Hexagon Portal at MPDC
Advanced feature version

Introduction

The GIS system running at Matamata-Piako District Council is referred to as the Geospatial Portal or Hexagon Geospatial Portal.

The Help screens ? (About) are good but very big and sometimes quite technical. The search box is perhaps the best way to find what you need. Just a caution that multiple products are included so the one you need is called “Geospatial Portal”. The Index is also helpful.

However, to get you up and running quickly these notes are an attempt to cover the basics of the Portal: The interface, navigation, queries, printing and then a run through all the tools with some examples of how to use them.

If the Portal stops behaving, reload it (restart) and try again.

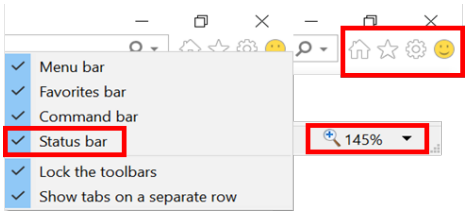
Browsers

The following browsers are compatible with the GIS Portal:

Google Chrome (50.0.2661.102 or higher); Internet Explorer (9.0, 10.0, 11.0 Make sure Compatibility Mode is switched off in your browser); MS Edge; FireFox (46 or higher); Safari (6.0 or higher).

Zoom 100% in Internet Explorer

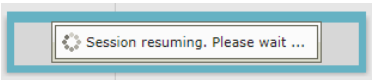
NB Zoom MUST be set at 100% for the Pan tool to work in Internet Explorer (200% also works but it doesn’t look nice).



- In IE in the top right corner (pictured) Right click any of the four icons (Home, View favourites, Tools, Let us know)
- Tick Status Bar (this will appear at the base of your IE session)
- In the Right hand corner you will see a %: This must be 100%
- Click the % to return to 100% or the drop down to select 100%

Session resuming. Please wait …

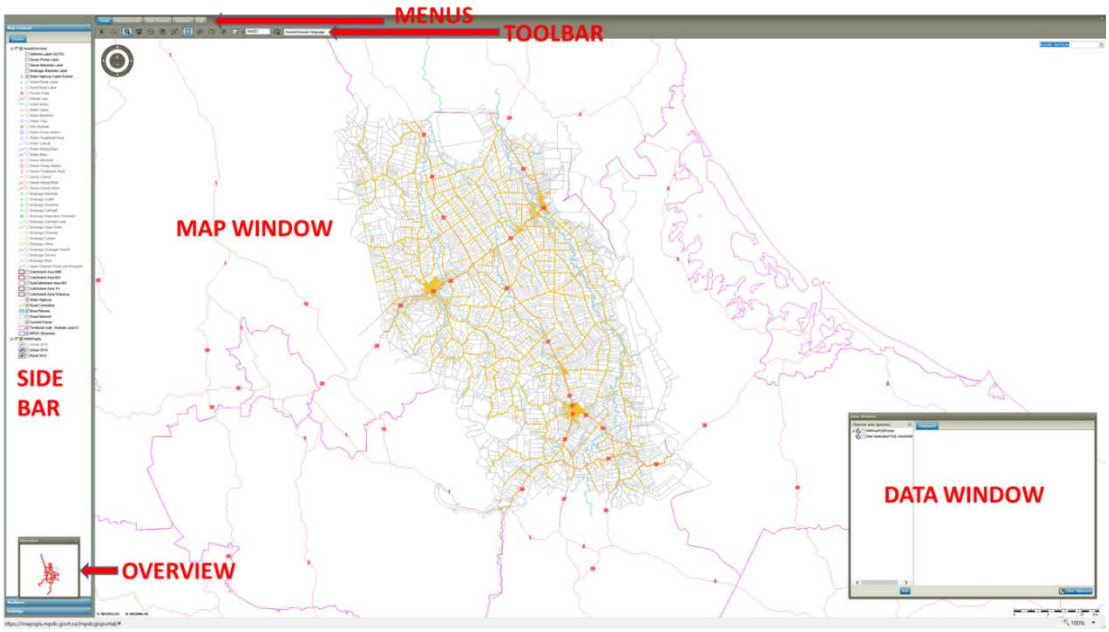
This is common ie your session times out. Reactivate the map BEFORE you try any Queries, Prints etc. Just Pan or Zoom [or use the *i*Tool (Feature info)]



If your session is problematic, refresh the webpage (F5).

User Interface

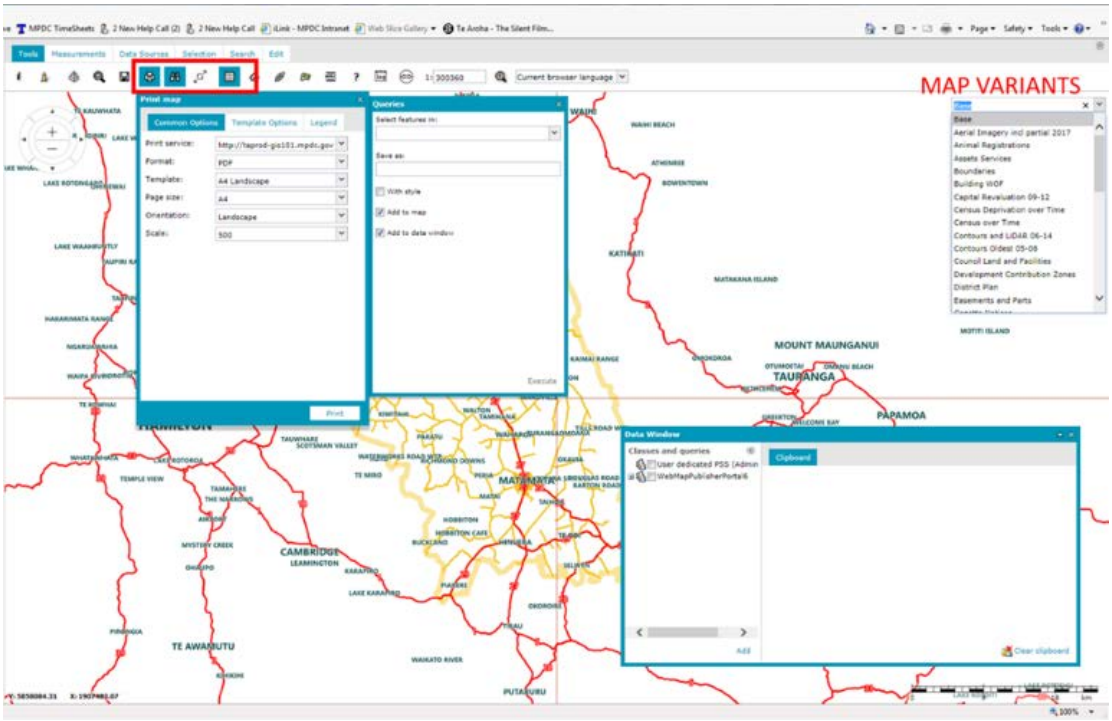
The main parts of the interface are: Menu; Toolbar; Sidebar; Map window and Data window. The Toolbar will change for each Menu selected.



Here's how Portal presents when opened with the Data Window opened.

Let's run through some of the more common features before we do a blow by blow "feature" list.

Map Variants

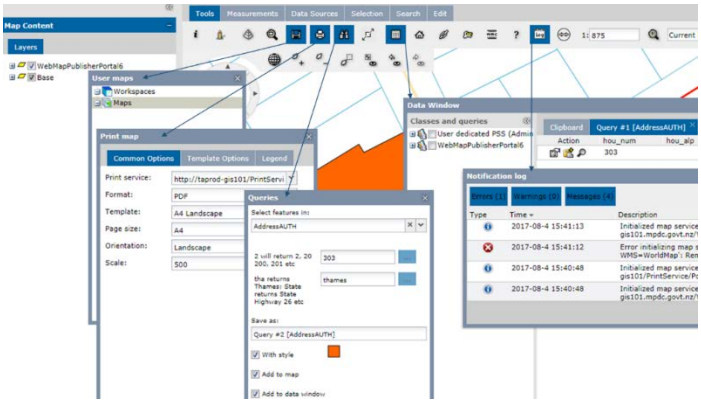


Next we see the Map Variants (Maps) in alphabetic order on the far right. Fifteen maps have been published initially. To change maps use the Drop Down arrow as shown.

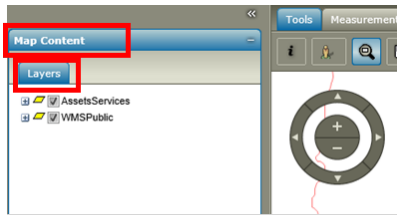
One thing to note about the Hexagon Portal is that changes you make during each session remain in place until you begin a new session. You can add maps or features or Queries to your current map. You can even save it for tomorrow.

Toggles

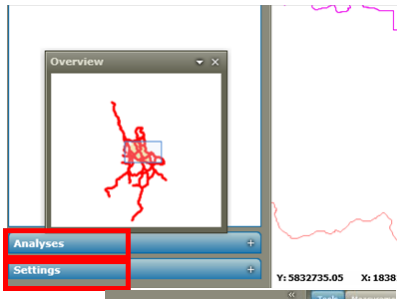
Many of the commands (icons) on the toolbar are toggles: If it's highlighted when active, it's a Toggle - 5 examples shown here.



Sidebar (on the left)



The Sidebar has three sections (shown at right): Map Content (Legend) with the map Layers; Analyses; Settings. The Map Content or Legend section follows. The Analyses and Settings sections are mentioned further down.

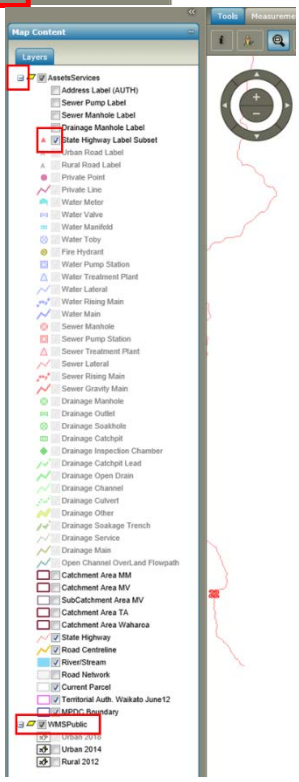


Legend (Map Content)

Legend entries are controlled in multiple ways.

Each Data Source is listed in the Map Content: Click the + Plus sign to open the Data Source and view all map features.

At right you can see "AssetsServices" and WMSPublic". The top data source brings all Assets data and the bottom WMS data source brings the Web Map Service Imagery or aerial data.



Queries and Analyses items get placed into the Map Content area to give you better control as follows:

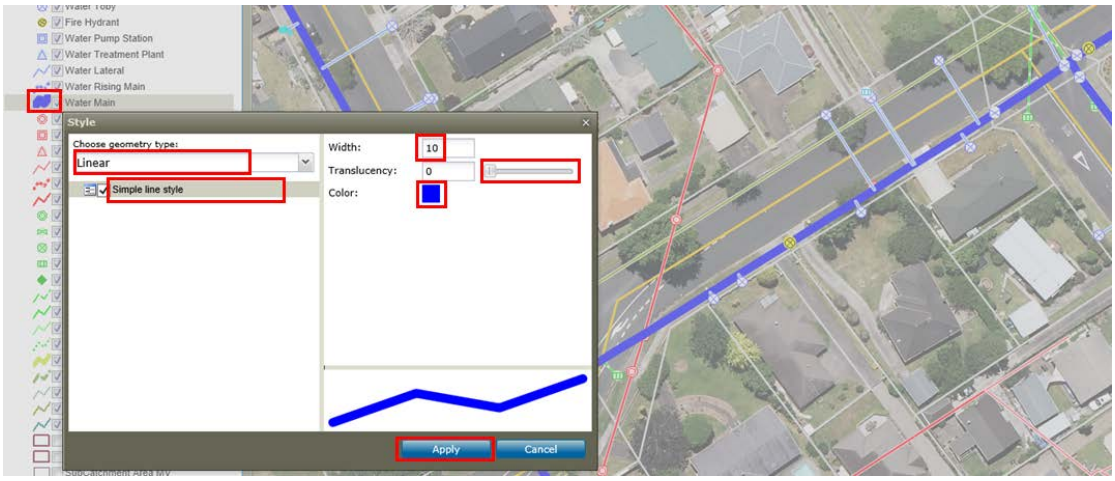
- Turn on/off (Tick)
- Move to the bottom of the Legend (everything in the Legend is in layer order ie the top item appears on the top of the map, hence labels first, then Points, then Area features)
- Change the colour or transparency simply by clicking in the style box (see below)

Customise Map Content

You can customise any Map Content as follows:

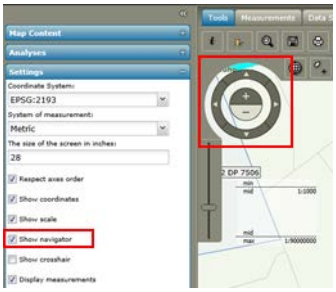
- Click in the Style box (the left-most column: the column with A, lines or coloured boxes) of the item you need to change to activate the Style dialogue (Water Main)
- Use the Drop Down arrow to select one of the following depending on the type of data you are dealing with: Point for symbols on a point; Linear for line data (pipes); Areal for area features; Compound are actually all of the above; and Text to alter the size or colour of text data

- Click the words “Simple line style” and it activates Width, Transparency and Colour options
- As a guide the current Centreline is between 1-2, so here you see Width 10 used
- Click the Colour box to activate the Colour Palette
- Choose a colour
- Set Transparency if required by a percentage or use the slider
- Apply



Navigation

A wheel mouse is the best way to navigate in Portal.



Zoom

NB If you have no wheel mouse use the Navigator. It has + - for zoom in / out and direction arrows to move the map (wheel mouse is way faster)

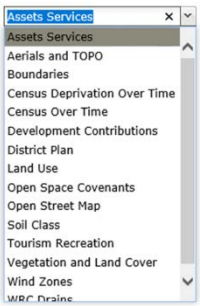
- Wheel Mouse in to zoom in
- Wheel mouse out to zoom out
- Note the zoom always actions at the mouse location point

Pan

- Click and drag (see the IE note above about 100% if this doesn’t work)

Finding Maps

Maps or Map Variants are accessed top right in alphabetical order (except for Base Map).



Changing Maps

When changing maps [Map Variants], most of what you create or change on one map remains even after visiting other maps (only in your current session). The exception is the Selection tools: They will not remain after a Map change.

Map Format

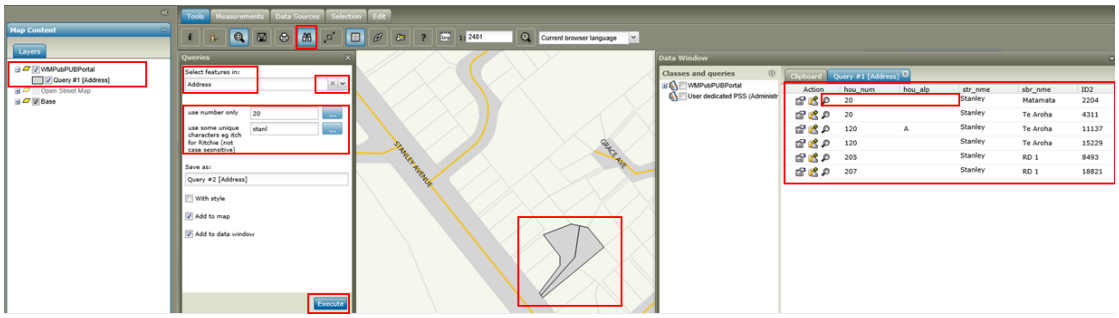
The native mode of our map is PNG (Portable Network Graphics). It works fastest in this mode. There are however, times when SVG (Scalable Vector Graphics) is preferable eg Marking up parcels. In SVG the performance declines especially with aerial photography.

Queries

See the binoculars

All Queries use a LIKE command so may return multiple hits to help you find and isolate your request. All hits are marked up on the map and loaded into what is called the Data Window eg below right.

- Click the binoculars icon and use the Drop Down arrow to the right
- Expand the + sign to access the Query list (here Address has been selected)
- In this Address search we enter 20 in the first field
- We enter stanl in the road field
- Hit Execute



- All "hits" are tabled in the Data Window which now opens
- All these "hits" are also loaded into the Map Content as a legend entry you may adjust or turn off
- To make the map "jump" to your desired address, click the entry in the Data Window

Query list

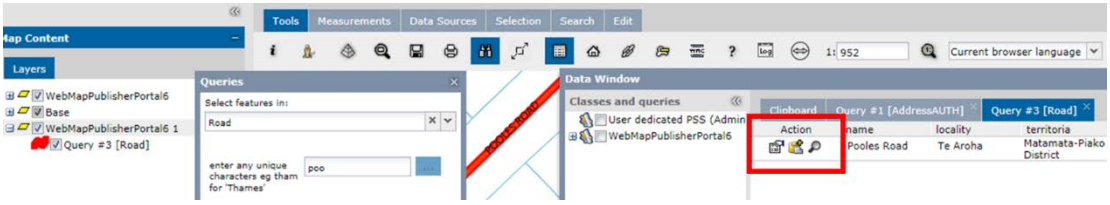
- Address (house number without alpha and part of the street name ie use 1 not 1A)
- Legal (actually the Appellation)
- Roadname (just the road name)
- TownFeature (operates on the Label set called Town/Feature as seen in the map) eg find Manawaru
- Title (as shown by the field "titles" when you use the ***i***Tool [Feature info] on a land parcel)

Data Window (appears after a Query)

In the Data Window, the Action column has the following:

1. Properties (hand)
2. Add to the clipboard (has a + sign)
3. Zoom [to the parcel] (magnifying glass)

Click the magnifying glass (Zoom) and the Portal jumps to the parcel.

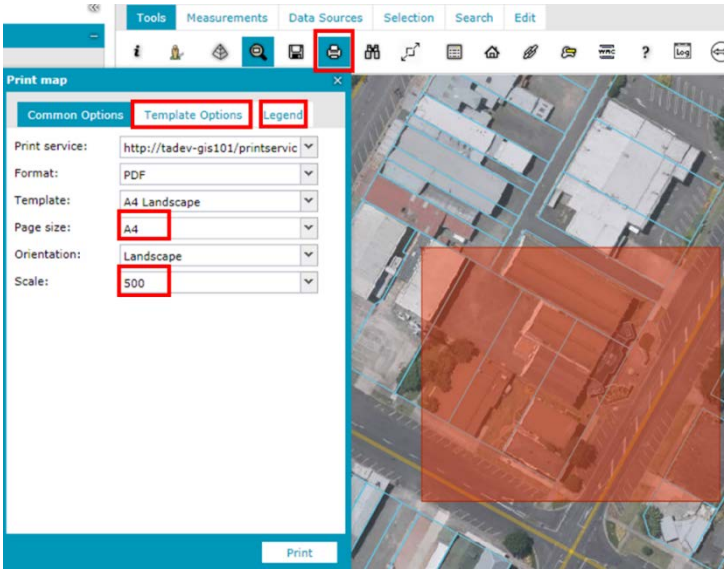


NB In this example the Road Query has been dragged UNDERNEATH the Base map to allow the Road Label to be on top

Under “Layers” in the Map Content you can DRAG entries to determine the “layering” sequence.

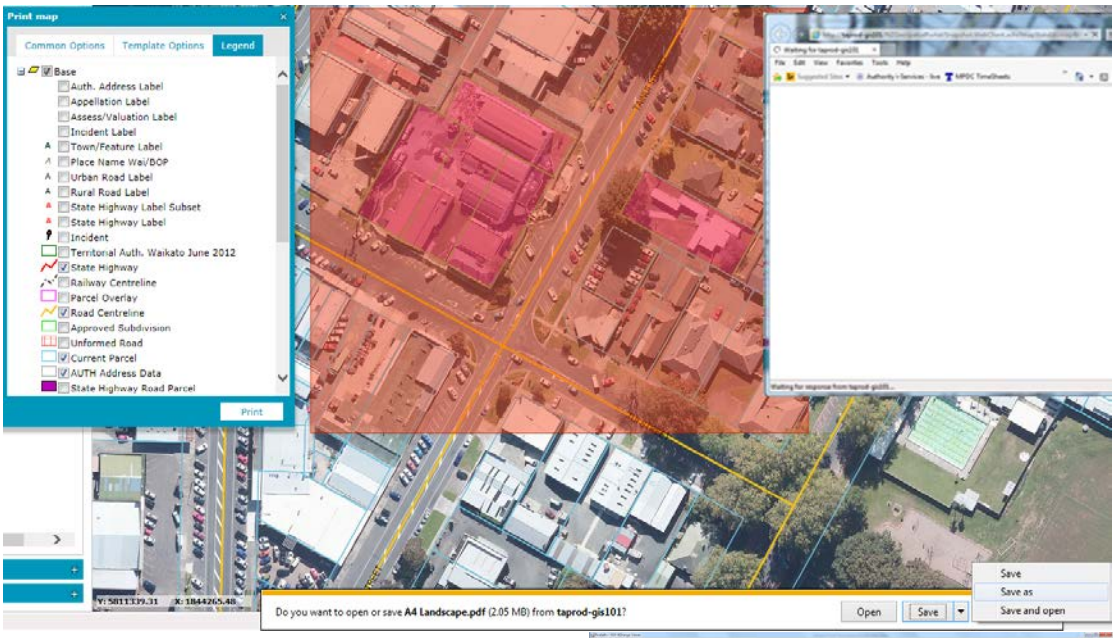
Print

The Print Toggle activates the “Print map” window.



- Alter Format if PDF is not required
- Select your Template format
- Match to Page size
- Change the Scale if necessary
- NB both the Map and the Printable area (pink) are moveable and zoom tools are still active
- Under “Template Options” you can give your map a meaningful name
- Under “Legend” you have the ability to turn ALL features off, then tick just the ones you need (helpful for long legends like Services and District Plan) NB this turns items On/Off in your printable Legend NOT on the map
- Click “Print” and wait for the message ie A new snapshot window appears while the output is made and then closes. IE (Internet Explorer) will show the message “Do you want to open or save” in the original window (options Open, Save, Save As or Cancel).
- Use “Save As” so you control the directory used and you always know where the file is

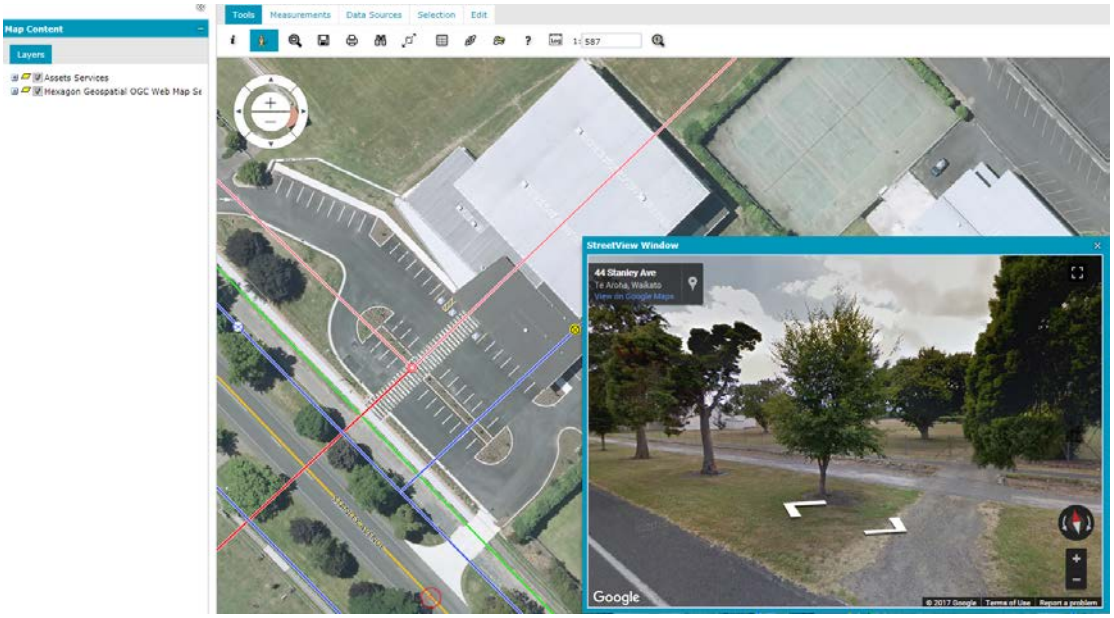
❖ THEN do an Open to view it (example in IE)



Sample PDF output (right)

Google Street View

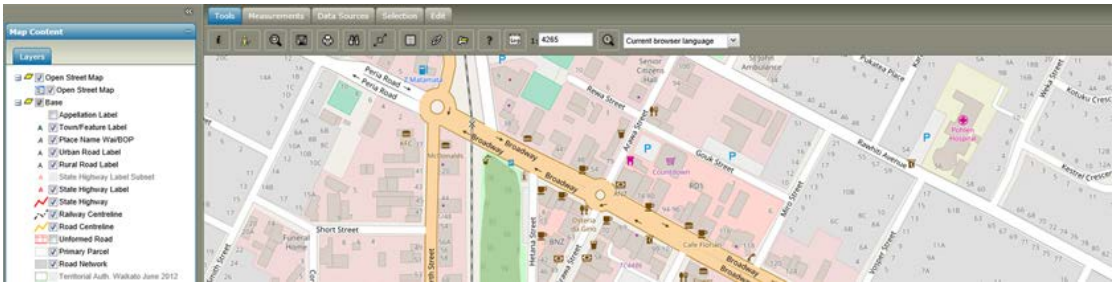
Click the second icon on the “Tools” menu Toolbar is “Show StreetView from point” and click the road centreline you need to view (or somewhere close to it)



OSM (Open Street Maps)

Open Street Maps are included in the Portal. You can see it greyed out on the Open Street Map.

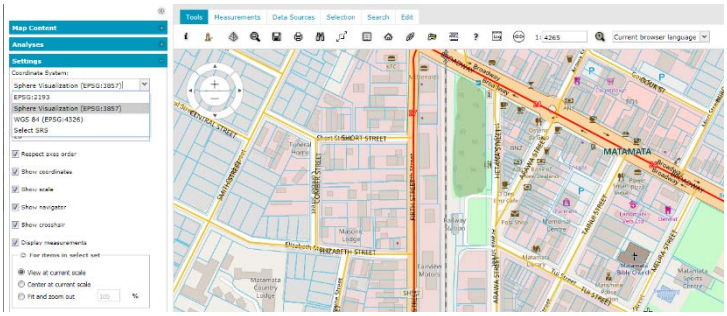
- To use it we change coordinate system: see below
- NB It will NOT print. It's for screen use only
- Its feature rich so handy for many purposes
- Open Street Map is worldwide
- It will turn OFF once you drop below the 1:1000 scale ie you are zoomed in close.



Change the coordinate system (projection)

To view OSM, we have to change the Coordinate System.

- Under "Settings" in the Sidebar is Coordinate System (Our default is EPSG:2193 or NZTM GD2000)
- To use Open Street Map change to Sphere Visualization EPSG:3857
- The map should appear quickly



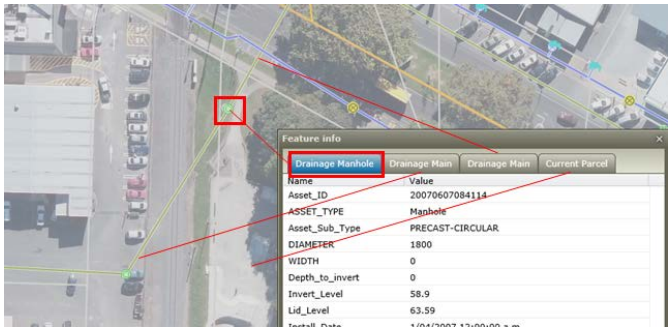
- To return to all local data use EPSG:2193

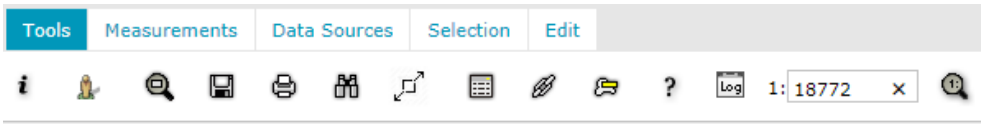
Menu Items

Tools

The most important tool is the ***i***Tool shown below. To gain information on any "selectable" map item we click ***i***Tool then the item on the map. If multiple items are selected, they will be displayed by means of multiple tabs eg right you see an ***i***Tool click renders 4 hits:

1. Drainage manhole
2. Drainage Main (to the north)
3. Drainage Main (to the south)
4. Current Parcel ie the land parcel the manhole sits on





Icon	Name	Description
	Feature info or *i*Tool	Click the icon and click the parcel/feature to view its properties
	Show StreetView from point	Click the icon and click the road to open a Google Street View
	Overview window (not used)	The overview window opens on launch. Click the icon to toggle close/open
	User maps	Click the icon to activate the User Maps dialogue. See the User maps section for more information
	Print map	Click icon and to toggle on/off and complete the variables in the Print map dialogue: see Print section
	Query window	Click icon to toggle on/off and complete the variables in the Print map dialogue: see Queries section
	Toggle select fit	Click the icon to toggle between view options: "View at current scale" and "Fit and zoom out". These can be viewed at Settings / then use the Drop Down arrow "For items in select set" — For items in select set — There is a third setting "Centre at current scale". When you have the map in SVG the map behaviour will reflect the setting.
	Data window (the Portals clipboard)	Click the icon to toggle on/off. Query results will be accumulated here (new tab per query).
	Show a link to the map	Click the icon. Copy the link. Send to another user (eg email). When they click the link they see your map. Very helpful for demonstration purposes. See the "Show a link to the map" heading below.
	Dynamic object view	Click the icon. This can be used to view data from SQL Tables eg Title on each parcel. See the heading below for graphics on sample use
?	About (Help)	Click icon. Click Guide. See below "About and Guide"
Log	Notification history window	Click icon to access the Log or Notification history window. It can be helpful for error diagnosis
1: 30036	Scale bar	Click and overtype to achieve a set scale

Notes on Tools Commands

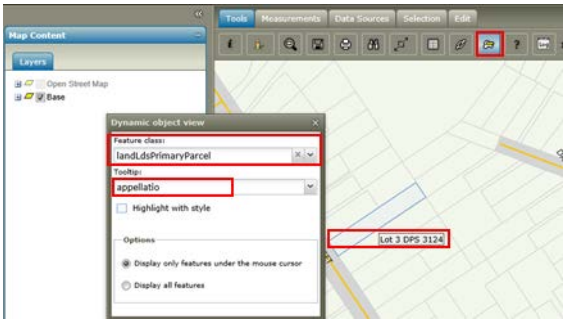
Show a link to the map

The Show a link to the map command provides a link that is a reference to the current view of the presented map. To get a link to the map, on the Tools tab, click . Portal adapts to the screen resolution/ browser / tiled services composed in the map, so the exact map range may not be available while sharing link to the map

- Click the "Show a link to the map" icon on the Tools Tab
- Click the link to highlight it
- Right Click and Copy the link

- Email the link to another user
- When they click it, the same map will be presented

Dynamic Object View

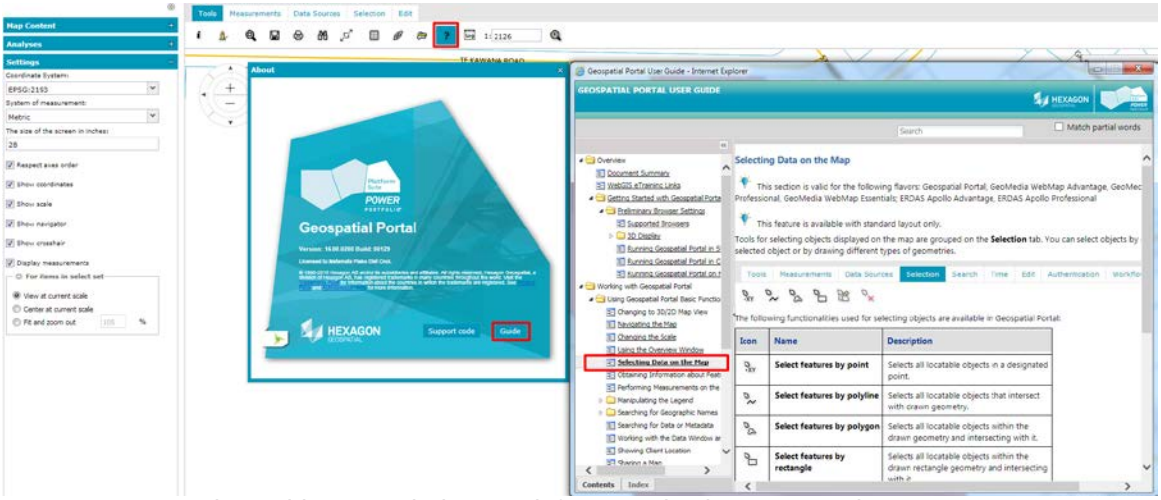


This allows “Tooltips” or labels to appear as you navigate the map. You set up as required.

- Click the icon “Dynamic object view”
- Open the connection by drop down then plus sign
- This example is the LINZ dataset landLdsPrimaryParcel
- Field “appellation” is the legal description
- Now each time you “mouse over” a parcel, the Appellation appears
- When you dismiss the dialogue box, the labels continue

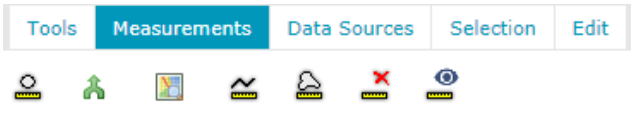
About and Guide (Help)

The “About” icon has a link to the GUIDE. The Guide has a full rundown on the Portal (as well as other products). It has a Search facility to find what you are looking for quickly.



Here we see the Guide expanded to see info on “Selecting Data on the Map”

Measurements

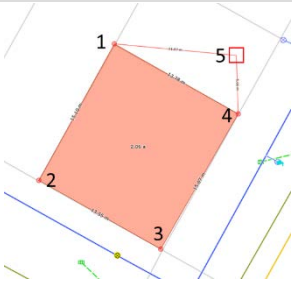


The second TAB on the Menu Bar is Measurements:

Icon	Name	Description
	Show coordinates	Display the NZTM coordinates of a selected point. Click the icon, then the point and coordinates are displayed on the map.
	Show coordinate readouts	Displays the coordinates of a selected point in a variety of coordinate systems. Click the icon, then the point and coordinates are displayed in a dialog.
	Centre on entered point	Click the icon and enter coordinates from a list of options including Lat/Long. Map centres on the point.
	Measure distance	Measure the distance between two points or multiple points.

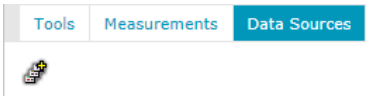
	Measure area	Measure a polygon area. Distance between points is also measured.
	Clear measures	Clears all measurements from the map.
	Show/hide measurements	Toggles on/off the visibility of labels with the values for the measured objects.

NB When using Measurement tools:



- Click to start 1 (see right)
- Click to continue until your last point has been drawn 2 3 4
- To end, move away from the last point and double-click 5

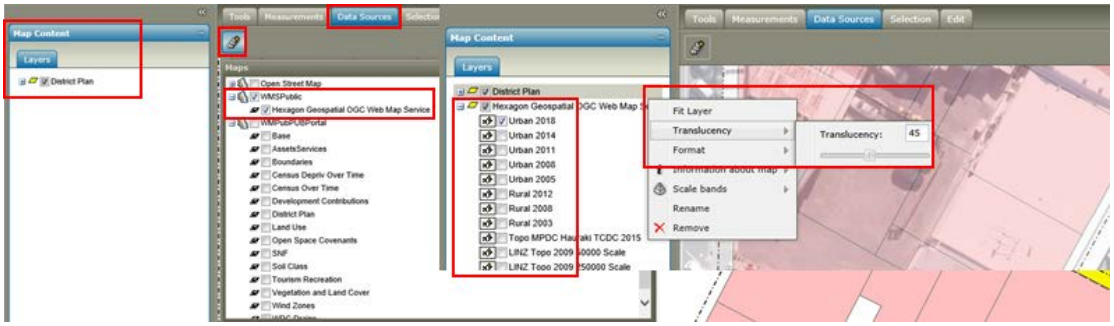
Data Sources



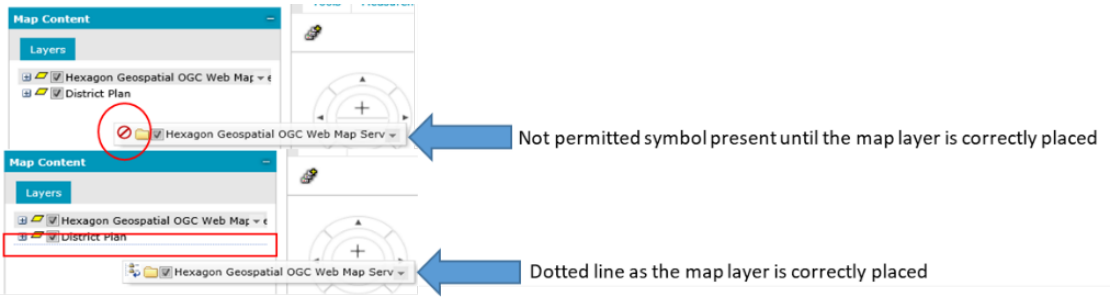
Display maps

This is the only tool under Data Sources. The Portal has a very cool feature where you can Add Maps together. In this example we add the Aerial Map to the District Plan Map.

Problem: DP Zones are NOT translucent so we cannot see the aerials underneath. We will rectify this by making the District Plan translucent.

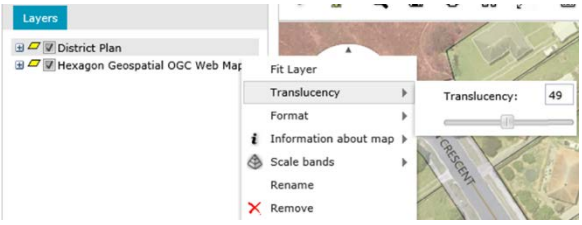


- Select District Plan on the Map Variants
- Click the Display maps Tab
- Click the icon to “Display maps”
- Click the + Plus Sign beside WMSPublic (a WMS is a WebMap Service in this case the Aerial photography)
- Tick the Map Hexagon Geospatial OGC Web Map Service
- Click Display and the aerials are added to the DP (The new map goes on top)
- Quickly turn Off all imagery not required (The aerial map contains ALL aerials so use the + sign on Hexagon Geospatial OGC Web Map Service and untick all imagery you do not need or simply use the Drop Down on each item and “Remove” to permanently remove from your map)
- In the Legend (where it says “Layers”) drag the Aerials (Hexagon Geospatial OGC Web Map Service) underneath the District Plan map

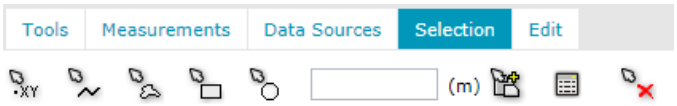


NB the “drag” is very precise. The “Not Permitted” symbol and dotted line show you when placement is or is not correct

- The imagery will now be hidden by the District Plan. To be able to see aerials under the DP do this:
- Click the Drop Down on the “District Plan” entry in the legend and mouse along the Translucency bar
- Slide the translucency until the desired effect (49% here)



Selection



NB: When using the Selection tools, the map will jump and centre your selection. All items you “touch” are made available for the “Add selected features to clipboard” icon/tool. Open the Data Window to view.

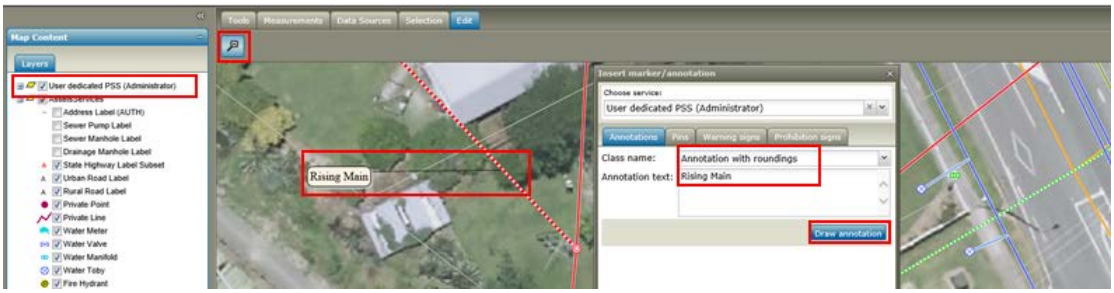
Icon	Name	Description
	Select features by point	Click icon then the map. All (locatable) features are selected
	Select features by polyline	Click the icon. Click the map once, twice, end by a final double-click
	Select features by polygon	Click the icon and begin to draw out a polygon shape. Move away from the shape and double-click to end
	Select features by bbox (bounding box)	Click the icon. Click once to begin the bbox, double-click at the end point
(m)	Select features by circle (optionally type the radius for a circle)	Click the icon. Click circle centre point. Move out. Click to end. (NB this tool may not work even with a radius entered) ie the “Selecting” message continues (restart session)
	Add selected features to clipboard	Click to add any previously selected items to the clipboard. If none are available it will be greyed
	Data window for selection	Click on/off toggle to view clipboard data
	Clear selection	Click icon to clear map selections (not clipboard)

Edit

There is only one tool here: Insert marker/annotation. Click the icon. There are four tabs.

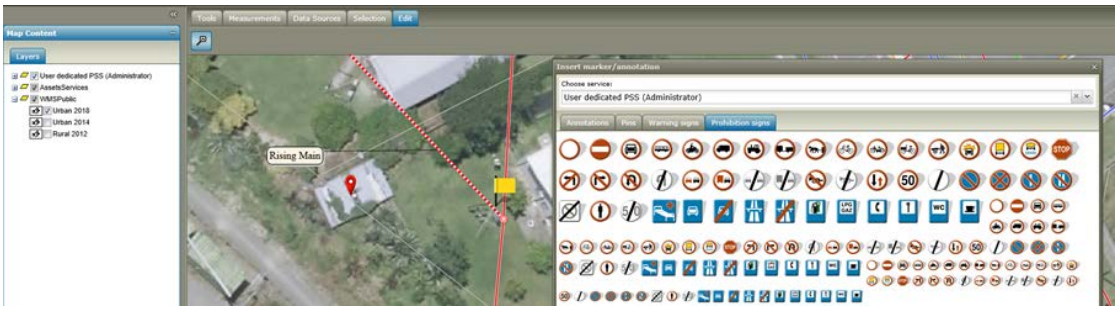
Annotations

- Click the icon and select Class name
- Type the Annotation text
- Click Draw annotation
- Click once to position the pointer
- Move and double click to position the annotation box
- A new entry is placed in the Side bar as a Legend Entry you can turn on/off



Insert Pins, Warning signs and Prohibition signs

- Click the Pins tab
- Drag the pin to the map position
- Place carefully as they are not moveable (untick the Legend entry to hide them)



Analyses and Filtering

If you need to add a map to your current map eg District Plan over aerials, the quickest and easiest is via Data Sources/Maps.

Individual Roads, addresses, titles can be found by the Query tools.

However, when you need sub-groups of these eg parcels over 1hectare, then the Analysis and Filtering tools are ideal.

The difference between Analyses and Filtering is as follows:

- Analyses adds features to your current map (via the Analyses Tool)
- Filtering removes items from your current map (via the Legend entries)

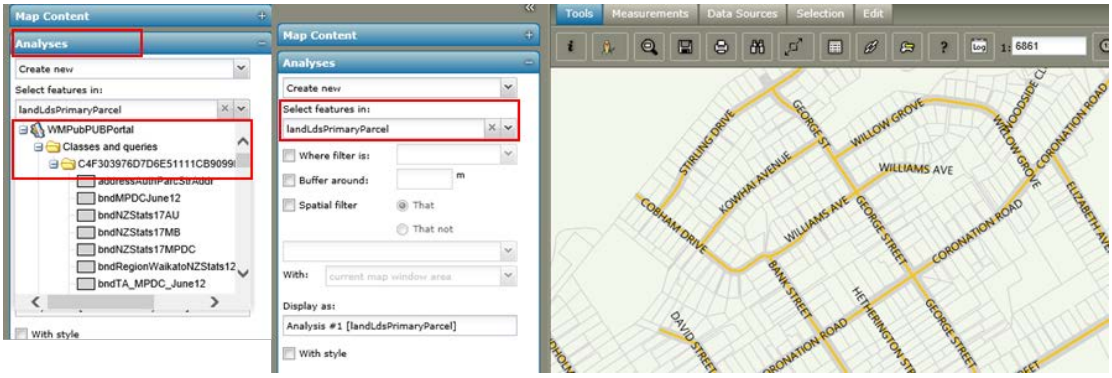
Analysis

This feature allows you to examine a wide range of attributes and measurements from every item in the SQL database that is in the Portal eg parcels under a certain size.

Using Analysis

Activate Analyses from the Analyses Section on the Sidebar

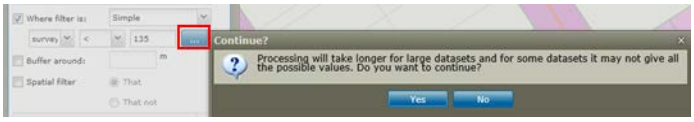
- Use the drop down arrow in the box “Select features in:” to show WMPubPUBPortal
- Click the + sign
- Click the + sign on Classes and queries
- Click the + sign on the next entry (the SQL connection string)
- You now see each SQL Database Tables and Views [they are more than a little cryptic]
- Next are examples of how this tool can be used



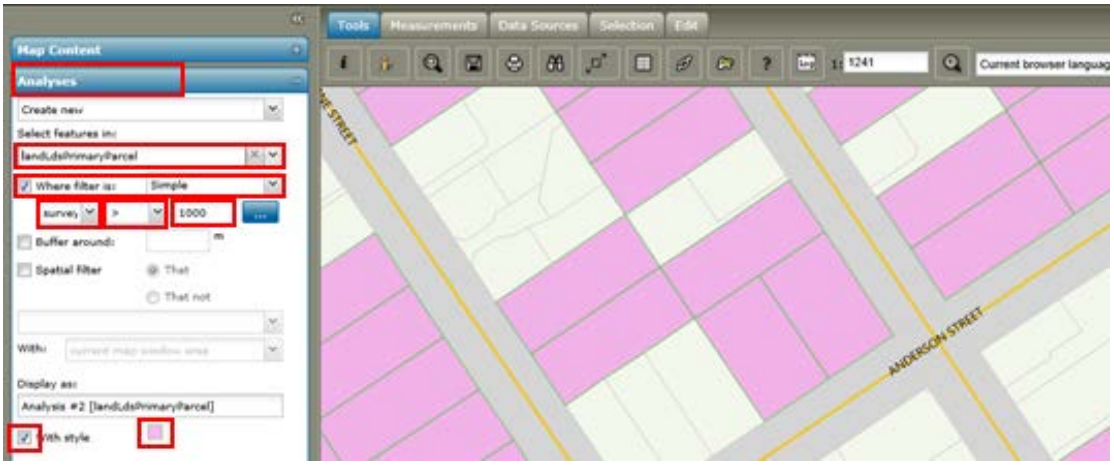
Example 1 Analyse Land Parcels by size

In this example we have selected landLdsPrimaryParcel (LINZ land parcels)

- Click the Table landLdsPrimaryParcel
- Click Where filter is and use Simple
- Using the Drop Down select a field from the table [in this case survey_are or the survey area]
- Select less than
- Type a number or use the triple dot to ask the Database for a list of many entries
  You will be presented this message:
  The database is not enormous so processing is usually quite quick

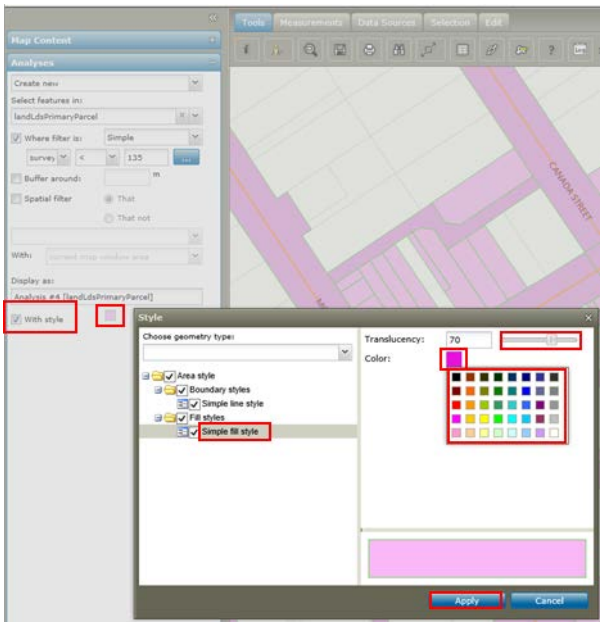


- Activate Style if required
- Execute



In this example all parcels greater than 1000m2 have been highlighted.

Style (colouring results)



As with any Query or Analysis that you run, you have the choice of colouring either BEFORE the Query runs, or AFTER results are loaded to the Map Content and modifying them there

- Tick “With style” to colour your results
- Click the coloured box and the Style dialogue appears
- Click the words “Simple fill style” (not the tick) to affect the fill***
- Click the Colour box to the right and the palette appears
- Select your colour
- Note the Translucency above whereby you will be able to see through your results to data underneath like aerials
- “Apply” the style

***NB Simple fill is used for area features; Simple line for lines; you may also adjust Points and Text features

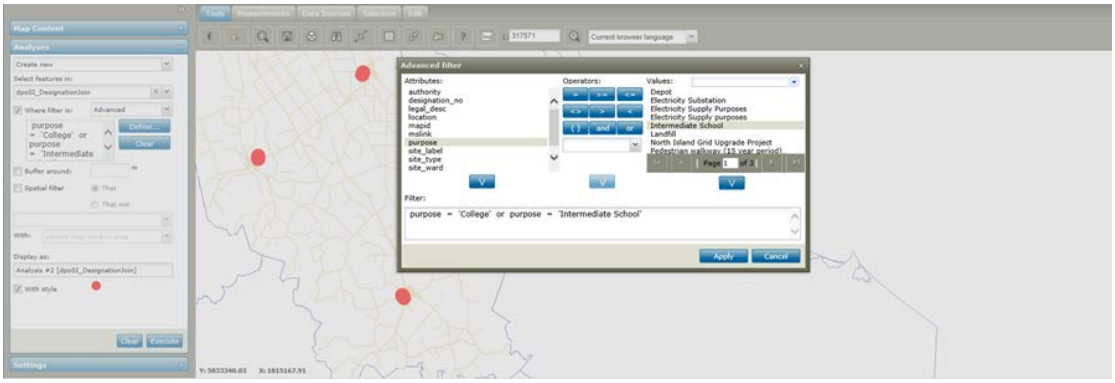
Example 2 Advanced Filter

While working on the District Plan we need to map Intermediate and High School Designations. Portal allows you to add some/all of a Table or View to any map you desire

In this example we will use the Advanced Filter and build the following statement:
“ *purpose = 'College' or purpose = 'Intermediate School'* ”

- Open the Analysis section (in the Sidebar)
- Choose table dpoSI_DesignationJoin (dpo=DP Operative SI=Scheduled Items)
- Select “Where filter is” and choose Advanced
- Click Define to show the Advanced Filter (as you click or down arrow each item you add to the query in the Filter area)
- Select the attribute field “purpose”
- Select the Operators “=”
- At “Values” click the Down Arrow and this message appears

- Click Yes to be presented with all values found in that table in the database feature
- Click “College”



- Click Operators “or”
- Click Attribute “purpose” again
- Click Operators “=”
- Scroll down to “Intermediate School” and Click
- You are now presented with this Query: purpose = “College” or purpose = “Intermediate School”
- Click Apply
- Increase the Style Point Size or change colour if desired
- Execute

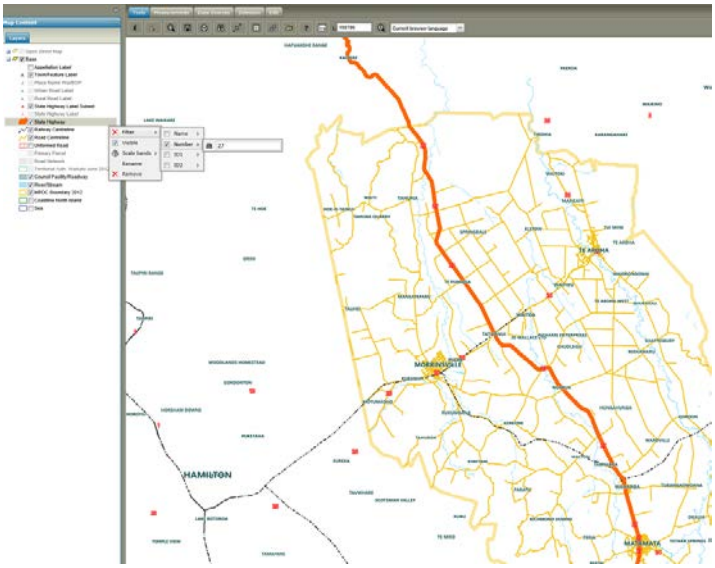
Filtering

Filtering runs from the Map Content on the Sidebar. With this tool we take data away from the map, leaving only those records that match our criteria. Other than that it is very similar to the Analysis tool.

Example A Highway 27

We will show State Highway 27 only by removing all others:

- Use the Drop Down on State Highway
- Filter Number
- Type 27
- All others are removed
- In this example the Style of the State Highway has also been changed to Orange with a width of 10 to make it stand out
- NB Other Labels for the Highways are still turned on



Example B Parcel Size

In this example, we find all parcels that match a size criterion.

First a note about area measurements and the size fields used in Parcel measurement on Primary Parcel. Please note **SurveyArea** (the trusted one) and **CalculatedArea** (a GIS area assuming a flat earth) are both in square meters (m^2).

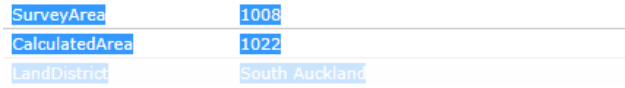
MEASUREMENTS

When measuring area in the Portal you will see the use of the letter “a”. It’s an “are” which is $100m^2$. Metric measurements that you may see on Portal (excluding cm^2)

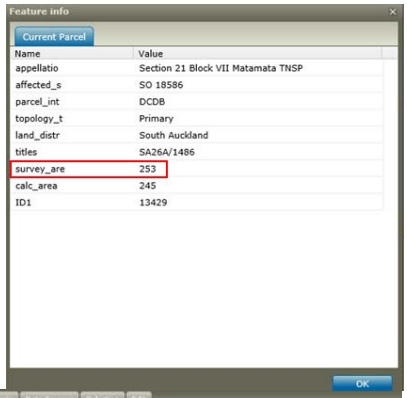
unit	abbreviation	number of square metres	approximate U.S. equivalent
square kilometre	sq km, or km^2	1,000,000	0.3861 square mile
hectare	ha	10,000	2.47 acres
are	a	100	119.60 square yards
square meter	m^2	1	1.196 square yards
square centimetre (not used)	sq cm, or cm^2	0.0001	0.155 square inch

BACK TO OUR EXAMPLE

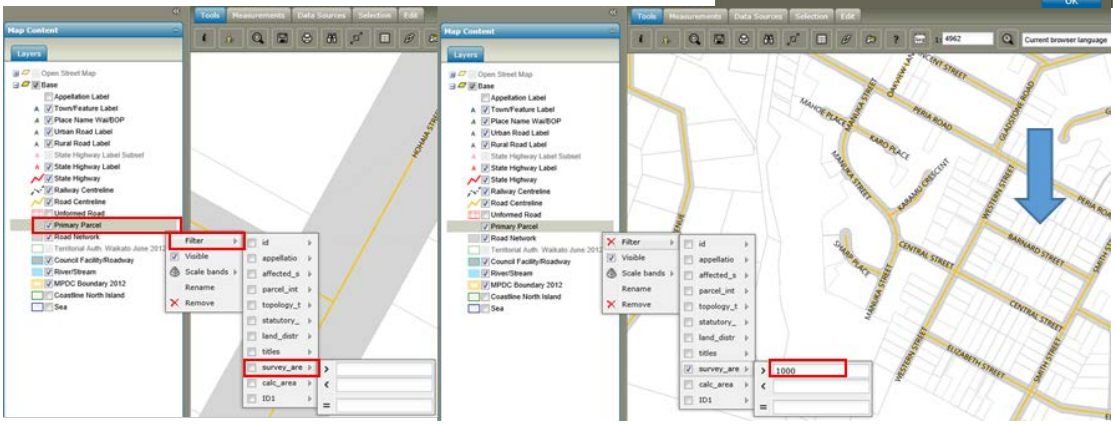
The best Filter to use is on Survey Area (also assuming a flat earth but the most reliable we have).



TO FIND ALL PARCELS OVER 1000M^2:



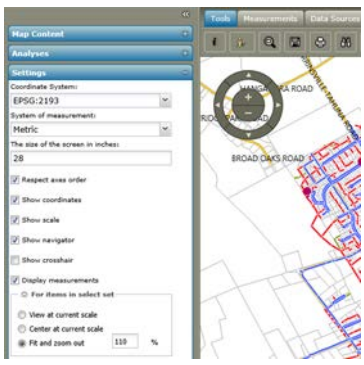
- Using the *i*Tool (Feature info) click a parcel
- Note survey_are at 253 = 253m^2
- Dismiss the dialogue
- Use the drop down on Primary Parcel
- Move your mouse carefully along the Primary Parcel line and Filter line
- Move down to the Survey Area field (survey_are)
- Type 1000 in the Greater than box which is equal to a parcel 1000m^2 ie quite large for residential



- After the Filter runs (quick) the map will redraw with only Parcels over 1000m^2
  - ✓ NB Please note these are **Parcel** calculations NOT **Assessment** calculations. There is potentially a big difference (an Assessment or Rating Unit may have multiple parcels especially farms).
  - ✓ NB this Filter remains ON even after changing maps
- To adjust your map results, simply change the numeric value in the greater than box or use the “less than” or “=” (equal to) boxes
- To remove your Filter, either remove the data from the > < = boxes or use the Red X beside Filter or untick the box beside survey_are

For those examining land downtown eg to build units, this example works best with the Aerial Map added underneath and Filtering set on parcels to under say 500m^2.

Settings



The lower feature in the Sidebar is Settings. Here we find:

COORDINATE SYSTEM

Every GIS uses a coordinate system, which determines how to project data. We use EPSG:2193 (aka NZTM:GD2000) the same as all Emergency Services in NZ. It is more accurate in this part of the world.

Another one you may require is the second one in the list “Sphere Visualization (EPSG:3857)”. This is required to use OSM (Open Street Maps) found on the Open Street Map.

SYSTEM OF MEASUREMENT

The default is Metric (Imperial option available)

THE SIZE OF THE SCREEN IN INCHES

Alter to reflect your monitor size.

TICK BOXES TO TURN ON/OFF THE FOLLOWING:

- Axes order
- Coordinates
- Scale bar
- Navigator
- Crosshair (map centre point)
- Measurements NB measurements will re-appear when measuring, so Tick and untick again to remove if required

FOR ITEMS IN SELECT SET

Use the Drop Down arrow to see the alternate options. A select set is a group of items returned from a Query or search. This controls how the screen behaves when finding “Select sets” ie in SVG mode clicking parcel/s (see the note about “Map format” under “Navigation” on page 2)

1. View at current scale will maintain the scale and view in use
2. Centre at current scale will move the select set to centre screen
3. Fit and zoom out will centre AND fit the selection to the display edge geometries

NB the “Toggle select fit” icon will flip flop between setting 1 and 3 above.

User maps

Creating and Saving User Maps and Workspaces

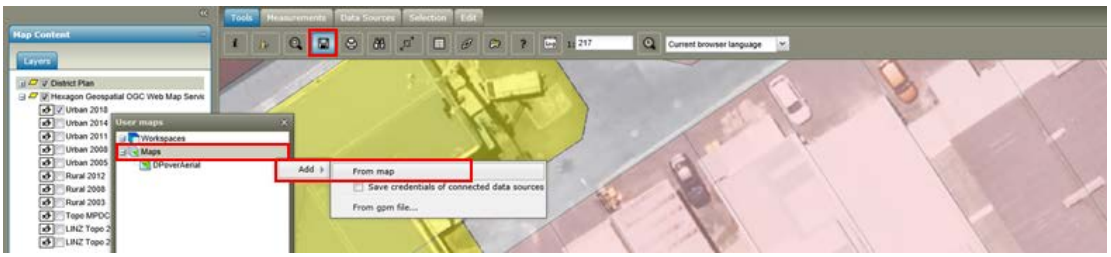
Workspace: A workspace is the full map set saved under your own profile.

Map: A single map you have spent time producing but more importantly, one you need to return to later and do not want to have to rebuild each time [the Portal is highly customisable: great for ongoing projects].

Add a Map

In this example Aerial Imagery has been added to District Plan (using Data Source/Add map). All but Urban 2018 imagery is off. The Aerial Map is dragged below District Plan. District Plan is set to 55% Translucency. Just a note about geometries: Your map will open at the geometries you SAVE it at, so position the map over your area of interest first eg a town or a farm/business.

In the User Map window, you can add and manage single maps and workspaces (a collection of maps). You can add maps and workspaces as follows:

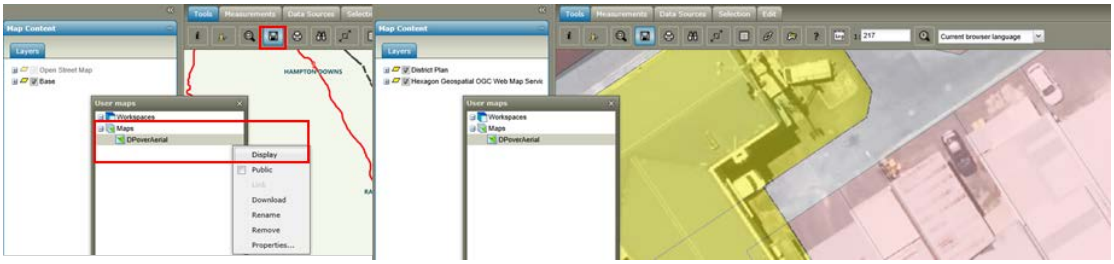


- Click User Maps on the Tools tab. The User maps window opens
- On “Maps” carefully using the Drop Down Click “Add” and “From map”
- Now name this particular map: In this case DPoverAerial

NB This saved map will open at exactly this geometry each time (so position your map before you Save it)

To View your map:

- User maps
- Click Plus sign by Maps
- Click DPoverAerial Drop Down
- Display
- The map shown is exactly as produced above



User Maps Functions and Commands

Maps and workspaces have a menu with the following functions and commands:

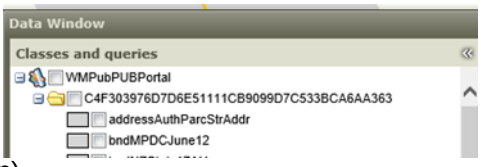
- **Display** – Displays selected maps or workspaces
  When displaying the workspace, the default (first) map will be shown in the map window and Map Content, but the map selector (drop-down list or buttons depending on the Geospatial Portal configuration) will be populated with all maps from a given workspace
- **Public** – Activates the Link function and makes the map public so that it is possible to share it among other portal users
- **Link** – Gives you a direct link to a map that can be forwarded to another user
- **Download** - Saves the workspace or map to a file
- **Rename** – Changes the name of a map or workspace
- **Remove** – Removes a map or workspace
- **Properties** – Sets such properties as Map ranges, Predefined scales, Scale bands, and Scale ranges

NB If the Portal has changes to Maps, aerials etc over time, your Map may cease to show some items (ie grayed out). Rebuild your map if this occurs. Delete the old one.

Search Other Information

Quick Access / Locate items not in the Query Tool

The Data Window can be used as a Search Engine as it has access to all SQL data tables in the Database.



- Open the Data Window
- Using the + Plus Sign open WMPubPUBPortal
- Open the next level + (encrypted DB connection)
- Tick parParkReserveStatusTitle

- ❖ Click Add (at the bottom of the dialogue box)
- ❖ All items in that Table are displayed
- ❖ Use the Magnifying Glass to jump to any item
- ❖ The Waharoa Cemetery appears in the map (blue arrow)

NB The item is NOT get highlighted on the map. The Tool is simply jumping to where the item is located