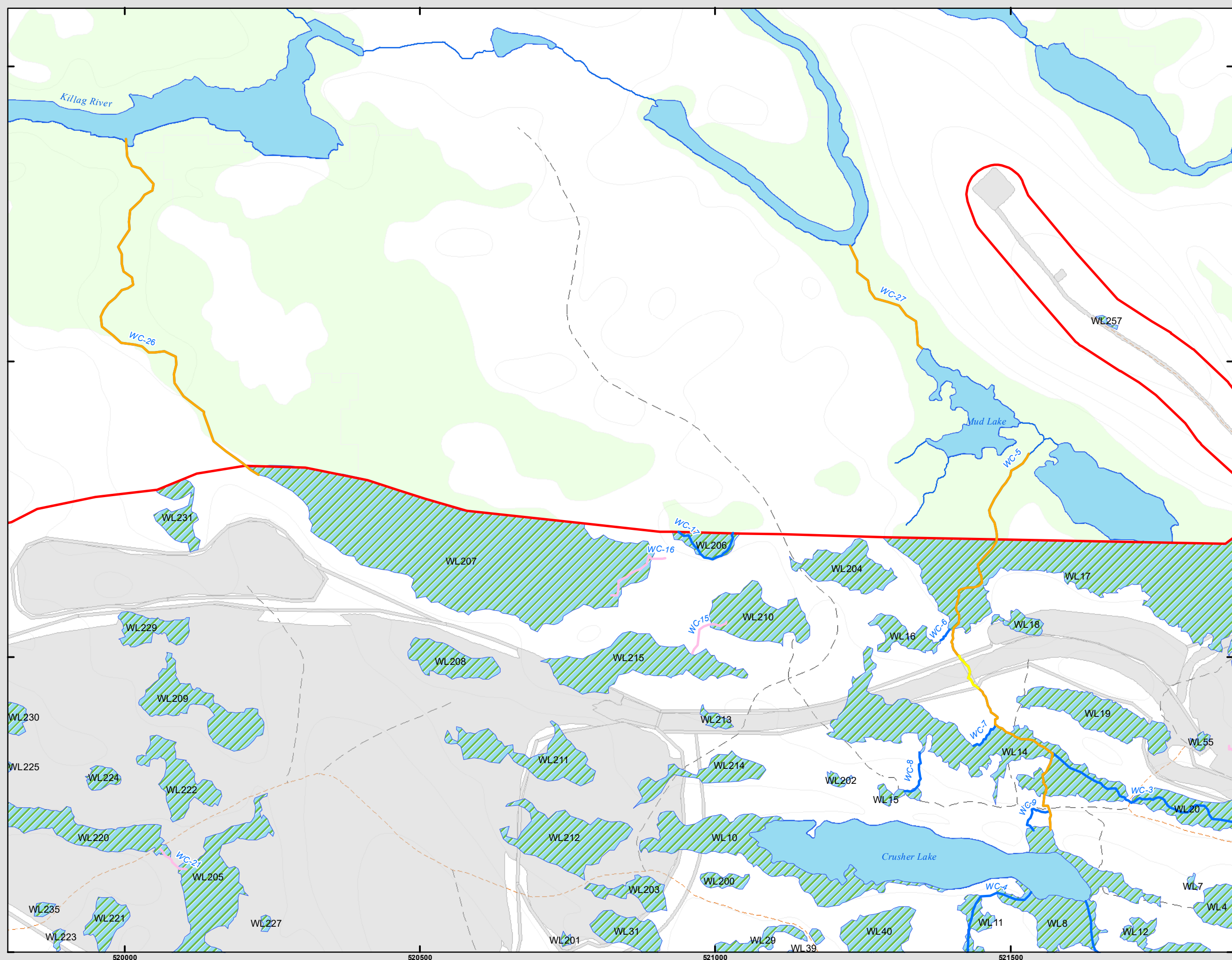
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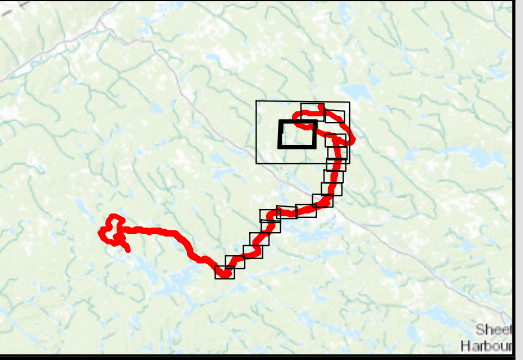
Atlantic Gold

FIGURE J.4-6 D


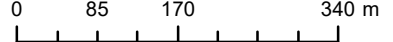
Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type

-  Indirect Impact: Surface Flow Reduction
-  Fisheries Resources
-  Provincially Regulated Watercourses
-  NSTDB Mapped Watercourses outside PA
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

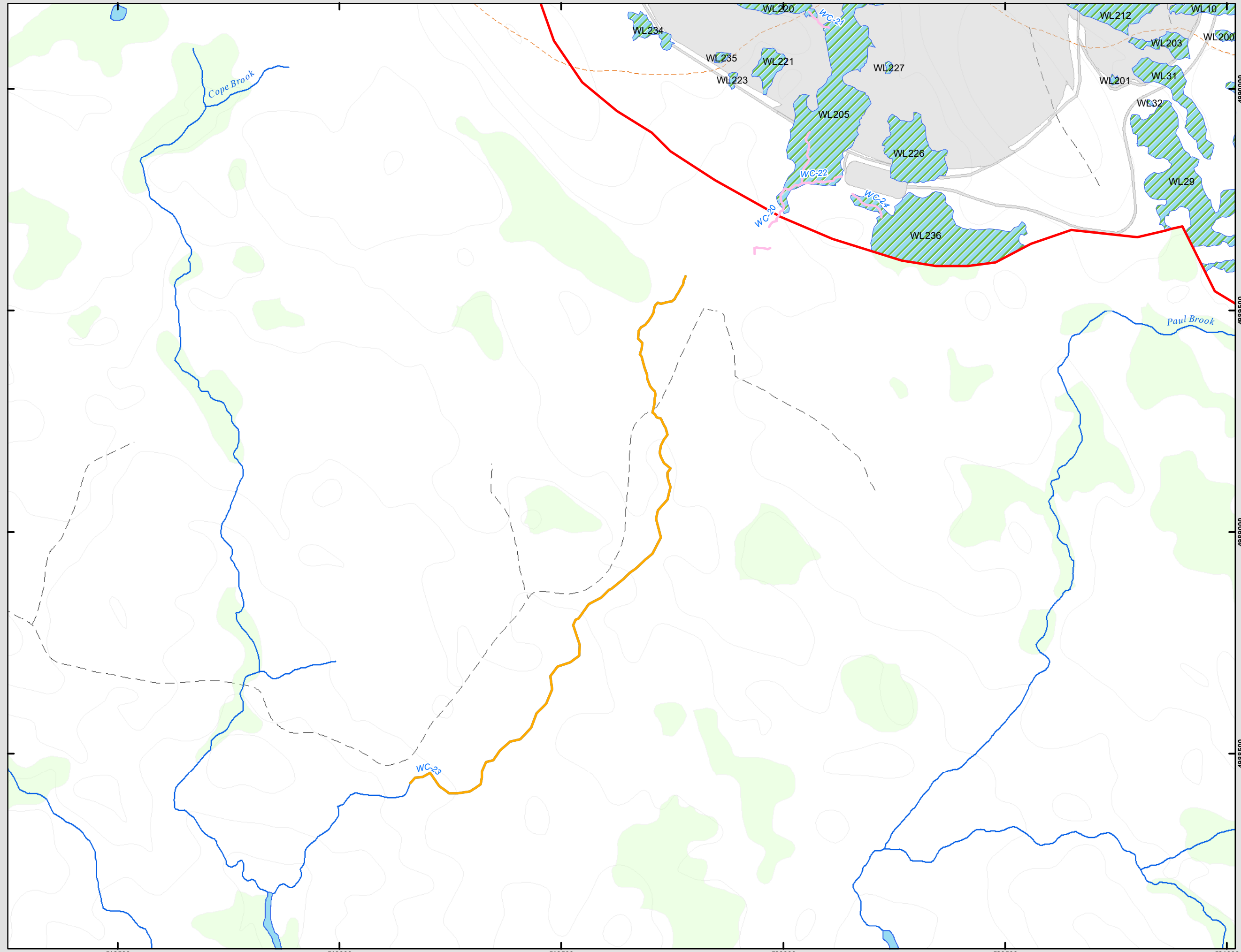
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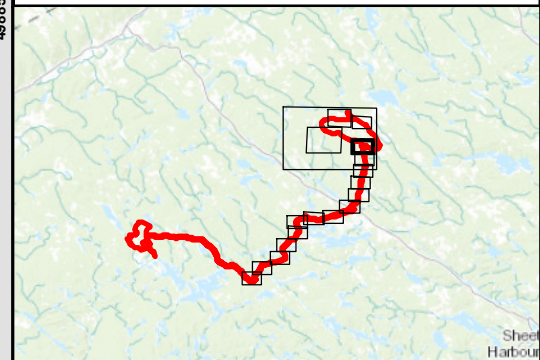
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FIGURE J.4-6 E

Beaver Dam Mine Project Anticipated Fish Habitat Impact Areas by Type

- Buried Culvert
- Crushed Culvert
- Functioning Culvert
- Direct Impact: Watercourses
- Fisheries Resources
- Provincially Regulated Watercourses
- NSTDB Mapped Watercourses outside PA
- Direct Impact: Wetland Fish Habitat
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

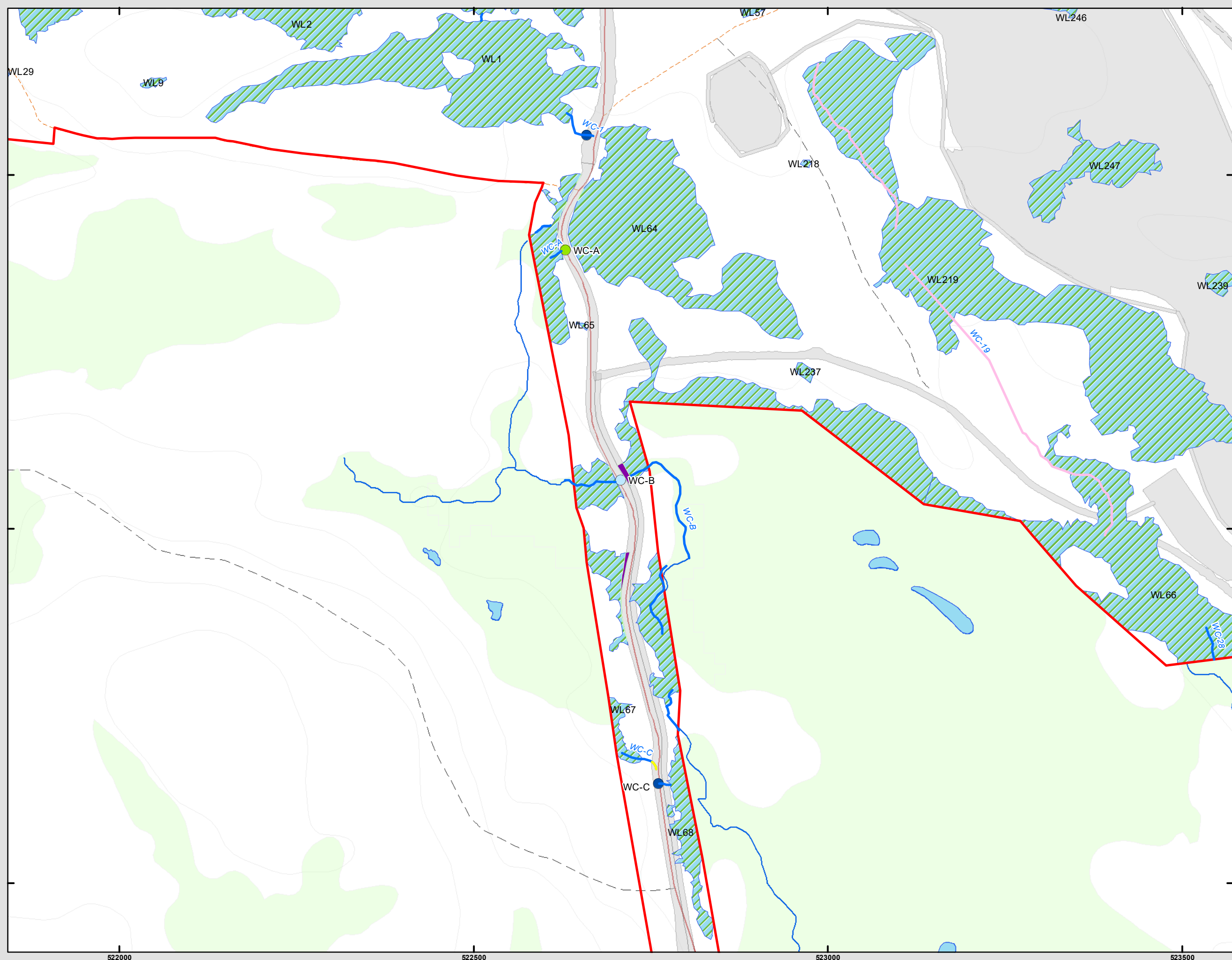
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Drawn By: AS Date: 2021-04-14
 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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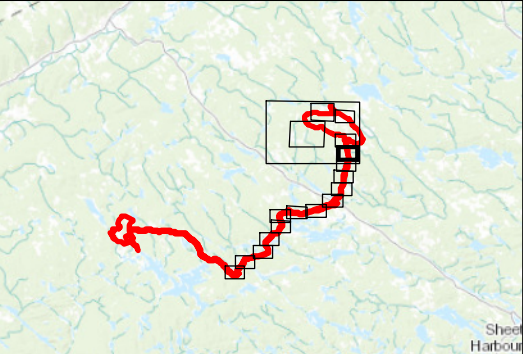
Prepared For:



FIGURE J.4-6 F

Beaver Dam Mine Project
Anticipated Fish Habitat Impact Areas by Type

- Blocked Culvert
- Functioning Culvert
- Direct Impact: Watercourses
- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

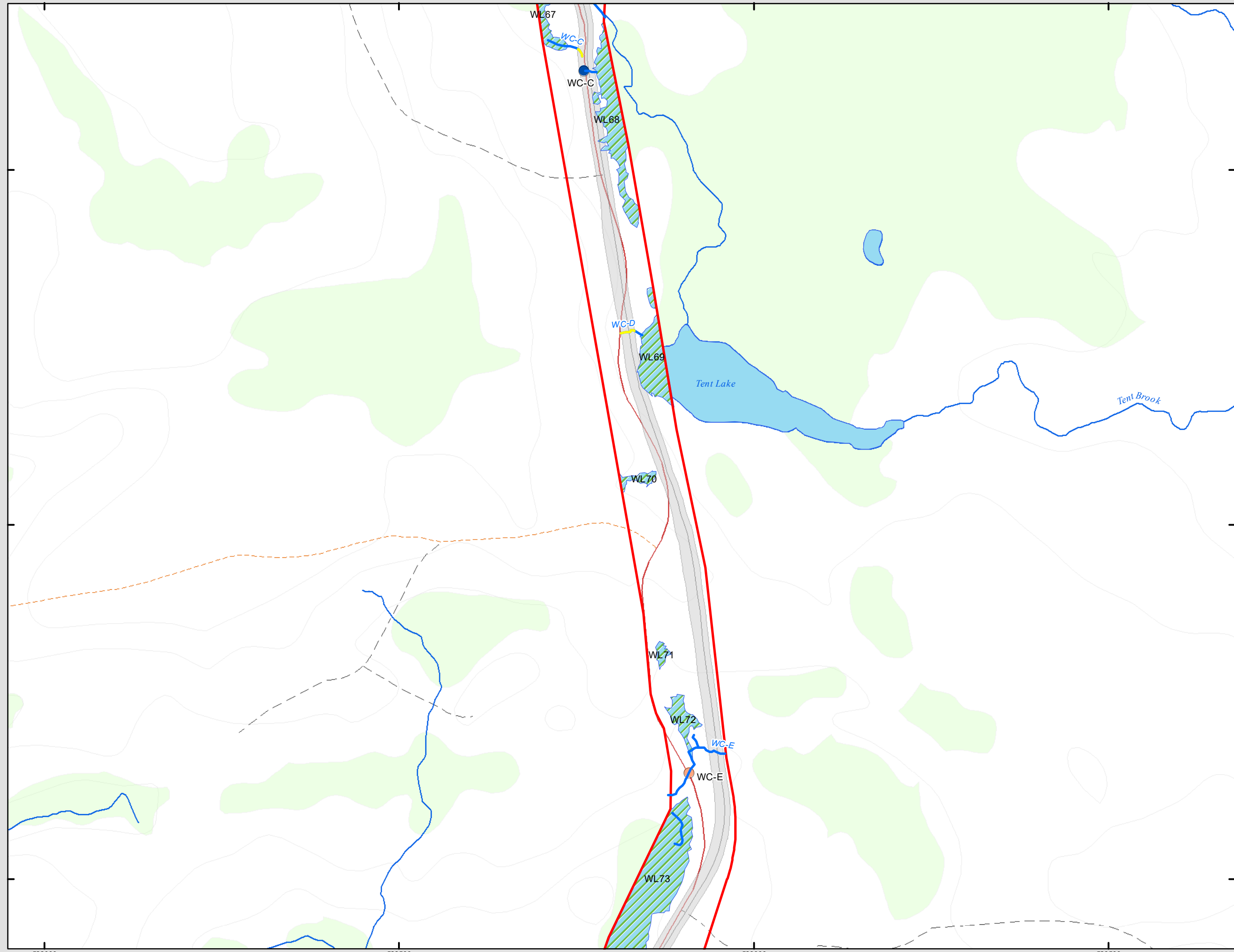
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Reviewed By: XX

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






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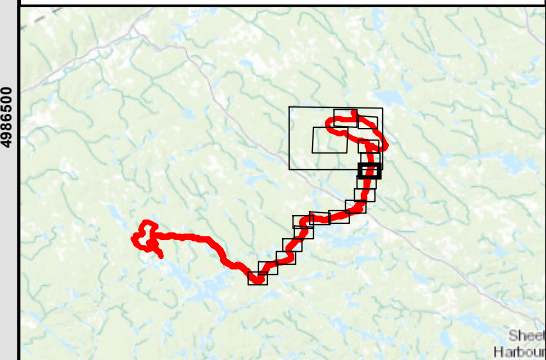


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FIGURE J.4-6 G

Beaver Dam Mine Project
Anticipated Fish Habitat Impact Areas by Type

-  Blocked Culvert
-  Crushed Culvert
-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Direct Impact: Wetland Fish Habitat
-  Local Road
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

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1:5,000 Scale when printed @ 11" x 17"

Drawn By: AS Date: 2021-04-14
 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Gamin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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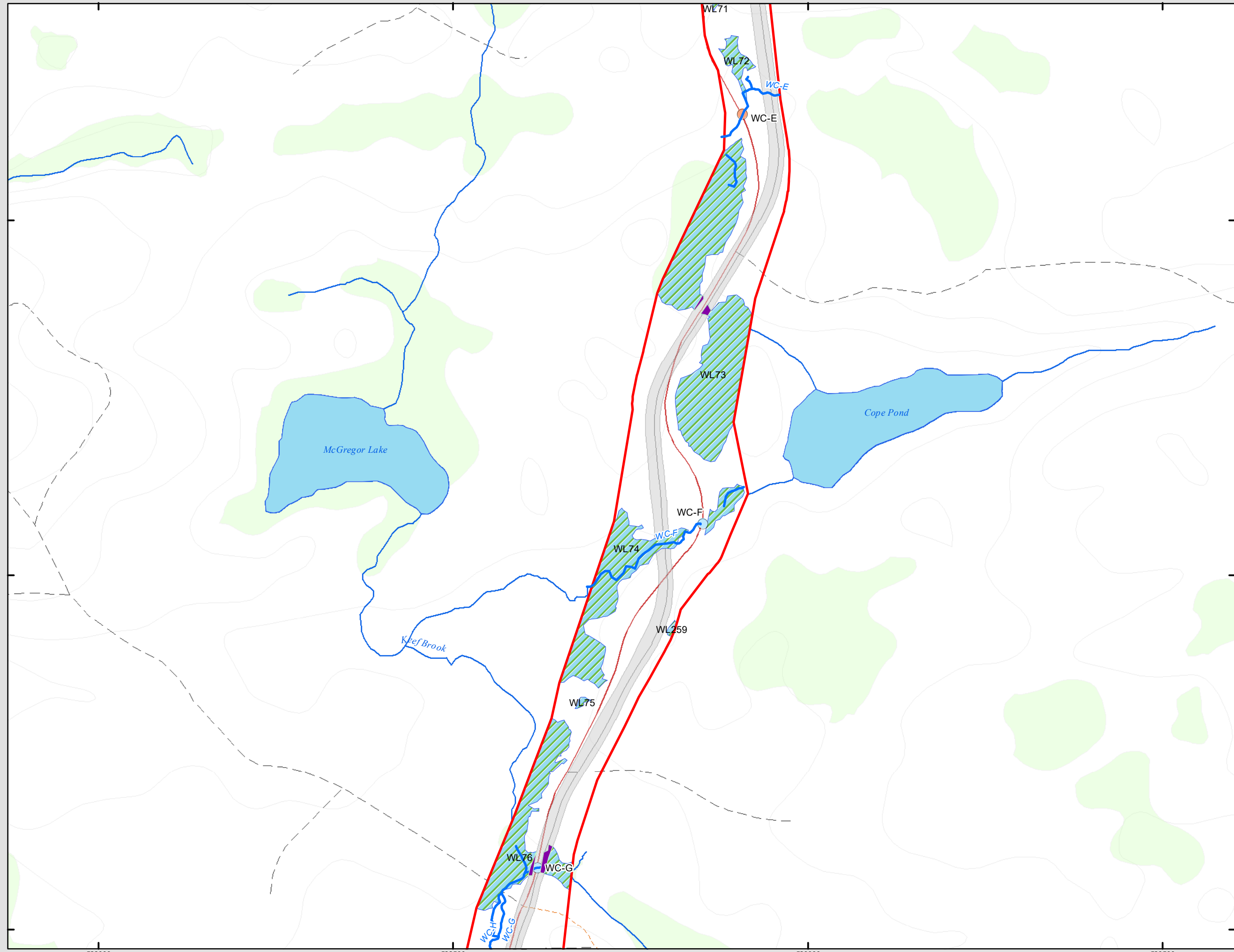
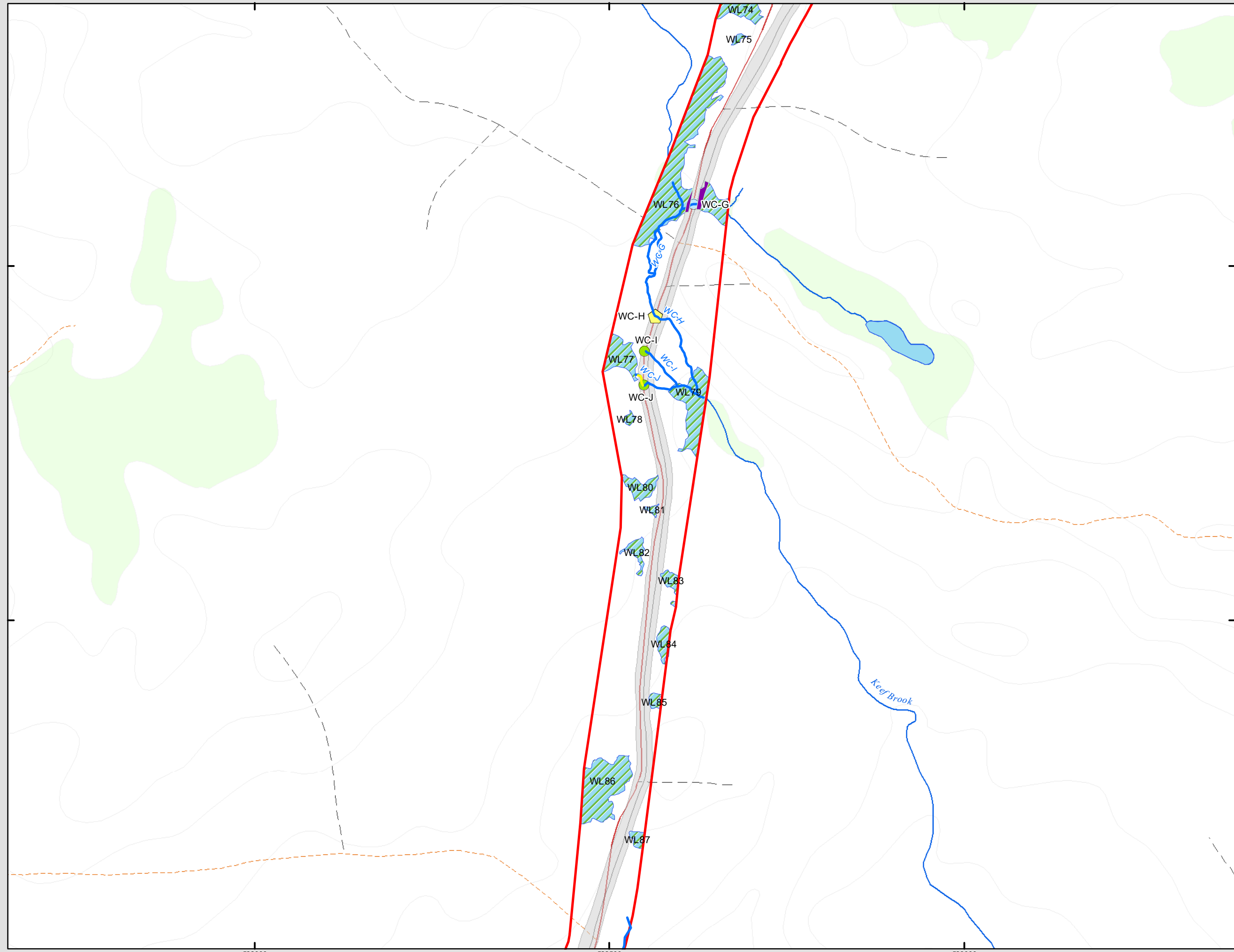















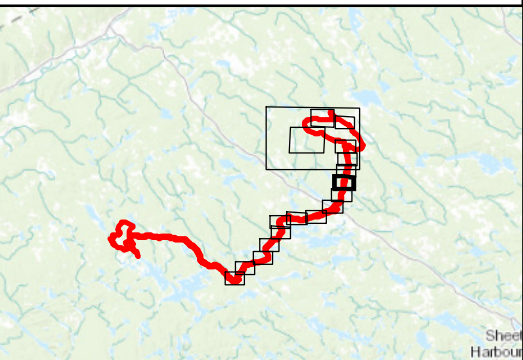


FIGURE J.4-6H

Beaver Dam Mine Project
Anticipated Fish Habitat Impact Areas by Type



-  Bridge - no barrier
-  Buried Culvert
-  Crushed Culvert
-  Direct Impact: Watercourses
-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Direct Impact: Wetland Fish Habitat
-  Local Road
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

1:5,000 Scale when printed @ 11" x 17"

Drawn By: AS Date: 2021-04-14
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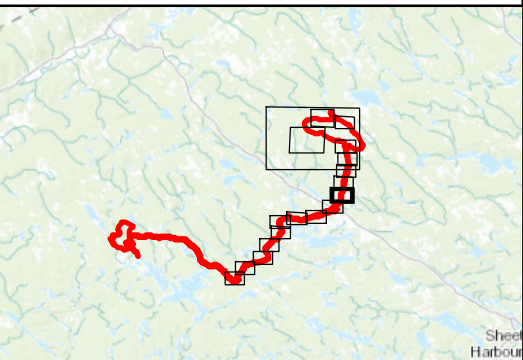


FIGURE J.4-6I

Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type

- Buried Culvert
- Functioning Culvert
- Direct Impact: Watercourses
- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m
 1:5,000 Scale when printed @ 11" x 17"

Drawn By: AS Date: 2021-04-14
Reviewed By: XX

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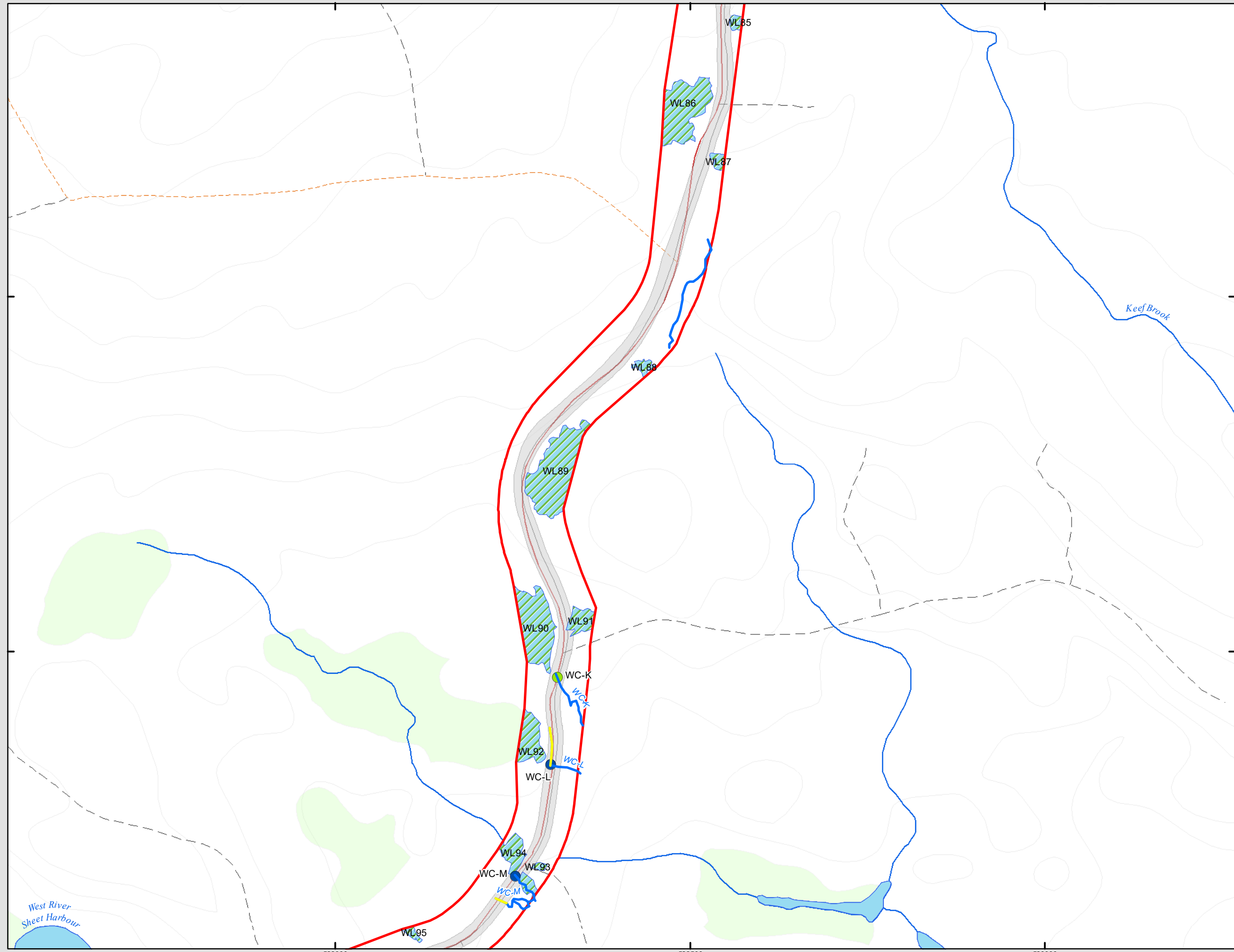

















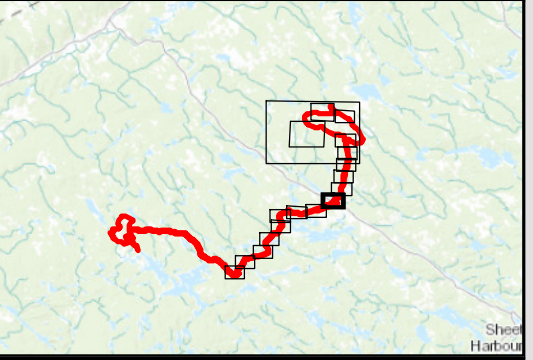



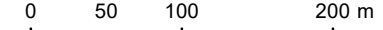
FIGURE J.4-6 J

Beaver Dam Mine Project
Anticipated Fish Habitat Impact Areas by Type

-  Bridge - no barrier
-  Buried Culvert
-  Functioning Culvert
-  Direct Impact: Watercourses
-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Collector Road
-  Local Road
-  Dry Weather / Seasonal Road
-  Diveways (>300 m)
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



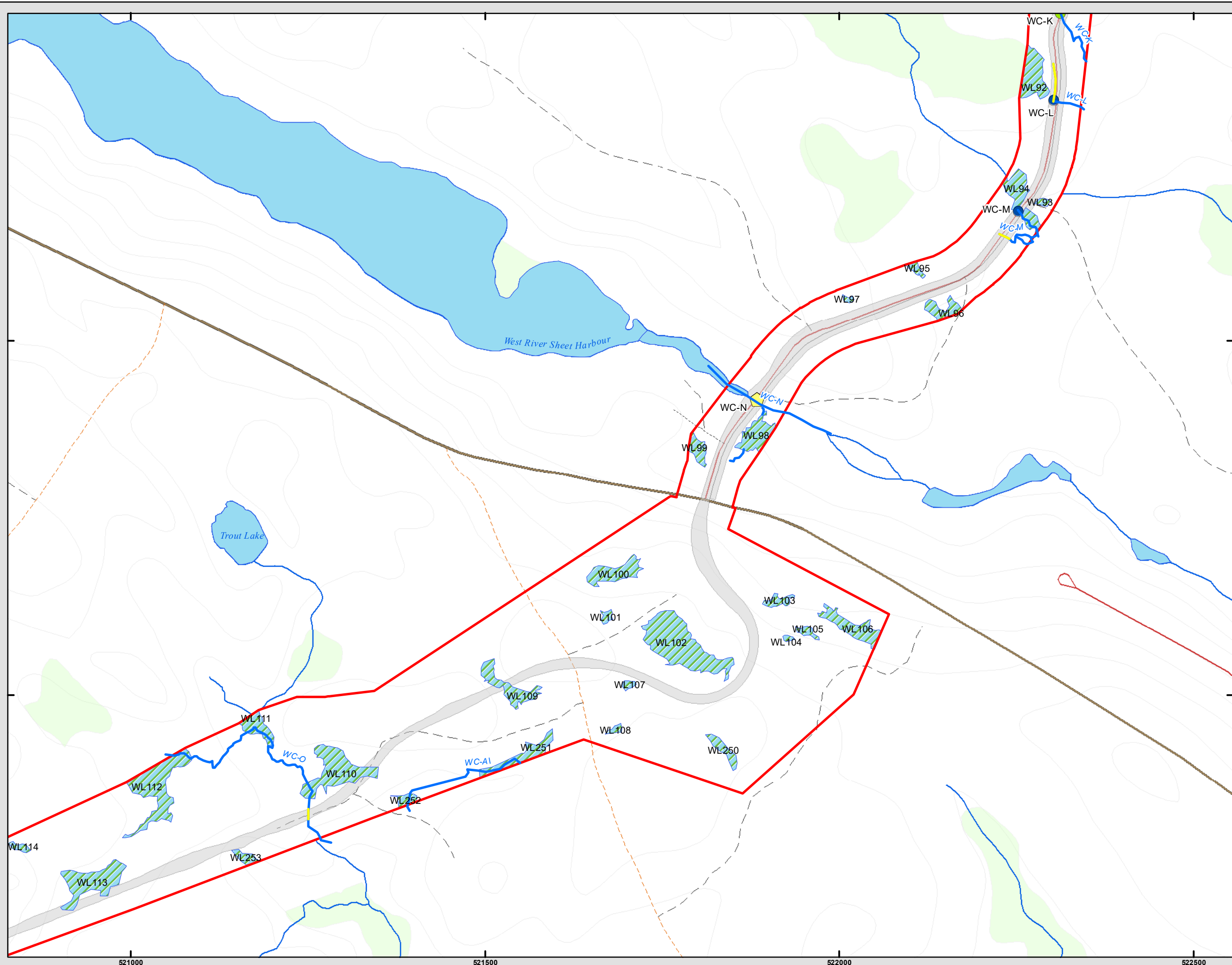
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 Units: Meter

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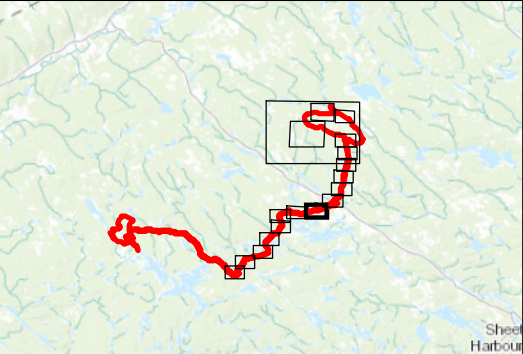
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FIGURE J.4-6 K



Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type

-  Direct Impact: Watercourses
-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

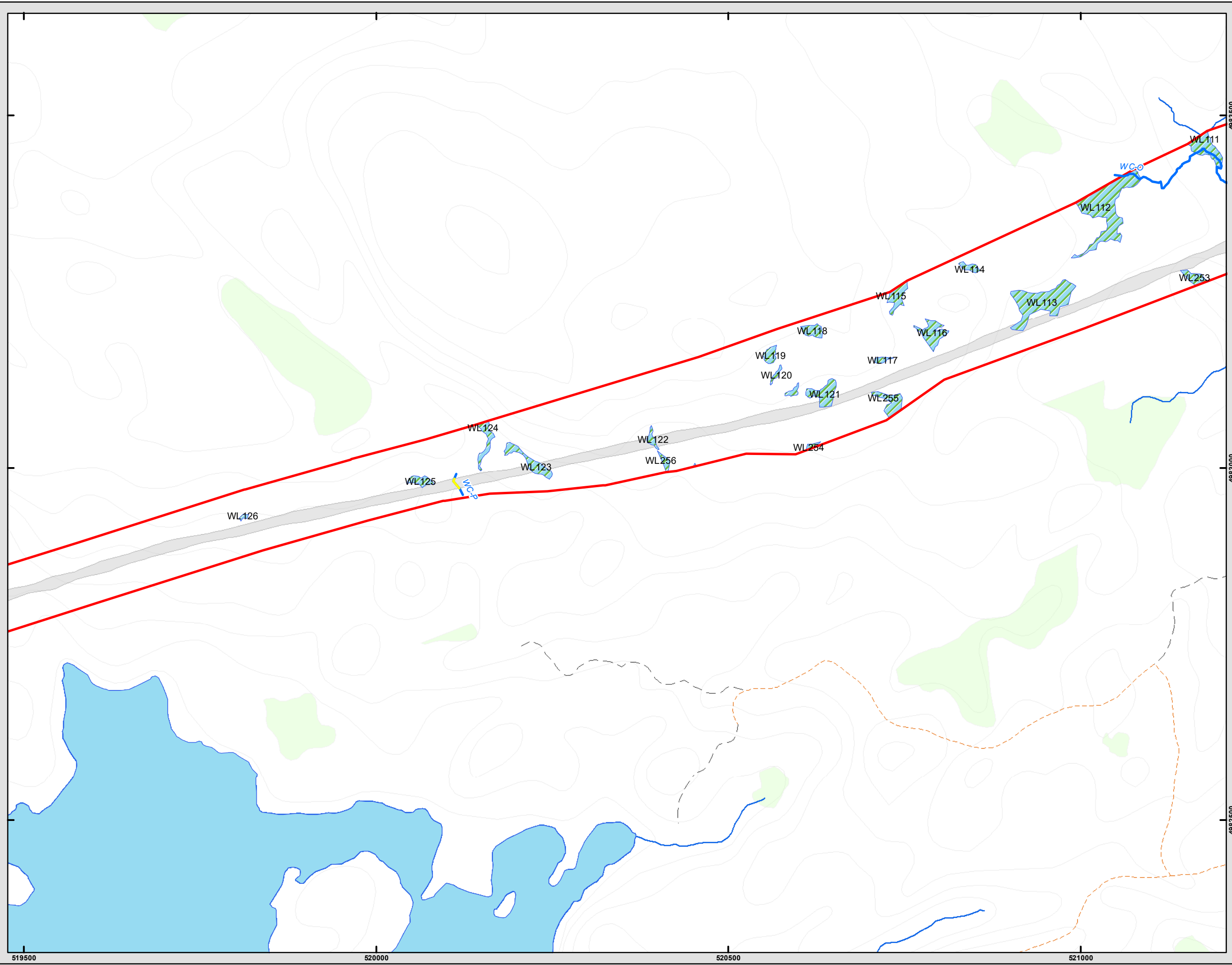
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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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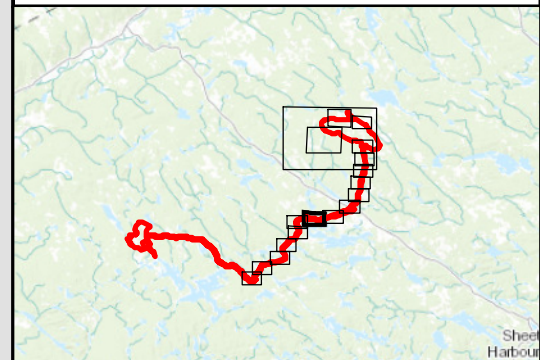


FIGURE J.4-6L

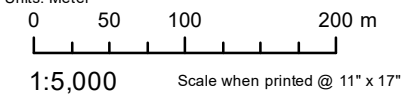
Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type

- Hung Culvert
- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

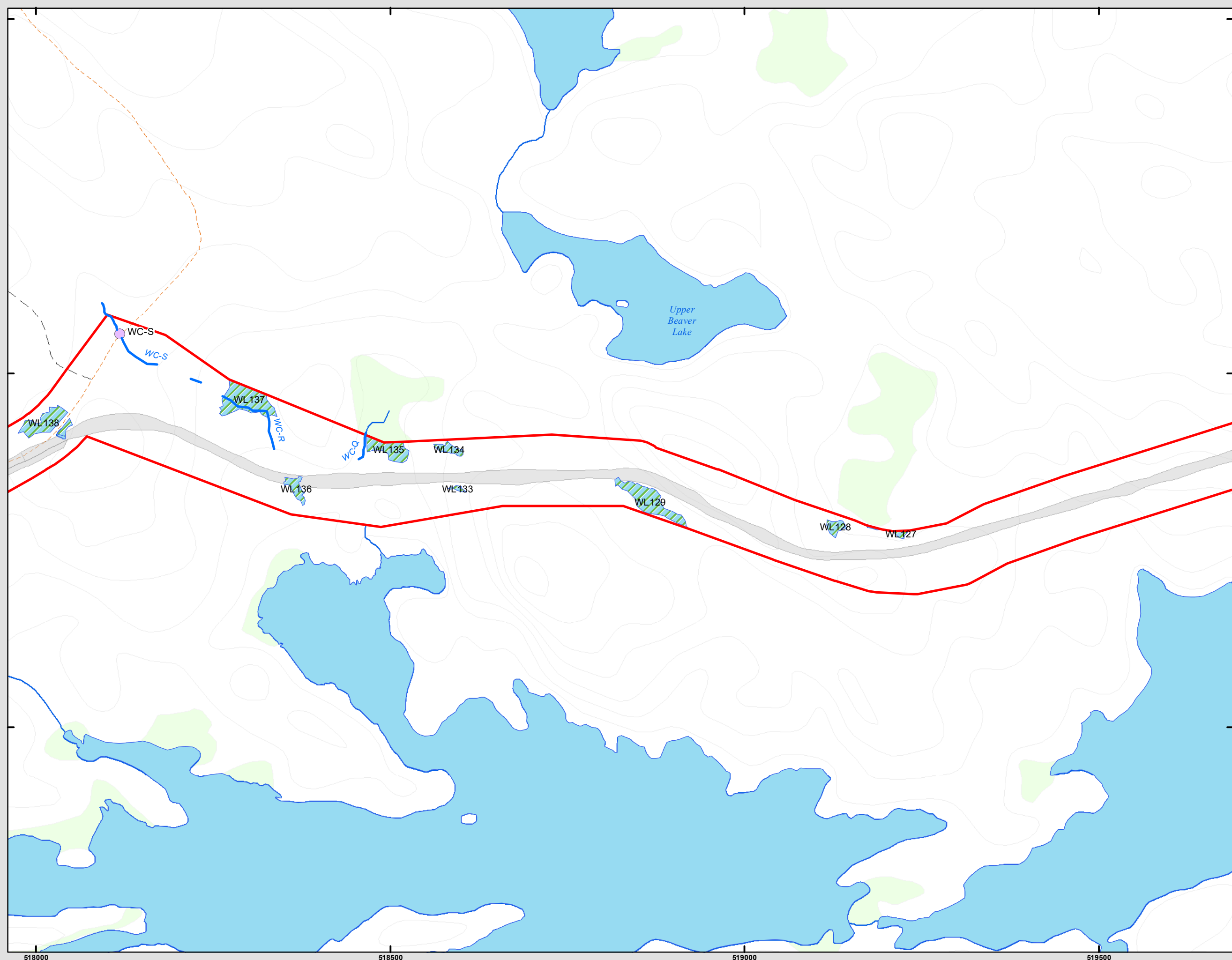


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Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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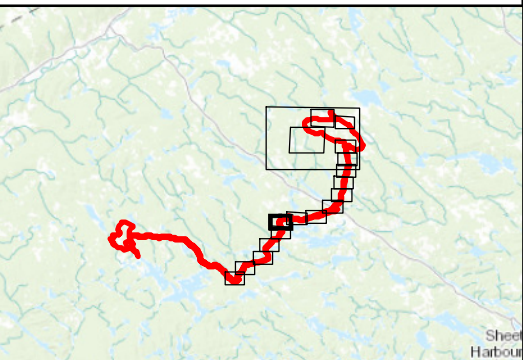
Prepared For:





FIGURE J.4-6 M

Beaver Dam Mine Project
Anticipated Fish Habitat Impact Areas by Type

-  Buried Culvert
-  Functioning Culvert
-  Hung Culvert
-  Direct Impact: Watercourses
-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
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 Datum: North American 1983 CSRS
 Units: Meter

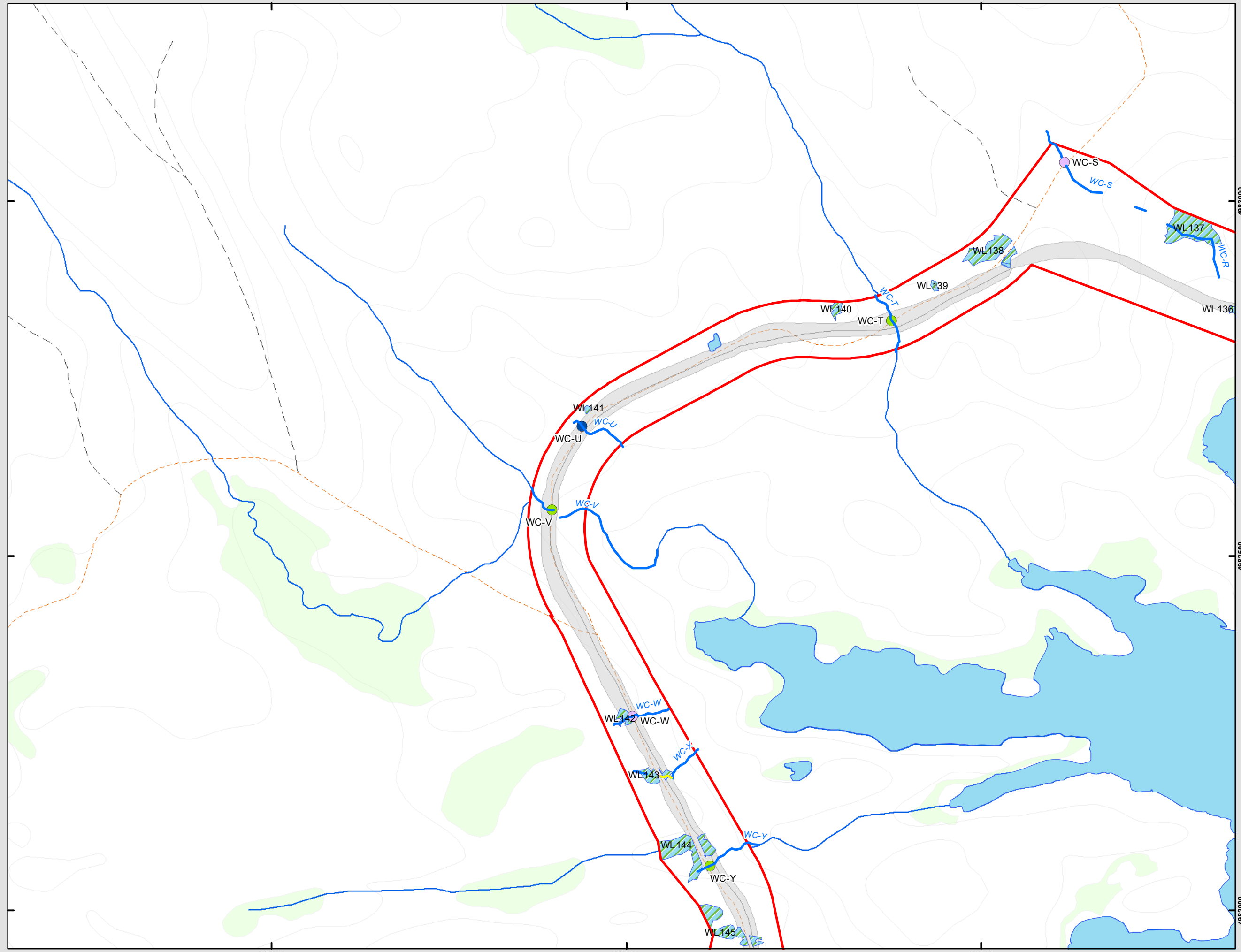
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Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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





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FIGURE J.4-6 N

Beaver Dam Mine Project

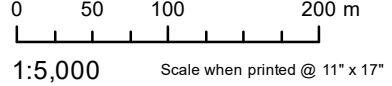
Anticipated Fish Habitat Impact Areas by Type

-  Buried Culvert
-  Hung Culvert
-  Direct Impact: Watercourses
-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Direct Impact: Wetland Fish Habitat
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area

4892000

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Coordinate System: NAD 1983 CSRS UTM Zone 20N
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 Datum: North American 1983 CSRS
 Units: Meter

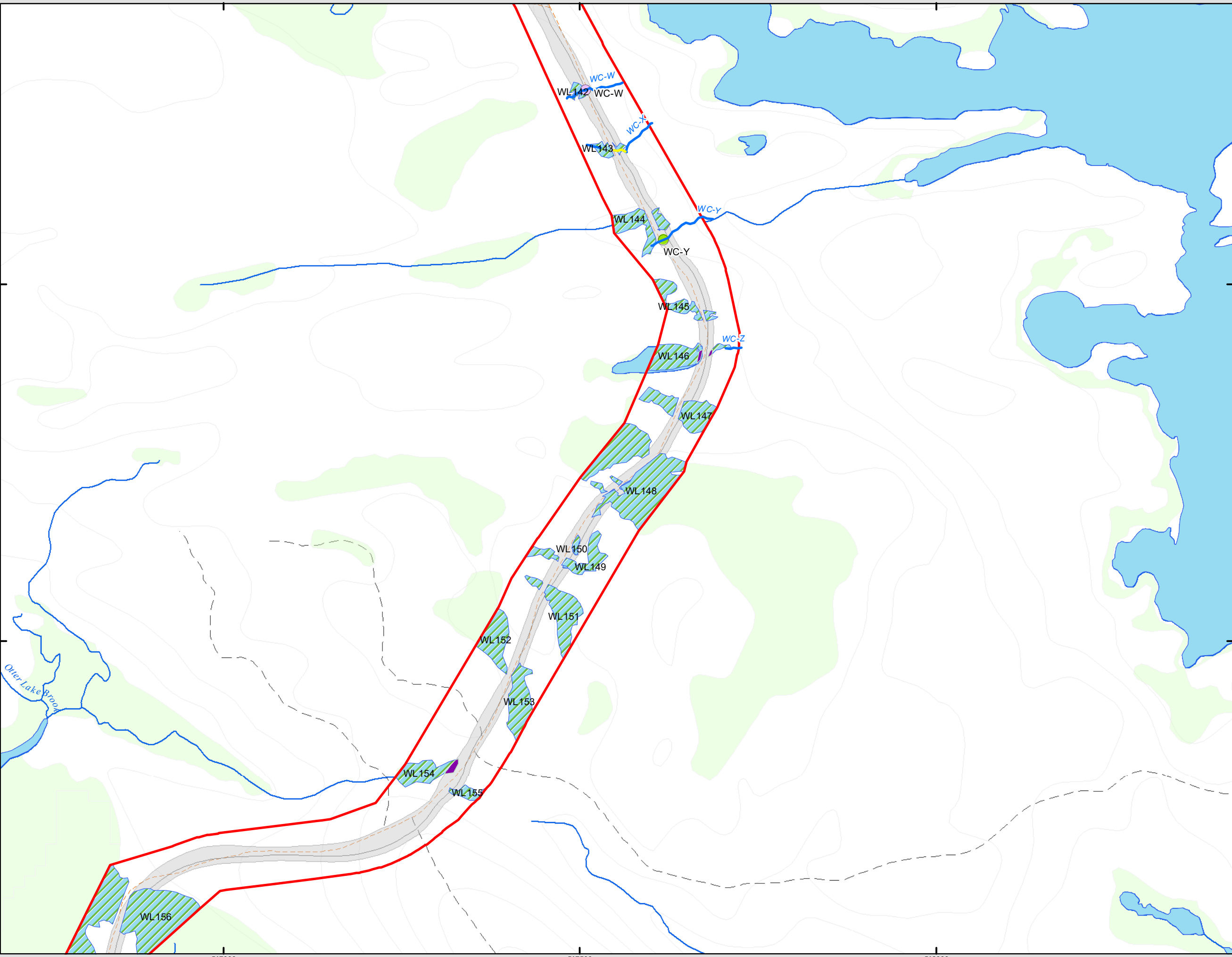


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Otter Lake Brook

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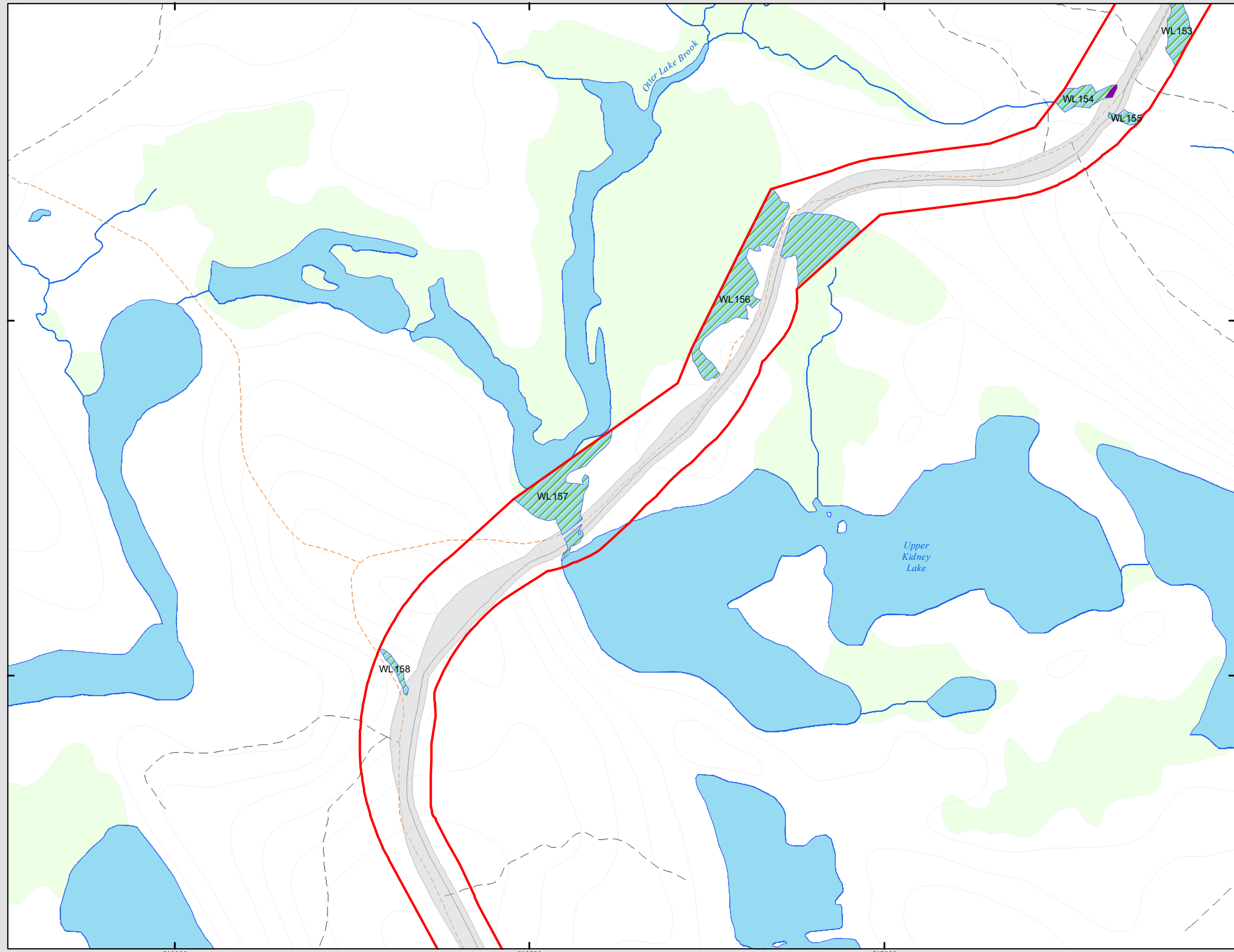
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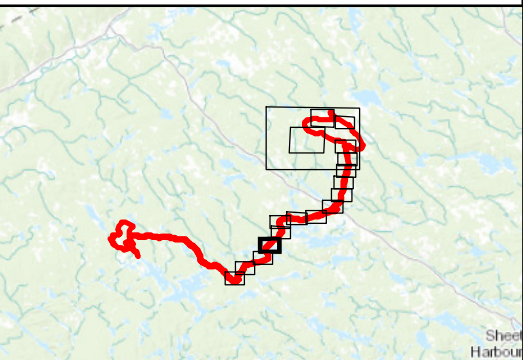
FIGURE J.4-6 O

Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type



- NSTDB Mapped Watercourses outside PA
- Direct Impact: Wetland Fish Habitat
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

1:5,000 Scale when printed @ 11" x 17"

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Reviewed By: XX

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





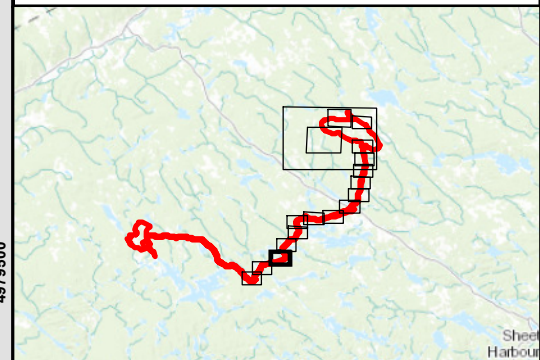
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FIGURE J.4-6 P

Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type

-  Hung Culvert
-  Fisheries Resources
-  NSTDB Mapped Watercourses outside PA
-  Direct Impact: Wetland Fish Habitat
-  Dry Weather / Seasonal Road
-  Track
-  Topo Contours (5 m)
-  Lake
-  Field Delineated Wetlands within PA
-  NSE Mapped Wetlands outside PA
-  Proposed Infrastructure
-  Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter



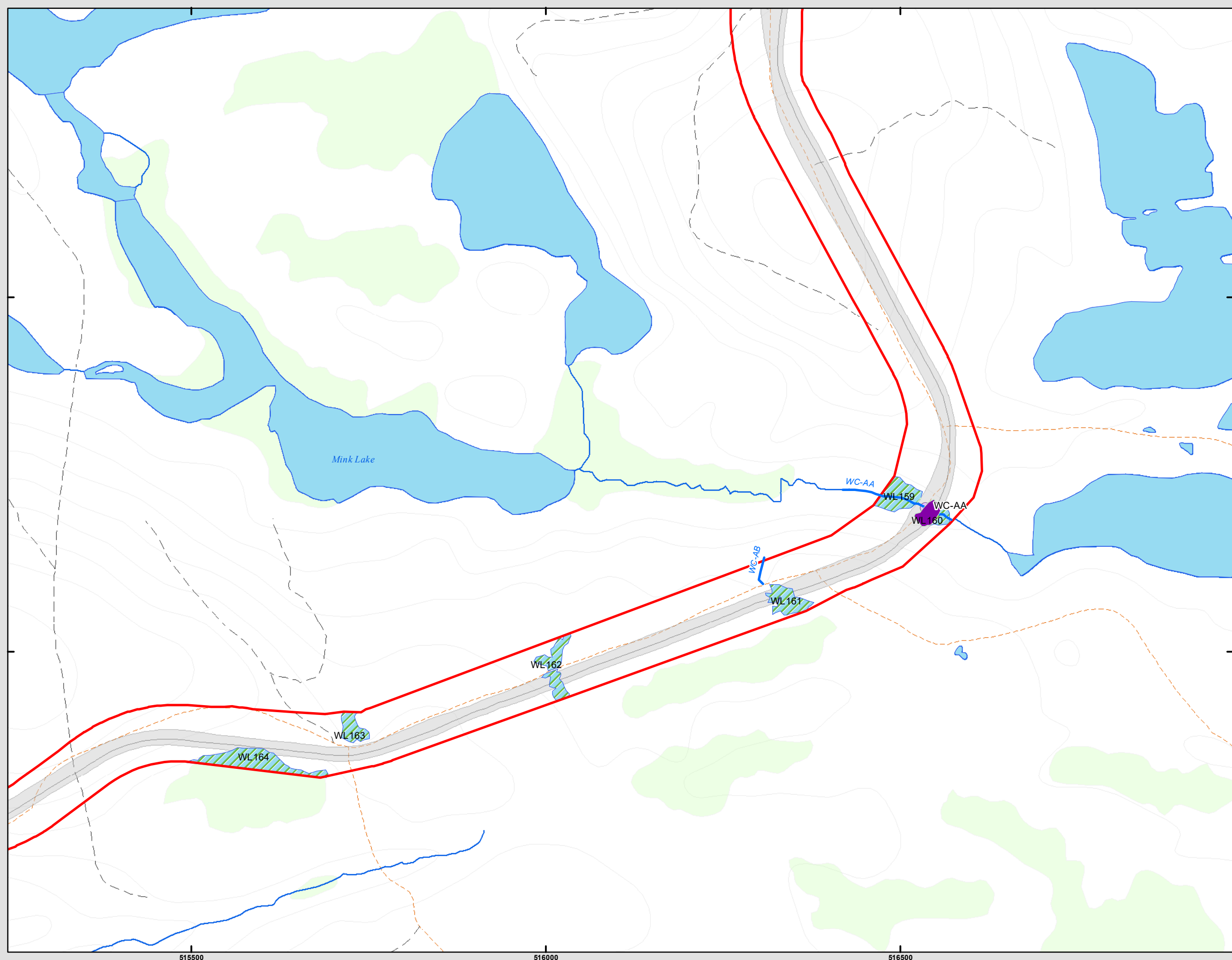
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 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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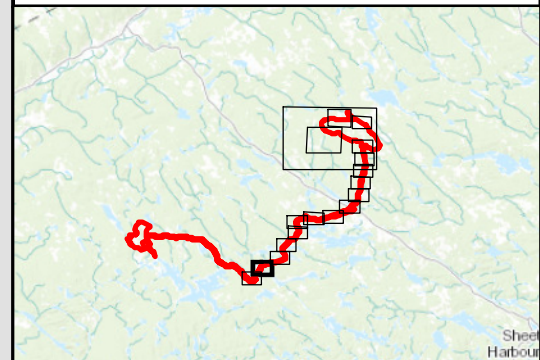
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FIGURE J.4-6 Q

Beaver Dam Mine Project Anticipated Fish Habitat Impact Areas by Type

- Bridge - no barrier
- Buried Culvert
- Direct Impact: Watercourses
- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

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1:5,000 Scale when printed @ 11" x 17"

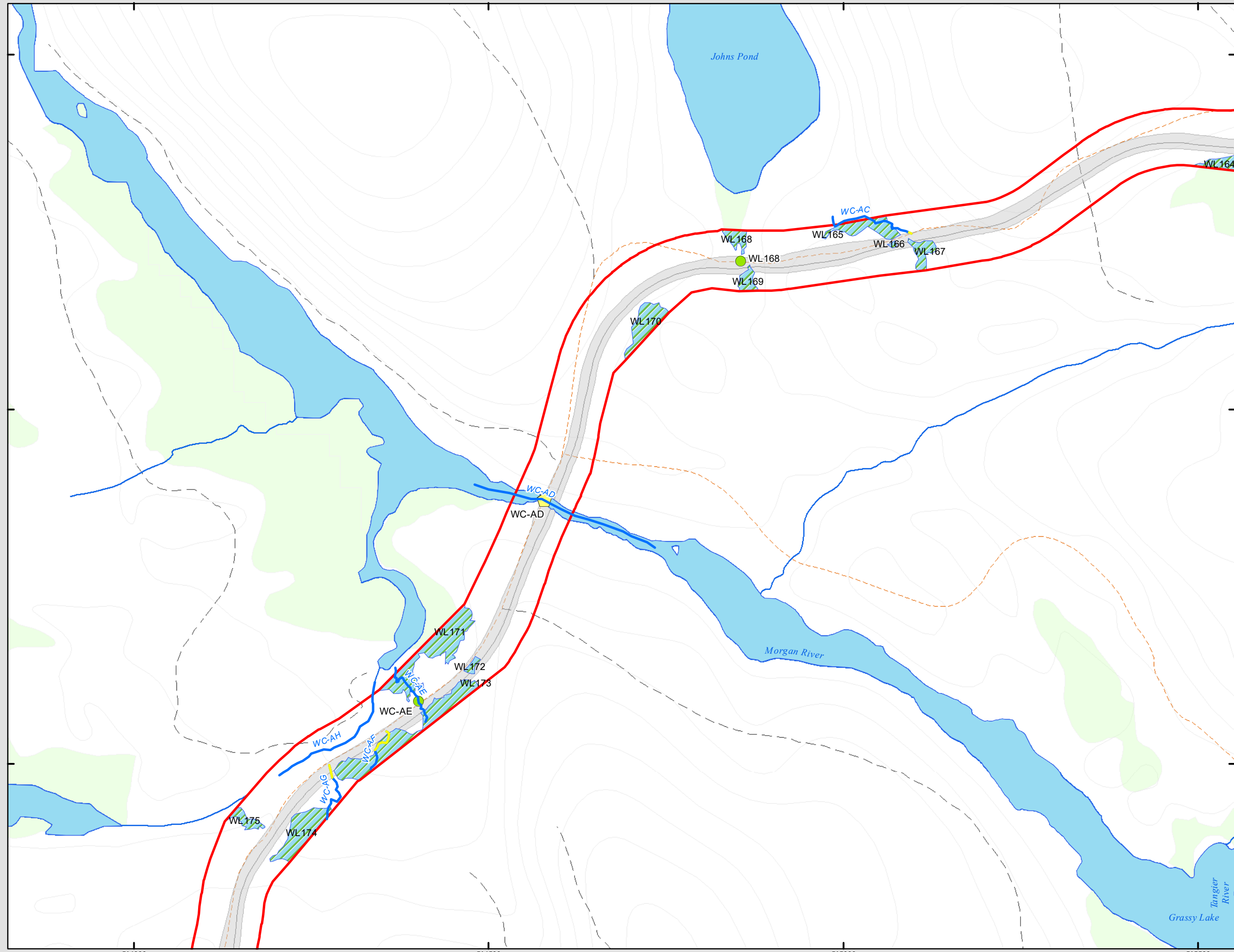
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Date: 2021-04-14

Service Layer Credits: Sources: Esri, HERE, Gamin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors,



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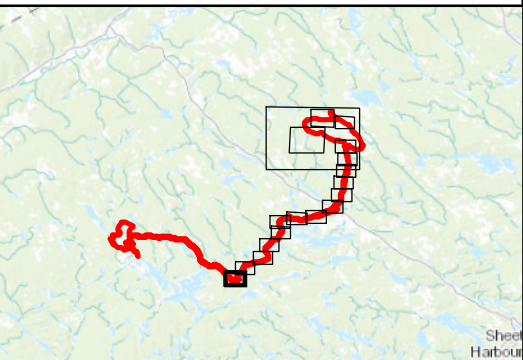
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FIGURE J.4-6 R

Beaver Dam Mine Project

Anticipated Fish Habitat Impact Areas by Type

- Buried Culvert
- Direct Impact: Watercourses
- Fisheries Resources
- NSTDB Mapped Watercourses outside PA
- Local Road
- Dry Weather / Seasonal Road
- Track
- Topo Contours (5 m)
- Lake
- Field Delineated Wetlands within PA
- NSE Mapped Wetlands outside PA
- Proposed Infrastructure
- Project Area



Coordinate System: NAD 1983 CSRS UTM Zone 20N
 Projection: Transverse Mercator
 Datum: North American 1983 CSRS
 Units: Meter

0 50 100 200 m

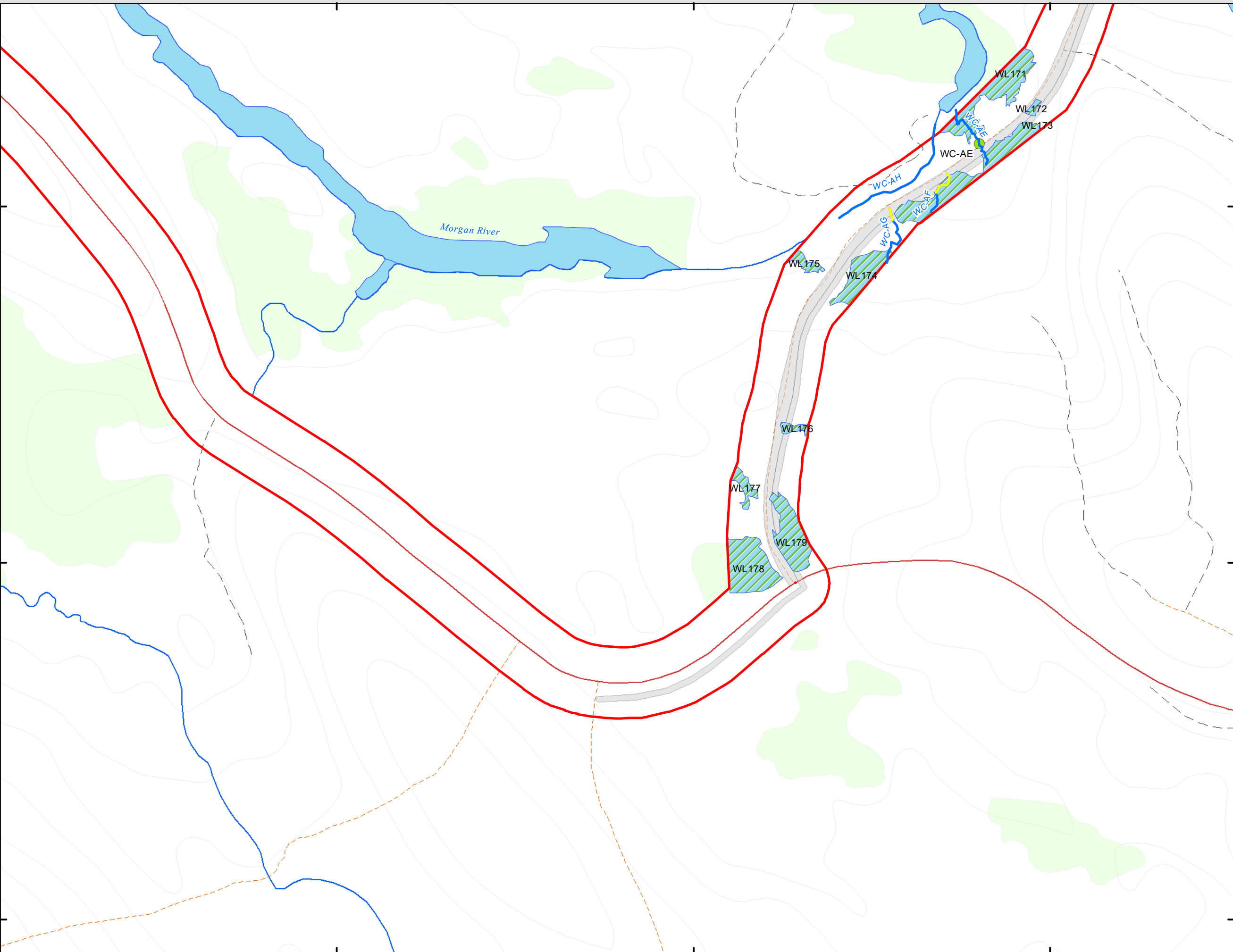
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 Reviewed By: XX

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors.



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