User Guide

ArcGIS Application for ASPs

October 2022

Data Analytics and Reporting

Endeavour Energy

CONTENTS

1. Document Revisions

Version	Date	Who	Comment
1	13/03/2019	Asset & Metering Data – Network Performance & Reporting	Initial draft for review
2	26/07/2019	Asset & Metering Data – Network Performance & Reporting	Noted this incorporates “Cheatsheet” information, which is good for consistency. Minor update for publishing.
3	21/08/2019	Asset & Metering Data – Network Performance & Reporting	Added Print widget section.
4	10/09/2019	Asset & Metering Data – Network Performance & Reporting	CAD Export section added.
5	24/09/2019	Asset & Metering Data – Network Performance & Reporting	Search capability section updated
6	25/11/2019	Asset & Metering Data – Network Performance & Reporting	Name on first page updated for consistency
7	04/02/2020	Asset Data	Update to CAD export chart
8	2/2/2021	Reporting & Insights	Added underground layers
9	27/10/2022	Data Analytics & Reporting	Updated for the release into ESRI Enterprise Portal

2. Quick Start Guide

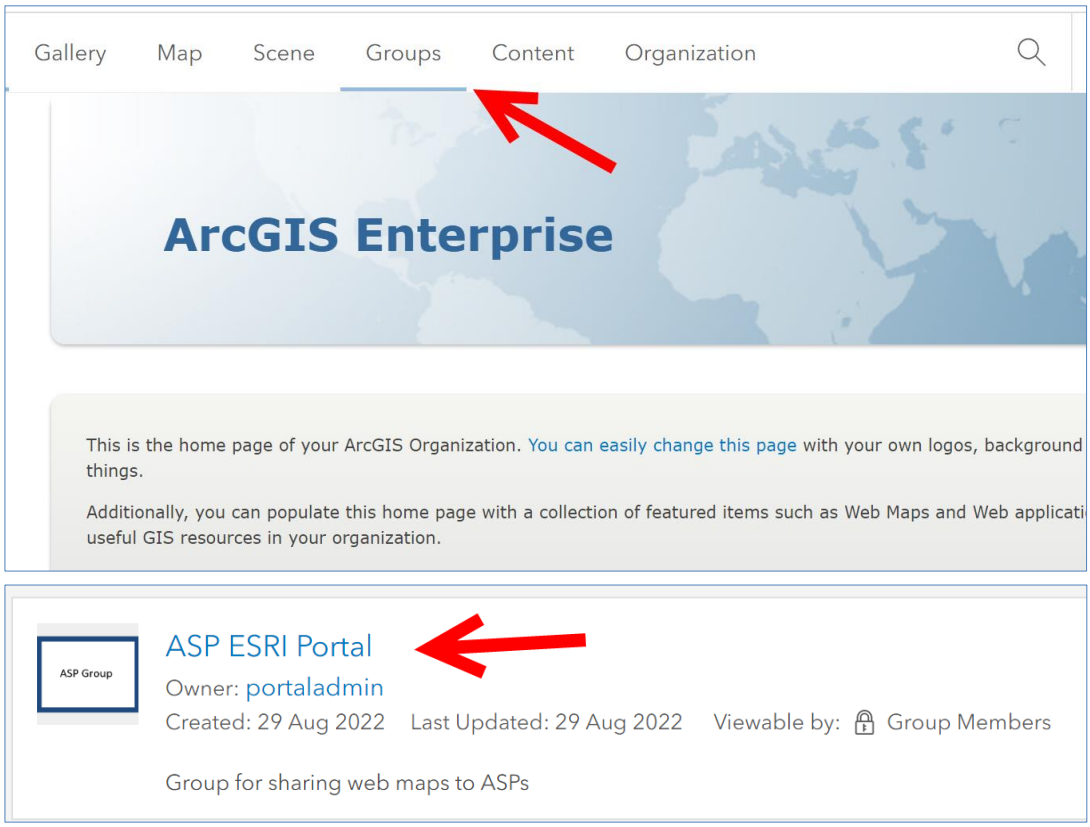
This section describes the process of login and application start up in a very few steps.

2.1 Initial login and navigation

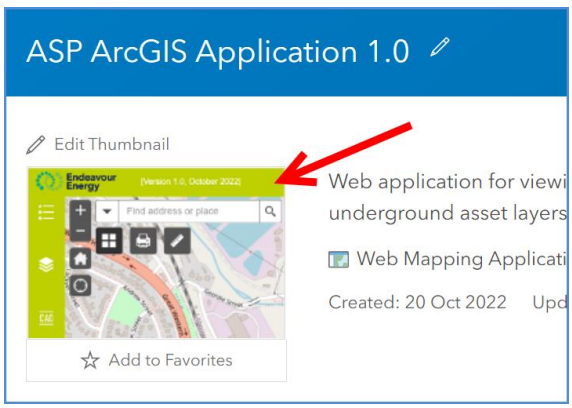
Login link: https://eegis.endeavourenergy.com.au/portal/

Use the username and password supplied.

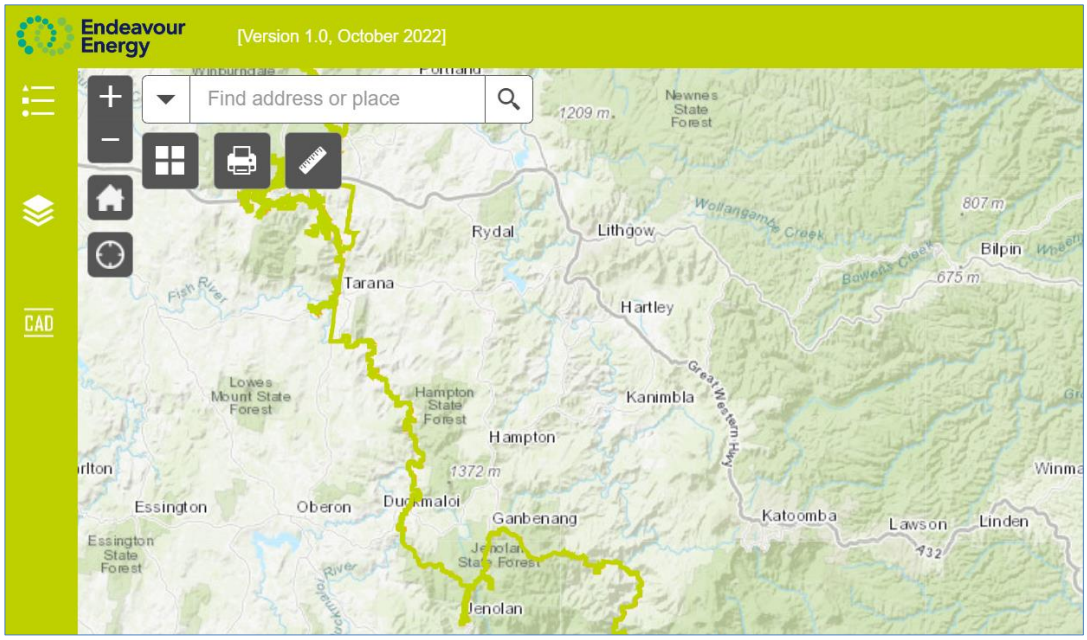
In the top menu bar, navigate to “Groups” and then click on “ASP ESRI Portal” group:



Click the item titled “ASP ArcGIS Application 1.0”. This is our web application for ASPs.
Start the application by clicking the thumbnail button:



The application opens in a default view; by default, it is a map with the distribution district boundary.



The web application menu, tools and feature layers are described in more detail in sections of this document that follow.

3. Detailed Explanations

3.1 Main menu items

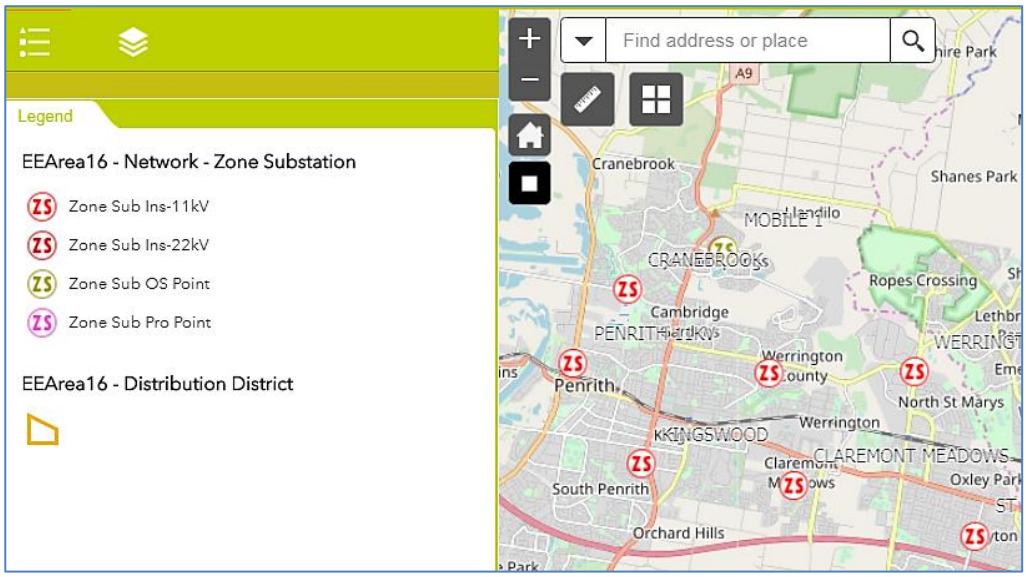
There are three main menu items, as follows:

- Legend
- Layer List
- CAD Export

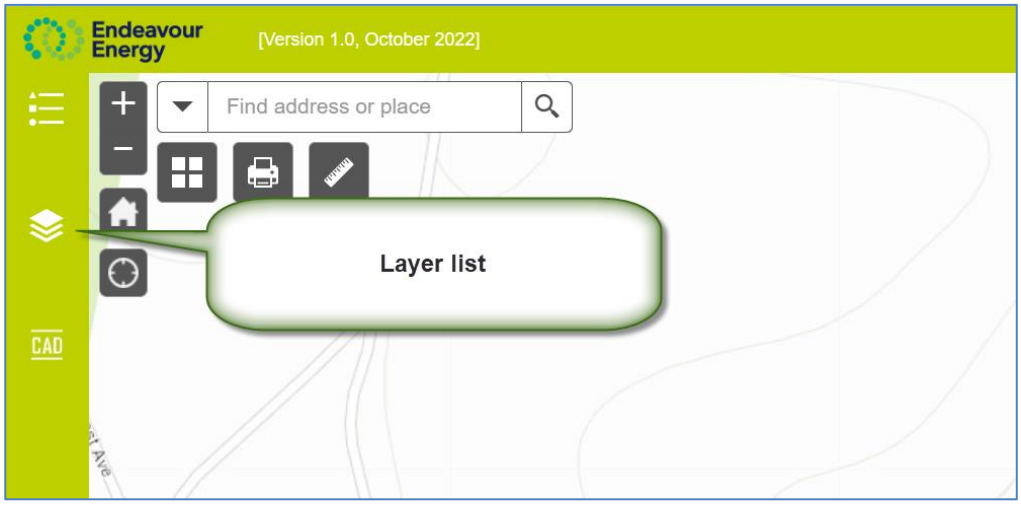
3.2 Legend

The Legend button will display the legend for the currently visible layers. Layers that are outside of the visible range will not be displayed in the legend until the user zooms in to the sufficient visibility range.

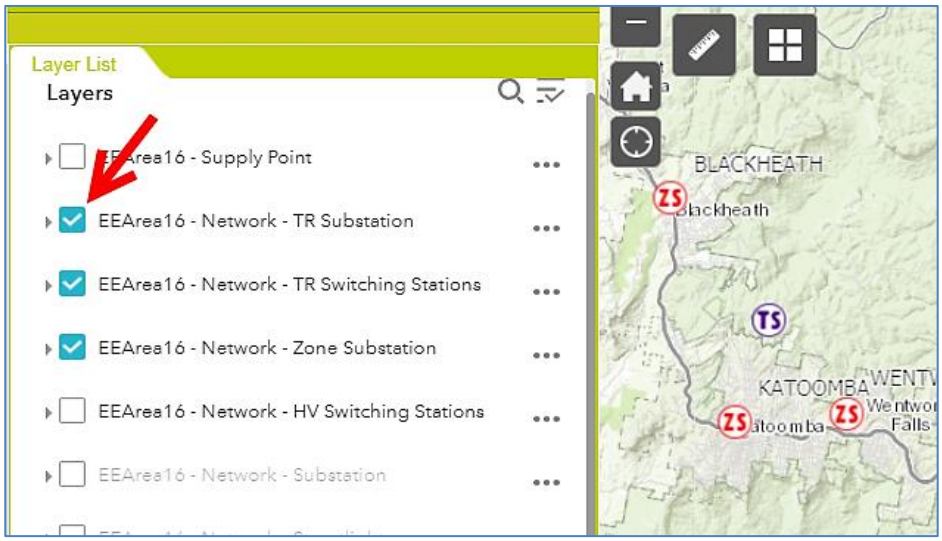
The screenshot below shows the legend for zone substations:



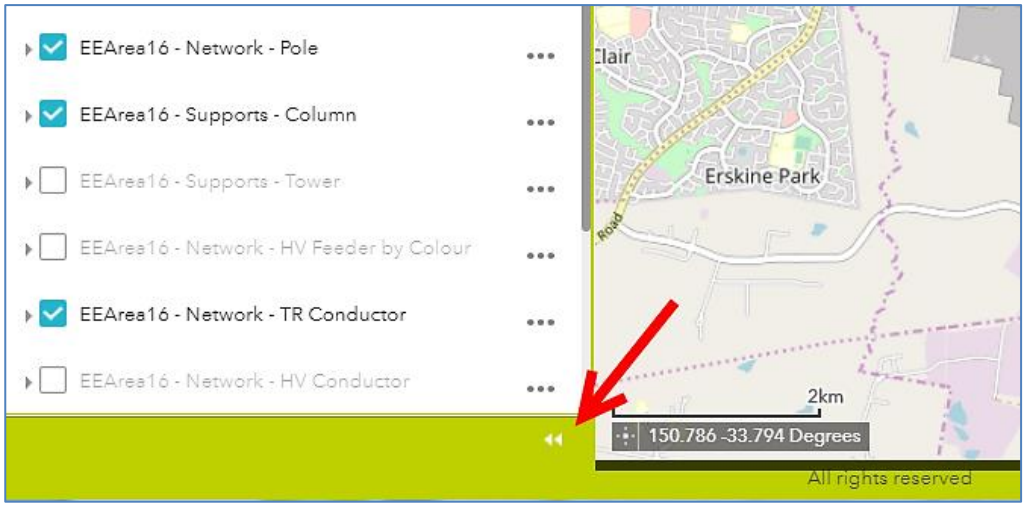
3.3 Layer List



This menu button opens the list of feature layers available to the user. The list of individual layers will be displayed. In order to display data of a desired layer, select the corresponding checkbox:

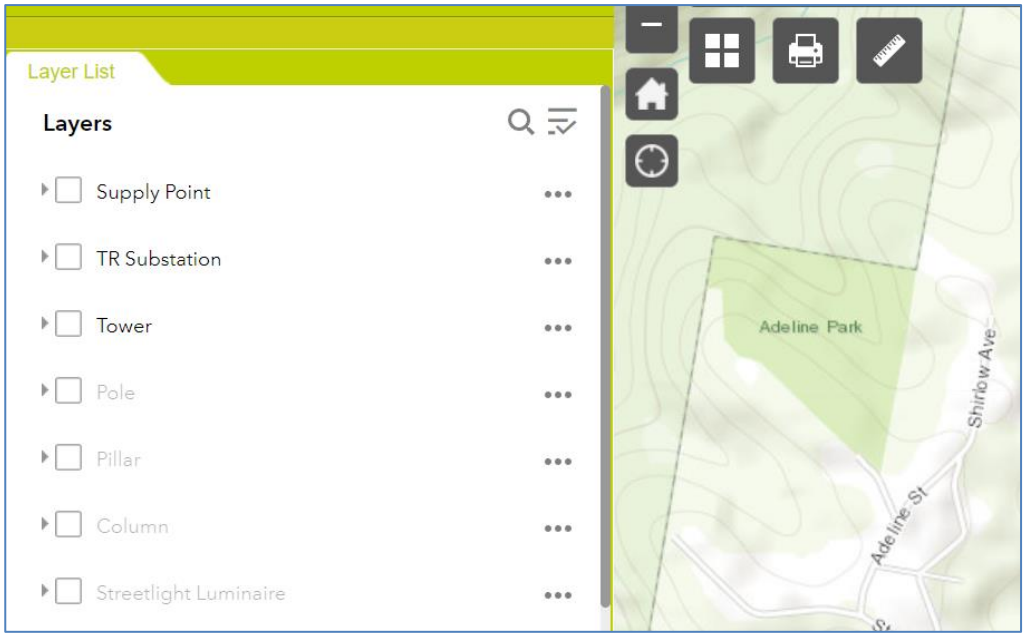


If the layer list covers too much of the screen's real estate, it can be closed by clicking on a double arrow icon at the bottom of the layer list:



Not all layers are visible at the default zoom level. In order to make layers such as Substation, Streetlight visible and selectable, the user needs to zoom-in to closer visibility range.

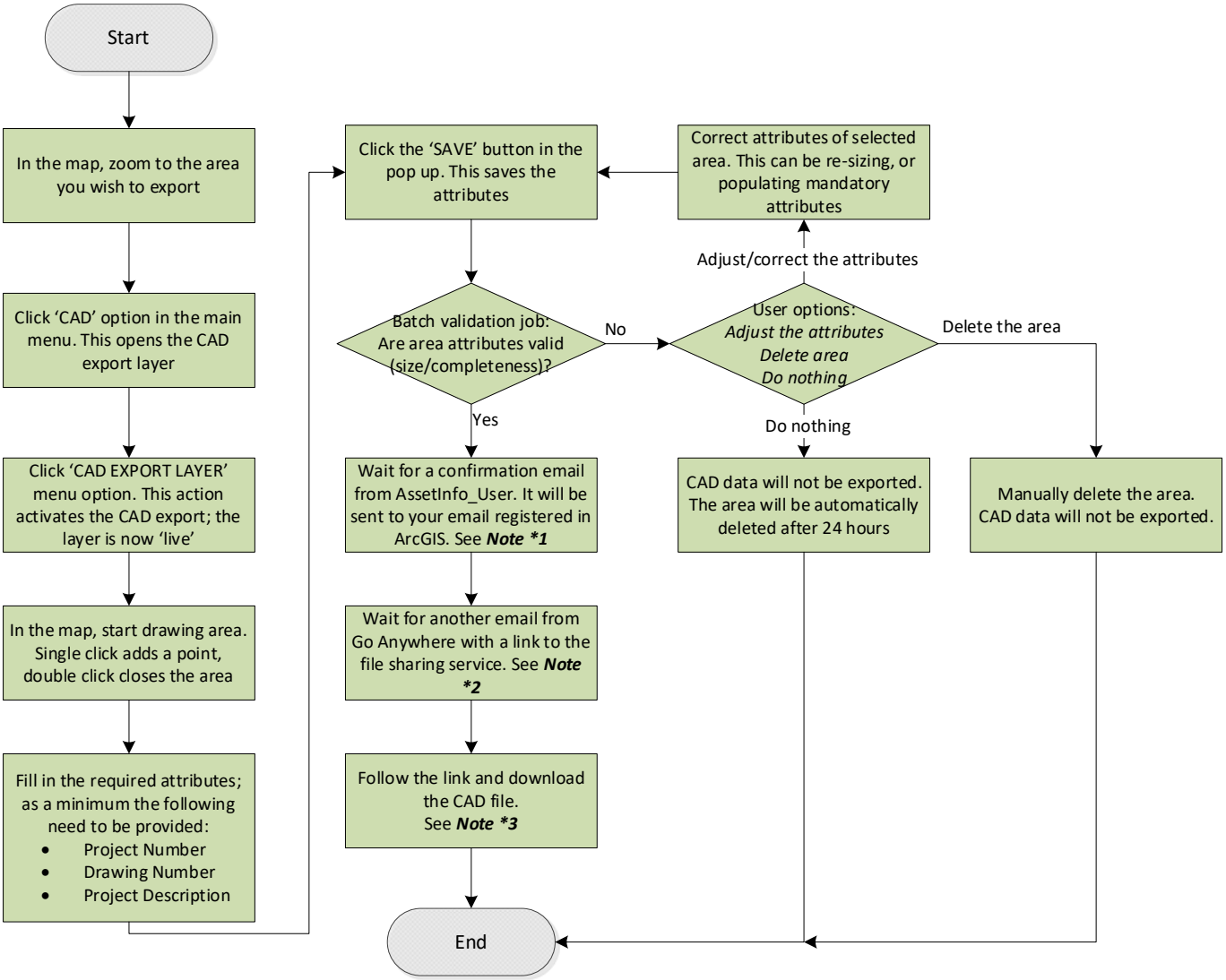
The screenshot below shows layers that are visible in dark font - Supply Point, TR Substation, Tower. However, Pole, Pillar, Column, Streetlight Luminaire layers are in the list but the text is pale grey. This indicates that the layer is not available for viewing until a sufficient zoom-in is performed fist:



3.4 CAD Export

The CAD menu item allows the user to select an area that will be forwarded to the GIS CAD Export application. As per the existing process, the size limit for the area allowed to be exported; **16,000,000 m^2**.

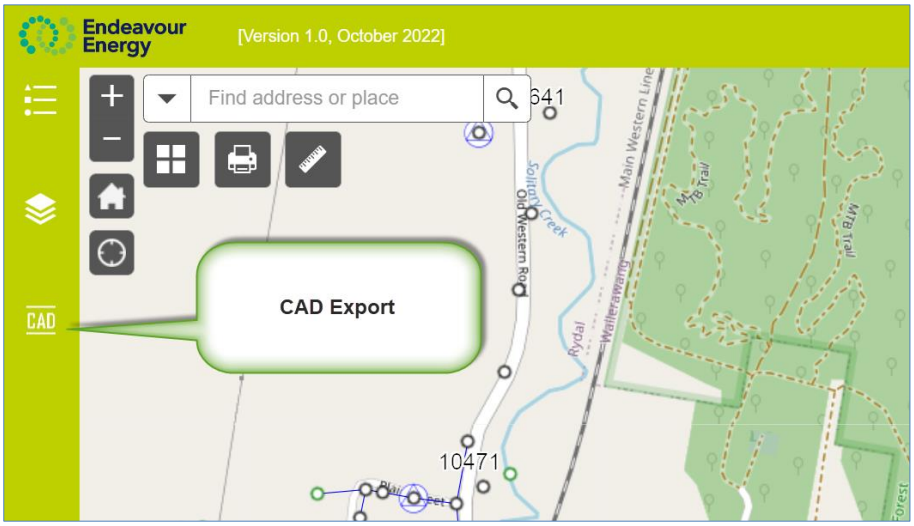
The following flowchart summarises the process of exporting an area into a CAD file. More detailed descriptions follow after the flowchart.



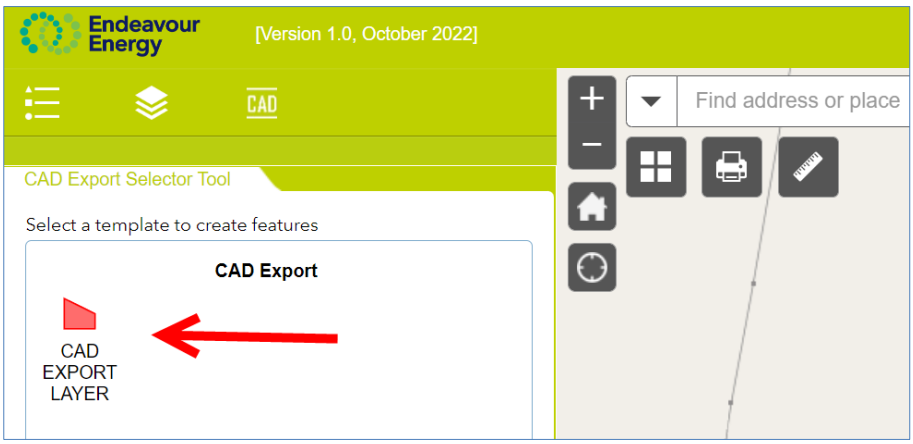
Note *1: *The system will be configured so that you should receive the confirmation email within 10 minutes.*
Note *2: *Following receipt of the successful confirmation email, generation of the email with the CAD download link should normally complete within 10 minutes, though it may take longer, depending on the work load (the number of CAD export requests in the queue);*
Note *3: *If you received an email with the download link but are unable to download the CAD drawing, please send an email to* ***aspaudit@endeavourenergy.com.au;***

The steps involved in exporting area to CAD are described in more detail below.

- Click the 'CAD' menu option (screenshot below):

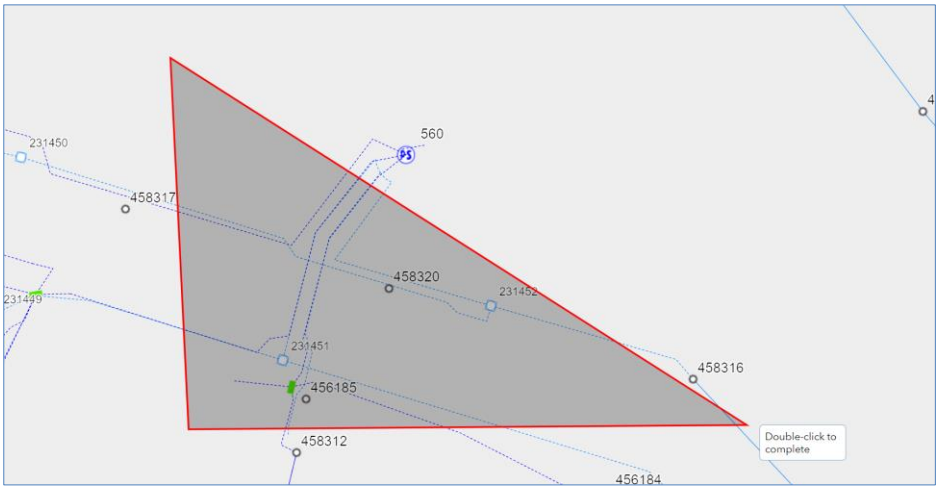


- A window listing a single layer opens (screenshot below). This layer is named ‘CAD EXPORT LAYER’. It is the only editable layer in the web app and its sole purpose is to allow drawing of polygon shapes:

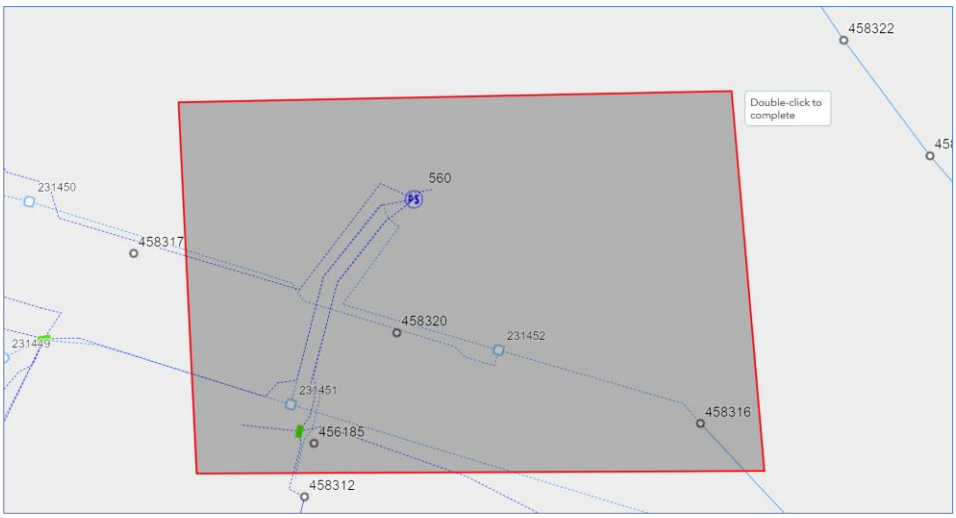


- Click the ‘CAD EXPORT LAYER’. The layer will become active for drawing of polygon area (screenshot below):

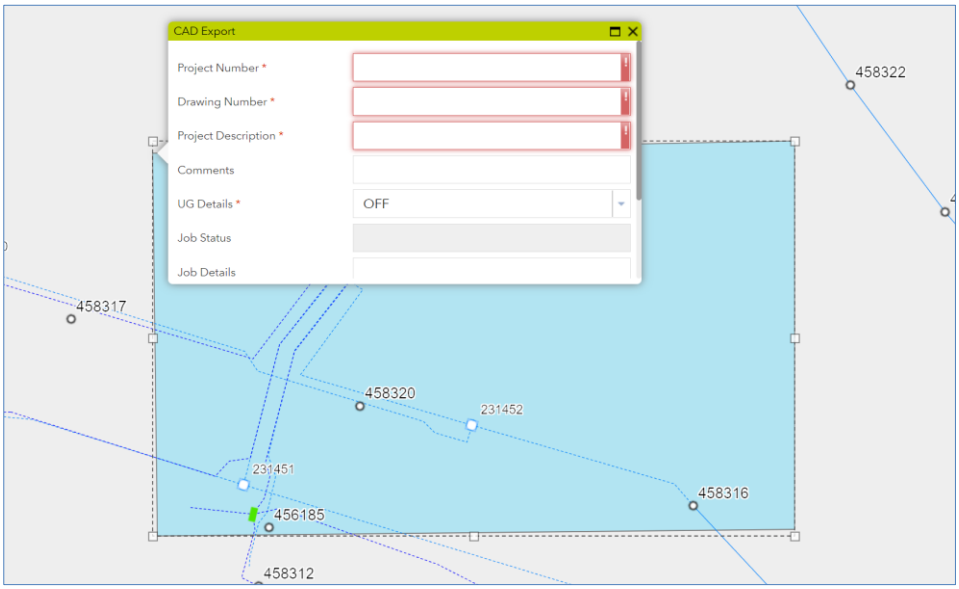
- Start selecting/drawing the area on the map. The selected area will be the are exported into the CAD file:



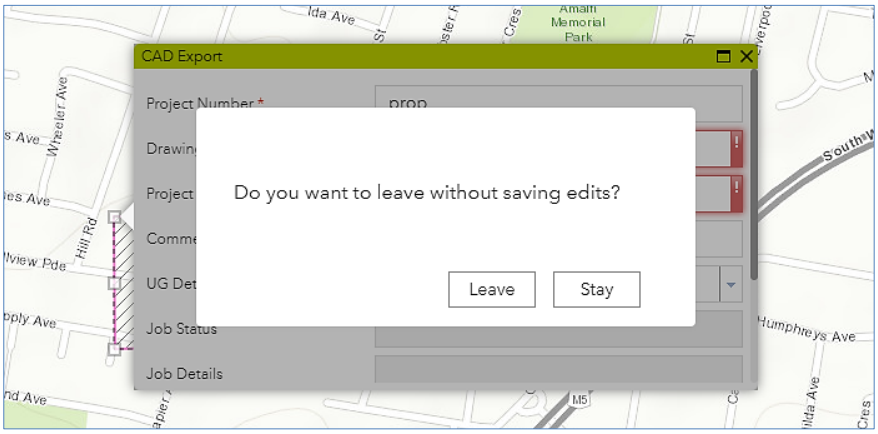
- As you draw an area appears. A single click creates a point where the line breaks (vertex). If you need to finish the area, double click and the area will become a complete polygon:



- Once double-clicked, a pop-up window will appear. There are three mandatory attributes that the user needs to fill in; project number, drawing number and project description. The screenshot below shows the mandatory fields (they have red coloured surround):

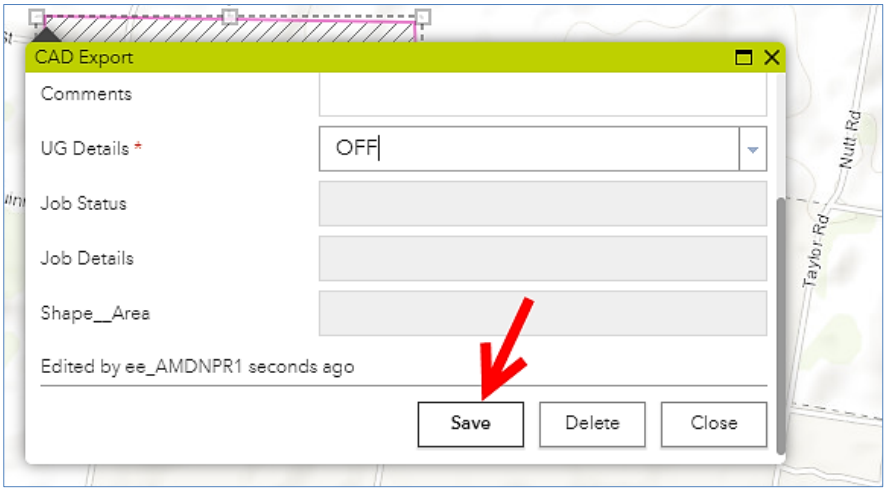


- While these three attribute fields need to be populated for the area to be successfully exported, they are not mandatory for the area to be drawn and in fact the user can close the attribute window at any time without saving (screenshot below):



- Areas with unsaved attributes will be left in an unfinished state; if not corrected within **24 hours** from the time of initial selection, the area will be considered to have expired and will be deleted;

- In order to complete the area for processing, the user needs to fill in the details and then **click the 'Save' button**:



- Once saved, the area will be **automatically** picked up by a background batch job for processing. No further user action is required to submit the area to the export process. The background process will validate the area (attribute completeness and its size) and if valid, the area will be forwarded for export to a CAD file;

- Once processed, the selected area(s) will be automatically deleted.
NOTE: *the selected area that was automatically picked by the batch job will remain visible on the screen until the user performs some action that forces the browser to refresh the screen. For example, a bit of zoom-in or zoom-out action will result in refresh of the screen. After the screen refresh the area successfully processed will no longer be visible.*

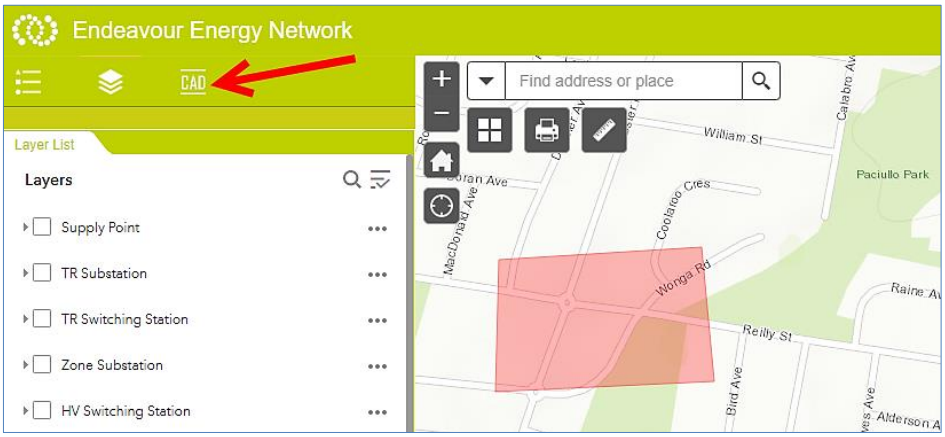
- The user will receive two emails (confirmation or error, and for a valid request an email with a download link), one stating the export request was received, including the export ID. The second one

will be from the existing GIS CAD Export and will contain a link in the email that can be used to retrieve the CAD file. The email address registered with user's ArcGIS account is used for all communication. A link to the CAD file as well as any error messages will be sent to this email;

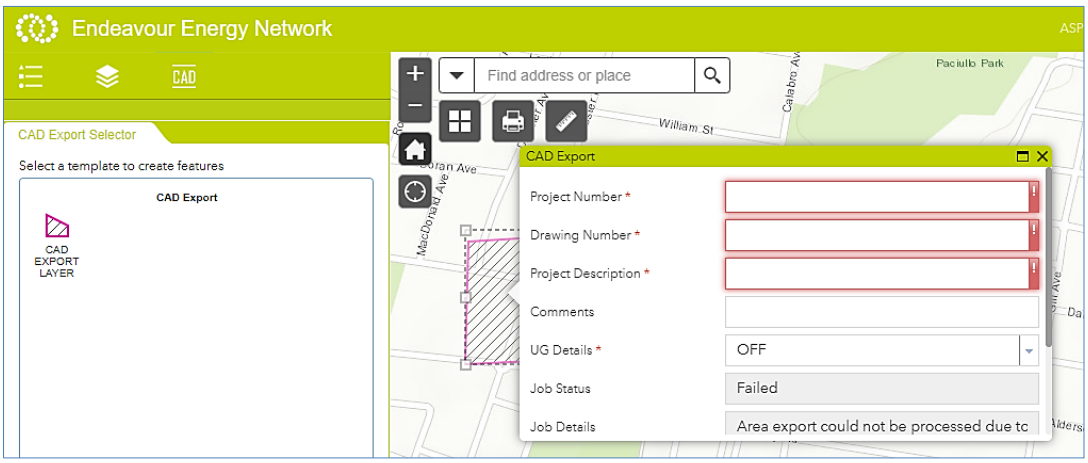
3.4.1 Deleting Selected Areas for CAD Export

- Successfully processed areas are deleted automatically, there is no need to delete these manually;
- Areas identified as incomplete (or having any other issue in general) will remain visible to the user for 24 hours. After this, they will be automatically deleted;
- The user can also manually delete any area at any time[1] and should the user wish to delete an area manually, the following steps can be taken:

  - Go to the 'CAD Export' feature:

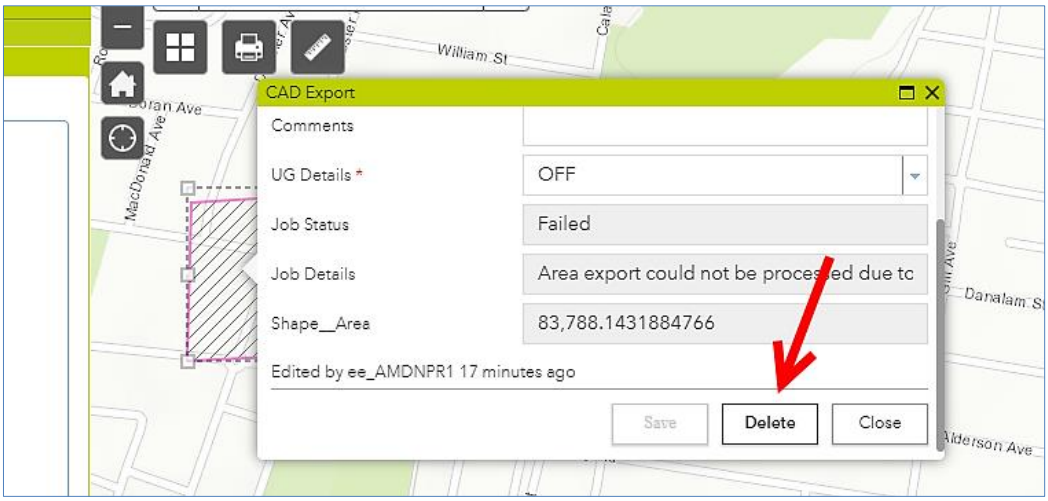


  - Left-click on the area to be deleted; a pop-up attribute window will appear:



[1] Users can only see their own selected areas. Even if two users select area(s) in the same location, only their own shapes/areas are visible to them at all times.

- Scroll down in the pop-up window and locate a 'Delete' button. Click the button and the area will be deleted:

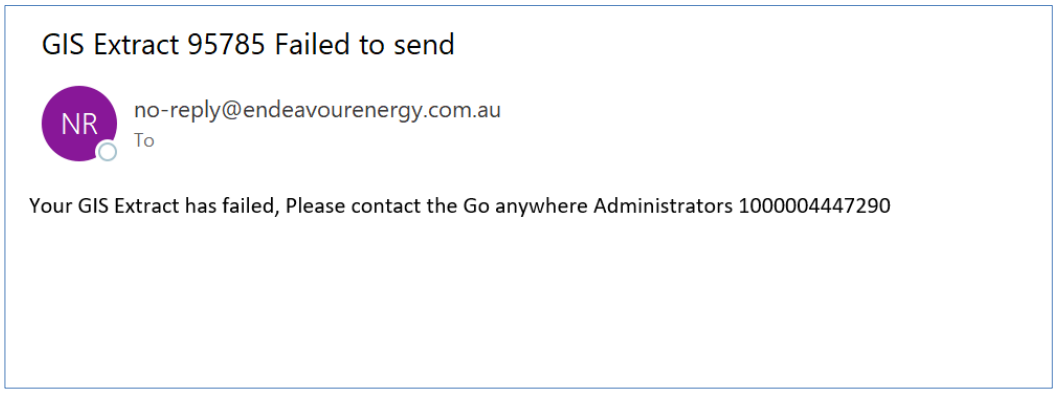


3.4.2 CAD Export Errors

A background batch process performs validation of areas for export. The Areas that are found to be invalid due to either missing attributes or area size (the limit is 16,000,000 m^2), are flagged and the user (creator of the area selection) will receive an email detailing the problem detected.

NOTE: *Selected area found to be invalid won't be processed. Instead, it will be left in the system for 24 hours, visible to the user and available for correction. Should the user not address the cause of the issue, then after 24 hours the area will be automatically deleted.*

Besides validation errors, there is a small possibility that even valid areas that were submitted for export fail to be processed by the background GIS CAD Extract process. The causes could vary and are beyond the control of this application. In such circumstances, the error handling of the current GIS CAD Extract process remains in place. Typically, the user will receive an email advising to contact Go Anywhere Administration as per the current functionality. Should the error look like the screenshot below, please contact **IT Help Desk** and notify them of the error. Example:

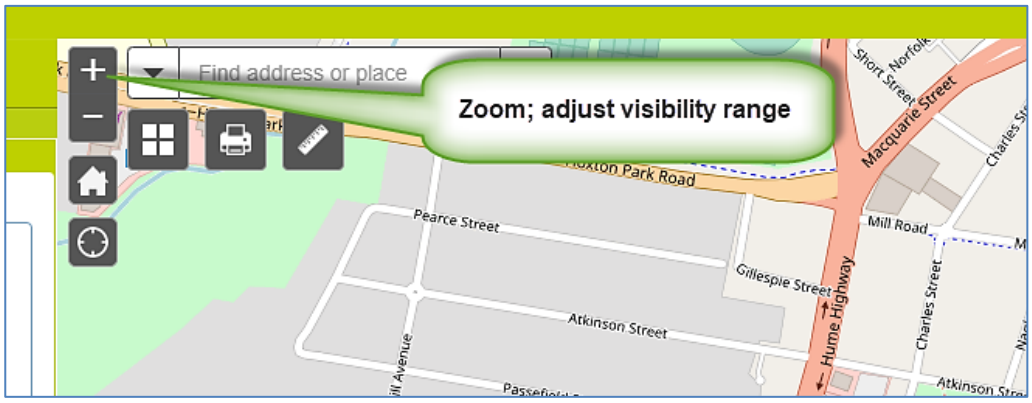


3.5 Tools – What is available and how to use them

The web app provides several tools added on top of the map and data layers. These are generally the dark grey buttons, as follows:

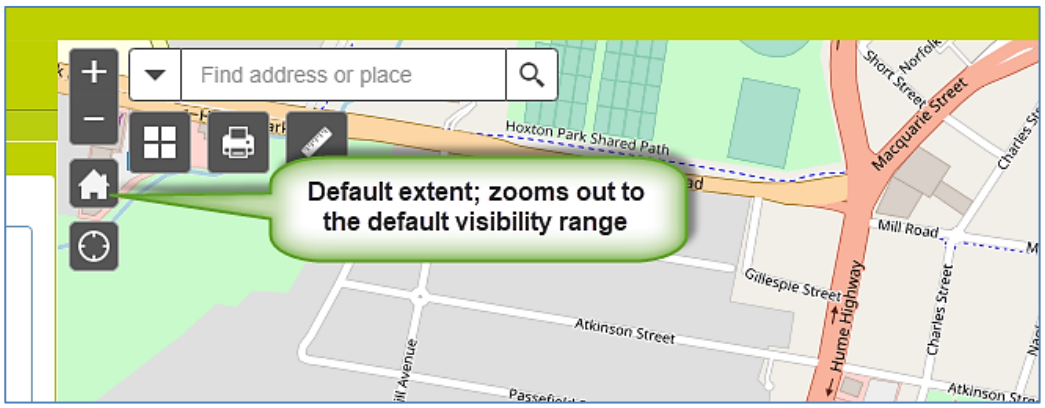
- Zoom
- Default extent
- My location
- Measurement tool
- Basemap gallery
- Search
- Pop-up attribute window
- Print

3.5.1 Zoom

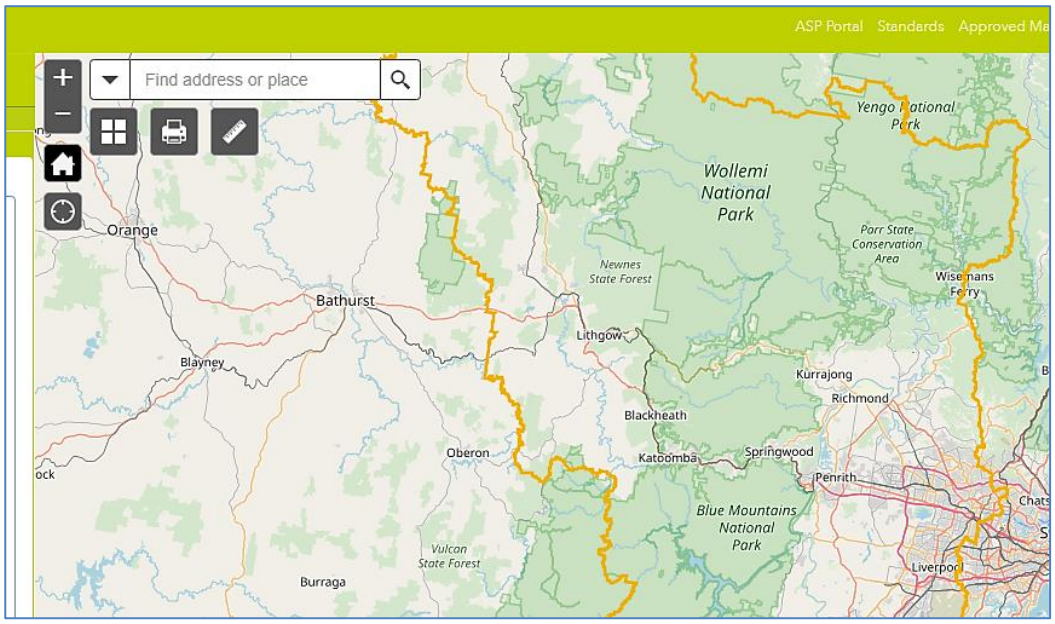


Visibility range can be adjusted by zooming in or out of the are. This will not only implact the visibility range but also makes feature layers open to viewing based on the range(s) configured for each feature layer.

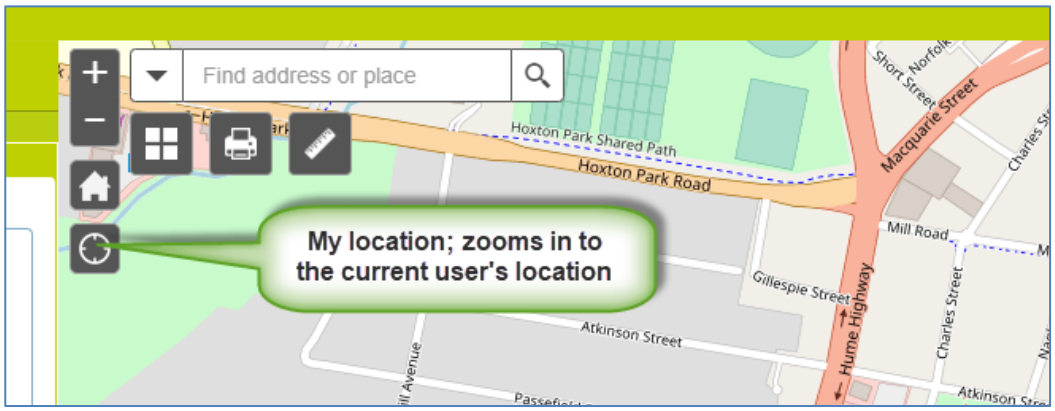
3.5.2 Default Extent



Clicking the Default Extent button the app will zoom out the the default configured extent. In the current configuration this visibility range convers most of the franchise area of Endeavour Energy as on the screenshot below:



3.5.3 My Location



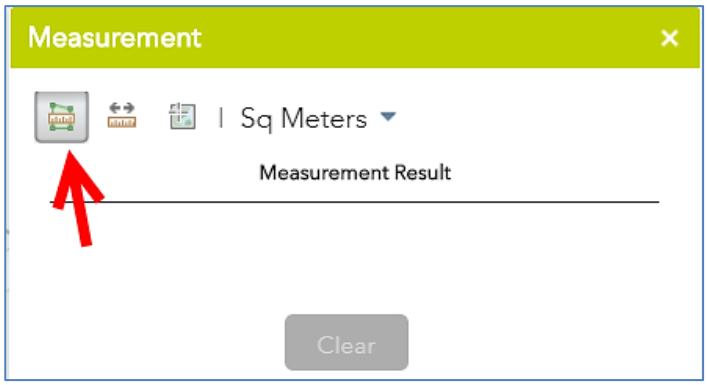
My location button zooms in to a close up of the current user's location.

3.5.4 Measurement Tool

The measurement tool allows the user to estimate area, distance and position (location as longitude/latititude) of selected points on a map.

3.5.5 Area

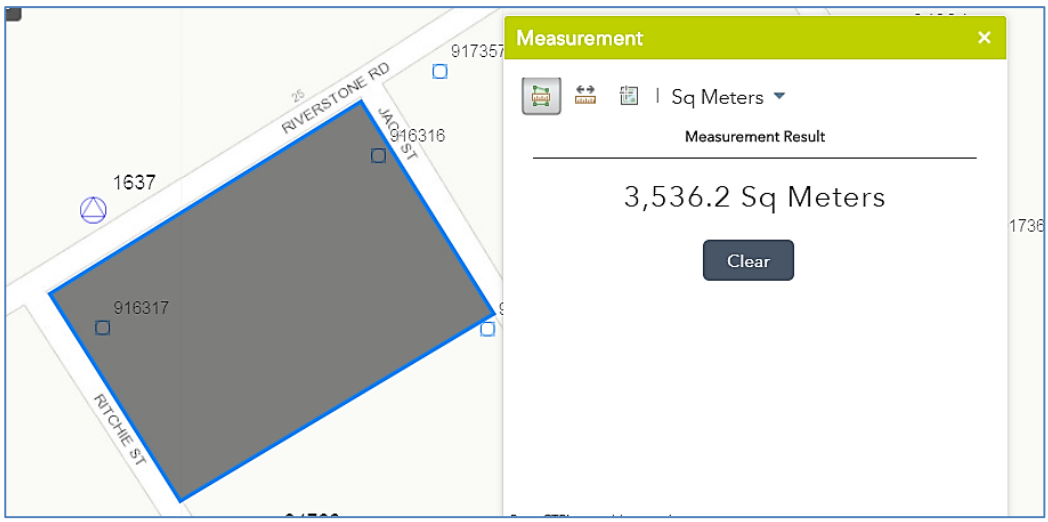
Measure and estimate size of an area. This tool allows the user to select polygon and see the size of the enclosed area. Different units of measure can be used.



3.5.6 Example - measure the area of a land parcel in square metres:

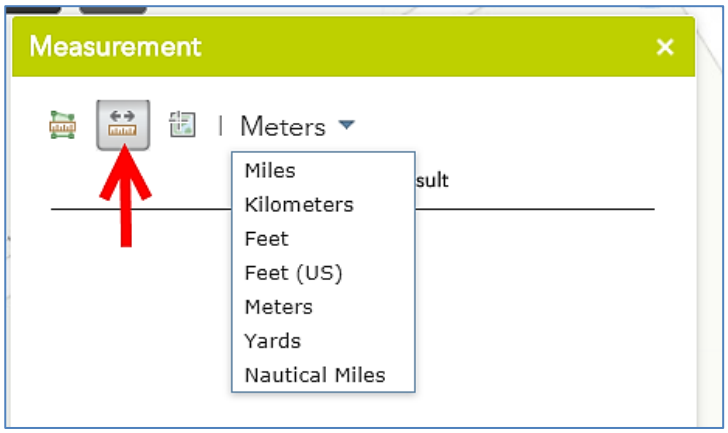
Simply select the area measure tool and click on the map. Continue to select vertices of the desired polygon, then double click the last vertice to enclose the area.

The tool shows the area in the selected units of measure (picture below):



3.5.7 Distance

Select this option to estimate the distance between points.
The user has the option to choose different units of measure as shown on the screenshot below:

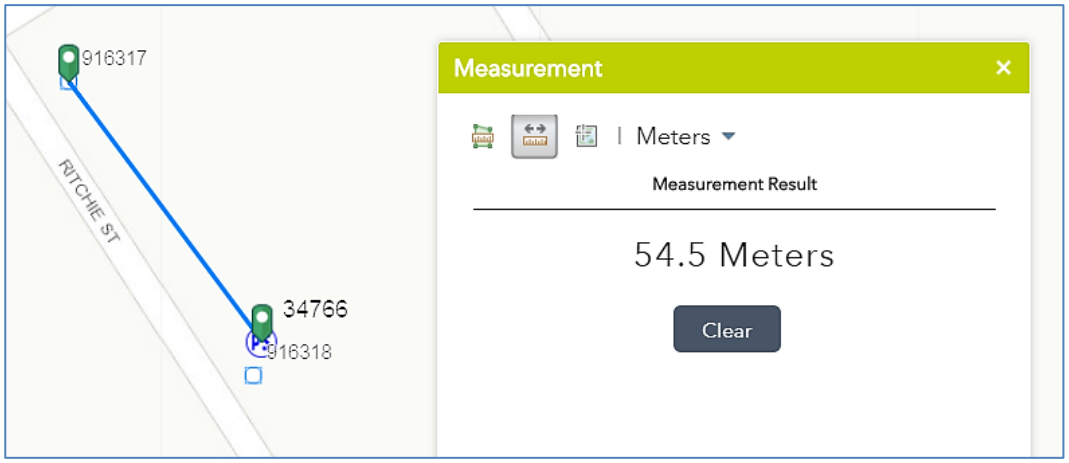


3.5.8 Example: measure distance from padmount substation to a column:

Select the distance measurement tool and then left click on the desired point in the map (hint: hold CTRL key to snap to an object in the map).

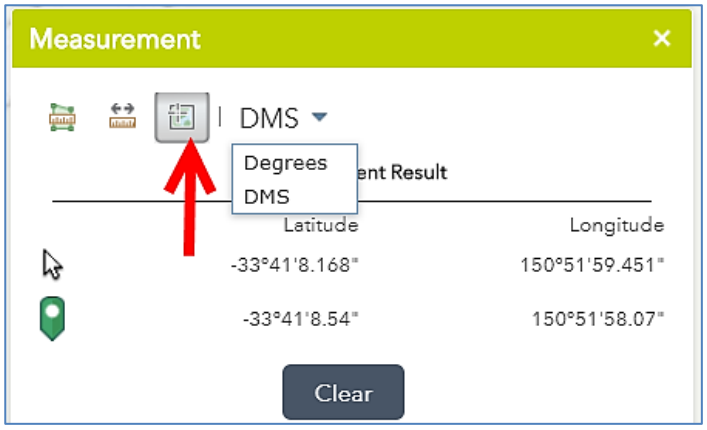
Then point to the next point and left-click again and so on. Dobule click on the final point. The distance will be displayed in the measurement window.

The screenshot below shows distance of 54.5m from a streetlight column to a padmount substation:

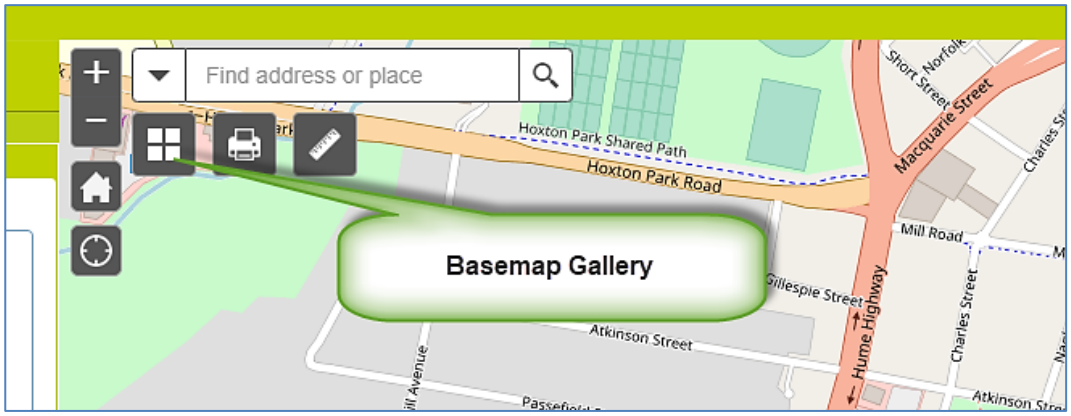


3.5.9 Location

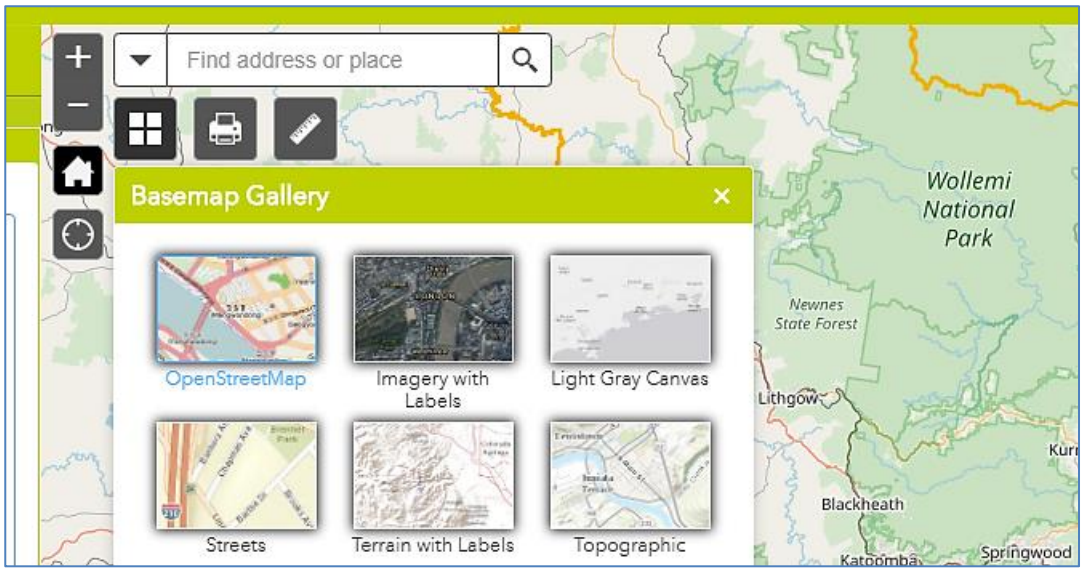
Decimal detrees or degrees+minutes+seconds can be used to display the location of a point in the map.



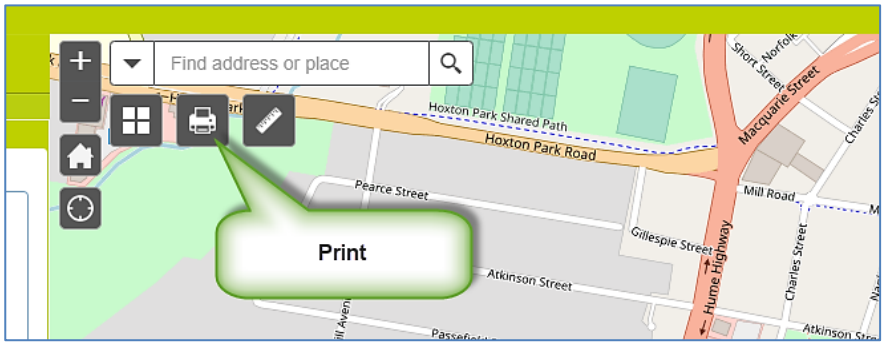
3.5.10 Basemap Gallery



The basemap gallery offers the user the option to switch to different background maps. Currently there are six different maps the user can choose from, as on the following screenshot:

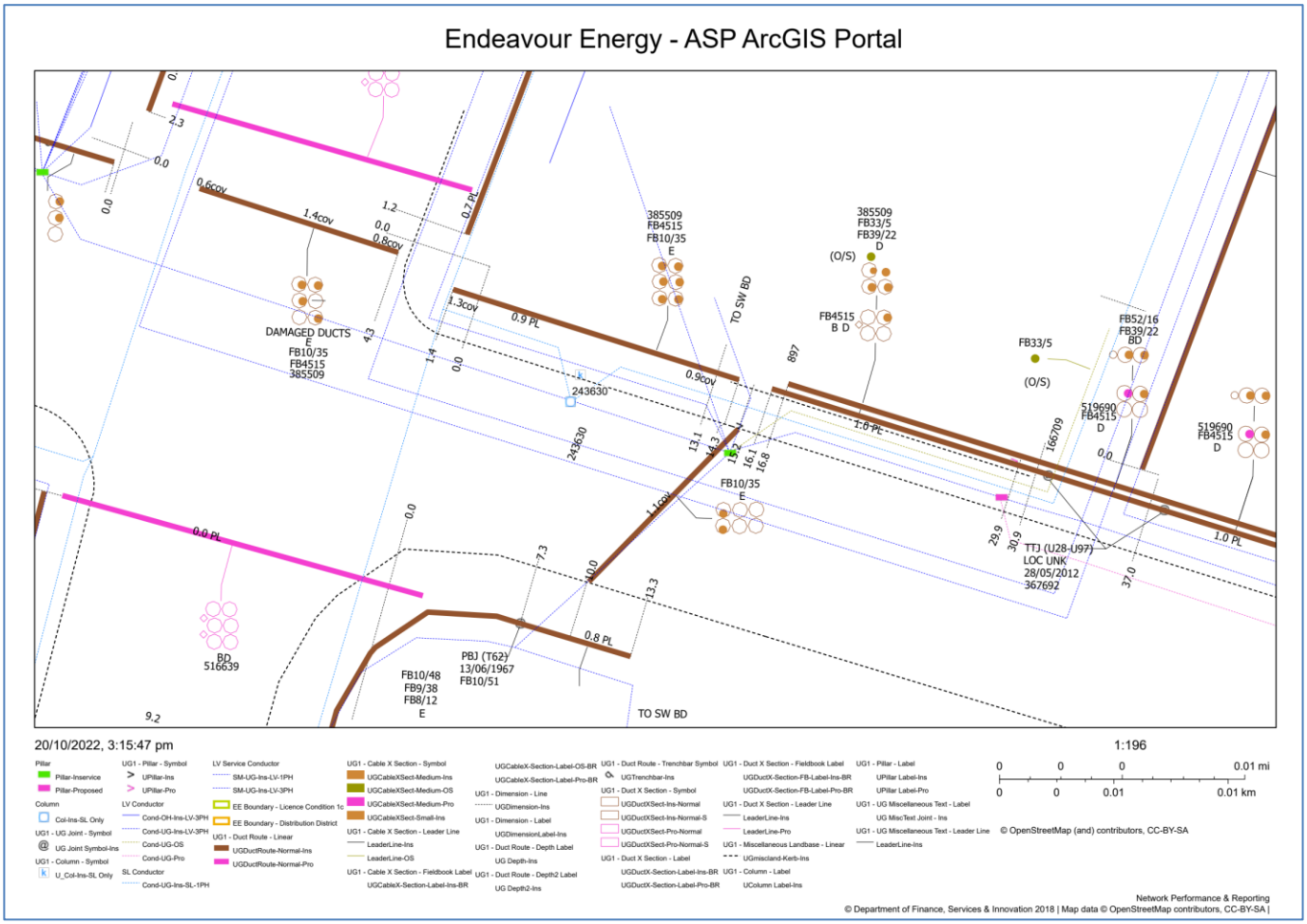


3.5.11 Print



This widget offers the option to print the layer(s). It is a default ArcGIS print service which is currently configured to generate the output in a PDF format, essentially a screenshot of the current view. The output can be customised to a degree to produce different file format, unit sizes etc. For more details please refer to the ESRI ArcGIS documentation.

Below is an example of the output of the print tool; an image that was exported to PDF:

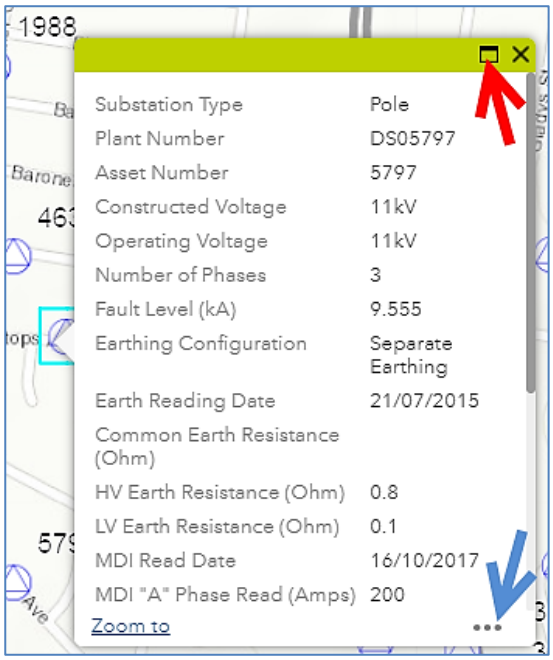


3.5.12 Pop-up attribute window

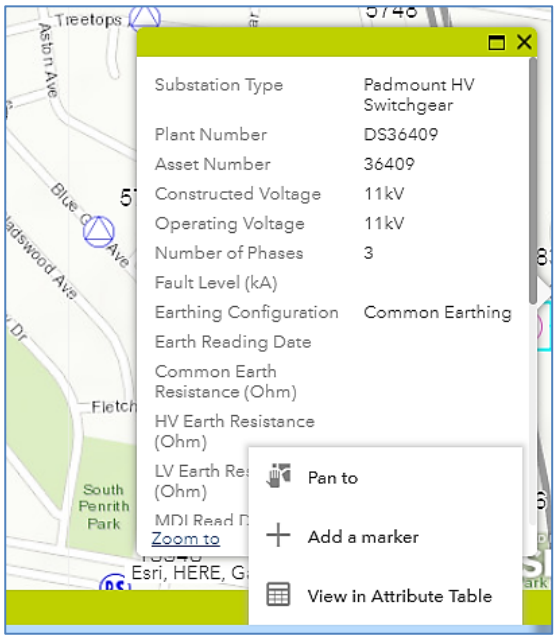
The pop-up attribute windown opens whenever the user clicks on a particular asset.
Each layers offers a different list of attributes.

Not all attributes of a particular asset are visible in the default window; the pop-up is therefore srollable. The pop-up can also be resized by clicking the maximise button in top right hand corner (red arrow in on the picture below).

The user can also choose to view the attributes in a tabular form by choosing from the submenu (blue arrow on the picture below);



In addition, the sub-menu offers also to add a marker to the selected asset or to pan to ("center to") the asset that was clicked:



3.6 Layers

3.6.1 Overhead Network

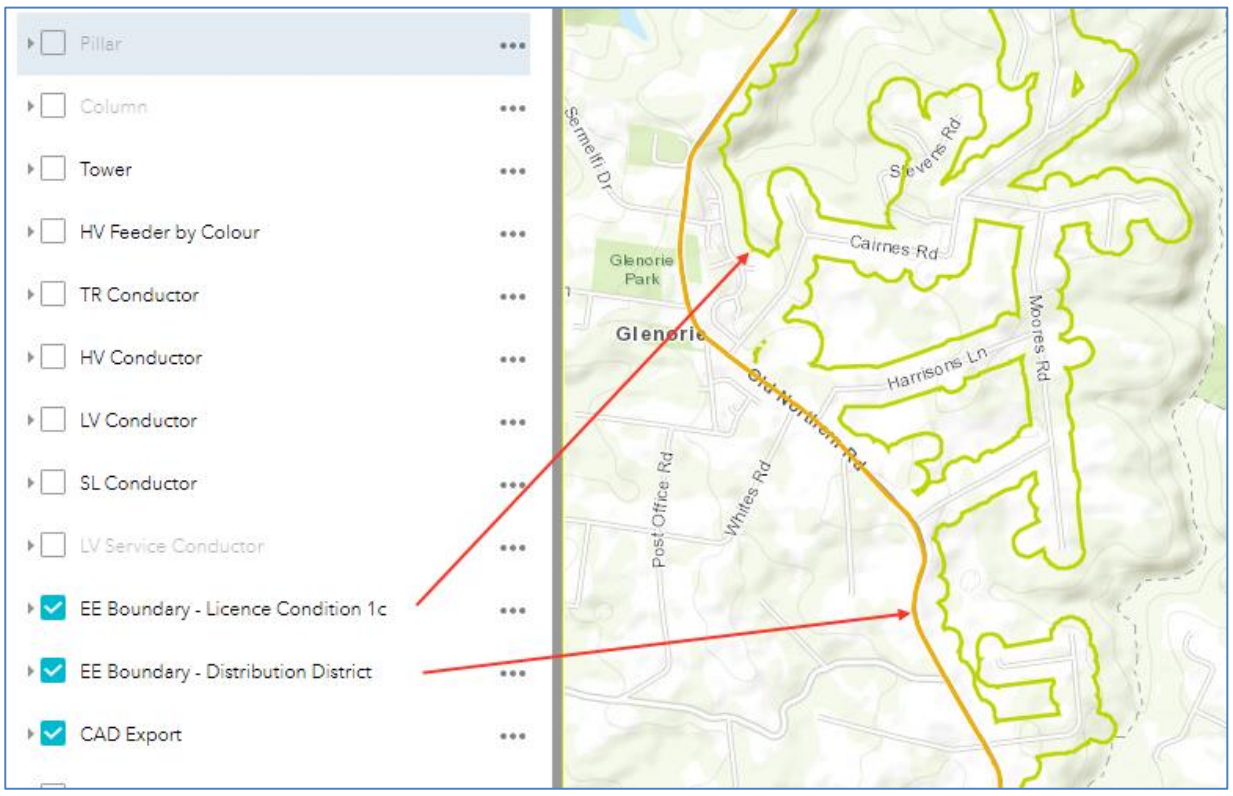
The overhead network layers available for viewing are listed below:

- Supply Point
- Network – TR Substation
- Network – TR Switching Stations
- Network – Zone Substation
- Network – HV Switching Stations
- Network – Substation

- Network – Streetlight
- Network – Pole
- Network – Pillar
- Supports – Column
- Supports – Tower
- Network – HV Feeder by Colour
- Network – TR Conductor
- Network – HV Conductor
- Network – LV Conductor
- Network – SL Conductor
- Network – LV Service Conductor
- CAD Export (use for selecting areas for GIS CAD export)

3.6.2 Endeavour Energy Boundaries

- EE Boundary – Licence Condition 1c
- EE Boundary - Distribution District

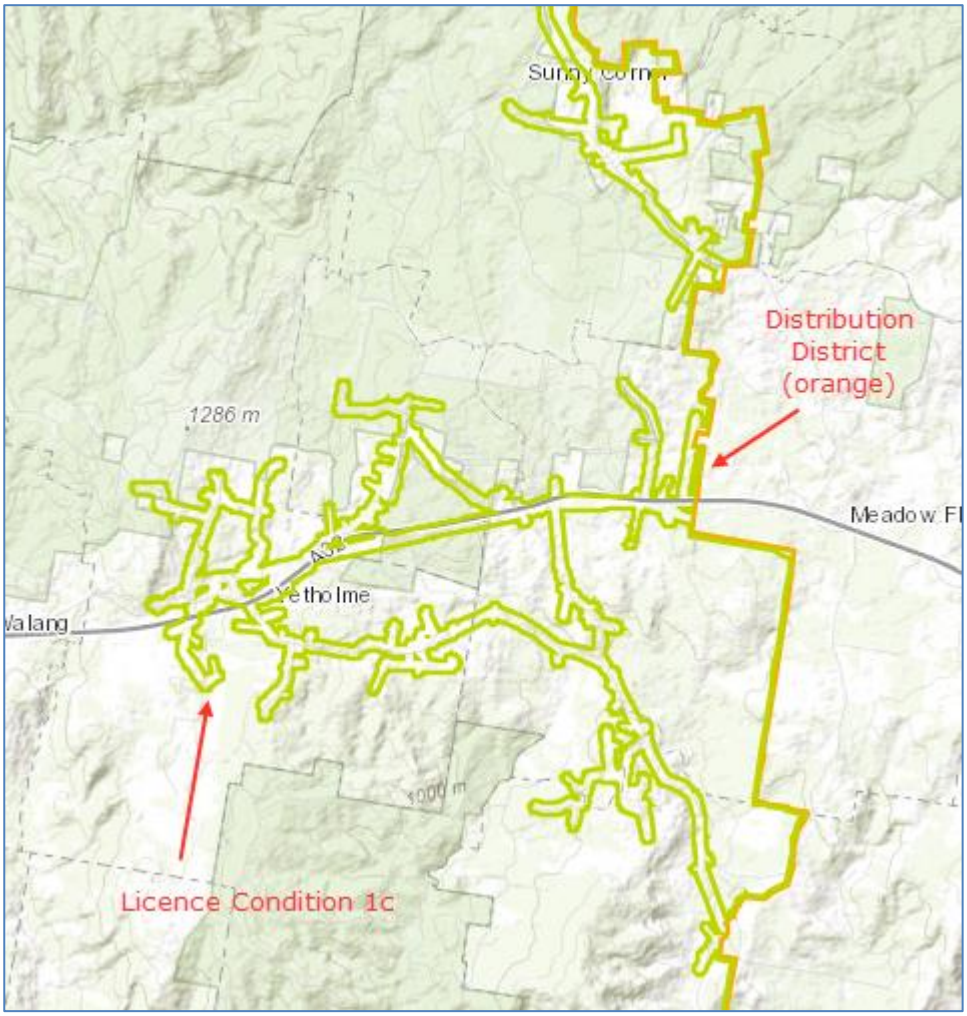


3.6.2.1 Distribution District

The legislated distribution district area was defined in Schedule 3 of the Electricity Supply Act 1995. Endeavour Energy operates in the MetSouth Energy distribution district.

3.6.2.2 Licence Condition 1c

When the NSW Government sold a 99 year partial lease, Endeavour Energy's distributor licence was granted on 7th June 2017. IPART Condition 1(c) defines areas of extension outside of the legislated distribution district where Endeavour Energy can operate a distribution system.



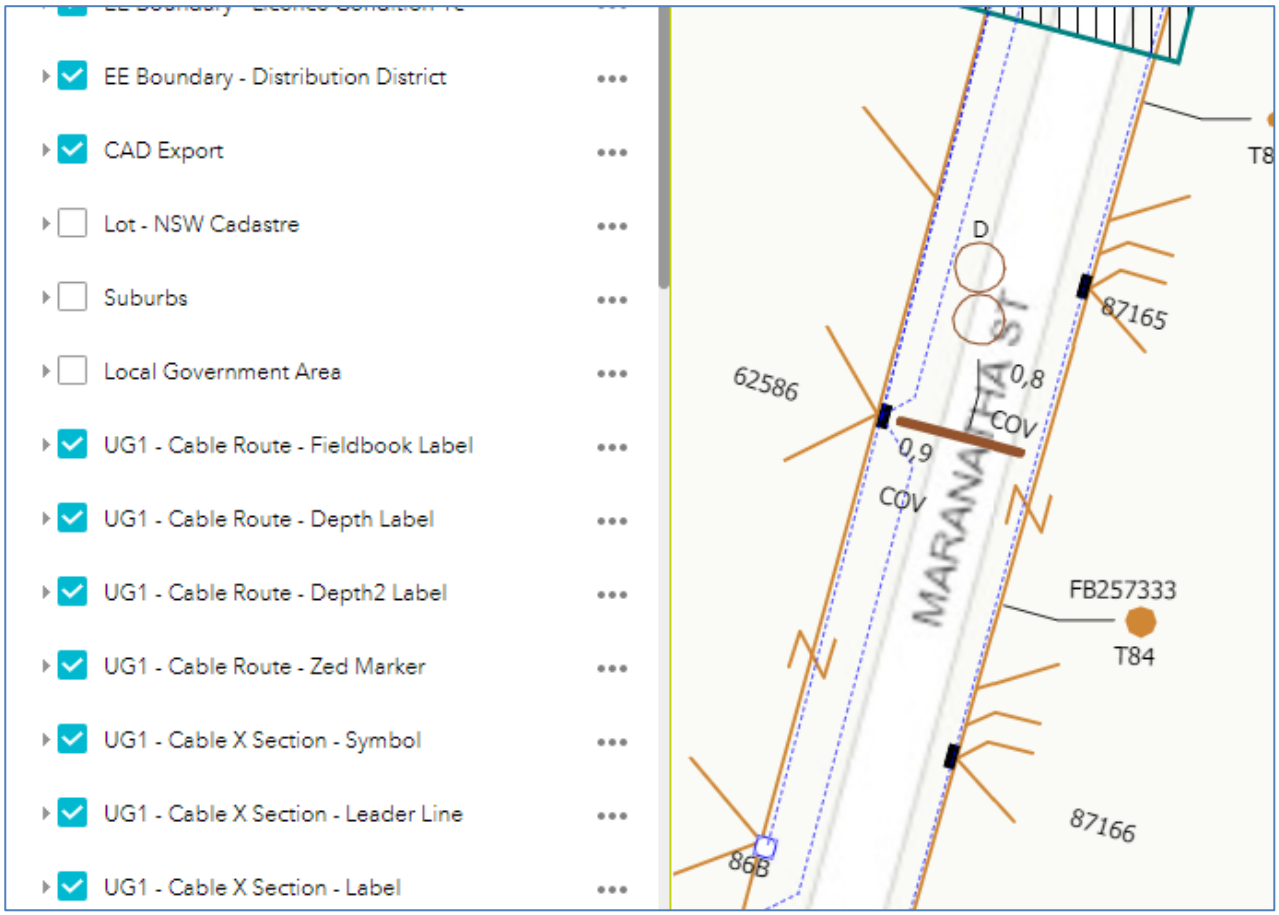
3.6.3 NSW Spatial Services

These layers are not Endeavour Energy's data, they are publicly available third-parties' layers that are linked in the web application for convenience:

Suburbs (provided as link from NSW Spatial Services)
Local Government Area (provided as link from NSW Spatial Services)
NSW Cadastre (provided as link from NSW Spatial Services)

3.6.4 Underground Layers

Underground layers are at the end of the legend and will display only when zoomed in.

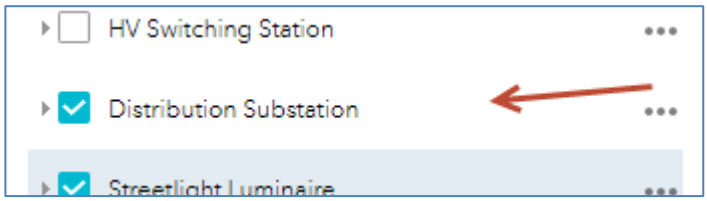


The underground feature layers are prefixed with UG1. Features available to the user are listed below:

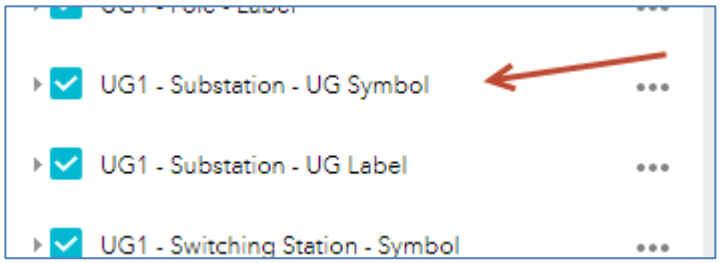
- Cable Route – Fieldbook Label
- Cable Route – Depth Label
- Cable Route – Depth2 Label
- Cable Route – Zed Marker
- Cable X Section – Symbol
- Cable X Section – Leader line
- Cable X Section – Label
- Cable X Section – Fieldbook Label
- Dimension – Line
- Dimension – Label
- Dimension – Leader Line
- Duct Route – Fieldbook Label
- Duct Route – Leader Line
- Duct Route – Depth Label
- Duct Route – Depth2 Label
- Duct Route – ZED Symbol
- Duct Route – Trenchbar Symbol
- Duct X Section – Symbol
- Duct X Section – Label
- Duct X Section – Fieldbook Label

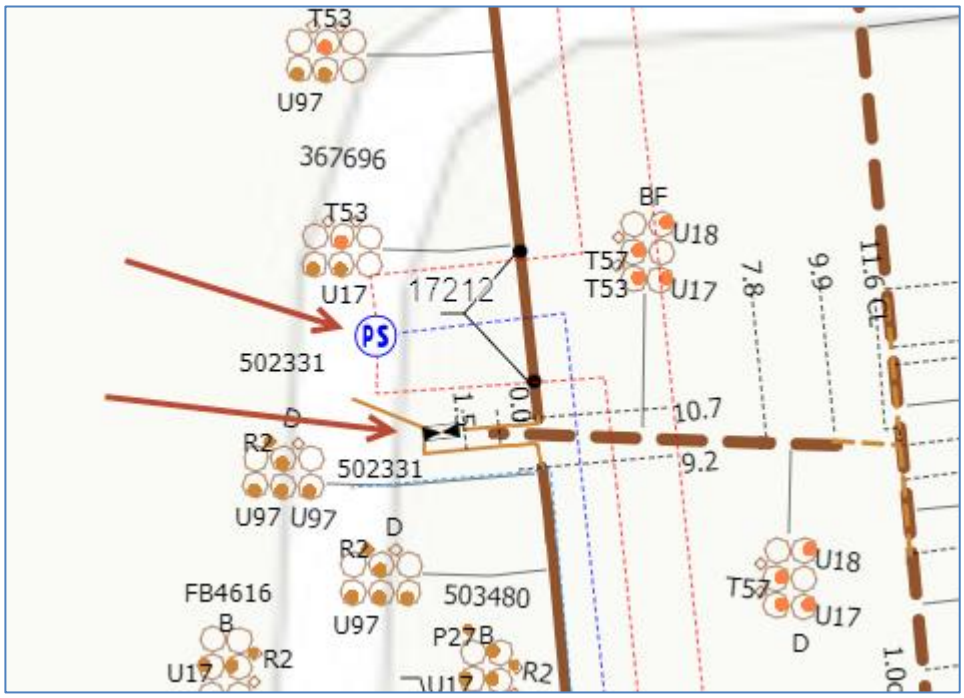
- Duct X Section – Leader Line
- UG Old Plan – Area
- UG Old Plan – Label
- Fieldbook – Area
- Fieldbook – Label
- UG Joint – Symbol
- Miscellaneous Landbase – Linear
- Miscellaneous Landbase – Label
- Cubicle – Symbol
- Cubicle – Label
- Column – Symbol
- Column – Label
- Pillar – Symbol
- Pillar – Label
- Pit – Symbol
- Pit – Label
- Pole – Symbol
- Pole – Label
- Substation – UG Symbol
- Substation – UG Label
- Switching Station – Symbol
- Switching Station – Label
- UG Miscellaneous Text – Label
- UG Miscellaneous Text – Leader Line
- UG Pilot Connection – Point
- Migrated – Cable Route Linear
- Migrated – Cable XSection Point
- Migrated – Dimension Line
- Migrated – Duct Route Linear
- Migrated – Duct XSection Point
- Migrated – Joint Symbol
- Migrated – Label
- Migrated – Landbase Linear
- Migrated – Leader Line
- Migrated – Misc. Linear
- Migrated – Support
- Migrated – UG Point
- Cable Route – Linear
- Duct Route - Linear

Some features will be represented both in network and underground.

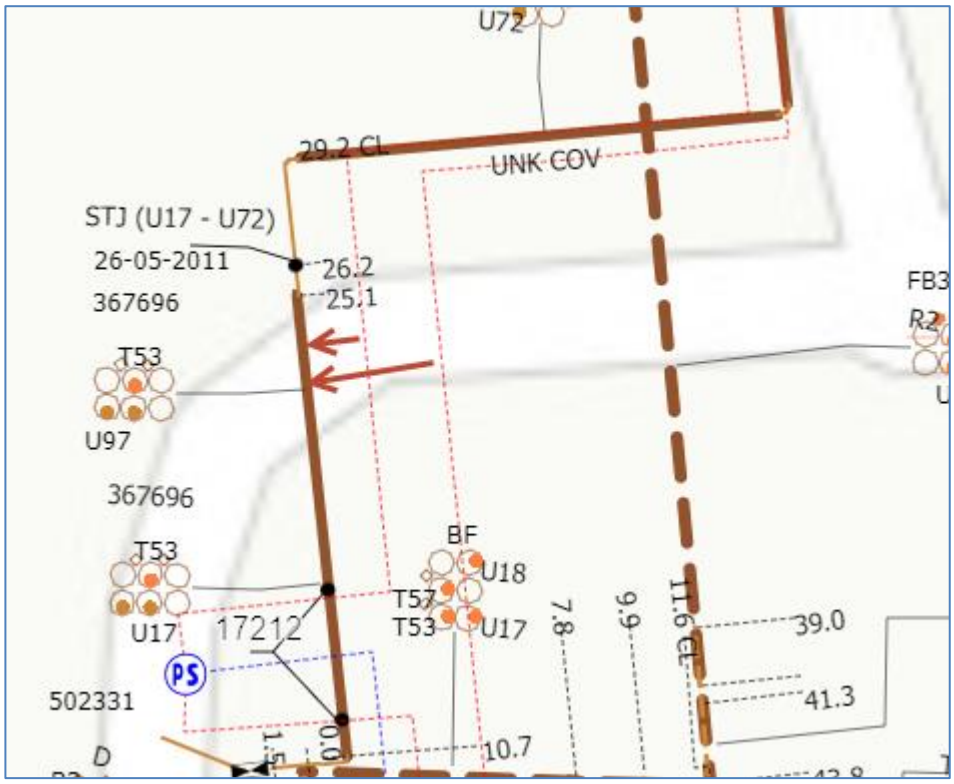


In this example substation 502331 is shown twice. One in the network layer (PS symbol) and the other in the underground layer.

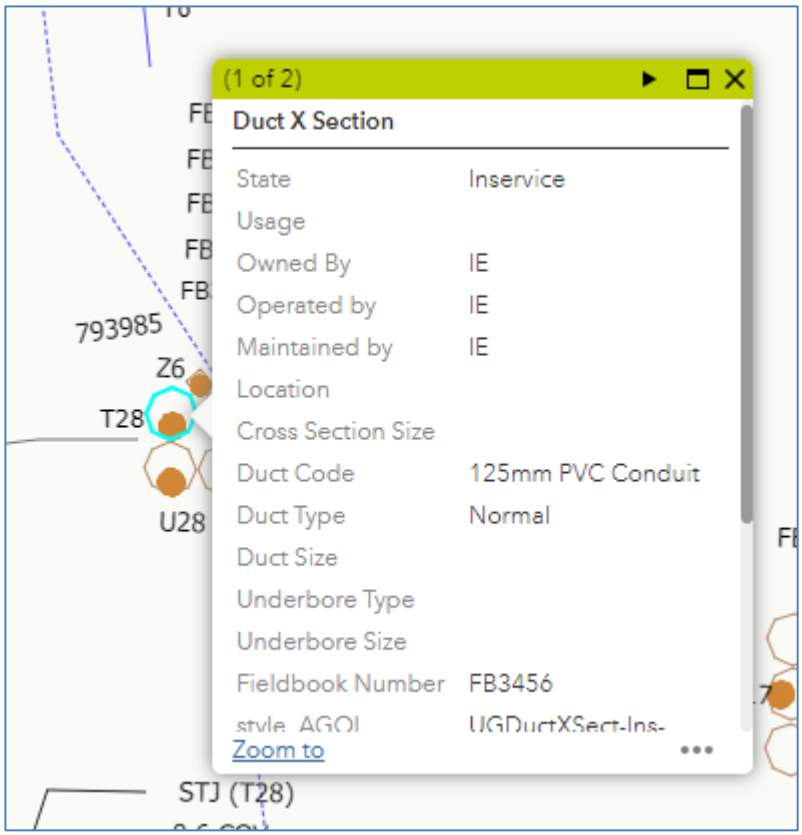




Conductors (from network) and duct/cable routes (from underground) may be shown offset from each other. In the field the conductor would be inside the duct.



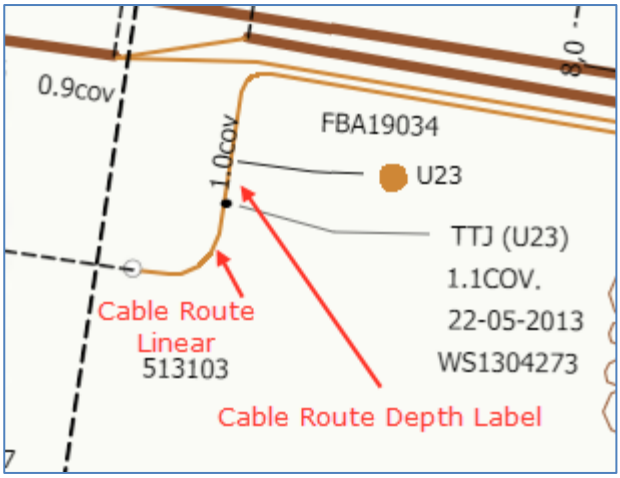
Only some underground features will have a pop-up menu. This is indicated in the following chapters.

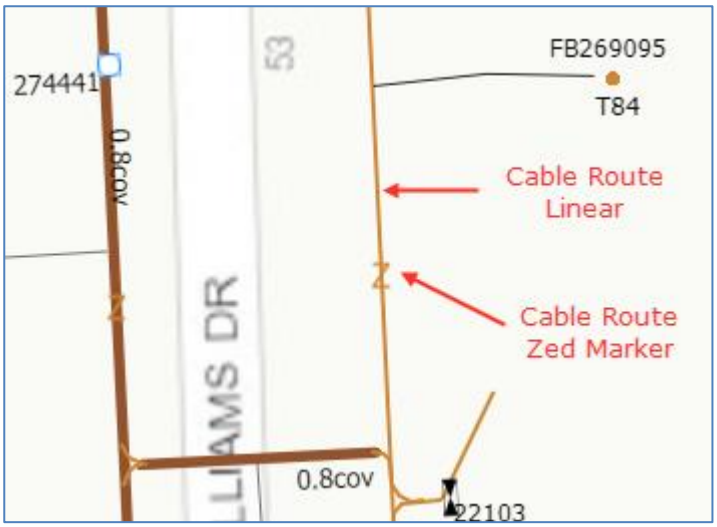


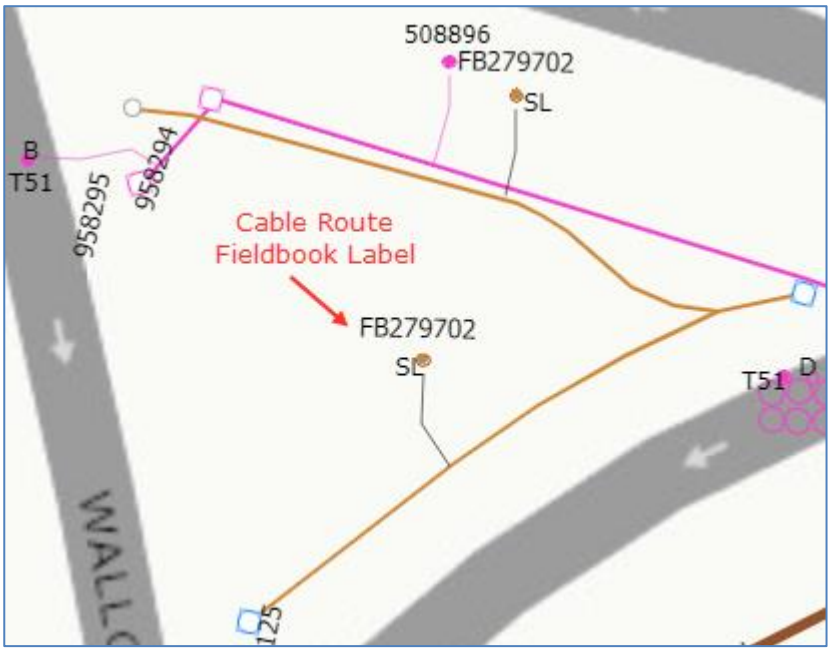
3.6.4.1 Cable Route

	Pop-up

Cable Route – Fieldbook Label	No
Cable Route – Depth Label	No
Cable Route – Depth2 Label	No
Cable Route – Zed Marker	Yes
Cable Route – Linear	Yes

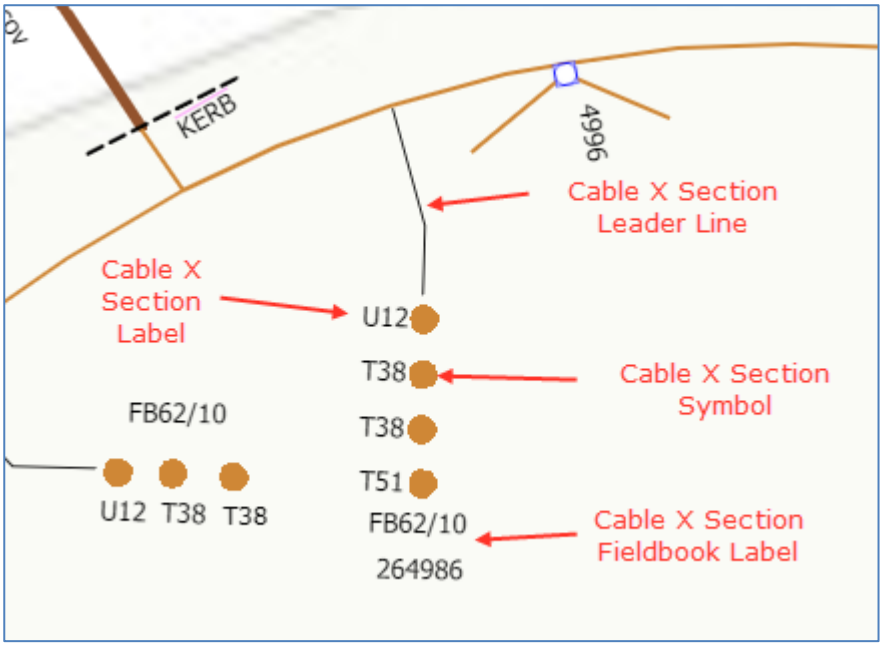






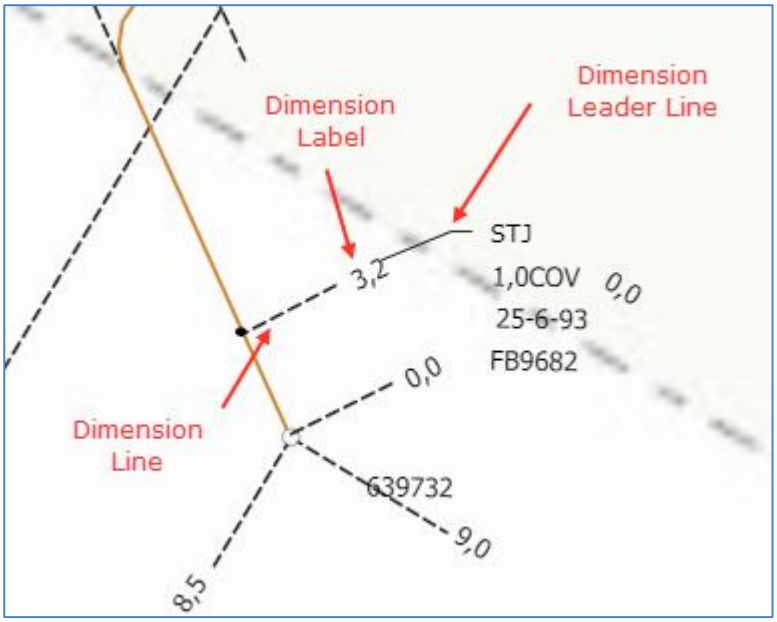
3.6.4.2 Cable Cross Section

	Pop-Up
Cable X Section – Symbol	Yes
Cable X Section – Leader line	No
Cable X Section – Label	No
Cable X Section – Fieldbook Label	No



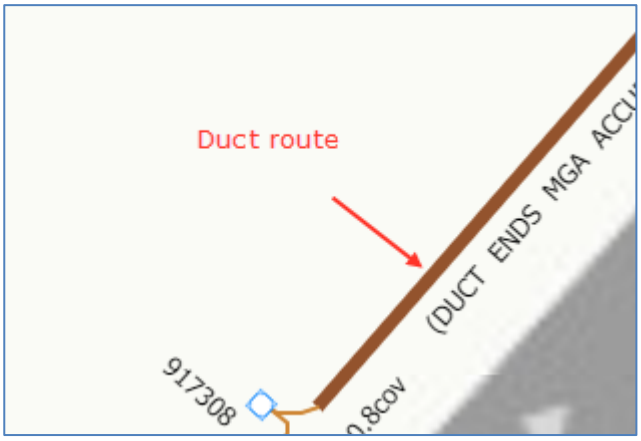
3.6.4.3 Dimension

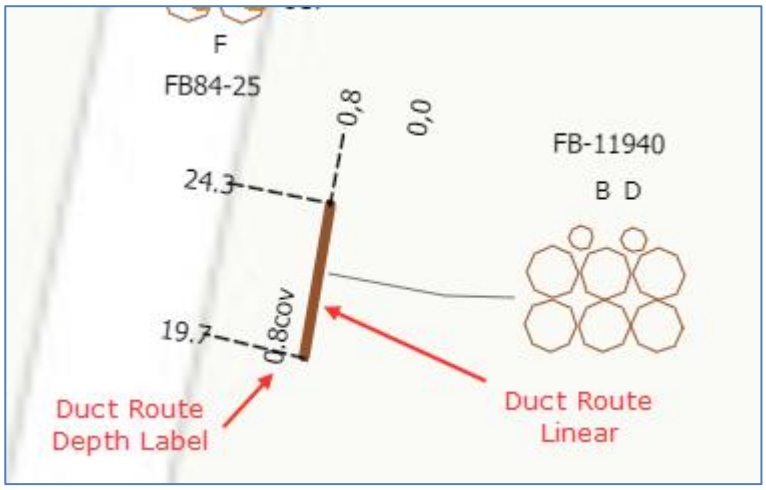
	Pop-Up
Dimension – Line	No
Dimension – Label	No
Dimension – Leader Line	No

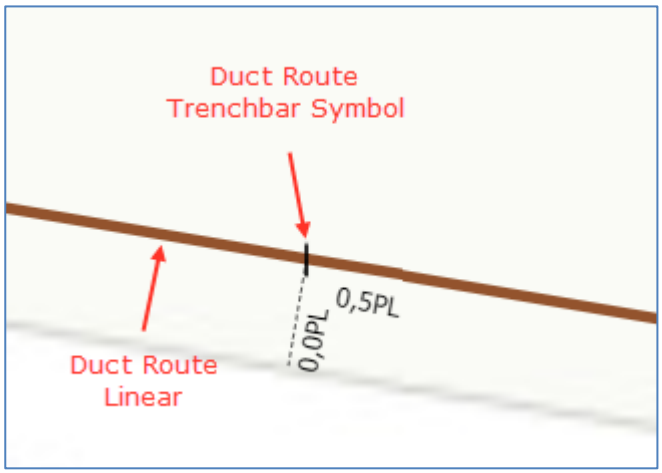


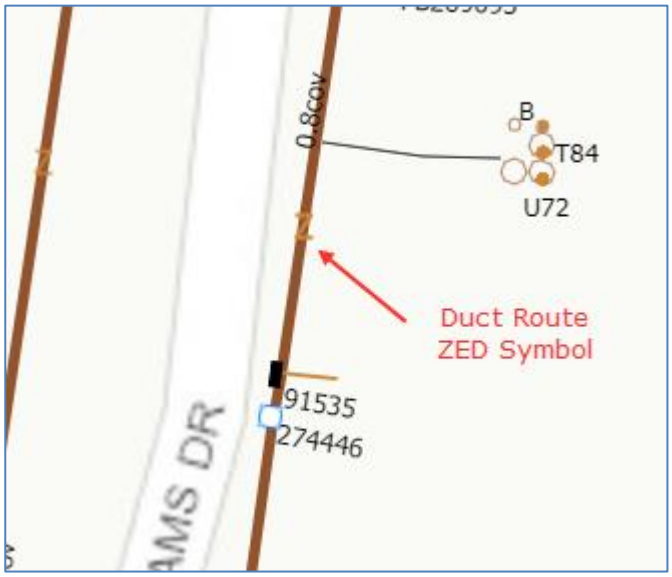
3.6.4.4 Duct Route

	Pop-Up
Duct Route – Fieldbook Label	No
Duct Route – Leader Line	No
Duct Route – Depth Label	No
Duct Route – Depth2 Label	No
Duct Route – ZED Symbol	Yes
Duct Route – Trenchbar Symbol	Yes
Duct Route - Linear	Yes



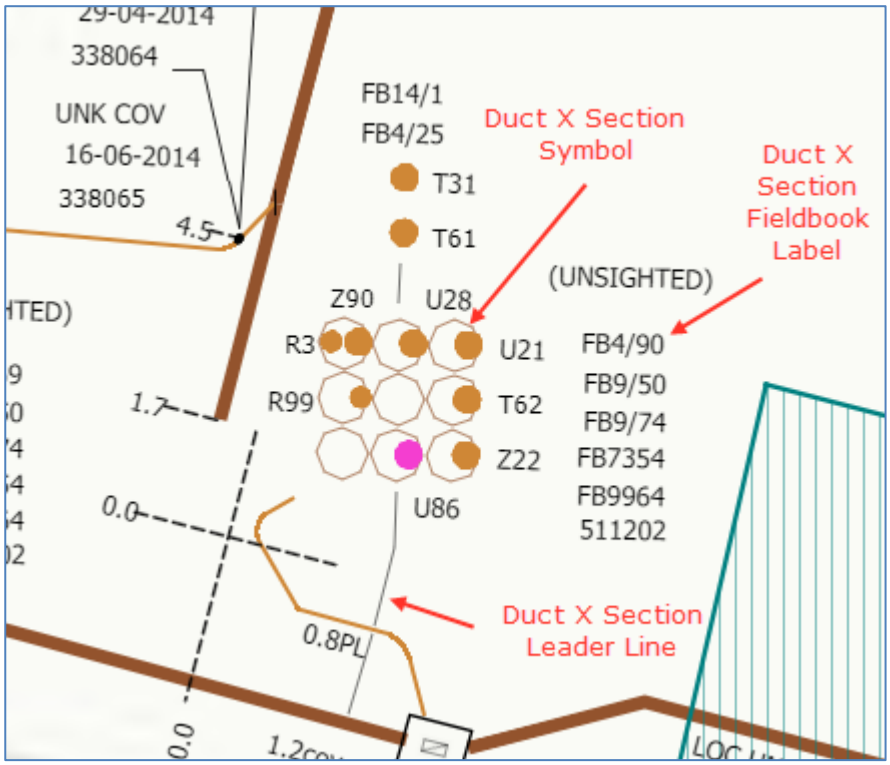


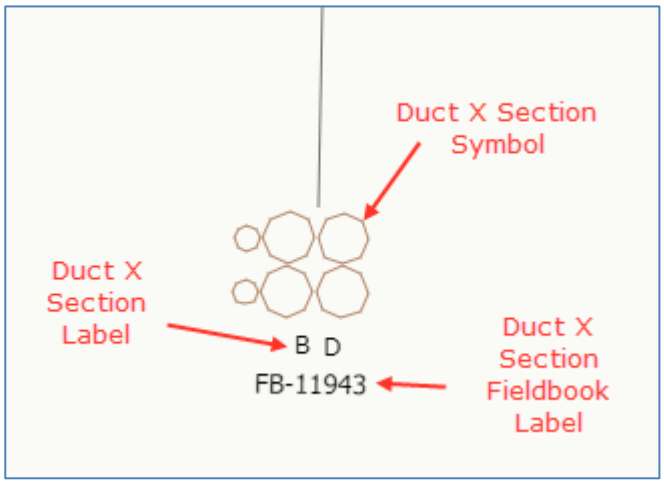




3.6.4.5 Duct Cross Section

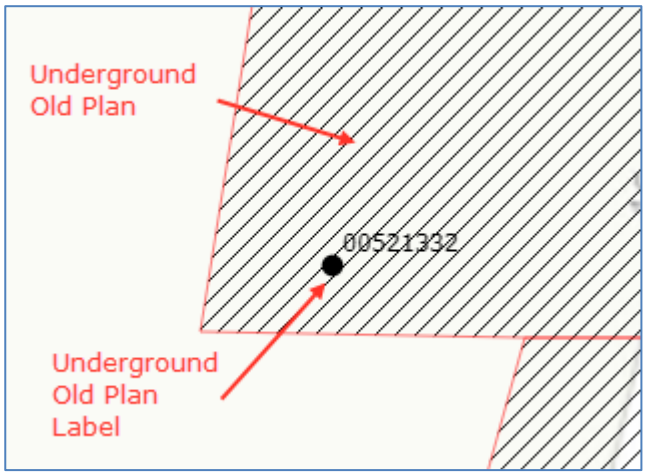
	Pop-Up
Duct X Section – Symbol	Yes
Duct X Section – Label	No
Duct X Section – Fieldbook Label	No
Duct X Section – Leader Line	No





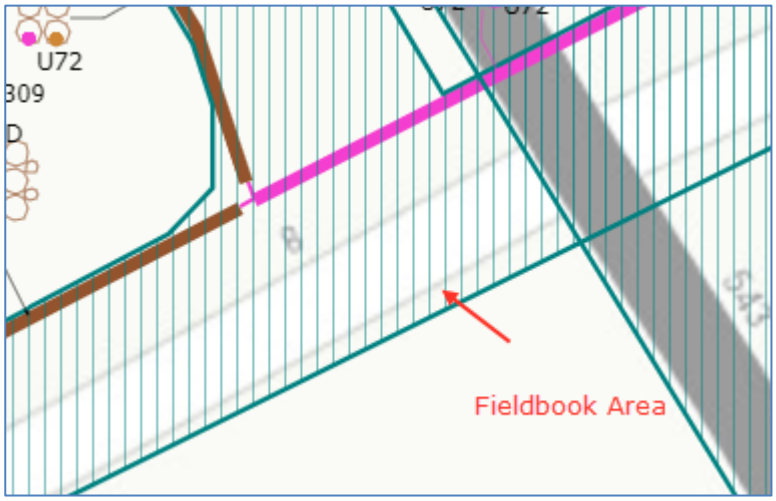
3.6.4.6 Underground Old Plan

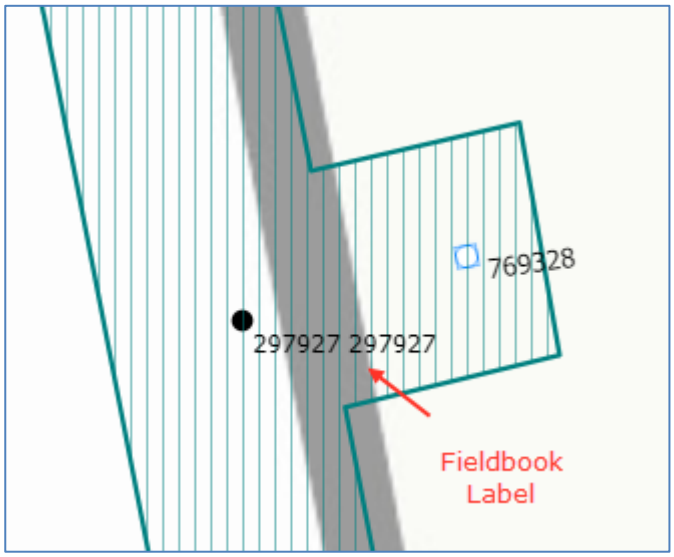
	Pop-Up
UG Old Plan – Area	Yes
UG Old Plan – Label	No



3.6.4.7 Fieldbook

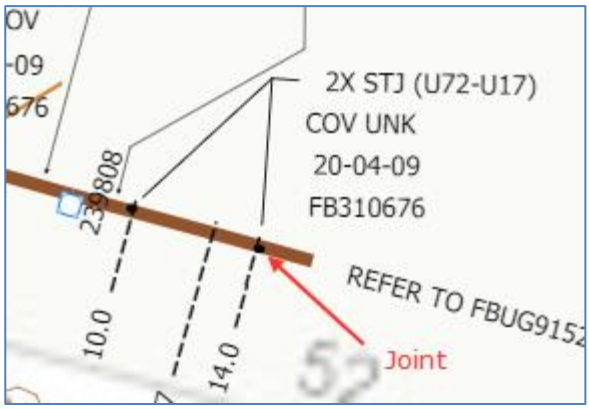
	Pop-Up
Fieldbook – Area	Yes
Fieldbook – Label	No





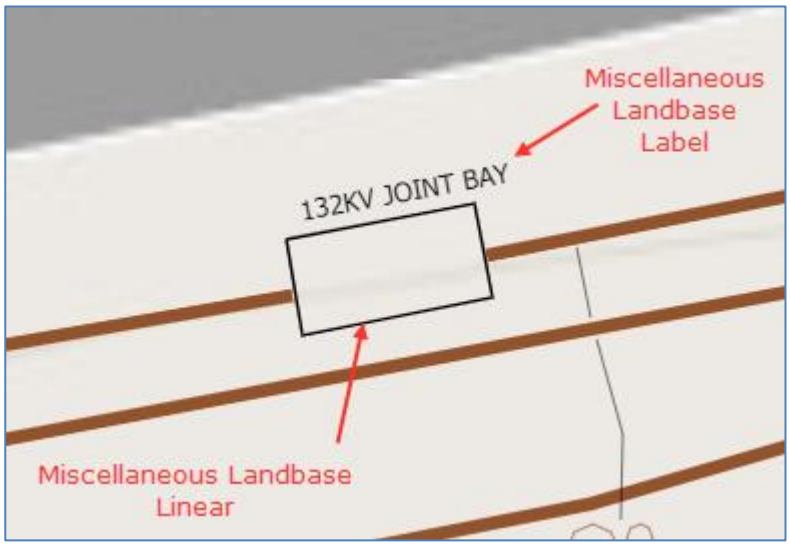
3.6.4.8 Joint

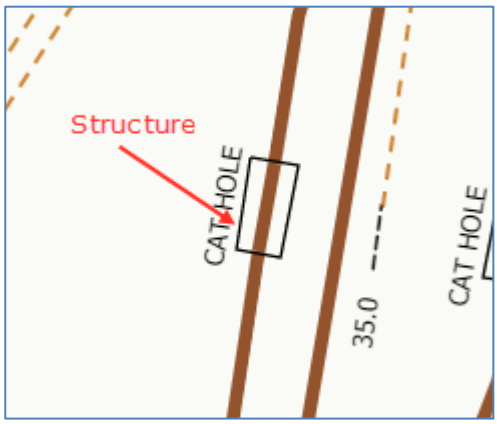
	Pop-Up
UG Joint – Symbol	Yes

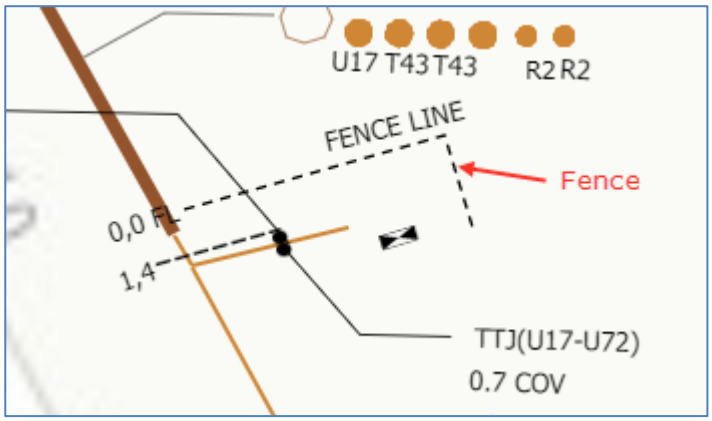


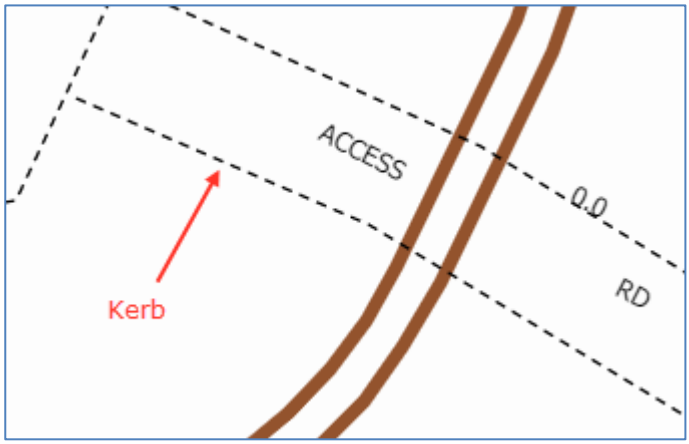
3.6.4.9 Miscellaneous Landbase

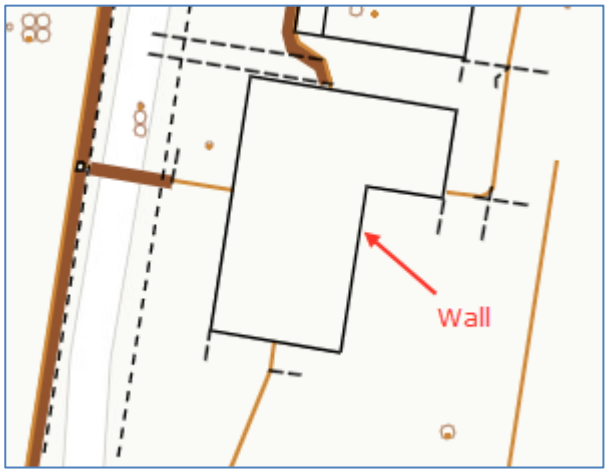
	Pop-Up
Miscellaneous Landbase – Linear	Yes
Miscellaneous Landbase – Label	No





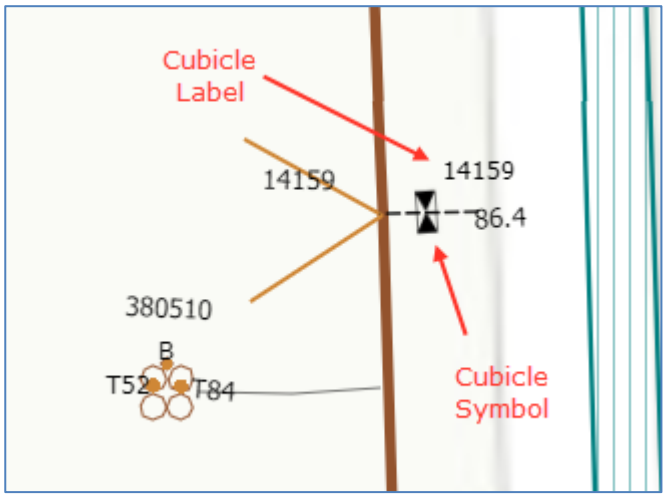






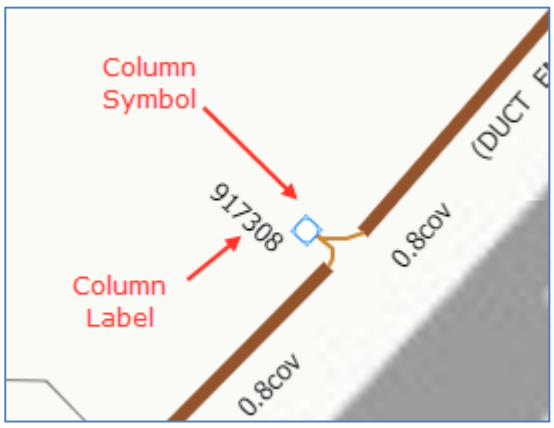
3.6.4.10 Cubicle

	Pop-Up
Cubicle – Symbol	Yes
Cubicle – Label	No



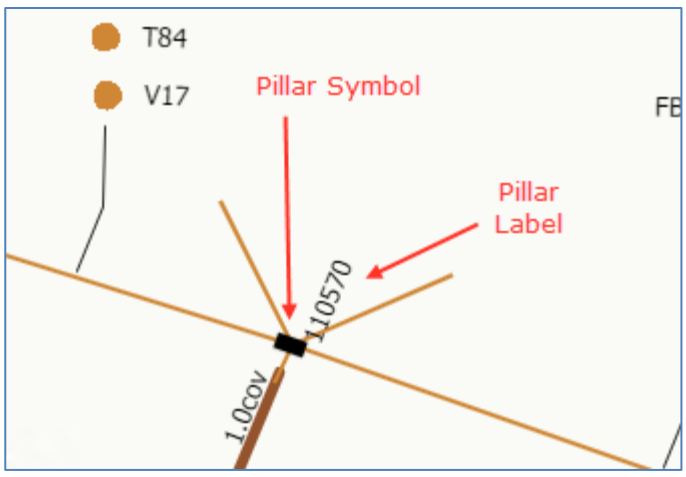
3.6.4.11 Column

	Pop-Up
Column – Symbol	Yes
Column – Label	No



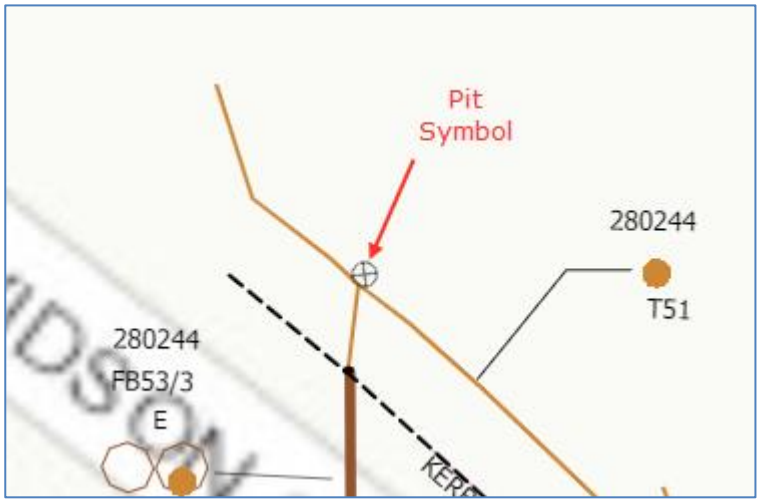
3.6.4.12 Pillar

	Pop-Up
Pillar – Symbol	Yes
Pillar – Label	No



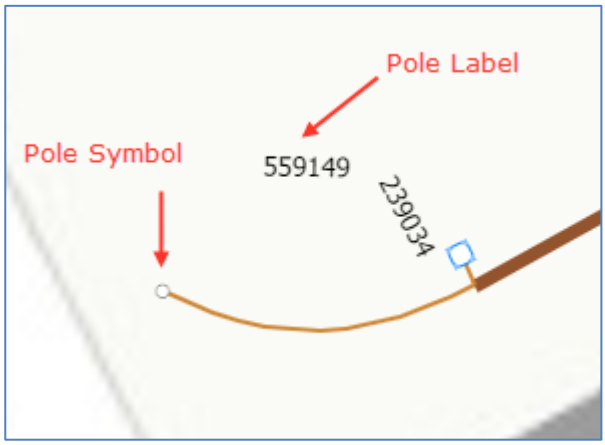
3.6.4.13 Pit

	Pop-Up
Pit – Symbol	Yes
Pit – Label	No



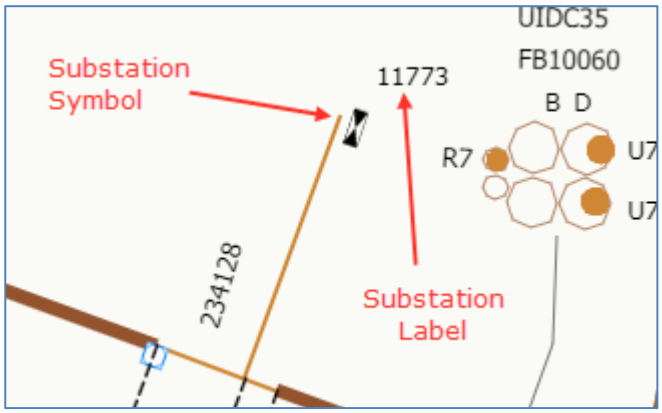
3.6.4.14 Pole

	Pop-Up
Pole – Symbol	Yes
Pole – Label	No



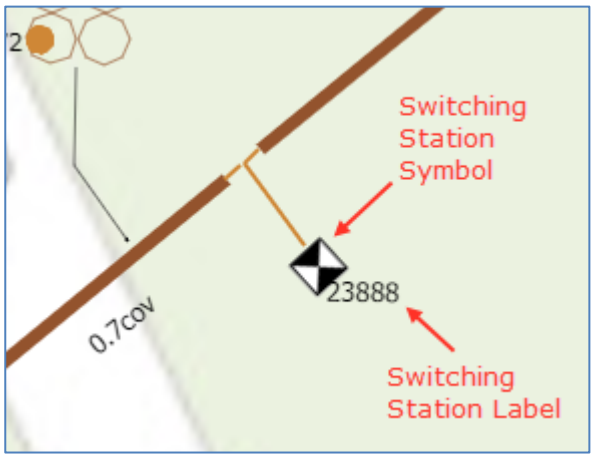
3.6.4.15 Substation

	Pop-Up
Substation – UG Symbol	Yes
Substation – UG Label	No



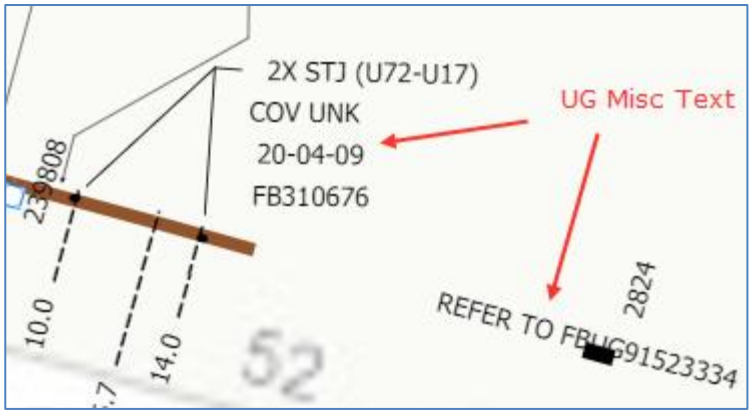
3.6.4.16 Switching Station

	Pop-Up
Switching Station – Symbol	Yes
Switching Station – Label	No



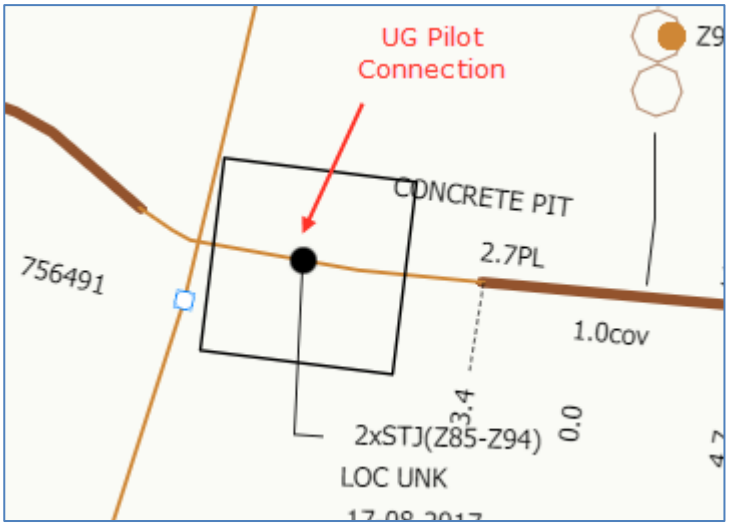
3.6.4.17 UG Miscellaneous Text

	Pop-Up
UG Miscellaneous Text – Label	No
UG Miscellaneous Text – Leader Line	No



3.6.4.18 UG Pilot Connection

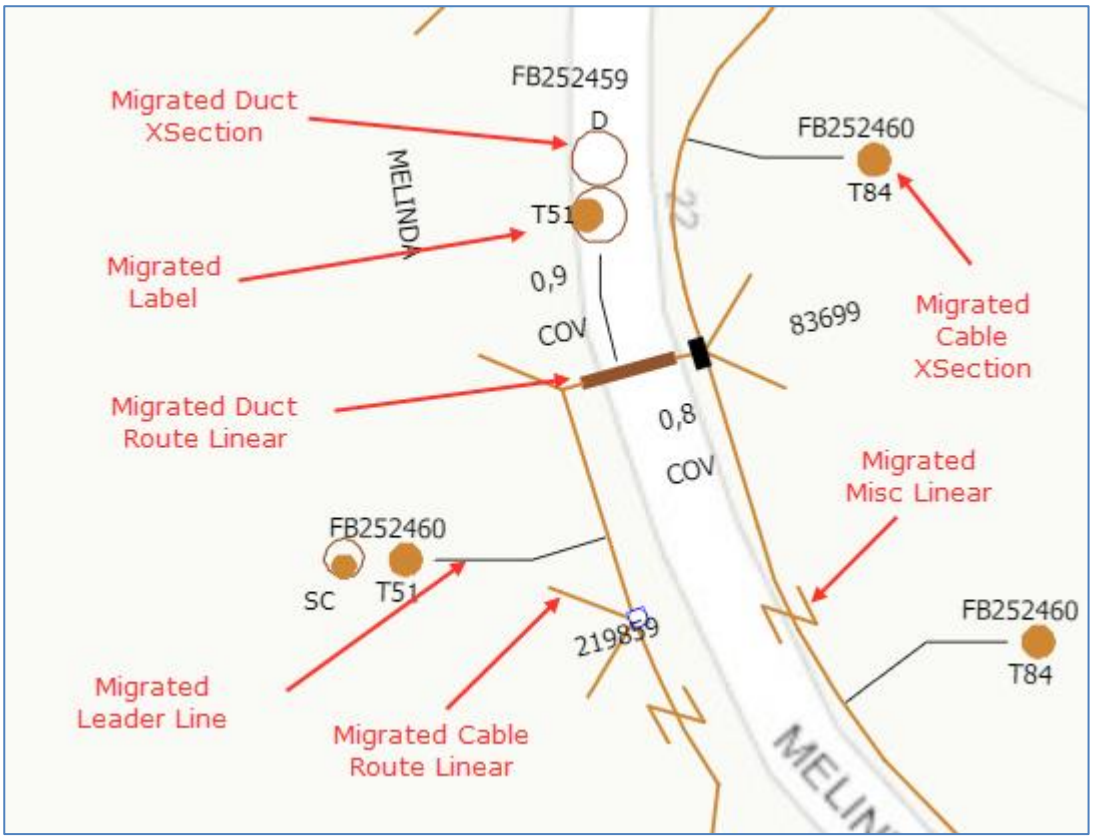
	Pop-Up
UG Pilot Connection – Point	Yes



3.6.4.19 Migrated

Migrated Underground features have yet to be moved to the new layers listed earlier.

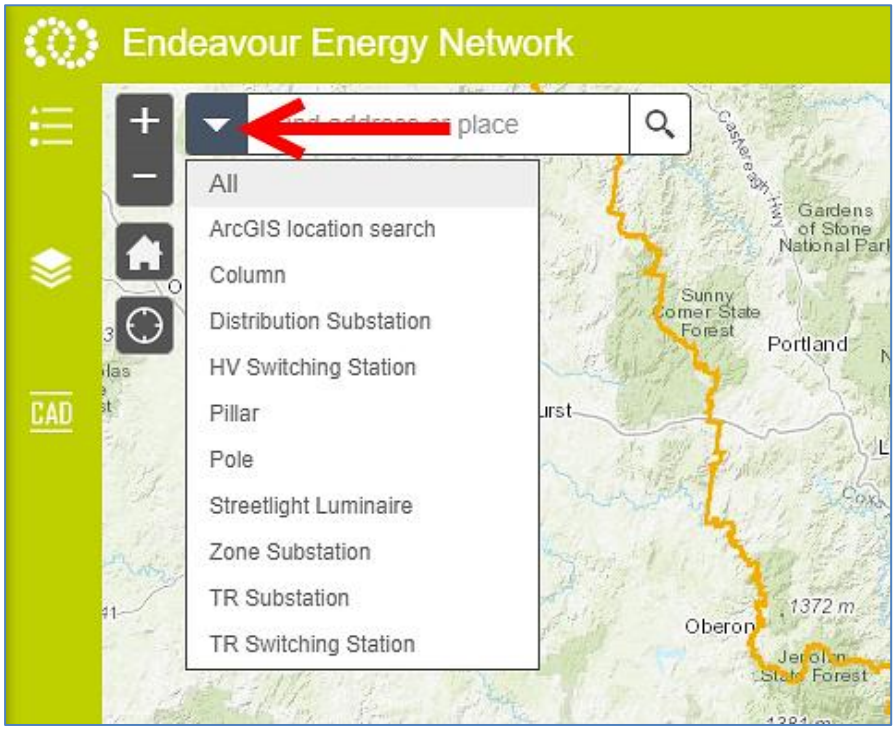
Description	Pop-Up
Migrated – Cable Route Linear	Yes
Migrated – Cable XSection Point	No
Migrated – Dimension Line	Yes
Migrated – Duct Route Linear	Yes
Migrated – Duct XSection Point	No
Migrated – Joint Symbol	No
Migrated – Label	No
Migrated – Landbase Linear	No
Migrated – Leader Line	No
Migrated – Misc. Linear	No
Migrated – Support	No
Migrated – UG Point	No



3.7 Search

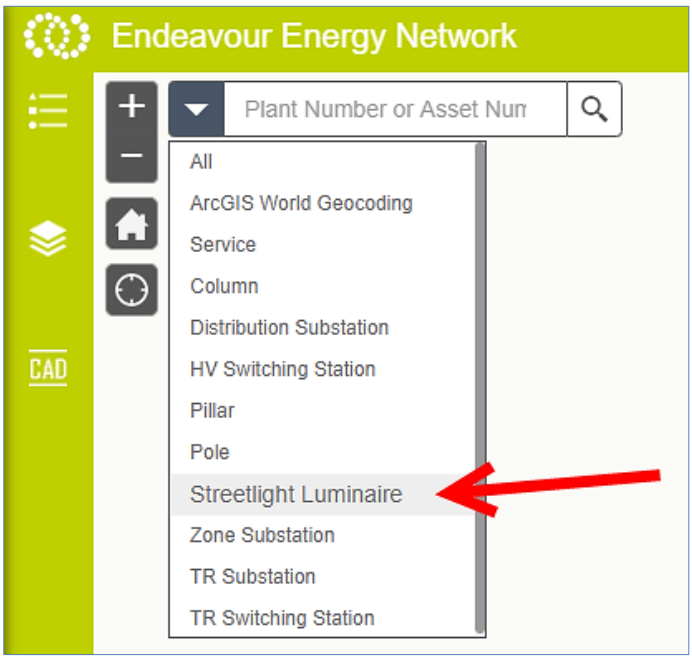
The search field can be used to locate geographical area or a particular asset. User can choose to limit the search to a particular layer from drop down layer list or simply use a free text search without specifying the layer.

- In order to search, start with the drop down menu and choose the layer to be searched:

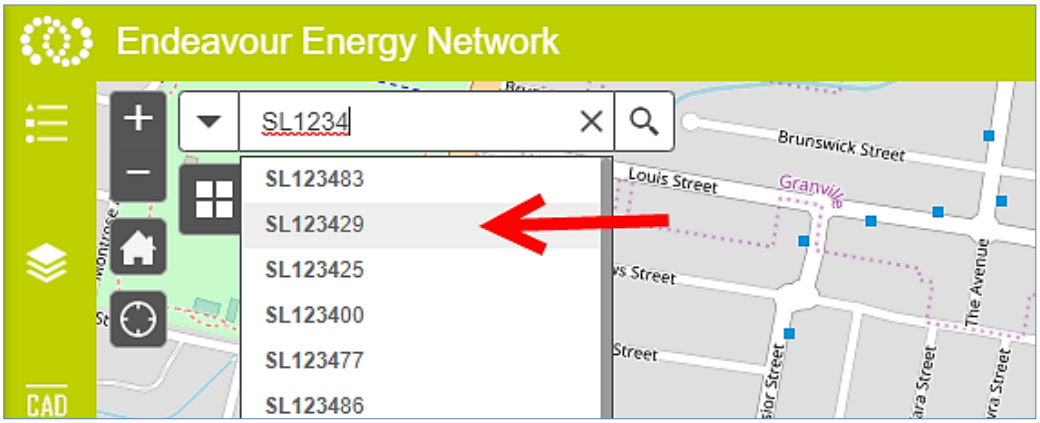


***NOTE:** If a layer is not selected, then by default ArcGIS Online will attemp to search all layers until a match was found. This can take substantially longer than pre-seleting the layer to be searched.*

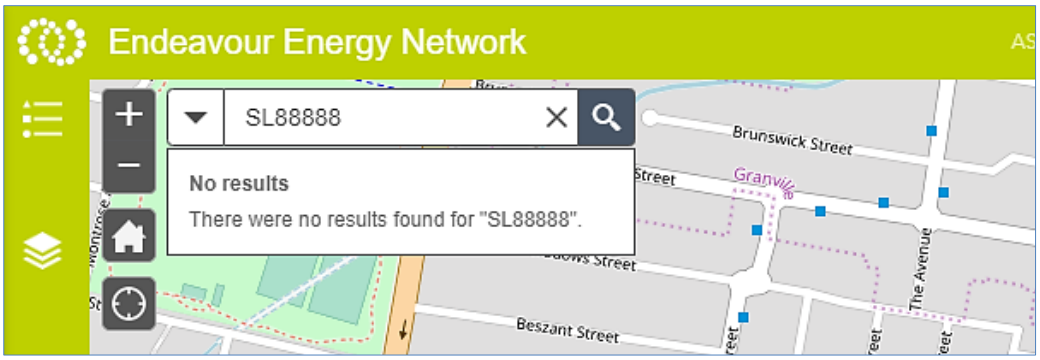
- The searchable layers will be listed. Pick one from the list. On the following screenshot the layer 'Streetlight Luminaire' was selected:



- Type in the search string. As you type, the search will start displaying a list of possible matches. You can either pick one from the list or finish typing the complete value:



- In case the searched value was not found then 'No results' message will be displayed:



The searchable fields for each layer are listed below:

3.7.1 ArcGIS general location search

- ArcGIS World Geocoding engine is used to locate an address/suburb. It allows locating address to the street number granularity (e.g.: 127 Park Rd, Rydalmere).
- It is also possible to search by entering latitude and longitude values, e.g.: “150.82 -33.28” to navigate to a location.

3.7.2 Column

- Plant number (e.g.: PL231644)
- Asset number (e.g.: 231644)

3.7.3 Distribution Substation

- Plant number (e.g. DS18806)
- Asset number (e.g. 18806)

3.7.4 HV Switching station

- Asset number (e.g.12686)
- Feeder number (e.g. LP1122)

3.7.5 Pillar

- Plant number (e.g.: PL231644)
- Asset number (e.g.: 231644)

3.7.6 Pole

- Plant number (e.g. PL328799)
- Asset number (e.g. 328799)

3.7.7 Streetlight Luminaire

- Plant number (e.g.: SL088260)
- Asset number (e.g.: 88260)

3.7.8 Zone substation

- Substation name (e.g.: HUNTINGWOOD)
- Plant number (e.g.: TZ9762)

3.7.9 TR Substation

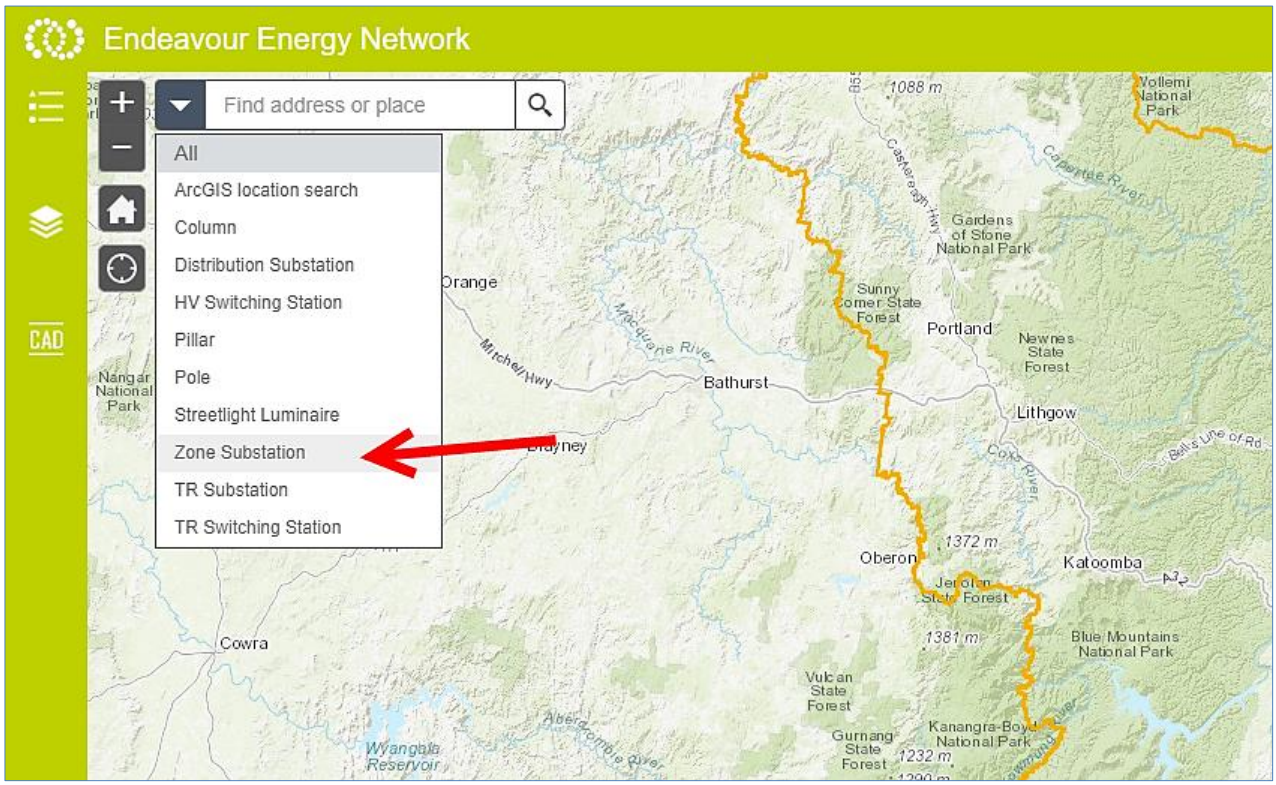
- Substation Name (e.g.: Hawkesbury TS)
- Asset number (e.g.: 9550)

3.7.10 TR Switching Station

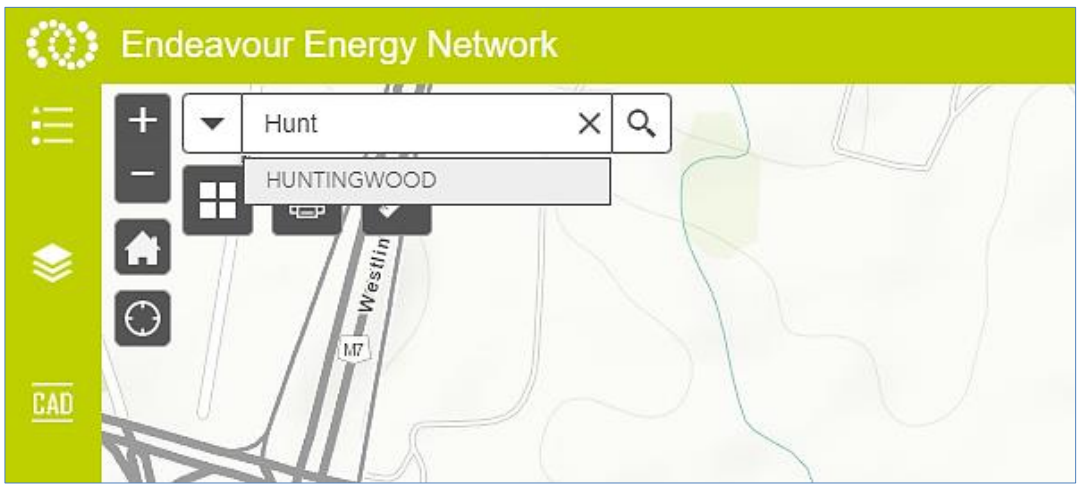
- Site Name (e.g.: NEWNES JUNCTION)
- Asset number (e.g.: 9738)

3.7.11 Search – Step by step example

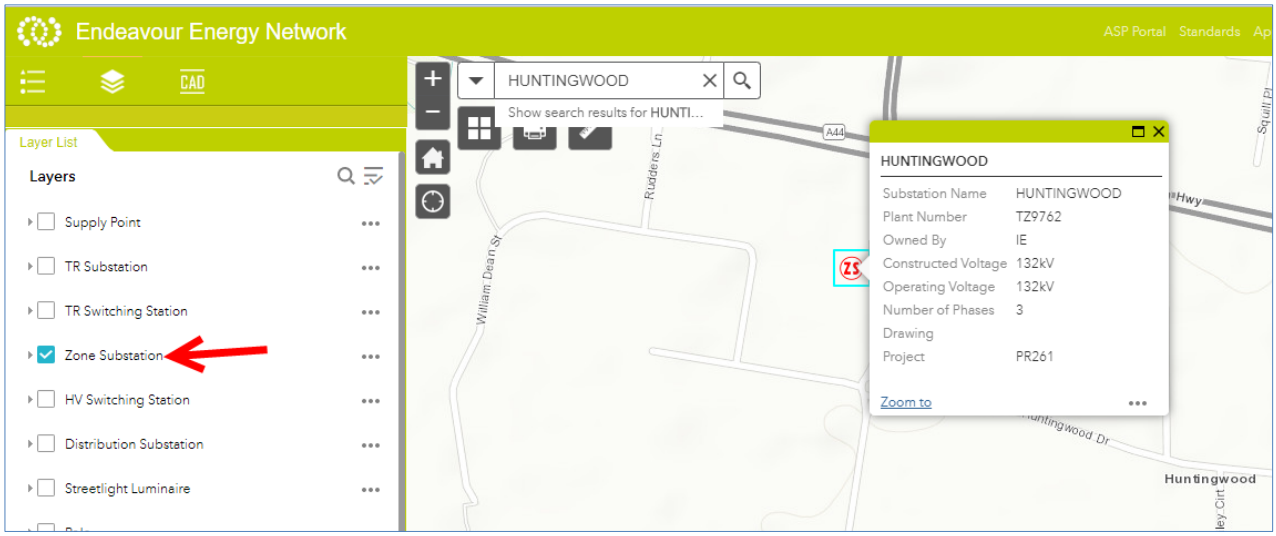
Search for an Asset or Address; select the drop down and choose the asset type or “ArcGIS World Geocoding”. In this example, the *Zone Substation* layer is searched for Huntingwood zone substation:



As the user types the search string, the list of options is displayed e.g. searching for a zone substation by name:



Selecting the relevant search result locates the zone substation asset:



Tip: *turn on the layer in the layer list to see the symbology*