



# Keeyask Generation Project

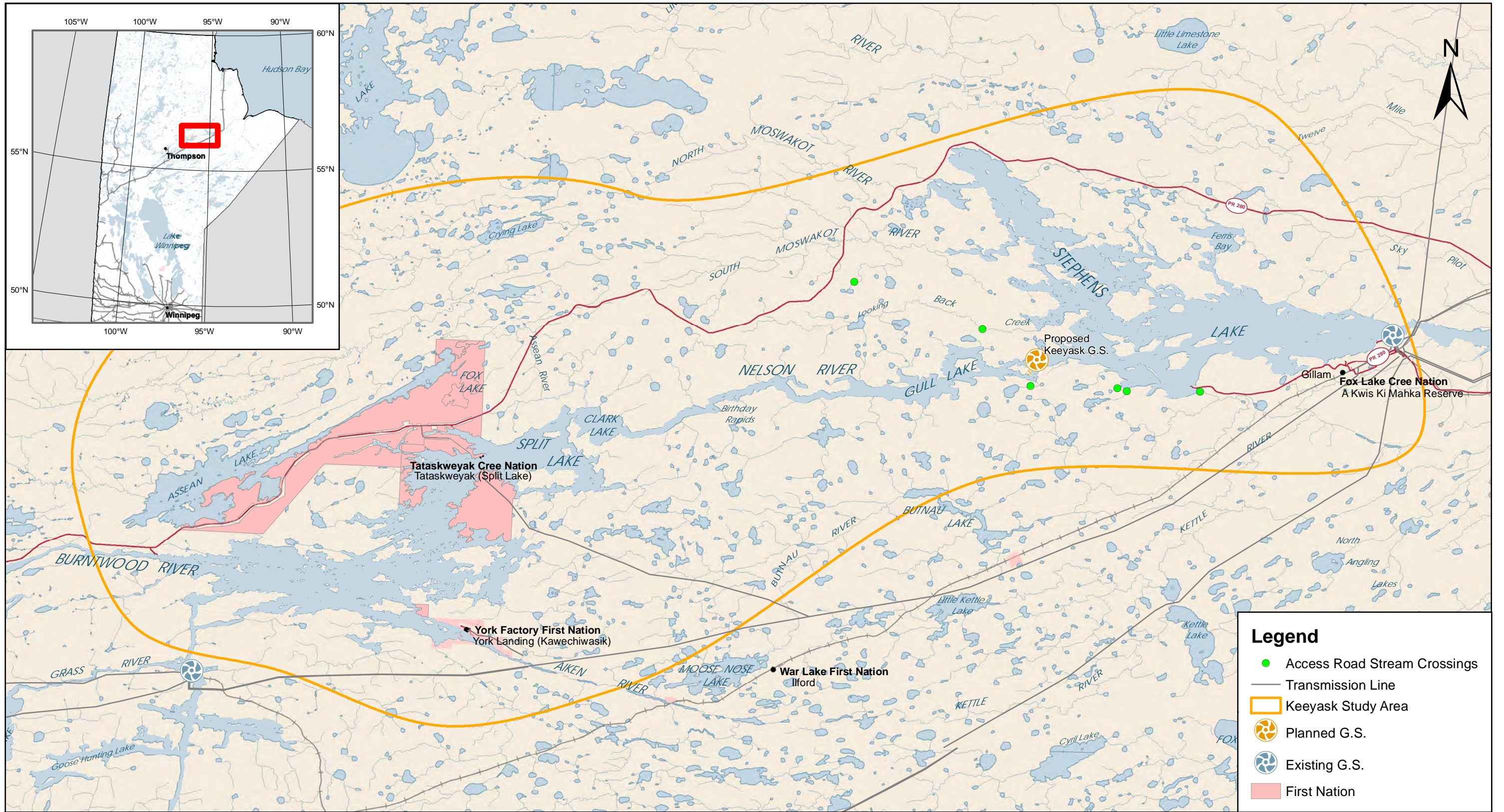
## Environmental Impact Statement

Supporting Volume

## Physical Environment

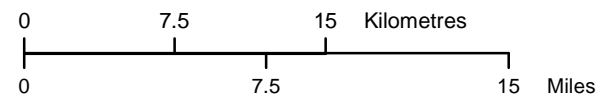


June 2012



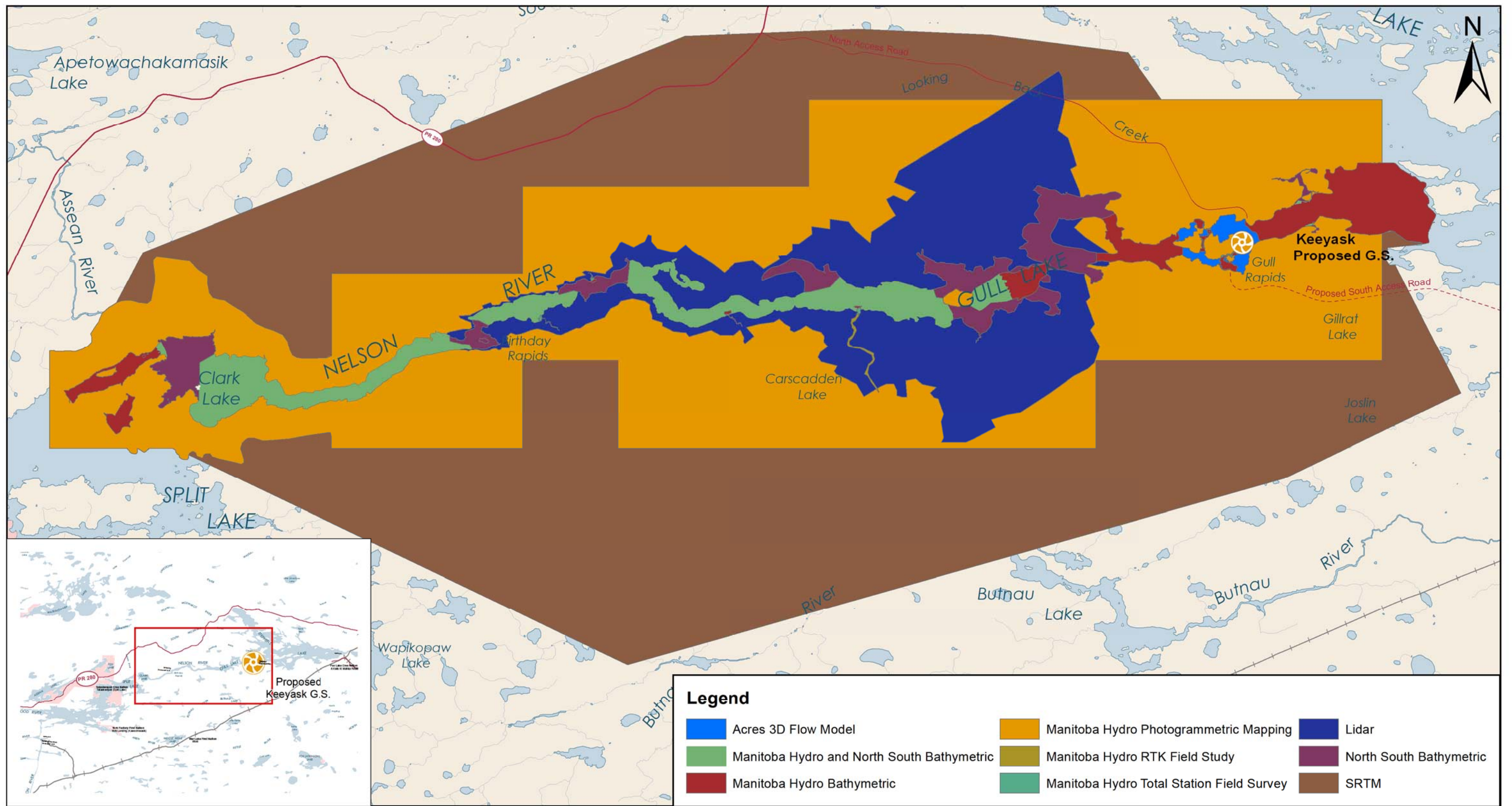
**Legend**

- Access Road Stream Crossings
- Transmission Line
- Keyask Study Area
- Planned G.S.
- Existing G.S.
- First Nation



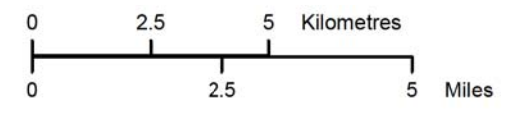
Coordinate System: NAD\_1983\_UTM\_Zone\_15N  
 Data Source: Manitoba Hydro, NRCAN, NTDB  
 Date Created: June 27th, 2011

## Surface Water and Ice Regime Study Area



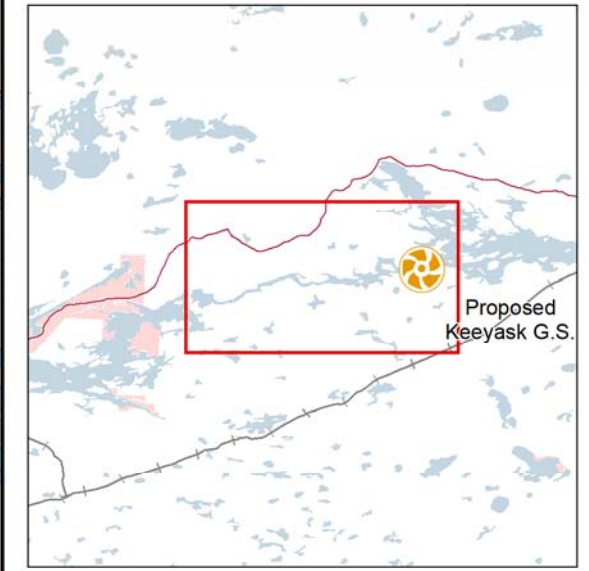
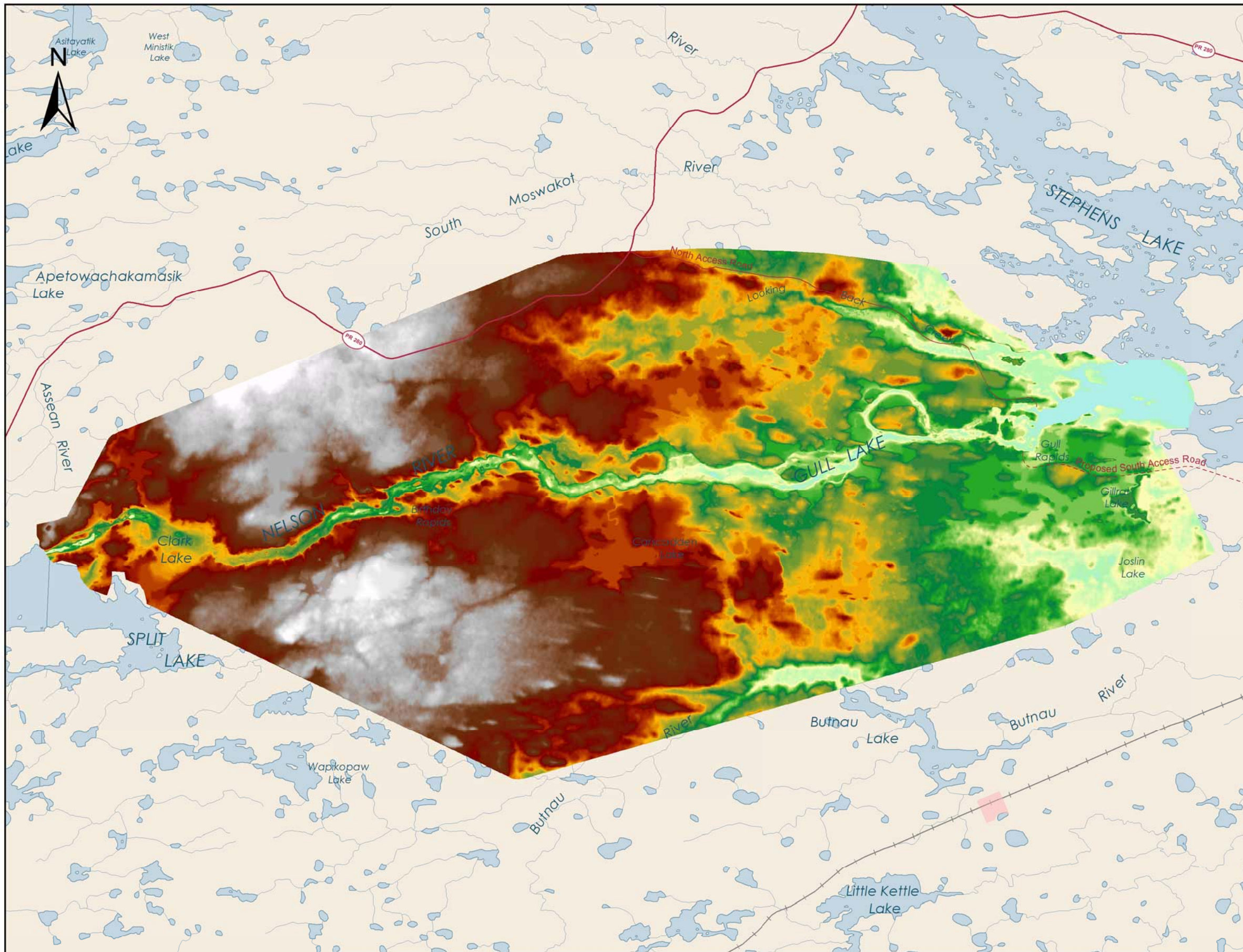
**Legend**

- |  |   |                         |
|--|---|-------------------------|
| Acres 3D Flow Model                        | Manitoba Hydro Photogrammetric Mapping    | Lidar                   |
| Manitoba Hydro and North South Bathymetric | Manitoba Hydro RTK Field Study            | North South Bathymetric |
| Manitoba Hydro Bathymetric                 | Manitoba Hydro Total Station Field Survey | SRTM                    |

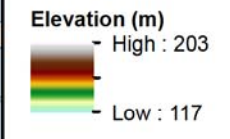


Projection: NAD\_1983\_UTM\_Zone\_15N  
Data Source: Manitoba Hydro, NTDB

**Topographic and Bathymetric Data Sources**



**Legend**

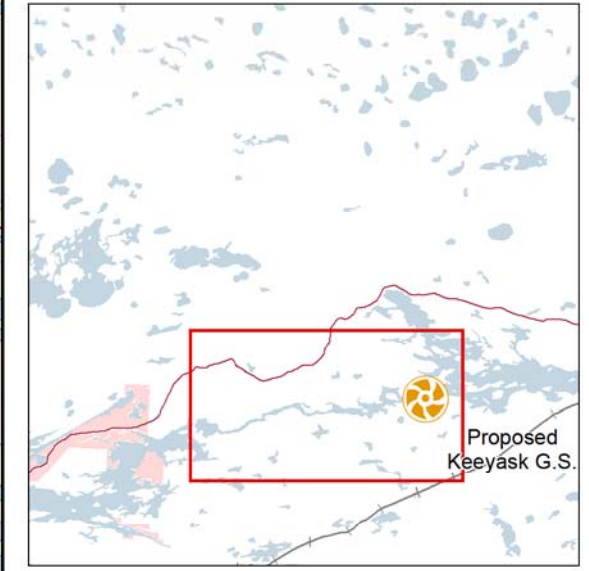
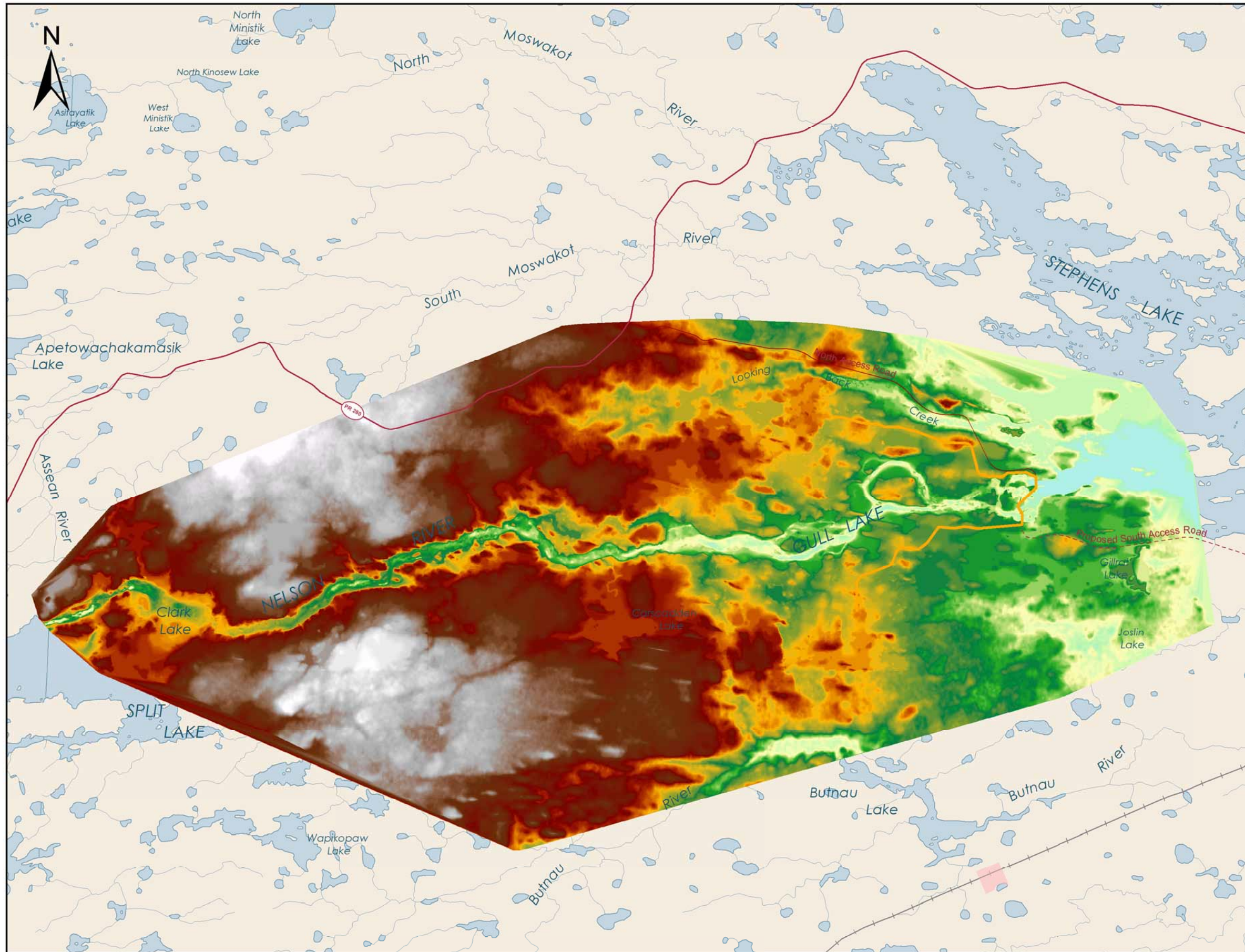


Projection: NAD\_1983\_UTM\_Zone\_15N  
 Data Source: Manitoba Hydro, NTDB



**Existing Environment  
 Digital Elevation Model**





**Legend**

**Elevation (m)**

- High : 203
- Low : 117

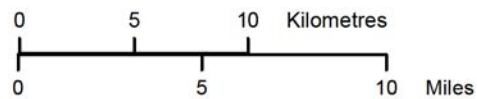
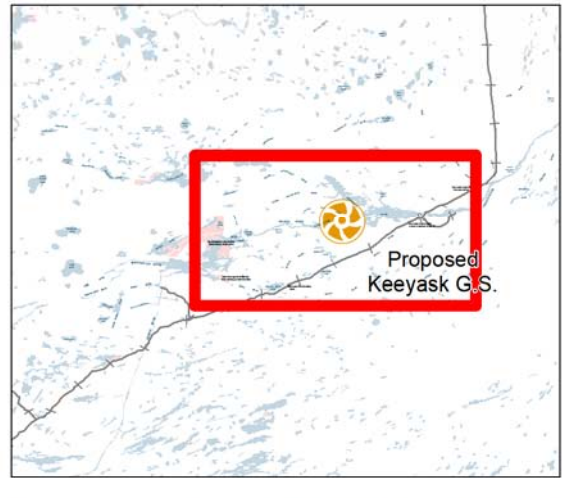
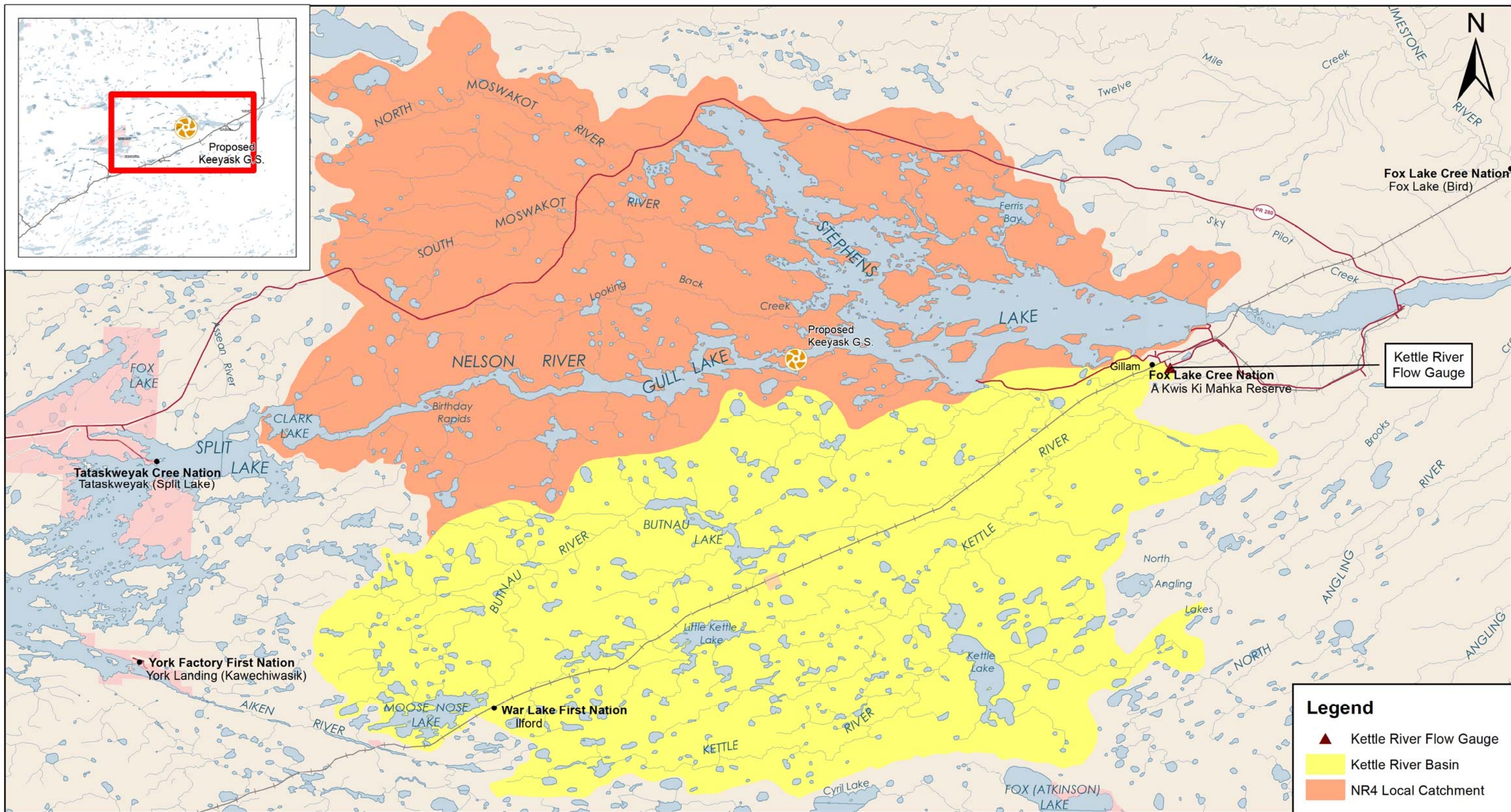
Keyeyask Principal Infrastructure Axis

Projection: NAD\_1983\_UTM\_Zone\_15N  
 Data Source: Manitoba Hydro, NTDB

0 2.5 5 Kilometres  
 0 2.5 5 Miles

**Post Project Environment  
 Digital Elevation Model**

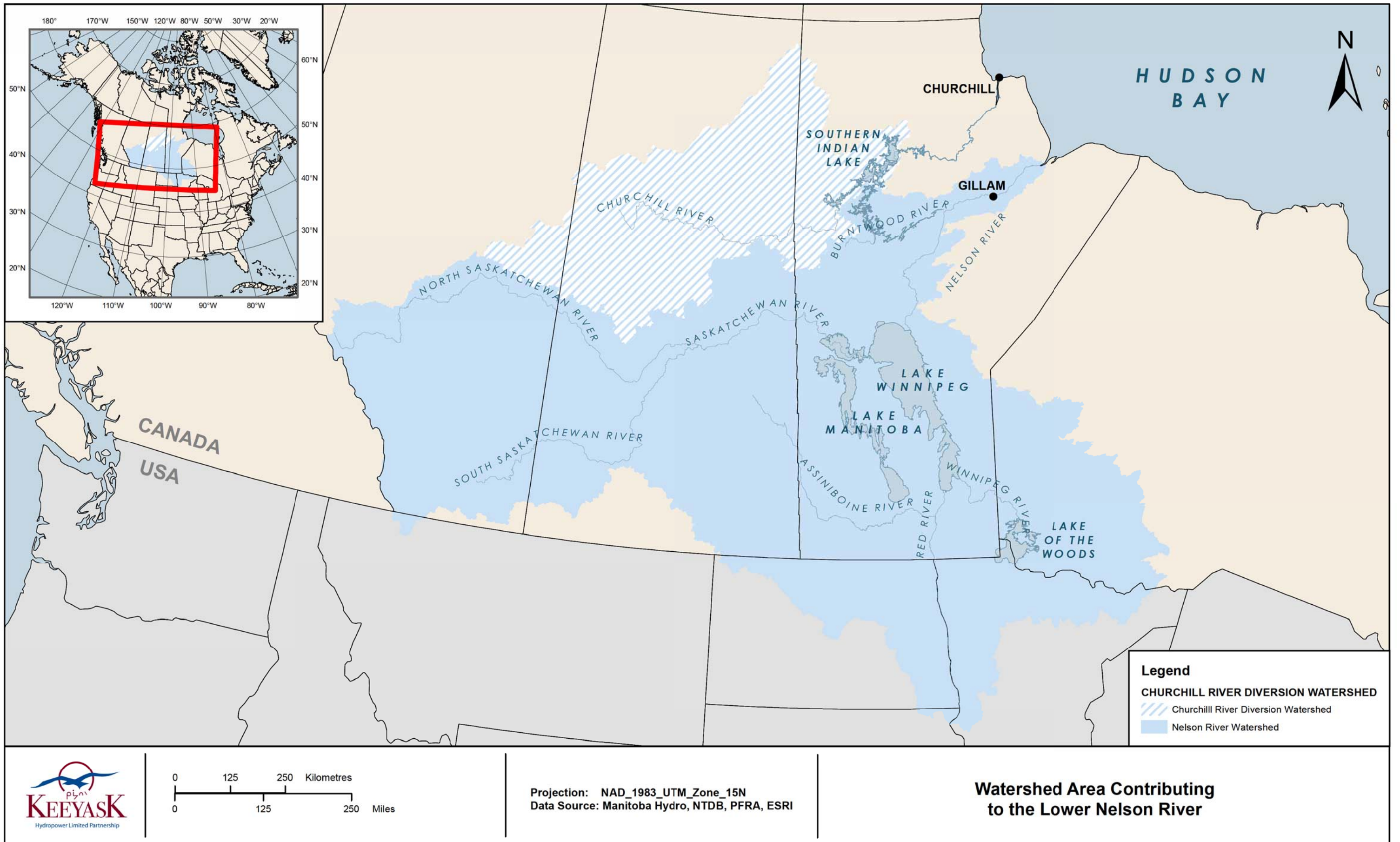


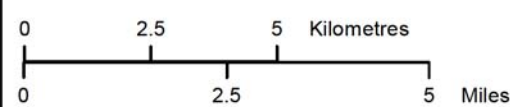
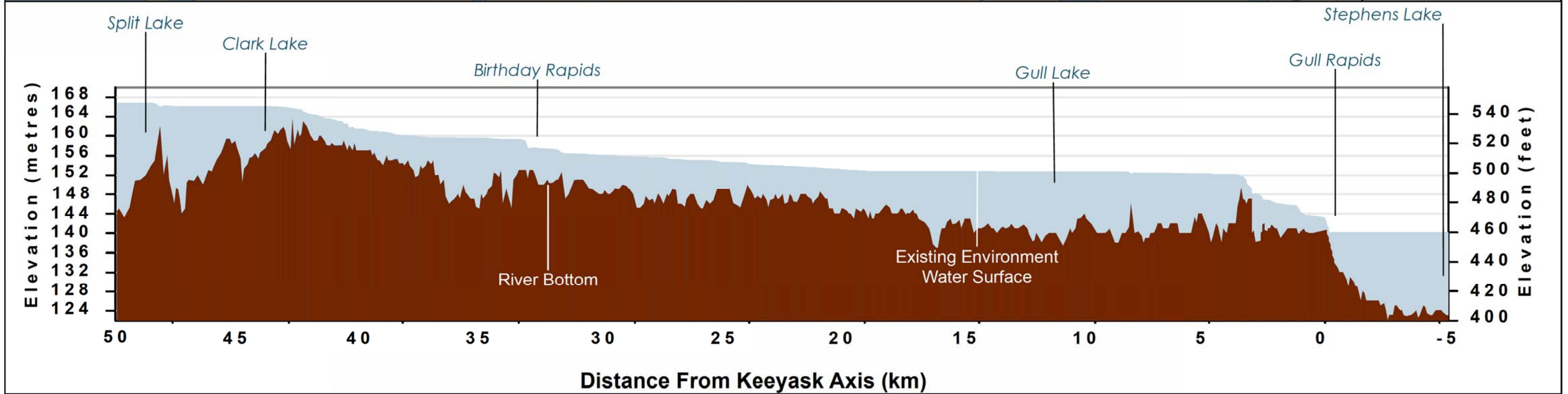
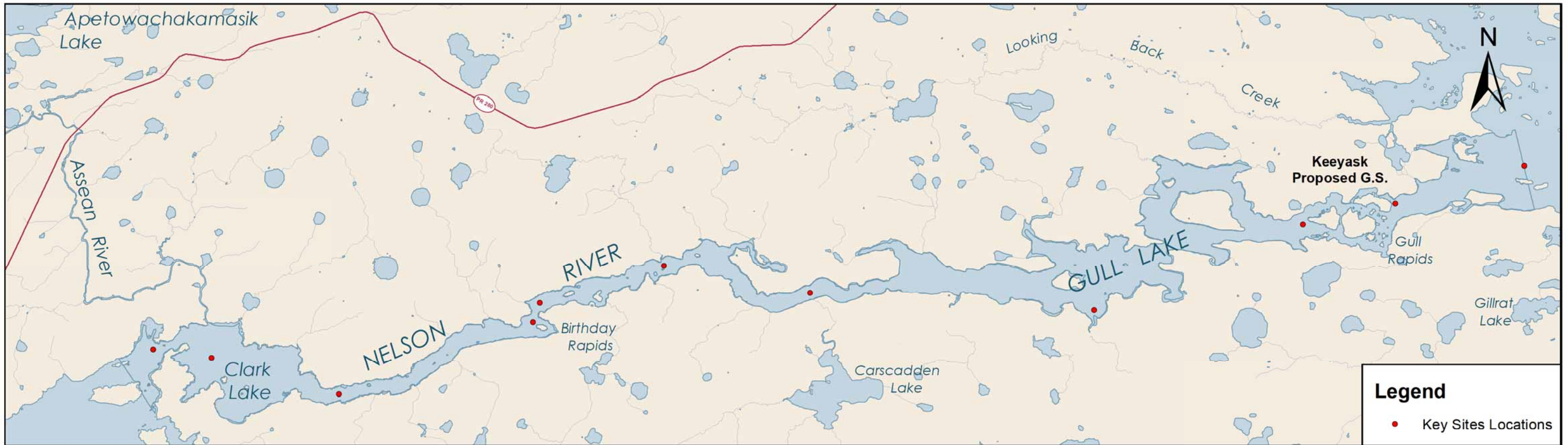


Projection: NAD\_1983\_UTM\_Zone\_15N  
Data Source: Manitoba Hydro, NTDB, PFRA

Area for Generating Station Inflow Calculation

- Legend**
- ▲ Kettle River Flow Gauge
  - Kettle River Basin
  - NR4 Local Catchment



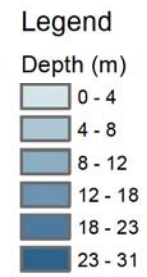
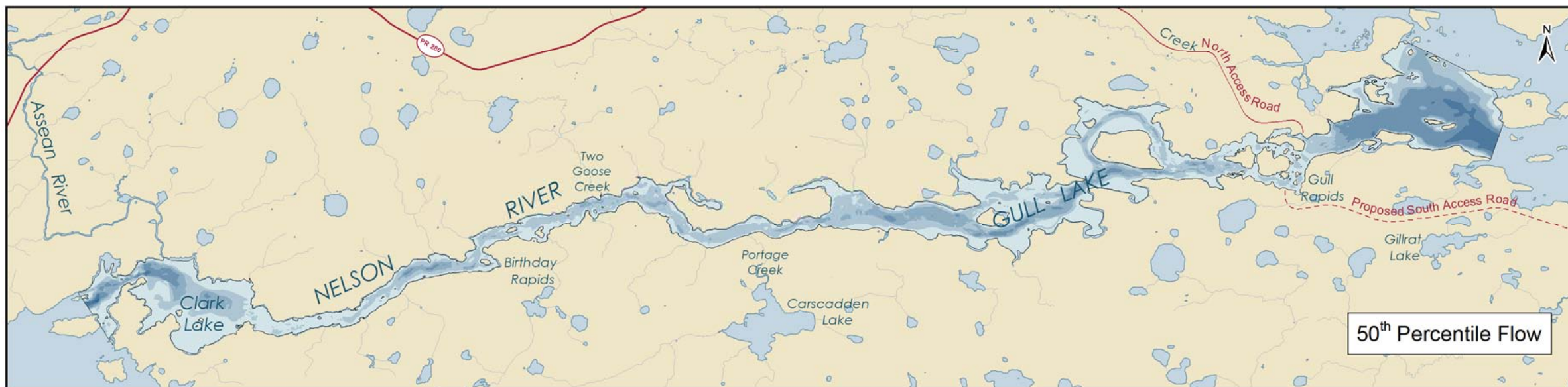


Projection: NAD\_1983\_UTM\_Zone\_15N  
Data Source: Manitoba Hydro, NTDB

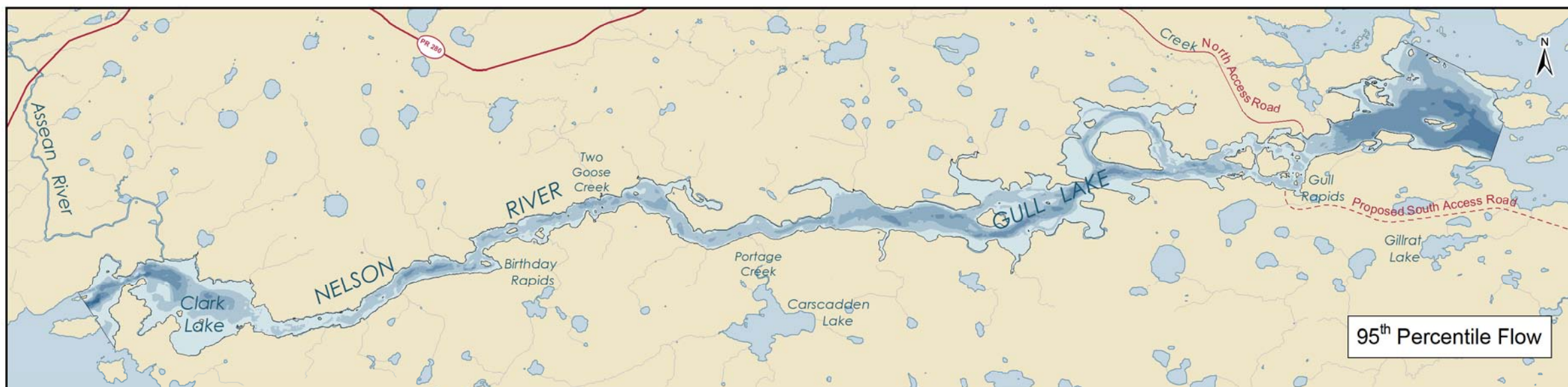
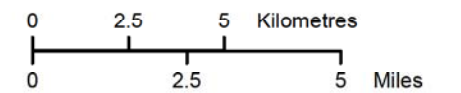
### Typical Existing Environment Open Water Surface Profile



Notes: Stephens Lake Level = 141.1 m  
 Keyask G.S. Reservoir Level = 159 m  
 This map does not illustrate additional flooded area resulting from shoreline erosion that will occur after reservoir impoundment.



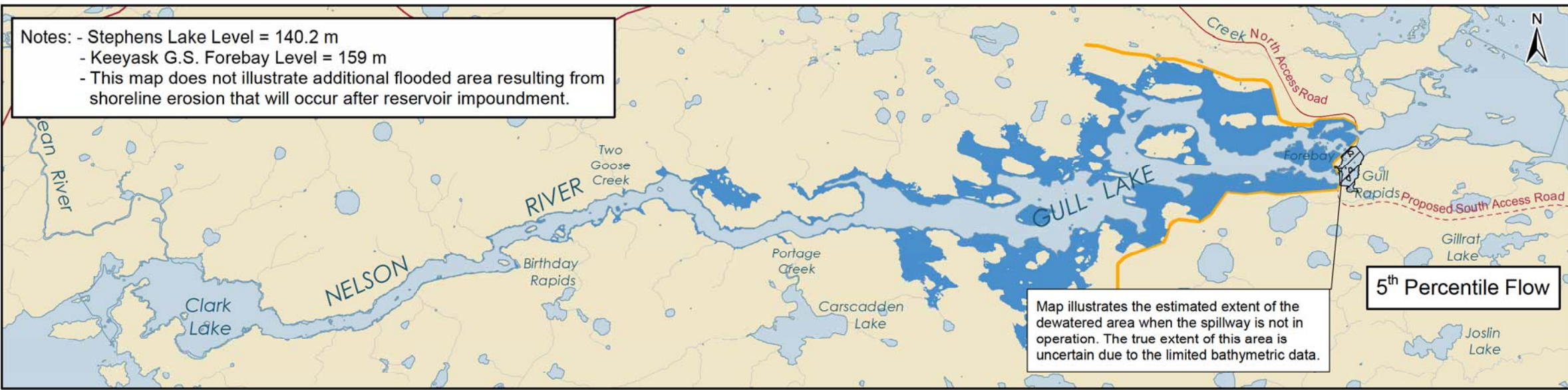
Projection: NAD\_1983\_UTM\_Zone\_15N  
 Data Source: Manitoba Hydro, NTDB



## Water Depth Grid Existing Environment



Notes: - Stephens Lake Level = 140.2 m  
 - Keeyask G.S. Forebay Level = 159 m  
 - This map does not illustrate additional flooded area resulting from shoreline erosion that will occur after reservoir impoundment.

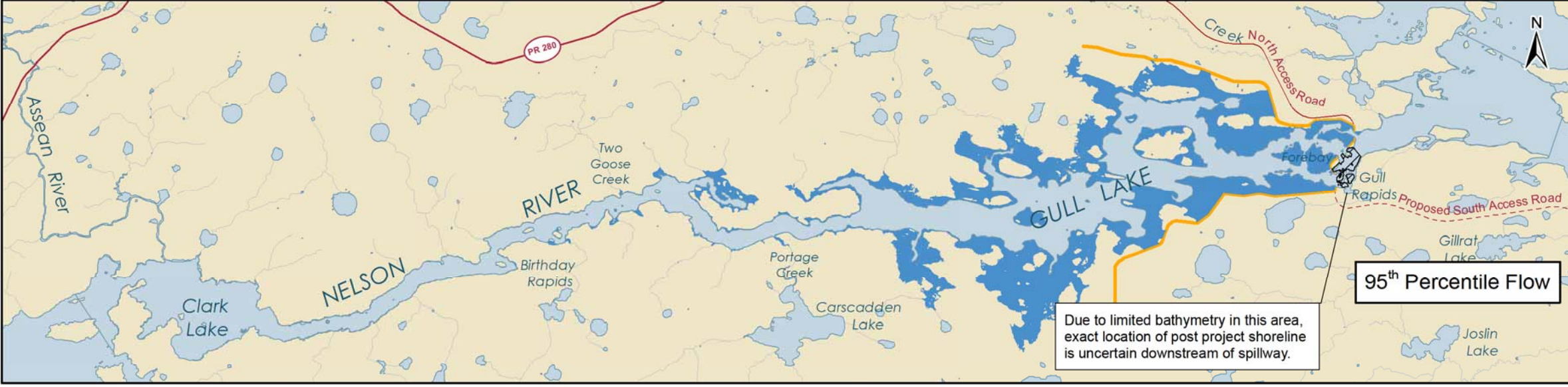
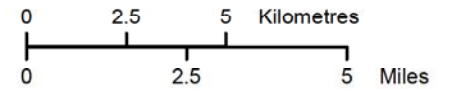


**Legend**

Shoreline Polygons

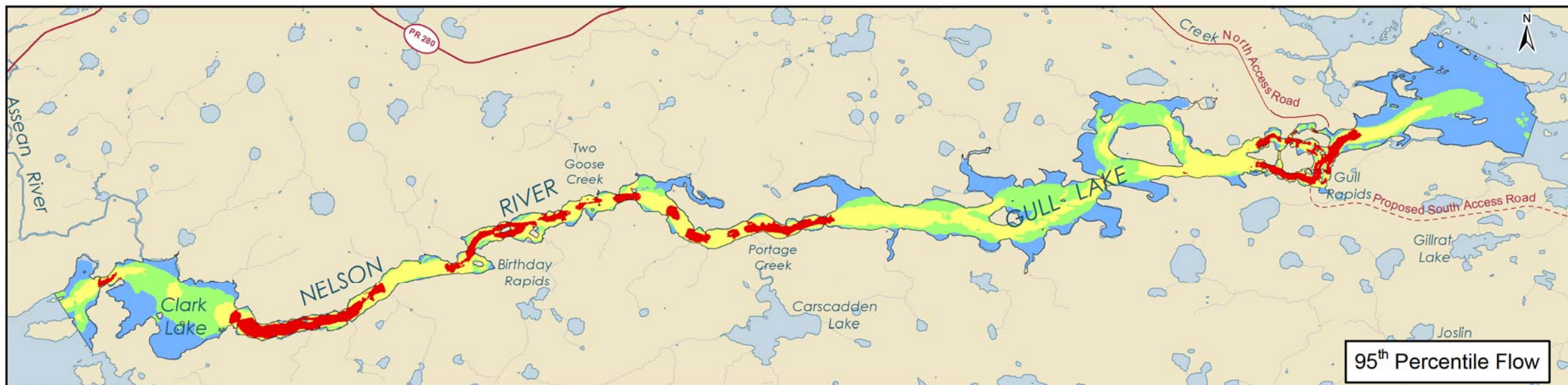
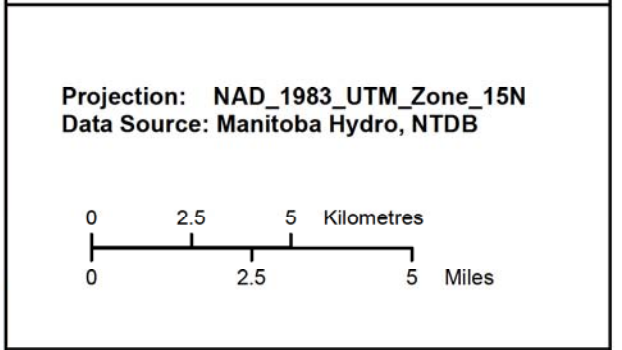
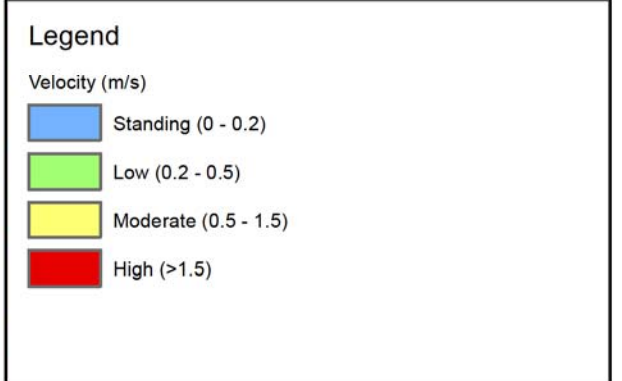
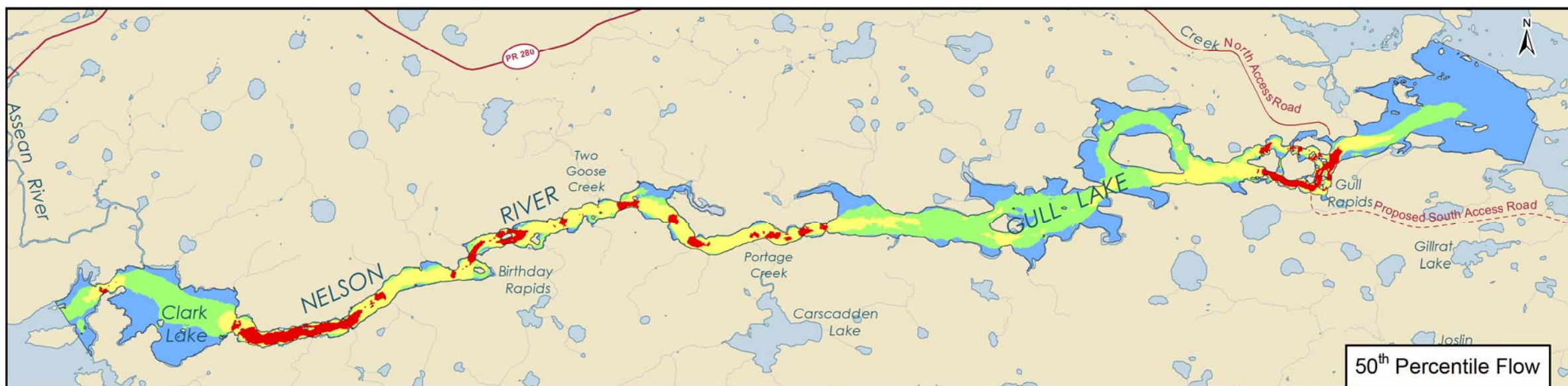
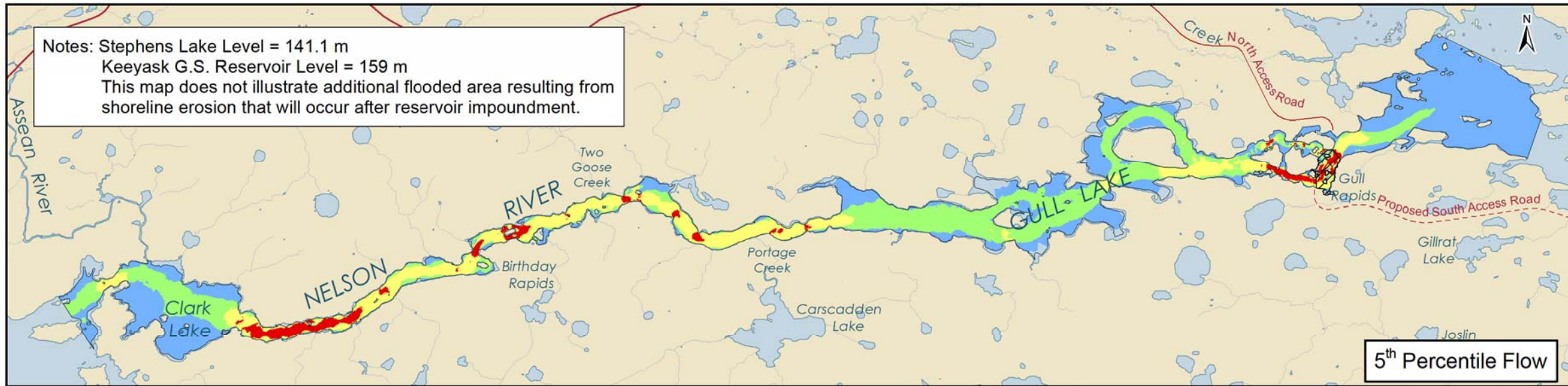
- Existing Environment Flow
- Post Project Environment Flow
- Keeyask Principal Infrastructure Axis

Projection: NAD\_1983\_UTM\_Zone\_15N  
 Data Source: Manitoba Hydro, NTDB



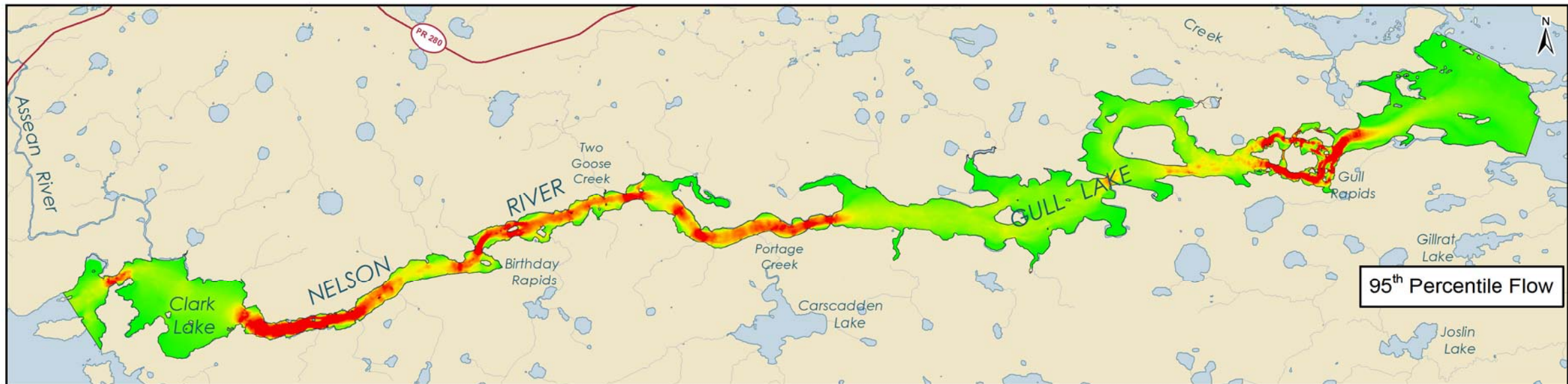
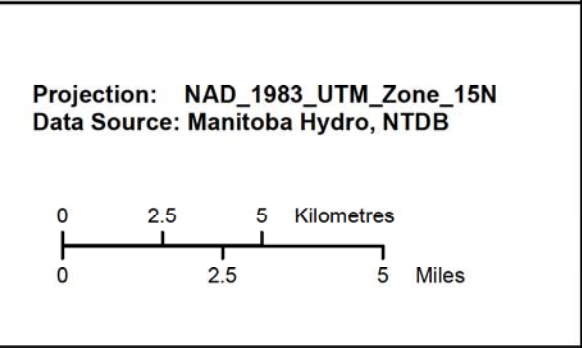
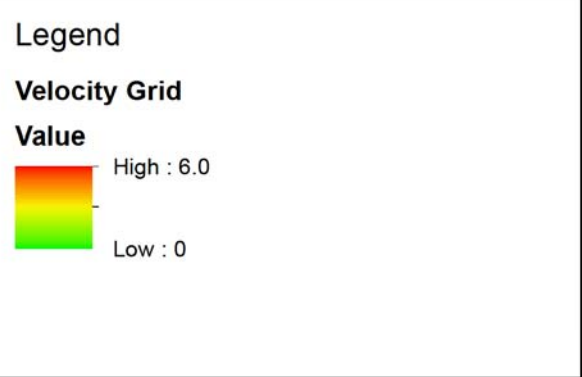
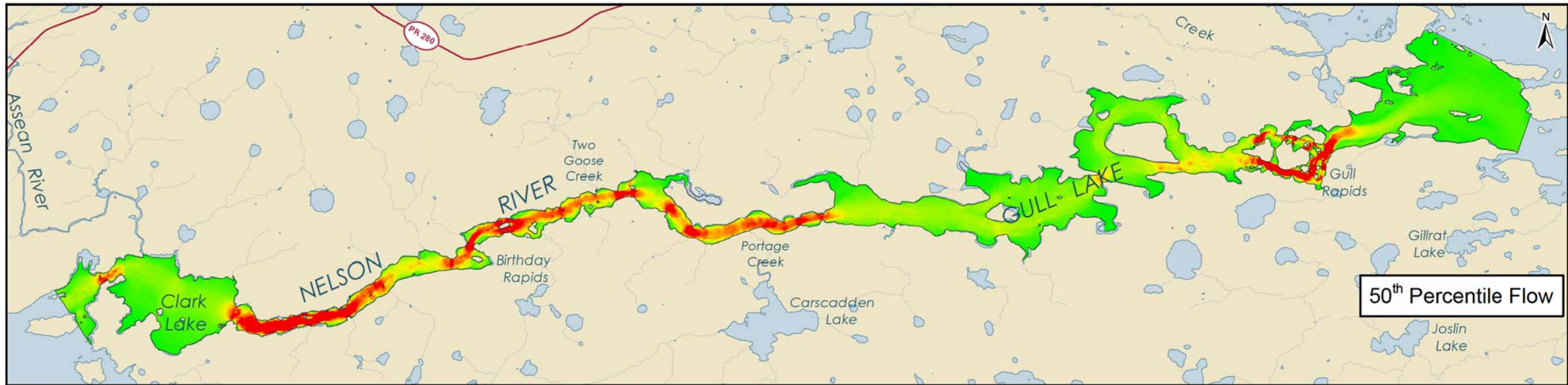
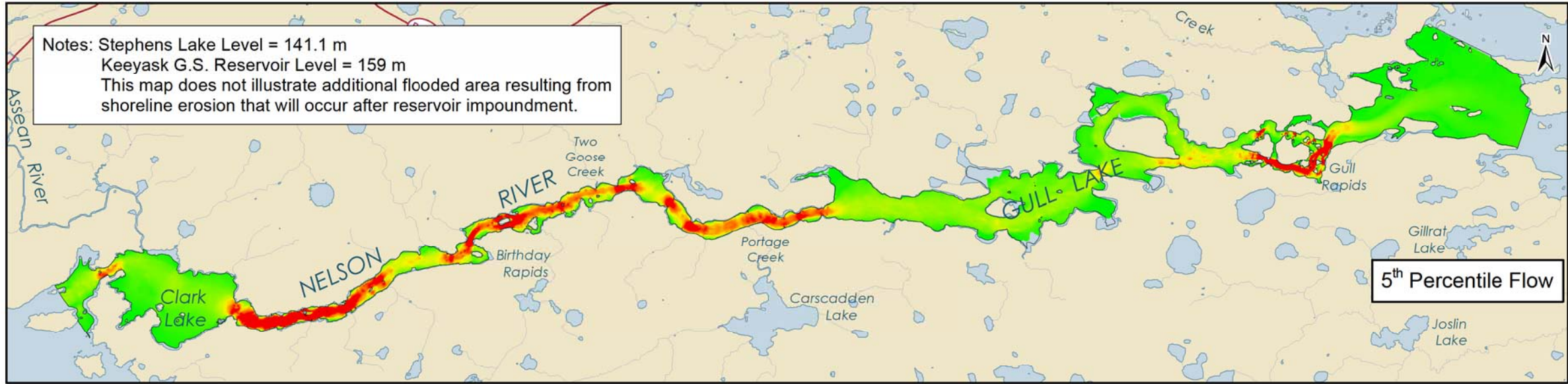
**Existing Environment and Post Project Environment Shoreline Polygons**





**Existing Environment  
 Velocity Grids  
 Classified Values**





Existing Environment  
 Velocity Grids  
 Stretched Values

