

## Final Project – GIS Mapping (GIS 1025)

### Scenario:

You own an environmental consultant company called GeoEnv Ltd. City of Greater Sudbury has hired your company to perform lake water sampling for spring phosphorus on six lakes within the city. Your company will also receive data from the City's land reclamation program's tree planting sites which your staff will perform a tree health site assessment. Using **ArcGIS Online**, you will create a **Web Map** and a **Story Map Journal** to showcase the lake water sampling sites and the tree planting health sites assessment.

### Data in the Final Project GIS Data Zip file:

GeoEnv Logo.jpg

Lakes.zip

PhosphorusChart.xlsx

Tree\_Planting\_Areas.zip

TreeHealthChart.xlsx

Watershed.zip

### Instructions:

- 1) Open ArcGIS Online at <https://www.arcgis.com/index.html> and login.
- 2) Open the City of Greater Sudbury Open Data Portal at <http://opendata.greatersudbury.ca/> **(4)**
  - Search for 'Barren Rings'
  - Download the shapefile
  - Zip the Barren Rings shapefile so you can add it to your web map
- 3) Create a **Web Map** to showcase the shapefiles.
  - Add all layers (in zip format) **(5)**
  - Make sure the layers are in the correct order so they can be seen **(1)**

- Save your Web Map as **(2)** :
  - Title: Environmental Web Map (First/Last Name)
  - Tags: Environment
  - Summary: Final Project Web Map
  
- Change the symbology and color on your layers so your audience can understand your legend **(10)**
  - Unique symbols for the watershed names
  - Unique symbols for the tree planting sites' health Condition attribute
  - Unique symbols for the lakes' Thermal attribute and create labels using the Levels attribute (phosphorus levels)
  - Unique symbol for the barren rings (Layer attribute). Eliminate the Fill for both layers (Barren and Semi-Barren) so you can see the Outline of the polygons only
  
- Make sure you share your map with the Cambrian College group
  
- Paste the URL here **(1)**: <https://arcg.is/0e1ebi0>

#### 4) Creating a **Story Map**

- In the Content section, create a **Story Map (20)**
  - Create app > StoryMaps
  - Title: Environmental Assessment Project (First/Last Name)
  - Short introduction or subtitle: Final Project Story Map Journal
  
- Add a map section as an introduction to your Story Map **(20)**
  - Overall view of the study area with all layers
  - Find a photo that represent the City of Greater Sudbury's environmental initiatives (stock photo on the internet)
  - Add the GeoEnv Ltd logo
  - Add the following text: GeoEnv Ltd performed an environmental assessment on six lakes and thirty one tree planting sites with the City of Greater Sudbury. The following story map will showcase our lake water sampling spring phosphorus results and our tree planting health assessment results via maps and photos.
  
- Add a section for the lake water sampling of spring phosphorus **(6)**
  - Add a map that only shows the lakes

- Find a photo (on the internet) that represent that activity
- Create a chart in excel using the *PhosphorusChart* excel file and add it in this section
- Add text to describe what is spring phosphorus and what is considered a high concentration of phosphorus in a lake
  
- Add a section for the tree planting health assessment sites **(6)**
  - Add a map that only illustrates the tree planting sites
  - Find a photo (on the internet) that represent that activity
  - Create a chart in excel using the *TreeHealthChart* excel file and add it in this section
  - Add text to describe what is land reclamation (tree planting) and what is considered a healthy forest
  
- Add a section for the watersheds **(6)**
  - Add a map that only represents the watersheds
  - Find a photo (on the internet) that represent a watershed
  - Add text to describe what is watershed and why is it important to a community
  
- Add a section for the barren rings **(6)**
  - Add a map that only showcases the barren rings
  - Find a photo (on the internet) that represent the barren and semi-barren rings in Sudbury
  - Add text to describe how the barren rings were created and how the City of Greater Sudbury is working on regreening those area (ie. rings)
  
- Make sure you share your story map with the Cambrian College group
  
- Paste the URL here **(1)**:

**Answer the following questions:**

- 1) The following lake is found in which watershed? **(6)**
  - a) Lake Wanapitei
  - b) Whitson Lake
  - c) Whitewater Lake
  - d) Ramsey Lake

- e) Fairbanks Lake
  - f) Kelly Lake
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- 2) What is the average spring phosphorus levels ( $\mu\text{g/L}$ ) from all lakes? **(1)**
  - 3) Which watershed has the largest area? **(1)**
  - 4) How many watershed are with the City of Greater Sudbury boundary? **(1)**
  - 5) How many tree planting sites have a poor condition health assessment? **(1)**
  - 6) Which tree planting site has the most years of tree planting on its site? List the FID (Feature ID) **(1)**
  - 7) How many hectares does the barren ring have? **(1)**

**Once complete, email me the Final Project word document with your name on it.**

**Due April 21, 2022**

**/100 Marks**