Well Driller Viewer

User Guide

1   Table of Contents

2   Introduction

The Well Driller Viewer application is a public-facing GIS viewer that provides a visual map view of the specific setback, construction and approval information to assist well drillers in Wisconsin in planning projects and meeting requirements of NR 812, Wis. Adm. Code. The app displays the location of nearby landfills, remediation sites, dual aquifer and special casing areas for the state of Wisconsin.

2.1   Contact Info

Well Information Questions: Contact DNR Private Water Supply Specialist
GIS Viewer Technical Issues: Email DNRDGGISAPPS@wisconsin.gov with the subject heading "Well Driller Viewer".

Include the following in the email:
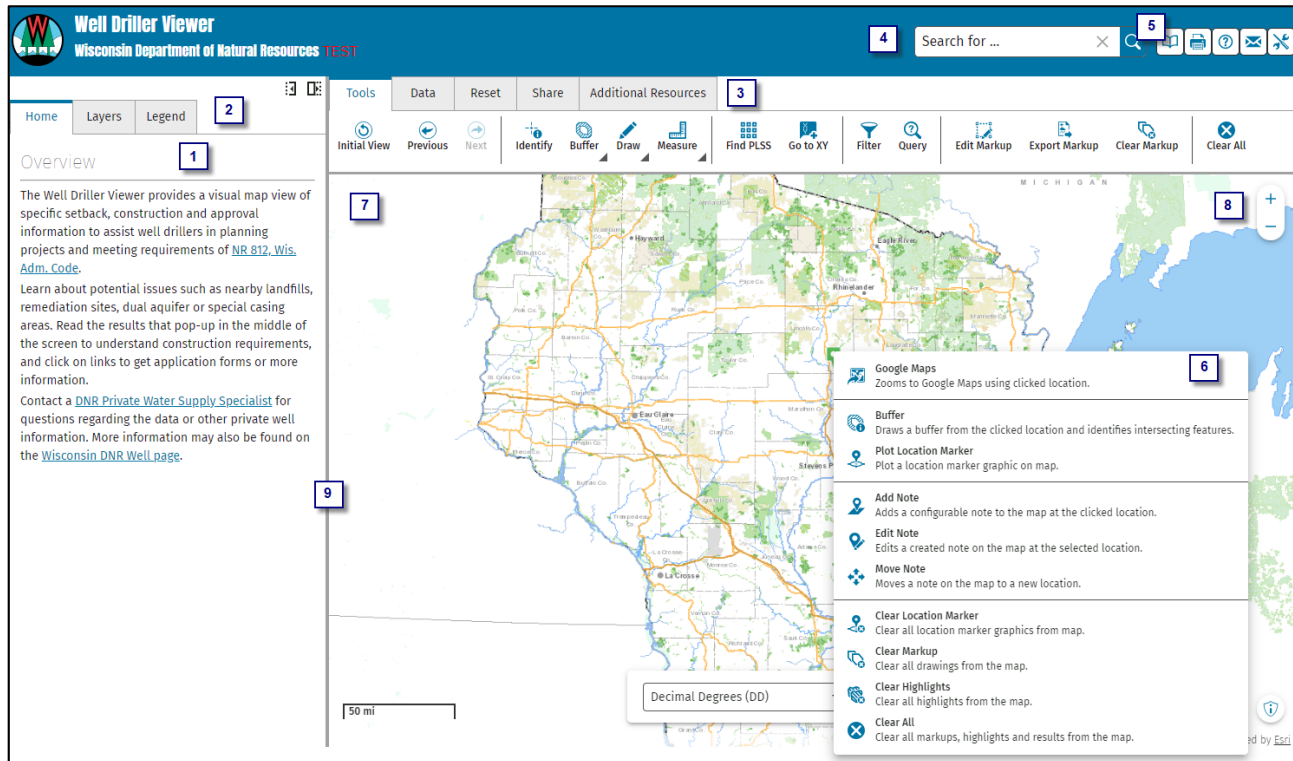- Contact information
- A description of the issue you are experiencing
- Screenshots, if possible

3   Navigating the Interface

An overview of the application interface.

3.1   Application Interface

When you open the application, there are several elements to take note of:

ID	Name	Description
1	Home Panel	Displays a brief introduction about the application, contact information and data disclaimer.
2	Panel Tabs	These tabs can be clicked on to open. The panels in this application: Home, Layer, Legend, Results, Filter, Query and Find Township, Range and Section.
3	Toolbar	The toolbar contains different tools to use in the application.
4	Search For..	The search bar is where you will type in the values you need to search against the different layers in the map as well as an address search.
5	Tools in Header	These tools in header are available when the end user has collapsed the toolbar.
6	Right-Click on Map	Displays a list of actions to do various tasks with the map/data.
7	Map Area	Displays data from the layer list.
8	Zoom In/Out	Click on the + to zoom in and the – to zoom out.
9	Adjust Panel	Allows you to resize the width of the panel.

4   Panel Tabs

There are three main Panel Tabs: Home, Layers, and Legend. More tabs will appear as you open workflows, utilize tools or select data.

4.1   Home

Displays the overview of the use of the application and the data layers utilized in the application.

4.2   Layers

Displays the layers available in the GIS viewer. Some layers are scale dependent and are only viewable when zoomed in on the map.

4.3   Legend

Displays symbology for visible layers in the map area and their drawing order. The legend will not show a layer in the legend if it is not turned on or if it is not visible on the map.

4.4   Results

Displays the results from search bar, identify or buffers.

4.5   Filter

Displays a dialog for the end user to filter data in the layer list.

4.6   Query

Displays a dialog for the end user to query data from certain layers in the layer list. View the [INSERT] for layers where this is enabled.

4.7   Find Township, Range, Section

When FIND PLSS is invoked the form is displayed in the panel area.

5   Layers

Below is a list of the data layers that are available in the GIS Viewer. View the description of available data layers by clicking on the Layer Information button on the Home tab in the application.

Layer Name	Layer Name
RR Program Data	County Parcels
Well Inventory	Administrative Boundaries
Special Casing Areas	Township, Range, & Section
1200 Ft landfill Buffer	Basemap
Niagara Dolomite/Maquoketa Shale	Topographic Maps
Nitrate Vertical Penetration Graphs	LiDAR
Groundwater Protection	Air Photos

5.1 Layer Options

Each layer has the following options:
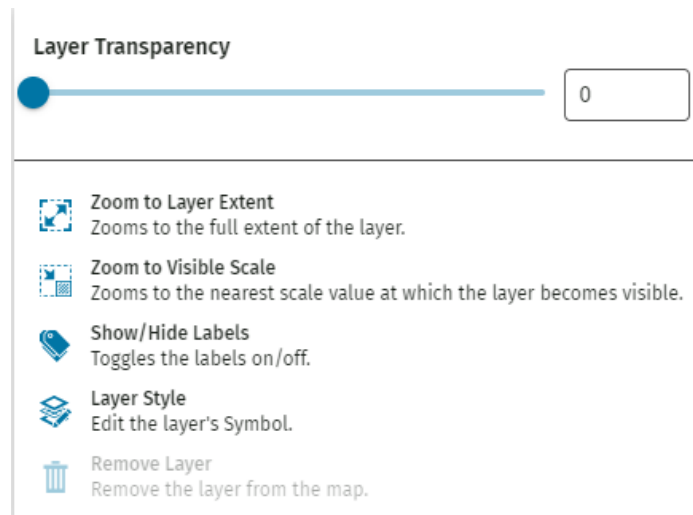
Remove Layer – Is activated once the user upload other spatial data into the application, which is under the Data tab.

6 Results

The results panel appears after a search or analysis has been completed.

6.1 Results by using the cursor click

Action: Click on a single feature using the cursor (arrow) in the map without activating the identifying tools.

Result: The **Feature Details** pop-up is displayed in the map with detailed information of the feature.

In the pop-up window the three ellipses have the following options:
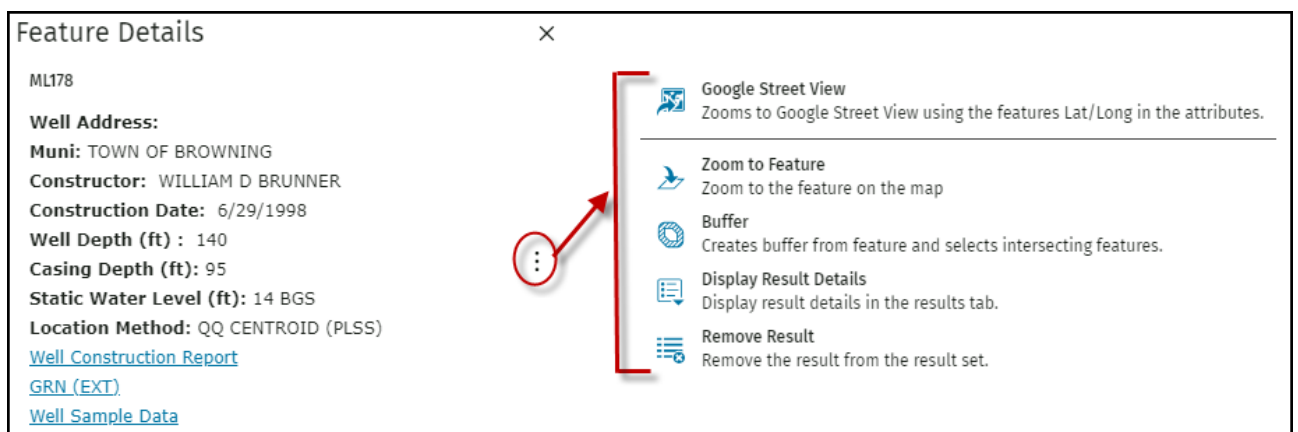
Google Street View: Zooms to Google Street View using the features Lat/Long in the attributes for the feature.

Note: Google Street View is only enabled for the Well Inventory layer.

Zoom to Feature: Zooms to the feature within the map.

Buffer: Creates buffer from feature and selects intersecting features.

Display Result Details: Displays the specific record under the Results panel, which has Additional Information.
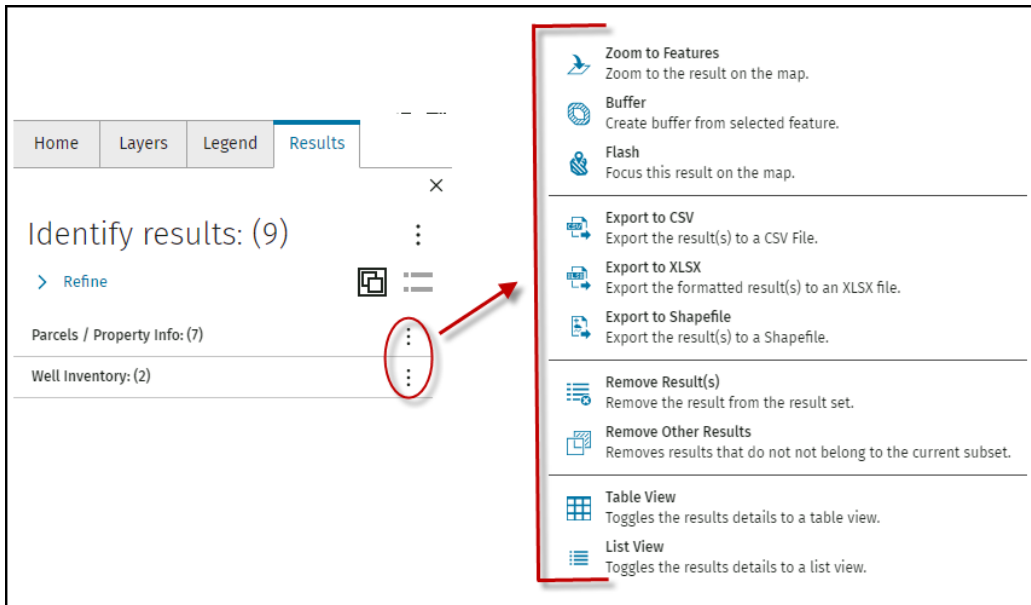

Remove Result: Removes result from the pop-up.

6.2   Results by Using Identify Tool(s)

Action: Using the Identify tool(s) single click or draw a shape around the features.

Result: The Results panel is displayed showing the features selected, grouped by layer type.

The listed results have the following options, when the three ellipses are clicked.

Zoom to Features: Zooms to the features in the grouping.

Buffer: Creates a buffer from feature(s) in the grouping. No selection of intersecting features.

Flash: Focuses the results in the grouping on the map by selecting the feature(s).

Export to CSV: Exports results to a CSV file.

Export to XLSX: Exports results to an Excel file.

Export to Shapefile: Exports the result(s) to a Shapefile.

Remove Result(s): Removes the results from the Results panel.

Remove Other Result(s): Removes other results from the Results list.

Table View: Toggles the results details to a table view at the bottom of the map.

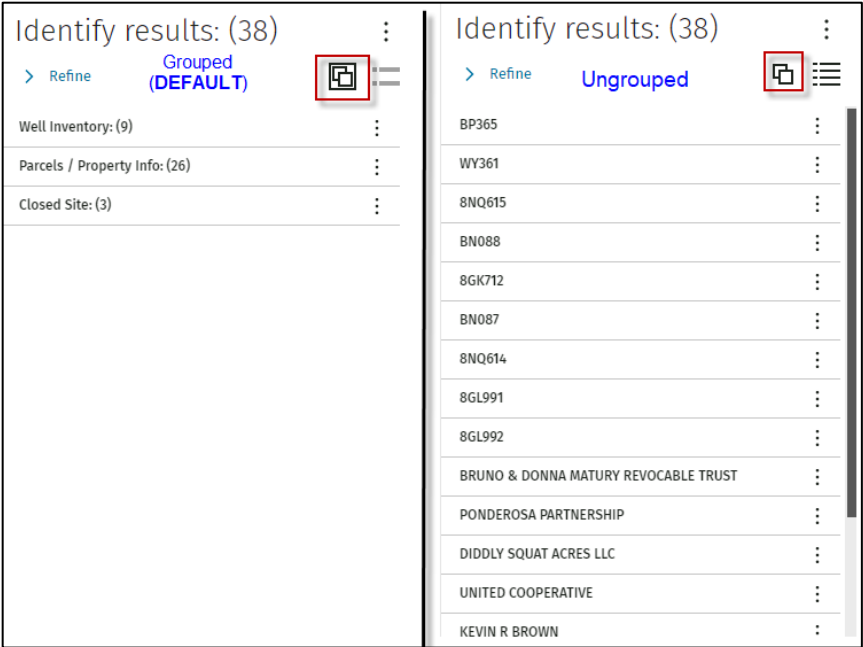**List View:** Toggles the results details to a list view.

6.3   Result View(s)

There are two different types of groups for results shown:

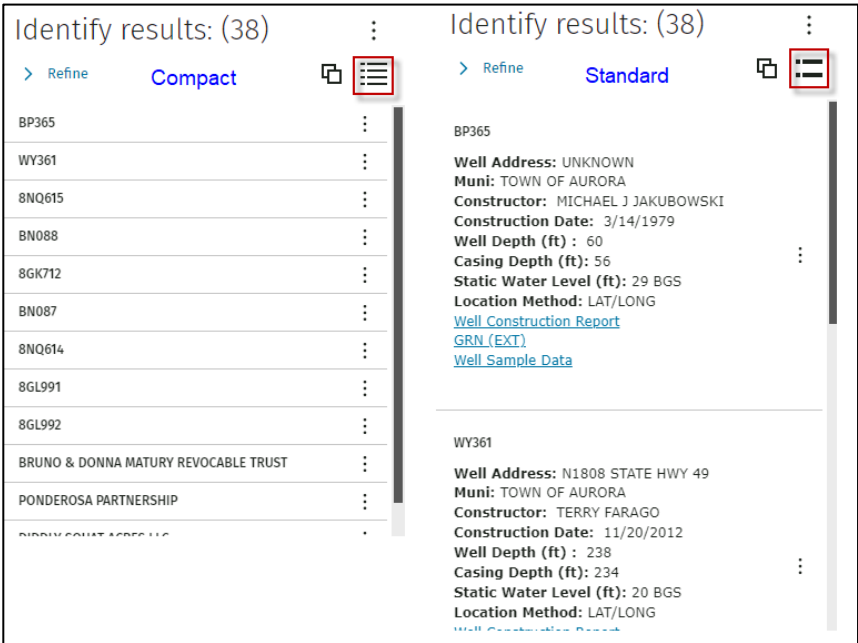**Grouped** - Groups the results by layer name (DEFAULT).

Ungrouped – Ungroups the results by layer and displays individual records in compact view.

The ungrouped view has two sizes:

Compact – Shows the single record using the title for the pop-up.

Standard – Shows the expanded view which is what is configured as the pop-up.

7   Search For…

The search bar is used to search for:

- Data in certain layers; and
- For an address search for any address that is within the United States (ie A Google search).

7.1   Search for features in the Data Layers

The layer you are searching against must be turned on in the Layers tab. If the layer is turned off, it will not find the record.

Tips For Searching:

If you want to find the exact phrase you will need to type the phrase with quotes around the text. If you want to do a fuzzy search don't include the quotes around the phrase.
(**Example:** Typing in "GC066" will only return results that match exactly GC066)

```
"GC066"              ✕  🔍
```

Below are the values you can type into the search bar and find features for:

| Search Name	Layer Name
WUWN #	• Well Inventory
RR BRRTS #	• RR Open Activity • RR Closed Activity • RR Affected Another Property or Right-of-Way
RR BRRTS Activity Name	• RR Open Activity • RR Closed Activity • RR Affected Another Property or Right-of-Way
Facility ID (FID)	• RR Open Activity • RR Closed Activity • RR Affected Another Property or Right-of-Way • 1200 Ft Landfill Buffer
Site ID	• 1200 Ft Landfill Buffer
Facility Name	• 1200 Ft Landfill Buffer
County Name	• County Boundaries
Municipality Name	• Municipal Boundaries

7.2   Search for an address (Geocode)

When searching for an address it uses a World Geocoder. Will only return an address in the United States.

7.3   Displayed Results

Once you select or search for data in the map, the results display in the Results panel.

8 Toolbar (Tools)

The Toolbar contains tools that allow users to do further analysis with the data in the application. A tool can be activated by clicking on its icon. Tools that have a small black triangle in the bottom right corner have a submenu that will become available when the tool is activated.
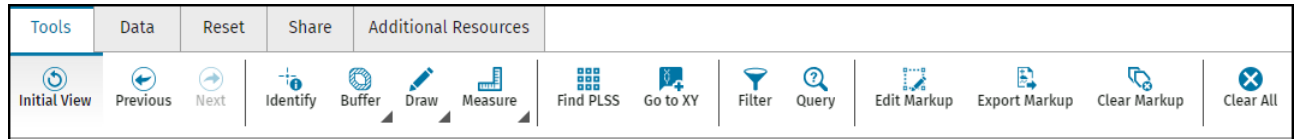
8.1 Extents

A quick way to return your map view to different views.

Initial View – Zooms the map to the original extent, which is the state of WI.

Previous – Zooms the map to the previous extent.

**Next** – Zooms the map to the next extent.

8.2 Identify

Allows the user to click on the map and receive information about any layer that is visible and the identify option is configured in the application.

- To select one feature, single click on a feature
- To select multiple features, click and hold the left mouse button and drag the mouse to create selection box

8.3 Buffer

Used to create a buffer anywhere drawn on the map and selects features that intersect the buffer area.
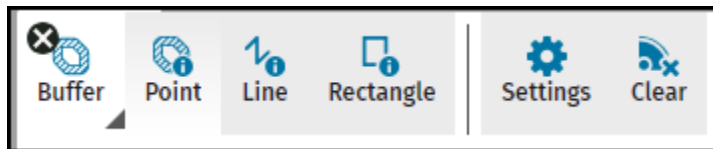
Point - When activated, will generate a buffer from point clicked on the map.

Line – When activated, will generate a buffer from the line drawn on the map.

Rectangle – When activated, will generate a buffer from the rectangle drawn on the map.

Settings – Adjust settings of buffer units/distance. Default buffer is 1,200 ft.

Note: If user changes these values, the next time they use the buffer tool it will default to the last units/distance used.

Clear – Clears **ALL** buffers drawn on the map.

8.4 Draw

Is used to create markups (Point, Line, Polygon and Circle) on the map. When activated a cross hair is visible on the map.

**Point** – Click on the map to draw a point.

Line – Click the map to add the first point, move your mouse to the next segment of the line and left click. When done drawing the line double click to end the drawing.

To draw a line without point and click, after adding the first point on the map, hold down the left mouse button and drag to create the line. When done double click to end the drawing of the line.

Polygon – Click on the map and start drawing polygon, double click when completed.

Circle – Click on the map and start drawing a circle, double click when completed.

Edit – Allows the user to edit the drawing. To select drawing, click and drag an edge of the drawing. Once selected the actual drawing can be modified by dragging the vertices.
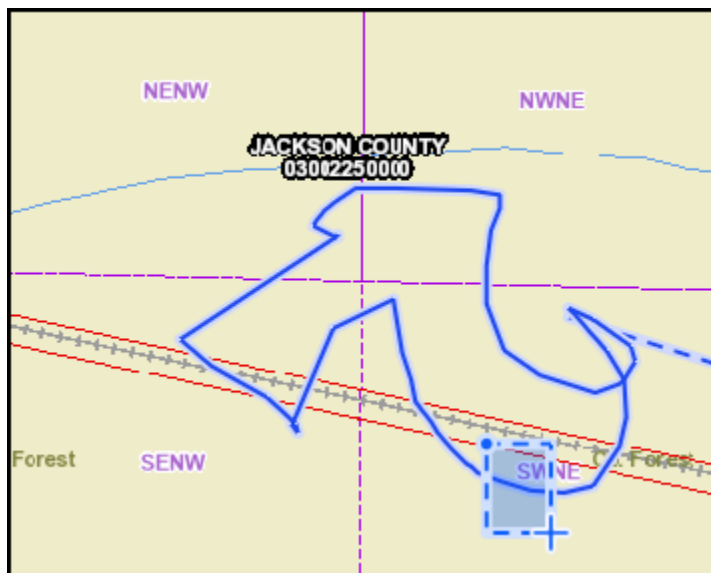

Export – Allows the user to export the drawing(s) to a shapefile to load into a GIS application (ArcGIS Pro or any GIS Viewer that supports this functionality).

> **Note:** Creates a shapefile of the drawing(s) and zips up the shapefile. Refer to the Data tab on how to add this into the Well Driller Viewer.

Clear – Used to clear **ALL** drawings from the map.

8.5 Measure

Is used to measure (Length, Area and Circle) in the map. When activated a cross hair is visible on the map.
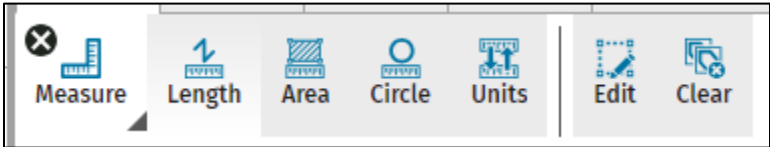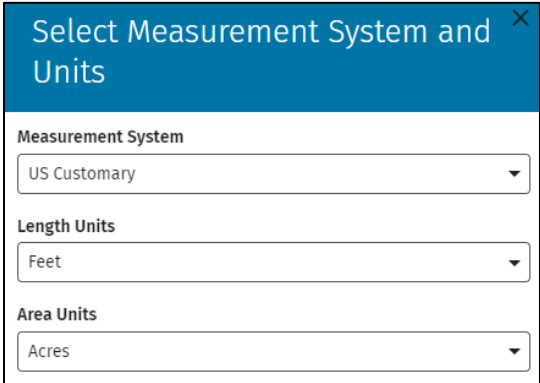

Units – Allows user to change the units of measurement.

The Default measurements are:
Length – Feet
Area – Acres

Edit – Allows the user to edit the measurement drawing in the map. To select it, draw a box around any segment of the measurement. Then take any of the vertices and drag to continue the measurement.

Clear – Used to clear all measurements drawn on the map.

8.6 Find PLSS

Displays a form in a tab panel that allows the user to search for a defined PLSS (town, range, section, etc.), zoom the map in, then either select the feature or draw a red graphic border around it.

8.7 Go to XY

Displays a dialog box that allows the user to enter coordinates, zooms to a scale of 15,840 in the map and places a red marker on the map.
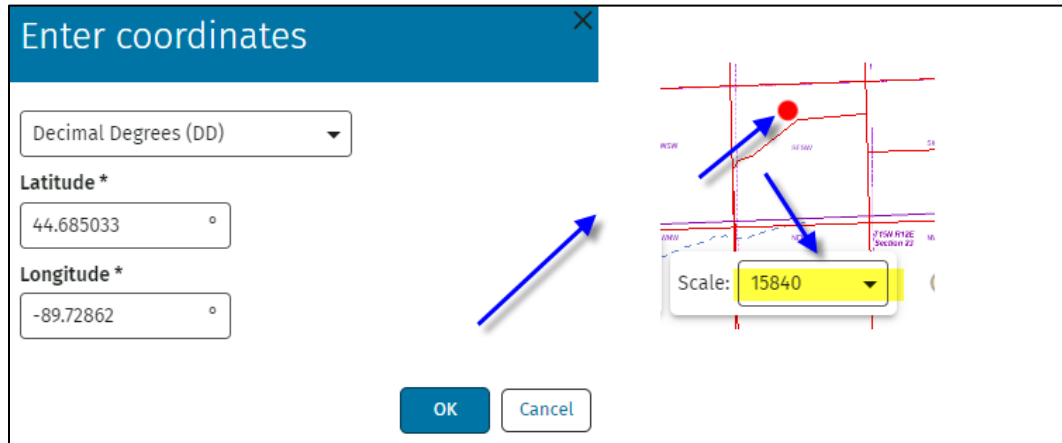
8.8 Filter

The Filter Builder tool provides a form in a panel that allows the user to adjust what is visible on the map by using logical conditions to filter data.

Note: For fields that have text data, the value typed in is case sensitive. In the example below, typing this as *Sam's* would not find any data.
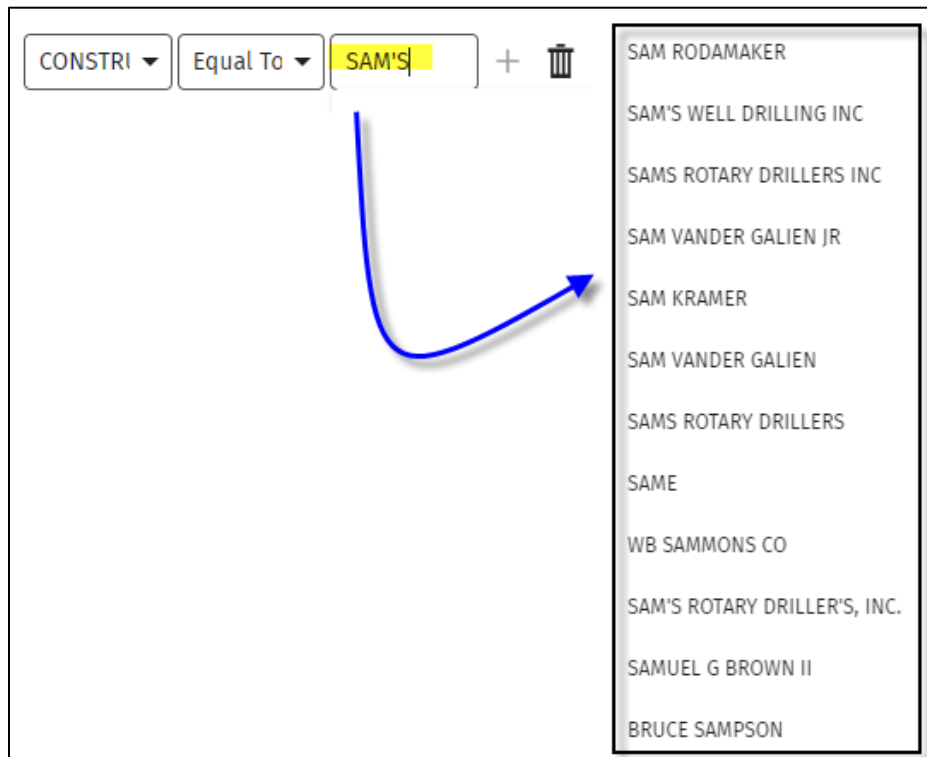
8.9 Query

The Query Builder tool provided a form in a panel that allows the user to search map layers by entering logical conditions.

Note: For fields that have text data, the value typed in is case sensitive. In the example below, typing this as *Sam* would not find any data.
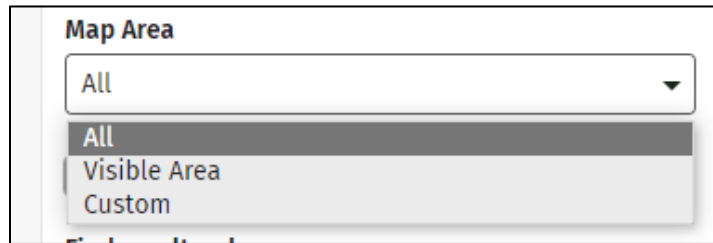

The following are the only layers in which this enabled for:

- RR Open Activity
- RR Closed Activity
- RR Affected Another Property or Right-of-Way
- Well Inventory
- 1200 ft LF Boundaries
- Parcel Layer (Cached & Dynamic)
- County Boundaries
- Municipal Boundaries

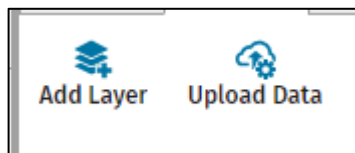The query can be applied to the following areas within the map:

Custom – Gives the user the option to draw (Polygon, Rectangle and Line) for an area of interest in which to apply the query to.
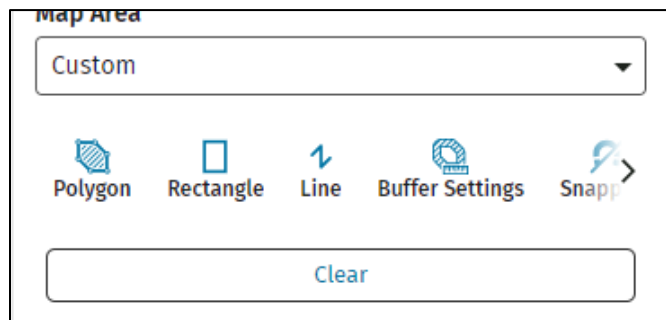
9   Toolbar (Data)

Provides an interface to upload layer data from an external file or ArcGIS Online (AGOL).

Add Layer – Provides an interface to add data from AGOL to the map.

Upload Data - Provides an interface to upload layer data from an external file. Supported file types are CSV, Excel, and shapefiles.

> **Note:** Shapefile must be zipped up. The zip file that contains the shapefile would be the file that needs to be uploaded.

10 Toolbar (Reset)

Reset tools to clear the map of highlights, results, drawings/measurements, markers, filters and clear all.
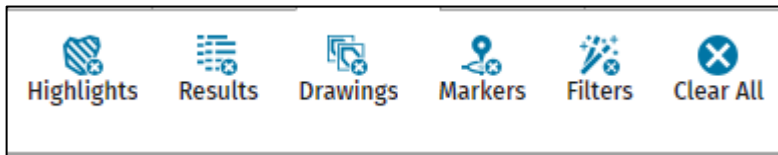
Highlights – Clears all highlighted features in the map.

Results – Clears all Results from the Results tab.

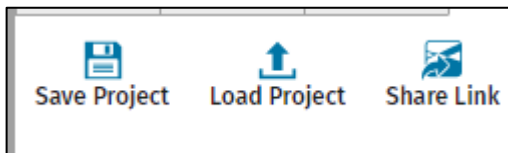**Drawings** – Clears all drawings from the map.

Markers – Clears all Location Markers.

Filters – Clears all Filters set using the Filter Builder.

Clear All – Clears everything (highlights, results, drawings/measurements, markers and filters) from the map.

11 Toolbar (Share)

Allows users to save, load a saved project and share the GIS viewer.

Save Project – Preserves the current state of your view as a (.json) downloaded file.

It preserves the following:

- Map extent, layer state (on/off, transparency)
- All markups
- Location notes
- Measurements
- User-added data from an ESRI portal
- User-Uploaded data from a file

Load Project – Presents a dialog box that allows users to load the Saved project.

Share Link – Allows the user to share the extent of the map along with the layer state (on/off) only.

12 Toolbar (Additional Resources)

Links to other resources both database and map viewers that gives users a quick way to get to other resources needed when constructing a new well.
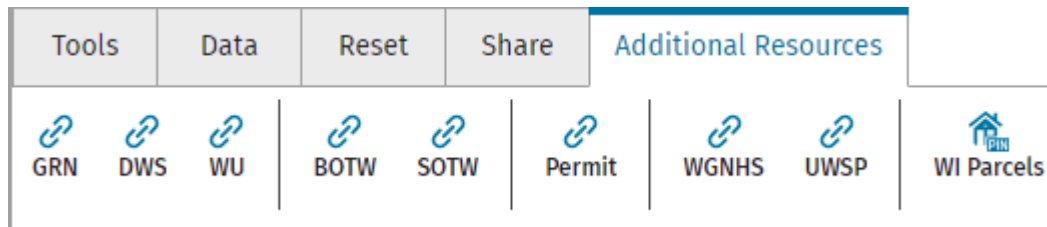
GRN – The Groundwater Retrieval Network (GRN) reports well information and well sample result data from several DNR databases. GRN can help you find information about an individual well or analyze regional or statewide groundwater conditions.

DWS – This site allows you to query and download data from our database, the Drinking Water System (DWS), which is maintained and used by DNR SDWA regulators.

WU – Search for high capacity wells or surface water withdrawal sources.

BOTW – The Bureau for Remediation and Redevelopment Tracking System on the Web (BOTW) is a searchable database maintained by the Wisconsin Department of Natural Resources that includes information on the investigation and cleanup of environmental contamination in Wisconsin that may affect soil, groundwater, sediment, indoor air, and more.

SOTW - SHWIMS on the Web (SOTW) is a historical database of Wisconsin Landfills.

WGNHS – Link to the Wisconsin Geological and Natural History Survey website.

UWSP - University of Wisconsin Stevens Point Groundwater Quality Viewer. This viewer displays groundwater quality information from private wells around the state.

WI Parcels – List of Wisconsin counties with links to their GIS Viewer for parcel information.