



# NavView RigNav Quick Start Guide

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## 1. MAP WINDOW

### 1.1 MAP TOOL BAR



FIGURE 1.1 MAP VIEW TOOL BAR

In addition, when a Map view has the focus, a context sensitive Map tab is added to the ribbon. Both provide access to Map specific tools and features.

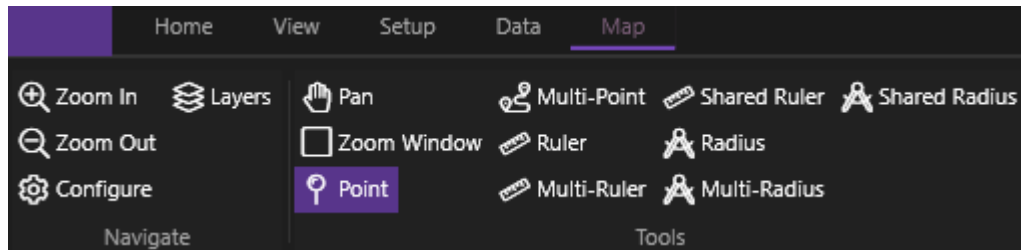





FIGURE 1.2 MAP WINDOW CONTEXT SENSITIVE RIBBON TAB

### 1.2 ZOOM IN/OUT



Zooming in and out can be done by clicking the  and  buttons in the Map window.

The Map window can also be zoomed in and out using the mouse scroll wheel.

### 1.3 PANNING

The Map window can be panned by clicking the  button in the Map window tool bar or by clicking and holding the left mouse button down, or clicking and holding the scroll button down, and moving the mouse to drag the window around.

### 1.4 MEASURE DISTANCE/MEASURE RADIUS TOOL

Clicking the  button activates the Measure Distance tool, when active the button is highlighted . Clicking on the button again deactivates the tool.

To use the Measure Distance, click and hold the left mouse button down and drag the cursor to the second point. A line is drawn from the starting point to the end point. The line is annotated with the distance and bearing in the format and units configured in Preferences.

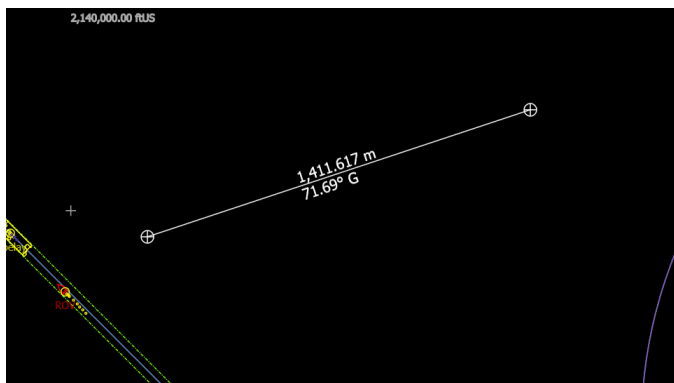




FIGURE 1.3 2D MAP - MEASURE DISTANCE EXAMPLE

To use a ruler across multiple maps, click on the  button this activates the Measure Distances across maps tool. S

To measure a radius, click on the  to activate the Measure Radius tool.

By clicking and holding the left mouse button down on the end point icon  the point can be dragged to a new location.

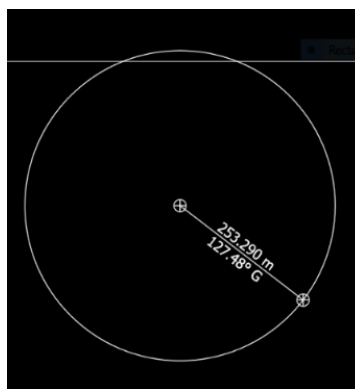





FIGURE 1.4 2D MAP - MEASURE RADIUS EXAMPLE

To erase measurements from the map window, click on the erase button .

## 1.5 POINT/MULTI-POINT PICKER

Clicking the  button activates the Single Point Coordinate Picker feature. When active, the button is highlighted ()

When activated a box appears in the top left of the window. The coordinates being 'picked' are defined by left mouse click in the map window whereupon a  icon is drawn, and the coordinate is displayed in the box. Each time the left button is clicked the previous point is removed and the new one displayed.



The point created using the Single Point Coordinate Picker can be copied for use elsewhere by mouse right click on point picked to display the Copy To pop-up menu, see

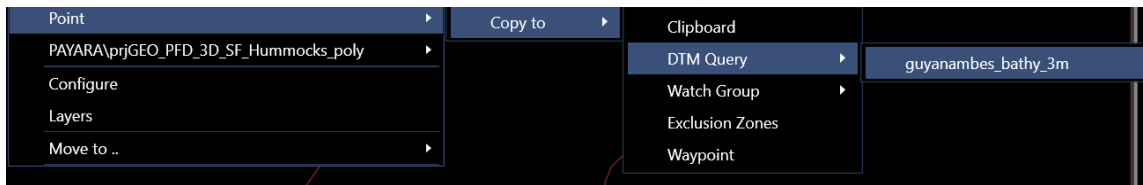





FIGURE 1.5 2D MAP - SINGLE POINT PICKER COPY TO MENU

Furthermore, if a DTM is loaded into NavView, the user can query a depth from the single point picker.

Clicking the  button activates the Multi Point Coordinate Picker feature. When active, the button is highlighted (.

By clicking and holding the left mouse button down on a point icon  the point can be dragged to a new location.

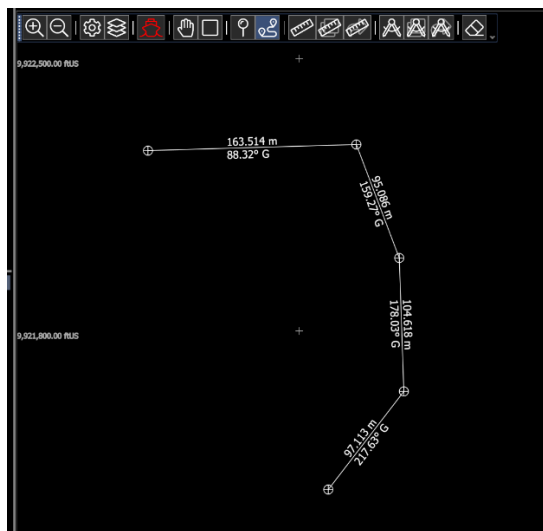



FIGURE 1.6 2D MAP - MULTI-POINT COORDINATE PICKER EXAMPLE

The points created using the Multi-Point Coordinate Picker can be copied for use elsewhere by mouse right click on the line or annotation to display the Delete/Copy To pop-up menu.

## 1.6 MAP LAYERS CONTROL

The control for all layers, including the background drawing files, can be accessed by clicking the  button in the Map window tool bar or right mouse clicking in the map. To turn off a layer, un check the box.

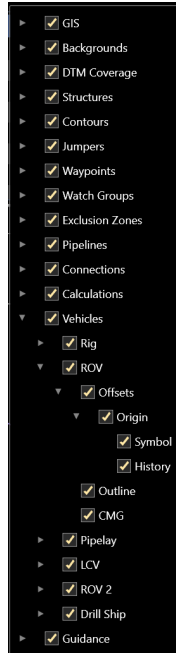


FIGURE 1.7 WINDOWS – 2D MAP – MAP WINDOW – AVAILABLE LAYERS LIST

## 2. 3D MAP WINDOW



FIGURE 2.1 WINDOWS – 3D MAP – BACKGROUND OVERLAY

### 2.1 MOUSE ACTIONS

The mouse is the primary user interface tool when interacting with the 3D scene. Supported mouse actions are detailed here.

#### 2.1.1 PAN

Panning through the scene is done with a left button click and drag operation. When the left button is released the pan operation is stopped. It can also be done with a mouse scroll wheel click and drag operation.

#### 2.1.2 ZOOM

Zooming in and out of the scene is done by rotating the mouse wheel. A forward rotation zooms in while a reverse rotation zooms out.

#### 2.1.3 ROTATE

1. Right-click and drag left: Rotates scene clockwise.
2. Right-click and drag right: Rotates scene counterclockwise.
3. Right-click and drag up: Rotates scene down (towards a seabed-level view)
4. Right-click and drag down: Rotates scene up (towards a top-down view)

### 2.2 SELECTION TREE

From the selection tree the user can:

1. Select an object to center
2. Hide or show specific objects or categories of objects
3. Toggle object labels on or off
4. Toggle on/off background Overlay

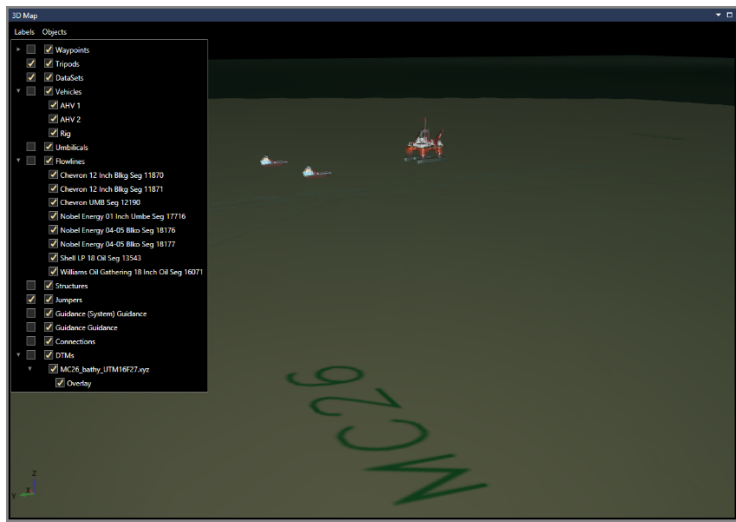


FIGURE 2.2 3D VIEW - SELECTION TREE

## 2.3 TOOLS

The image below shows the 3D Map View context ribbon.

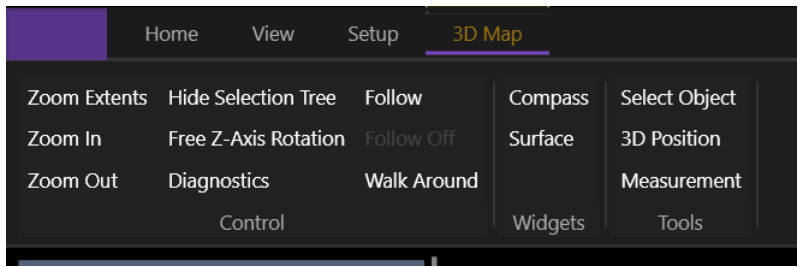


FIGURE 2.3 3D VIEW - CONTEXT RIBBON

### 2.3.1 SELECT OBJECT TOOL

Clicking the **Select Object** tool enables certain 3D objects in the scene to be selected by double-clicking on that object. When an object is selected it will be highlighted by a blue rectangle drawn around the object. Double-clicking on the same object a second time will de-select the object. Any number of objects may be selected at the same time.

Once an object has been selected, right clicking in the 3D Map window pops up a context menu listing all selected objects. Mousing over an object in the list will present options associated with that item. Click on one of these to execute that option.

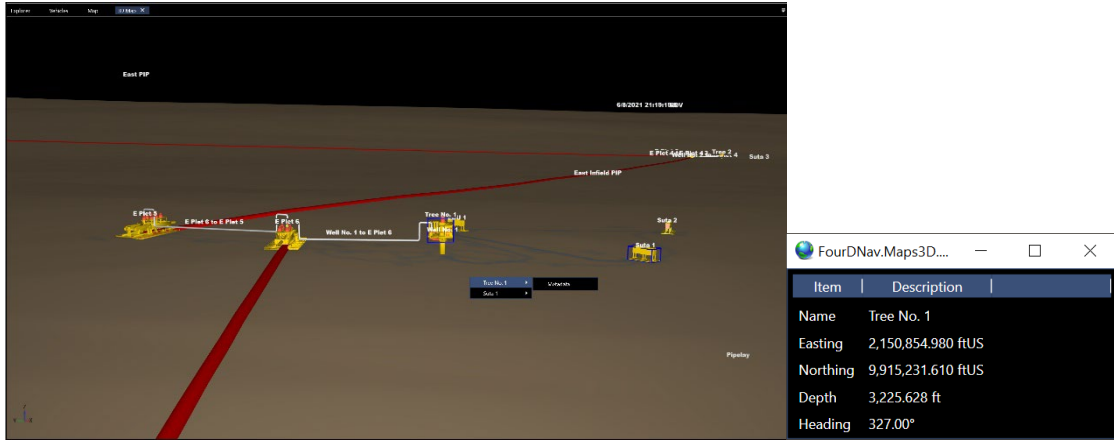


FIGURE 2.4 WINDOWS – 3D MAP – SELECTED STRUCTURES AND METADATA

## 2.3.2 MEASUREMENT TOOL

Clicking on the **Measurement** button enables the tool. A measurement consists of a start point and an end point, which may be placed on the scene by double clicking near the desired measurement point. After the first double click action, the start point will be placed in the scene.

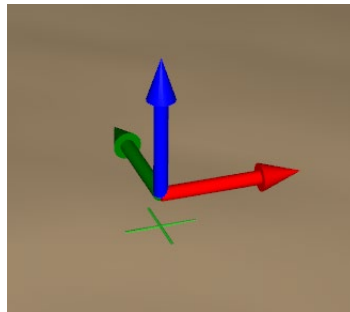


FIGURE 2.5 WINDOWS – 3D MAP – MEASUREMENT FINE ADJUSTMENT TOOL

The red arrow enables fine adjustment in the x-axis, the green arrow in y-axis and the blue arrow in the z-axis. To move the green cross marker in any axis, press either the **Shift, Ctrl** or **Alt** key and left mouse click and drag on the desired arrow (green, red or blue) along the axis of the selected arrow. This single axis motion allows very precise positioning of the marker in all 3 dimensions.

When the end measurement point is placed into the scene by double-clicking at a second location measurement lines are drawn in the scene describing the slant-range, horizontal range and vertical range between the two points.

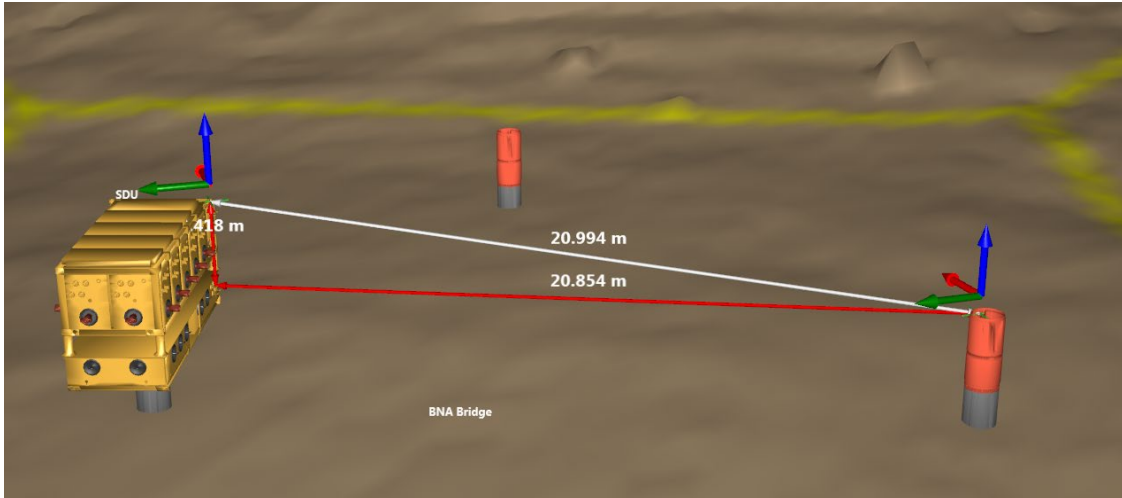


FIGURE 2.6 WINDOWS – 3D MAP – MEASUREMENT BETWEEN 2 POINTS

Additional measurement detail (see Figure 2.7 WINDOWS – 3D MAP – MEASUREMENT TOOL REPORT ) may be viewed by right clicking the mouse button and selecting the **Measurement Detail** option from the context menu.

Measurement Pair				
Name	Easting	Northing	Depth	Altitude
Start	667559.06 m	9583768.11 m	-40.56 m	4.44 m
End	667609.57 m	9583790.63 m	-25.55 m	19.45 m

Distances and Slope				
Grid	True	Terrain	Slope	Slope Angle
55.31 m	55.31 m	55.31 m	57.31 m	15.188°

Start - End Deltas		
Delta East	Delta North	Delta Depth
-50.51 m	-22.52 m	-15.01 m

FIGURE 2.7 WINDOWS – 3D MAP – MEASUREMENT TOOL REPORT

### 2.3.3 FOLLOW MODE

The follow tool within the 3D Map view allows the user to select an object to follow in 3D. By clicking the follow button in the 3D Map tool bar, it will prompt the user to select an object to follow.

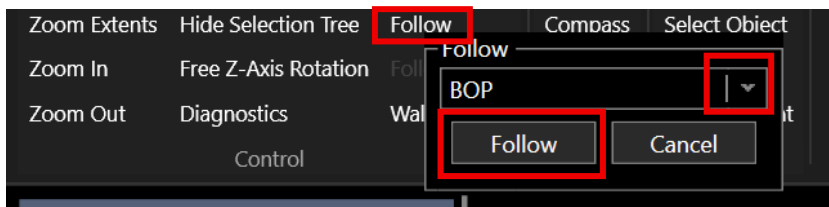


FIGURE 2.8 3D MAP VIEW - FOLLOW MODE

## 3. 3DX MAP WINDOW

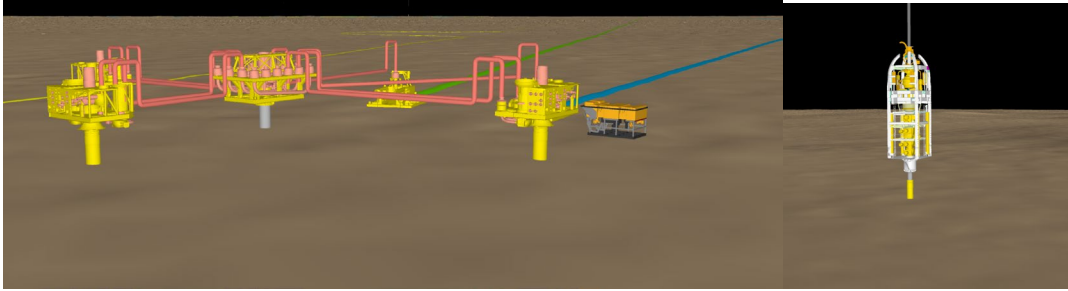


FIGURE 3.1 WINDOWS – 3DX MAP - PARTIAL 3DX SCENES

To properly display the 3Dx Map, a **Project Center** position must be defined. This is done via the Explorer view. If this is updated while a 3Dx Map view is opened, it must be closed and re-opened to apply the new Project Center.

### 3.1 MOUSE ACTIONS

#### 3.1.1 PAN

Panning through the scene is done with a mouse scroll wheel click and drag operation.

#### 3.1.2 ZOOM

Zooming in and out of the scene is done by rotating the mouse wheel. Zoom in can also be executed with Page Up button and zoom out with the Page Down button.

#### 3.1.3 ROTATE

Rotating the scene is done with a left-click and drag operation. If an object is selected from the selection tree the rotation center will be located at that object's origin. The rotate actions are summarized below:

1. Left click and drag left or keyboard left arrow: Rotates scene clockwise.
2. Left click and drag right or keyboard right arrow: Rotates scene counterclockwise.
3. Left click and drag up or keyboard up arrow: Rotates scene down (towards a seabed-level view)
4. Left click and drag down or keyboard down arrow: Rotates scene up (towards a top-down view)

### 3.2 SELECTION TREE

The selection tree appears on the left side of the 3Dx Map which contains Map Tools and Layers.

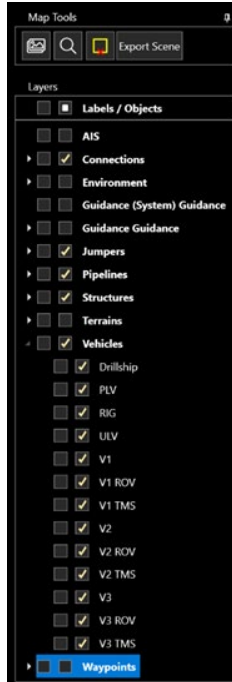
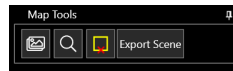





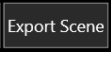
FIGURE 3.2 WINDOWS - 3DX MAP – SELECTION TREE

Clicking on an item in a branch will cause the view to re-center on that object with the camera looking directly at the object. This makes it very easy to navigate to any object of interest.

### 3.2.1 MAP TOOLS



Map tools consists of the following

-  Enables Image (background) Overlay for single color terrains. Tiles 3D and Color Maps in the Configuration section of the Setup Tab are used to define the terrain. This will be discussed in Setup>Configuration section of the document
- Zoom to Extent  operation zooms to the entire extents of the project area, so the true extents of the seabed terrain is visible. This can cause objects on the seabed to disappear from the view when the project area is very large
- Clear Selection  deselects selected objects. Button disappears when cleared. Visible when object is selected
- Export Scene  exports visible layers to static scene

### 3.2.2 LAYERS

The Layers section of the Selection Tree is where the user can:

1. Select an object to center
2. Hide or show specific objects or categories of objects

3. Toggle object labels on or off

### 3.3 OBJECT TOOLS

Right-clicking objects displayed in 3Dx Map view will open a pop-up window providing display/edit options for the selected object depending on object type.



FIGURE 3.3 WINDOWS - 3DX MAP – OBJECT TOOLS

## 4. WAYPOINTS

The Waypoints window is opened by clicking on the Waypoints button in the Files section of the Home Ribbon Tab or project Explorer view.

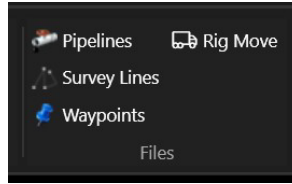


FIGURE 4.1 WAYPOINTS - HOME RIBBON TAB

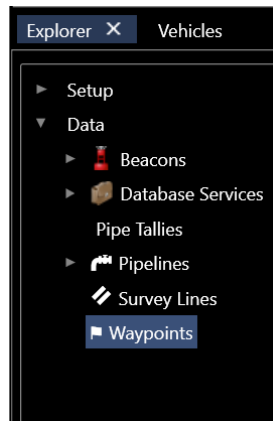


FIGURE 4.2 WAYPOINTS – EXPLORER VIEW

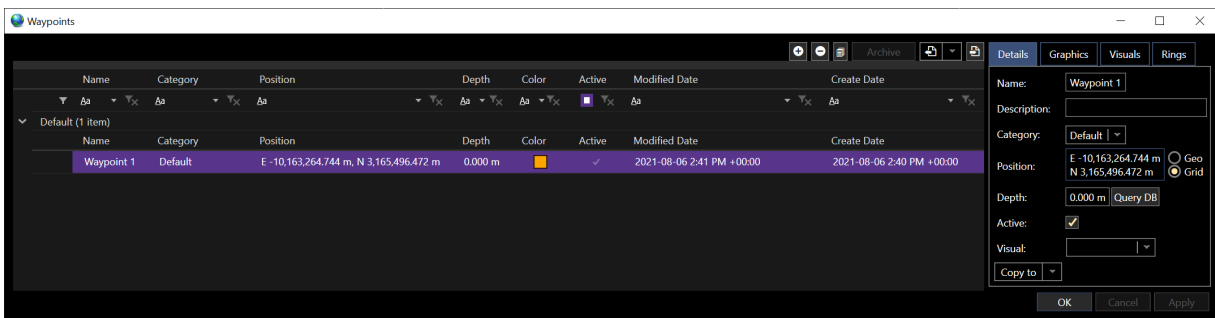


FIGURE 4.3 WAYPOINTS - CONFIGURATION WINDOW

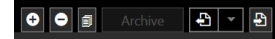
The Waypoints configuration window consists of the following components:

### 4.1 WAYPOINT LIST (DATA GRID)

All waypoints are listed in the data grid. The data grid provides an overview of the basic waypoint information: Name, Category, Position, Depth, Color, Active status, Modified Date, Created Date and Waypoint Dialog. The position is displayed in geographic or grid (based on the Coordinate Entry Format setting in Preferences, see Projects section). Note that if this setting is changed while this window is open, it must be closed and reopened to reflect the change.

## 4.2 TOOLBAR

The toolbar provides the means to manipulate the waypoints



Click to add a waypoint, this button is inactive if a point has been added or copied but not saved or discarded



Click to remove the selected waypoint, a prompt will appear asking for confirmation for deletion as the waypoint will be removed for all NavView systems on the network



Click to add copy of the selected waypoint and its attributes, this button is inactive if a point has been added or copied but not saved or discarded



Click to export the waypoints to a CSV file, either just the Basic information or Expanded



Click to launch the waypoint import process

## 4.3 WAYPOINT DIALOG

This displays the details and visual data for the selected waypoint for review and editing

### 4.3.1 DETAILS TAB

FIGURE 4.4 WAYPOINTS - DIALOG - DETAILS TAB

- **Name:** Name assigned to the waypoint
- **Description:** Description of Waypoint
- **Category:** Assign the way point to a category by creating a new category by entering a name in the box or select an existing category from the drop-down list
- **Position:** Position for the waypoint, can be displayed in geographic or grid, controlled by selecting the appropriate radio button to the right
- **Depth:** The depth of the waypoint (elevation would be a negative value)
- **Query DB:** If a DTM has been loaded, it can be queried for a depth at the waypoint location by clicking this button, it may take several second for the Depth to

update with the result of the query, it is not necessary to wait for this before editing other settings

- **Active:** Check the box to make the waypoint active
- **Copy To:** From the drop-down list select where to copy the waypoint coordinates, currently only Pipe Tally is available

### 4.3.2 SYMBOL TAB

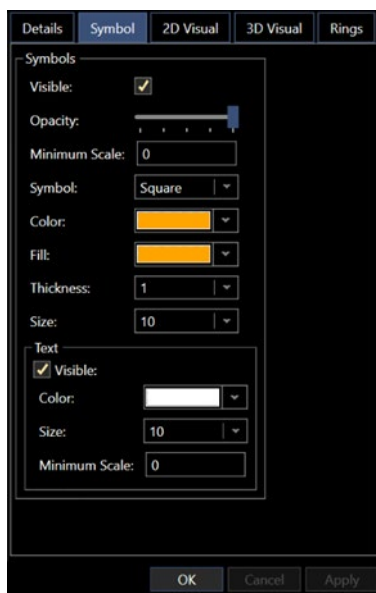




FIGURE 4.5 WAYPOINTS - WAYPOINT DIALOG - SYMBOL TAB

- Symbols
  - Visible: Check the box to make waypoint symbol visible in map view
  - Opacity: Adjust the opacity of the waypoint symbol using the slider
  - Minimum Scale: Minimum scale the symbol will display in the Map view
  - Symbol: From the drop-down list select the waypoint symbol
  - Color: From the drop-down list select the waypoint color
  - Fill: From the drop-down list select the waypoint symbol fill
  - Thickness: From the drop-down list select the waypoint symbol line thickness
  - Size: From the drop-down list select the waypoint symbol size
- Text
  - Visible: Check the box to make waypoint text visible in map view
  - Color: From the drop-down list select the waypoint text color
  - Size: From the drop-down list select the waypoint text size
  - Minimum Scale: Minimum Map scale the text will display in the Map view

### 4.3.3 RINGS TAB

Controls the drawing of rings about the waypoint location. A ring is added using the  button or removed using the  button. The radius of the ring from the waypoint origin and the ring display color are user defined.

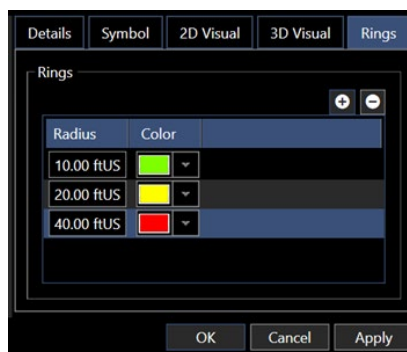



FIGURE 4.6 WAYPOINTS - WAYPOINT DIALOG – RINGS TAB

## 4.4 ADD A WAYPOINT

A waypoint can be added from the Waypoints Manager window or the Map view.


### 4.4.1 ADD A WAYPOINT FROM THE WAYPOINTS WINDOW

1. Open the Waypoints window from the Home/Files Ribbon or from Explorer/Data.
2. Click  in the tool bar.
3. A temporary waypoint is created with a default position and a name based on the date and time it was created and displayed in the Waypoint dialog.
4. Edit the new waypoint as required.
5. Click **Apply** to save the waypoint and leave the window open, **Cancel** to discard it and leave the window open, **OK** to save the waypoint and close the window.

### 4.4.2 ADD A WAYPOINT FROM THE MAP VIEW


1. In a Map window, activate the Coordinate Picker (see Map Window in the Windows section for details)
2. Create point(s) in the Map.
3. To add all points created, right mouse click in the Coordinate Picker balloon or with the mouse over any of the points and select **Copy To... Waypoints**.
4. Waypoint dialogs will appear one at a time for each point present in the Coordinate Picker for review and editing.

## 4.5 COPY A WAYPOINT

1. Open the Waypoints window.
2. Select a waypoint in the list to copy.
3. Click  in the tool bar.
4. A temporary copy of the selected waypoint is created and displayed in the Waypoint dialog.

5. Edit the new waypoint as required.
6. Click **Apply** to save the waypoint and leave the window open, **Cancel** to discard it and leave the window open, **OK** to save the waypoint and close the window.

## 4.6 REMOVE A WAYPOINT

1. Open the Waypoints window.
2. Select the waypoint(s) to remove in the list.
3. Click  in the tool bar.
4. A prompt asking for confirmation of removal appears highlighting the fact that this will also remove the waypoint from all NavView systems that are part of the NavView network, answer accordingly.

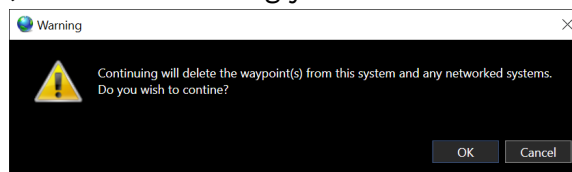


FIGURE 4.7 WAYPOINTS - WAYPOINT REMOVAL CONFIRMATION PROMPT

5. If prompt answered with OK, waypoint is removed, and the list is updated to reflect this.

## 5. RIG MOVE PLAN

The Rig Move Plan dialog is accessed from the Home ribbon menu or from Explorer as shown below.

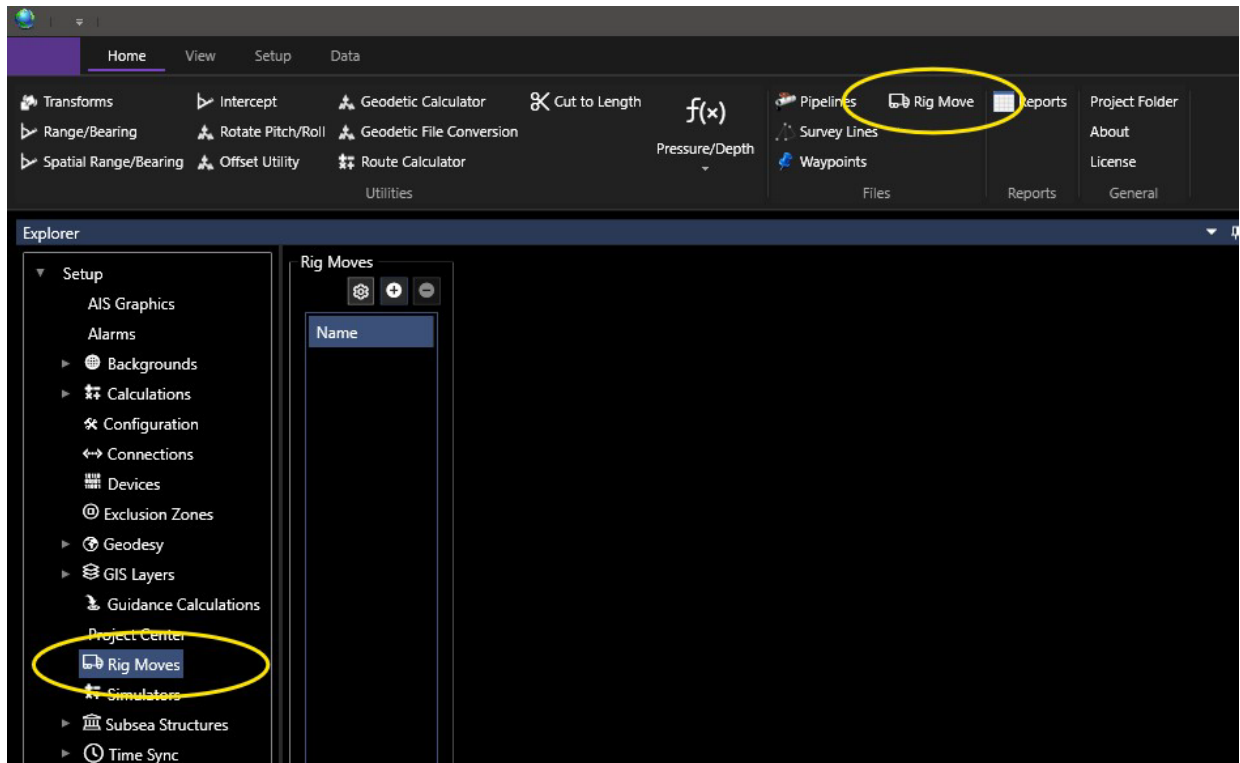



FIGURE 5.1 RIG MOVE – ACCESSING RIG MOVES

### 5.1 CREATE RIG MOVE PLAN

A Rig Move Plan may be created by accessing the Rig Move Plan dialog and manually typing in the coordinates of each move step, or by graphically laying out the move using the Coordinate Picker and copying to Rig Move.

In this case a Rig Move Plan is created by manually typing in each step of the move. Click on the  symbol to create an empty move. This will appear in the Rig Move Plan list as shown. The move appears in the list of moves plans at the left side, along with a series of detailed tabs that may be used to add steps and attributes to each step.

### 5.2 DETAILS TAB - EDIT RIG MOVE PLAN

To edit an existing Rig Move Plan, select it in the list.

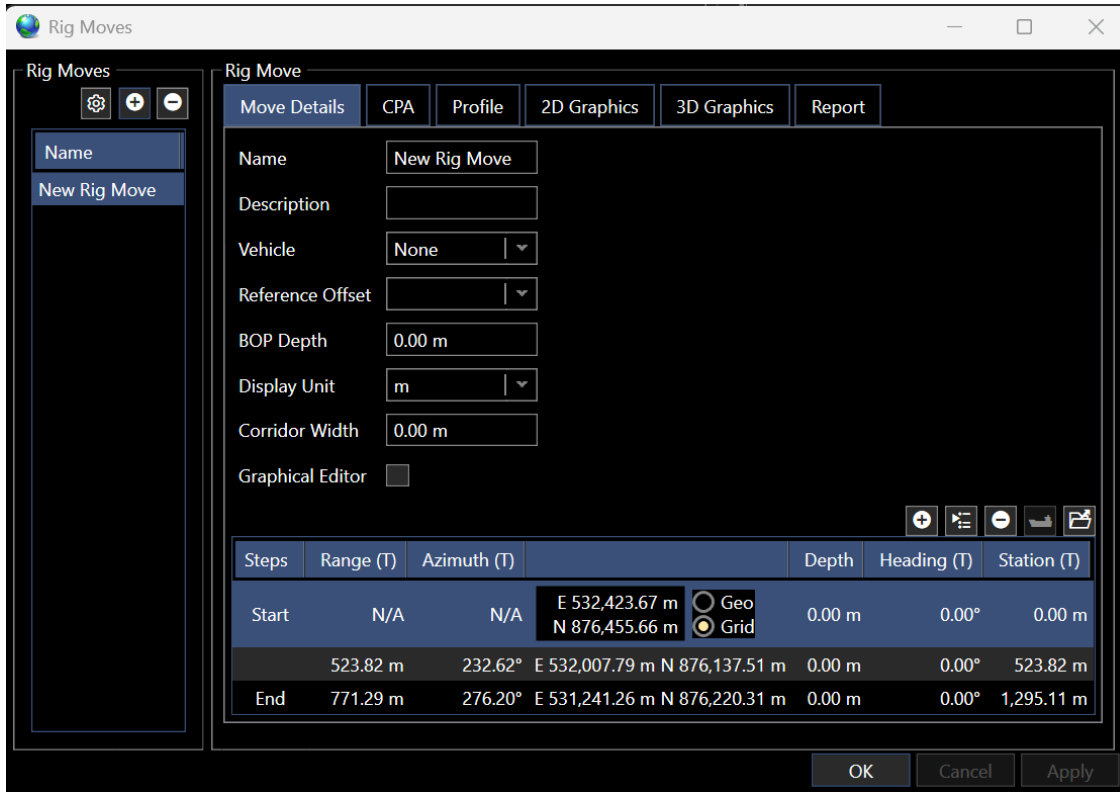


FIGURE 5.2 RIG MOVE - CREATING RIG MOVE

If the desired step coordinate already exists in RigNav as a waypoint or structure, the step may be assigned the correct coordinate in one simple action. First, right-click on the row. This will open a context menu containing options to pick a coordinate from the waypoint list or from the structures list. Selecting the desired structure or waypoint will copy the coordinate of the selected entity into the move step.

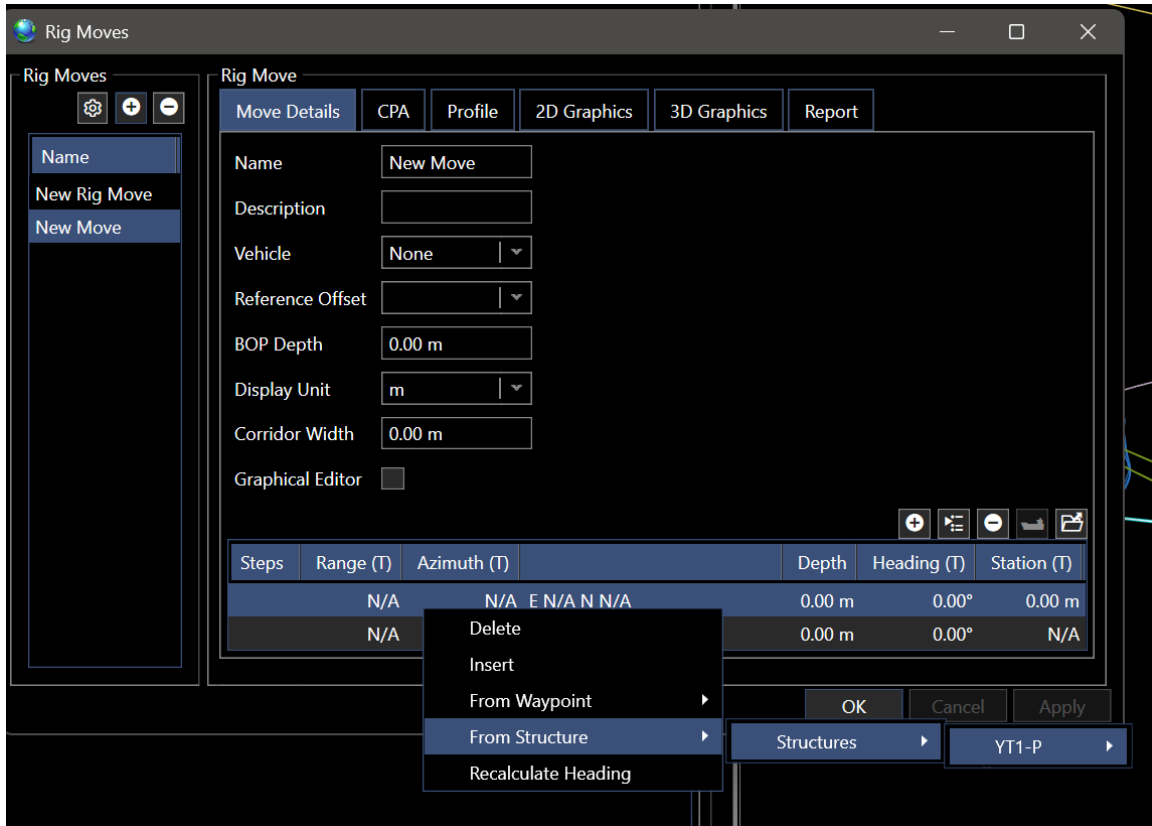


FIGURE 5.3 RIG MOVE – CREATING STEP FROM STRUCTURE

The graphical editor checkbox allows steps in the Rig Move Plan to be edited by clicking and dragging Rig Move Plan steps to the desired location. With the 2D Map open check the ‘Graphical Editor’ checkbox. This will highlight the desired Rig Move Plan and boxes will be displayed for each Rig Move Plan step on the 2D map. Click and drag the desired Rig Move Plan step to the new location. Figure 5.4 RIG MOVE – GRAPHICAL EDITOR show the graphical editor.

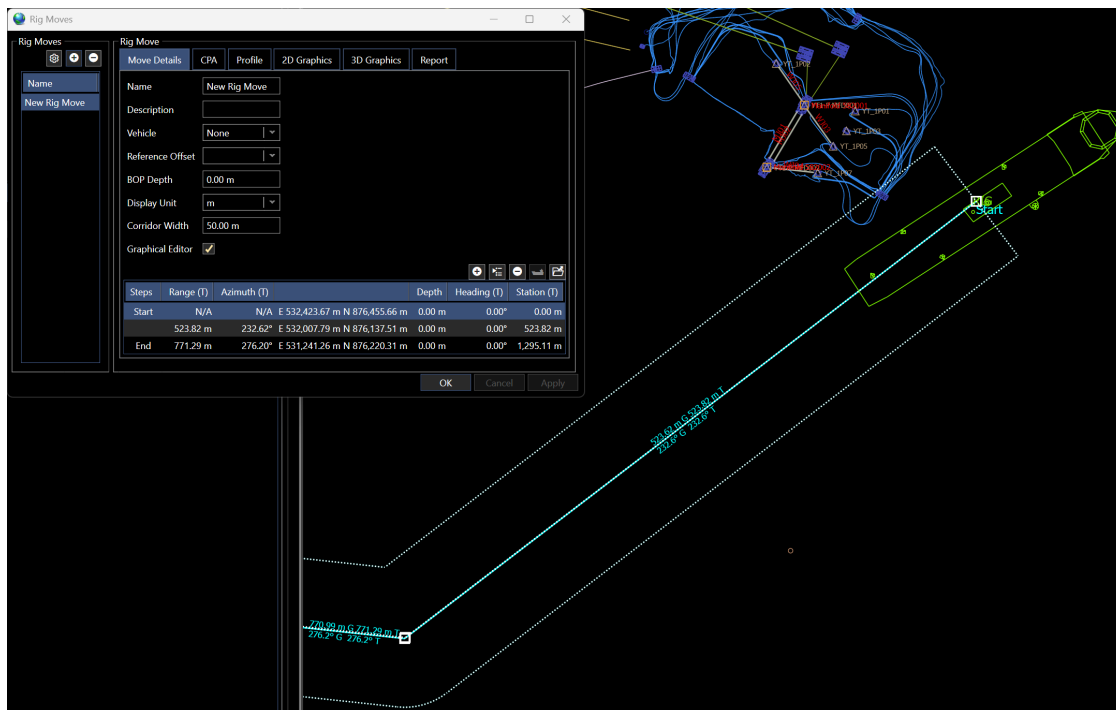


FIGURE 5.4 RIG MOVE – GRAPHICAL EDITOR

### 5.3 CPA TAB – IDENTIFY INFRASTRUCTURE ON ROUTE

Once the route and suggested corridor width has been determined, the user can click on the CPA tab at the top of the Rig Move configuration window. This tab allows for searching of for hazards along the route within the corridor. Once the user has opened the CPA tab, structures, jumpers, and GIS Layers can be selected. By selecting each one tells the software to look of objects in each of these databases that are along the route within the corridor that could be a potential hazard. Once the desired databases are selected, the user can hit the calculator icon, located in the upper right corner of the Rig Move configuration window. Once complete, a list of all the features and structures will be listed with their coordinates, along with how far along the route they are (station), and with the clearance of height, based off the estimated BOP hanging depth. See the following images.

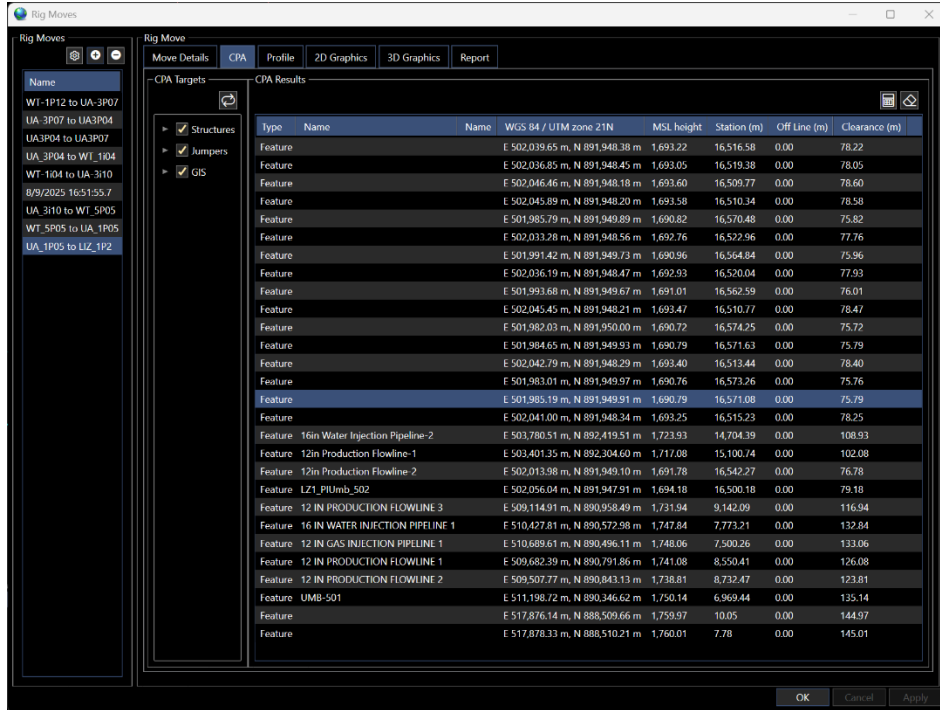


FIGURE 5.5 RIG MOVE – CPA TAB

## 5.4 PROFILE TAB

Once the features have been identified in the CPA tab, the user can navigate to the profile tab in the Rig Move configuration window. This tab is used to generate a graphical representation of the profile along the rig move route. In order to generate an accurate profile, the user needs to select the pre loaded DTM file from the drop down menu on the left of the configuration window. Once selected, the user can hit the calculator icon in the upper right corner of the window. Please note, in order to get the best visual, at this point it is best to maximize the size of the Rig Move configuration window.

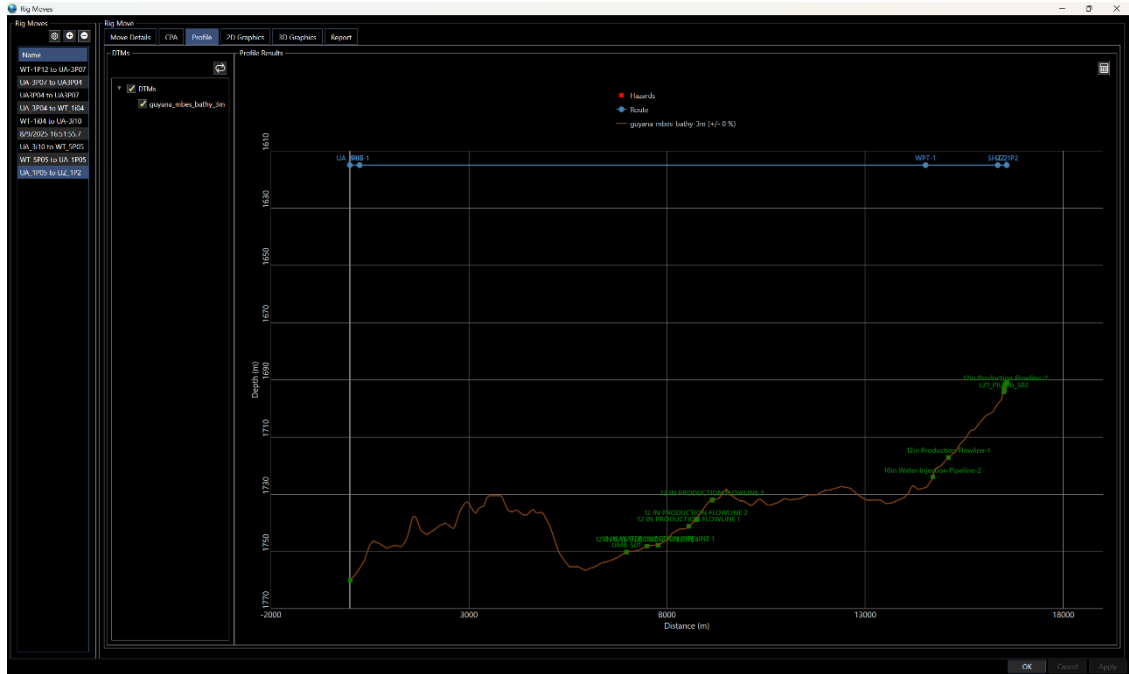


FIGURE 5.6 RIG MOVE – PROFILE TAB

## 5.5 2D/3D GRAPHICS TABS – CONFIGURE THE GRAPHICS FOR THE REPORT

Once the profile has been generated, the user can edit the 2D and 3D graphics at their discretion. Lastly, a report can be generated to issue to the client if requested. In the report tab, the user can add in many different text fields to include any additional information that pertains to the rig move such as SIMPOS, related permits, additional notes, etc.

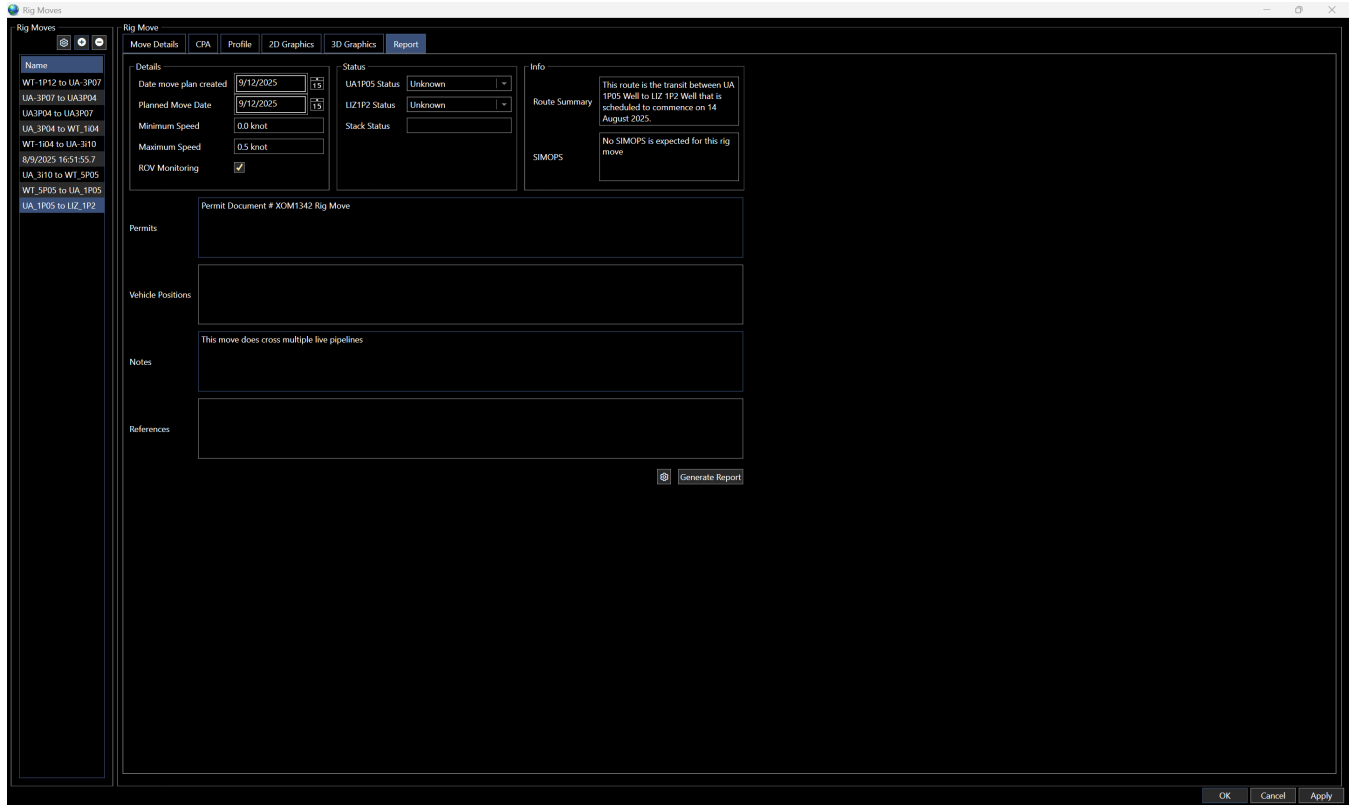


FIGURE 5.7 RIG MOVE – REPORTS TAB

## 5.6 REPORT TAB – GENERATE THE RIG MOVE REPORT

Once the text has been added, the user can click generate report to proceed to the 2D Map View snapshots. Here, the map can be adjusted to collect multiple snapshots of the 2D map view to include in the report. Each of these snapshots can be captioned before capturing the snapshot. Once complete the user can click next to capture 3D snapshots. These work in the same manner as the 2D snapshots. Once complete, the user can capture the profile views for the report and caption it as well. The user can zoom in on any details that need highlighted, and caption these for the report. Once complete, name the file accordingly, and it will be saved in a .PDF format.

## 6. DRILLING RISER CONNECTION

Since in most cases, there is not an easy way to position the drilling riser or BOP, a connection can be made between the vessel and BOP using the Connection function in 4D Nav. This can be accessed from the Setup tab of the NavView ribbon, or through the Explorer within NavView.

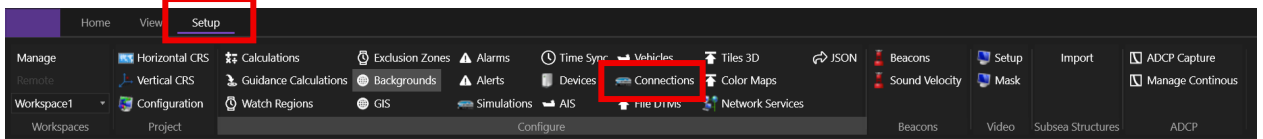


FIGURE 6.1 DRILLING RISER CONNECTION- SETUP TAB

Once the user has navigated to the connections page, a drilling riser connection can be selected from the list. Once selected, hit the “+” button to add the new connection.

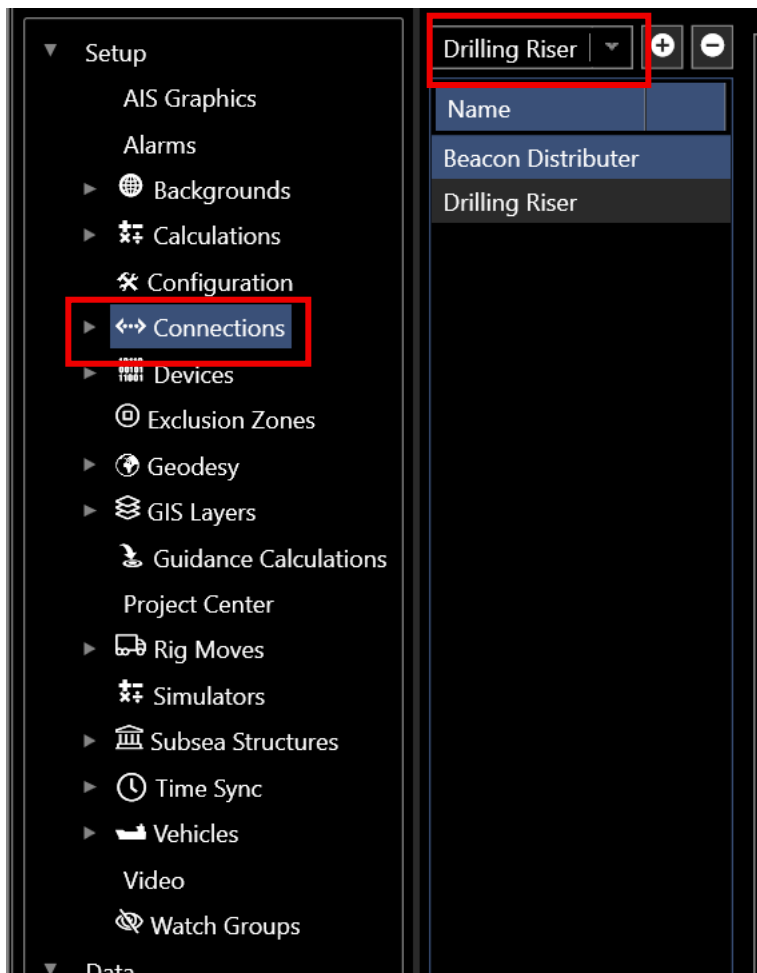
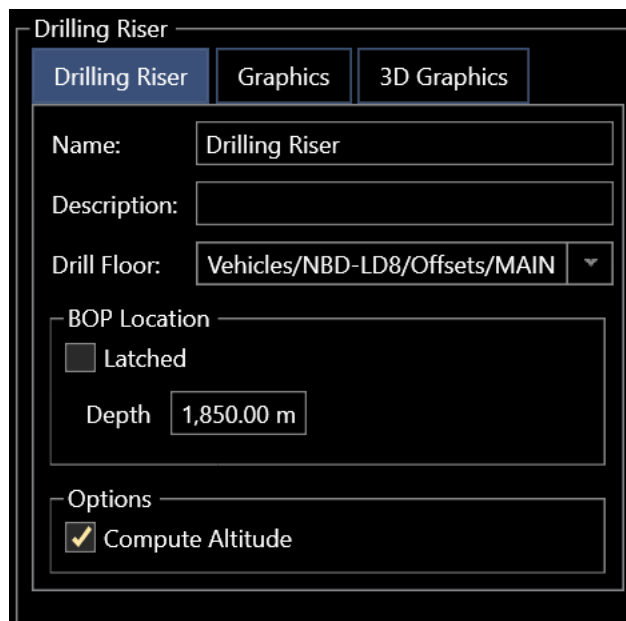


FIGURE 6.2 DRILLING RISER CONNECTION- EXPLORER VIEW

Once the drilling riser connection has been added, the configuration window will appear with the options for details, graphics and 3D graphics. The user can name the connection, give it a description, and then select the drill floor that the connection will be associated with.

Next the user can toggle on or off if the BOP is latched to a wellhead. If toggled on, the user will be able to select a structure that it's latched to, assuming that structure is in the database. If the BOP is not latched, the user can input the depth of the bottom of the BOP in this window. The depth input in this window is used for the graphical display in 3D maps, along with any guidance calculations associated to the BOP. The last option on this page is to toggle on or off the BOP altitude calculation.



Drilling Riser

Drilling Riser    Graphics    3D Graphics

Name: Drilling Riser

Description:

Drill Floor: Vehicles/NBD-LD8/Offsets/MAIN

BOP Location

Latched

Depth 1,850.00 m

Options

Compute Altitude

FIGURE 6.3 DRILLING RISER CONNECTION- CONFIGUARATION

In the 3D graphics tab, the user can select files to display graphics on the 3D Map. The user can select a 3D model, along with setting the drilling riser color and diameter.

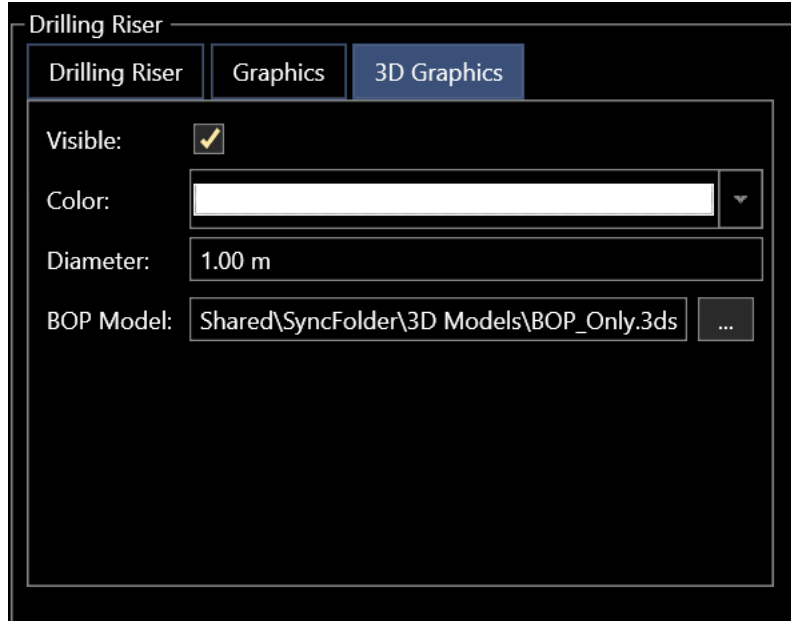


FIGURE 6.4 DRILLING RISER CONNECTION- 3D GRAPHICS TAB

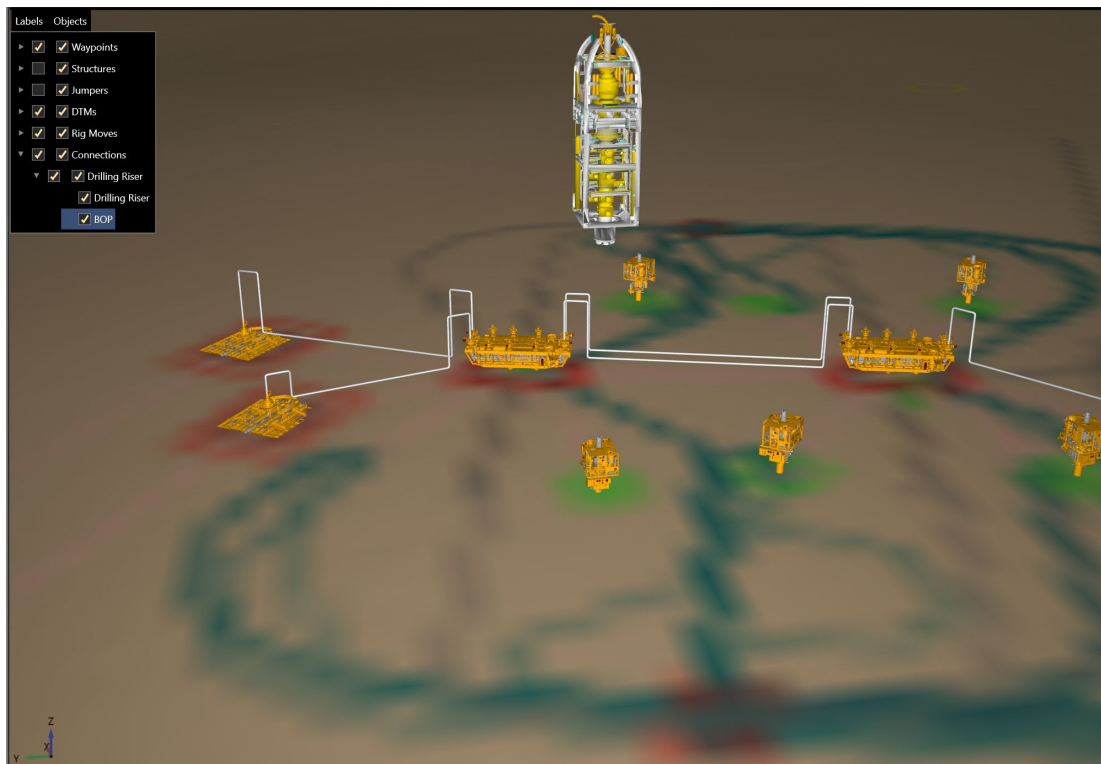


FIGURE 6.5 DRILLING RISER BOP IN 3D MAP

## 7. GIS DETAILS

Subsea asset details is embedded into the loaded GIS database and can be accessed by right clicking on a structure in the 2D Map.

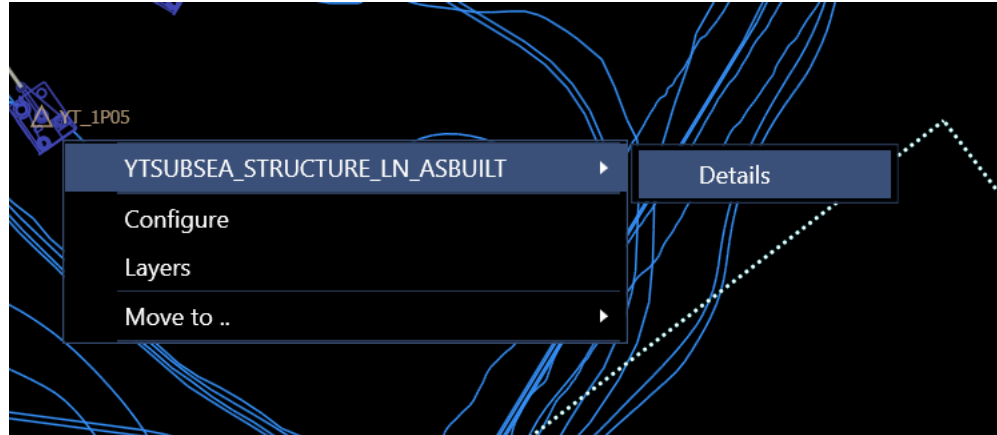


FIGURE 7.1 GIS - 2D MAP DETAILS

Selecting Details will open a new window with various data for reference

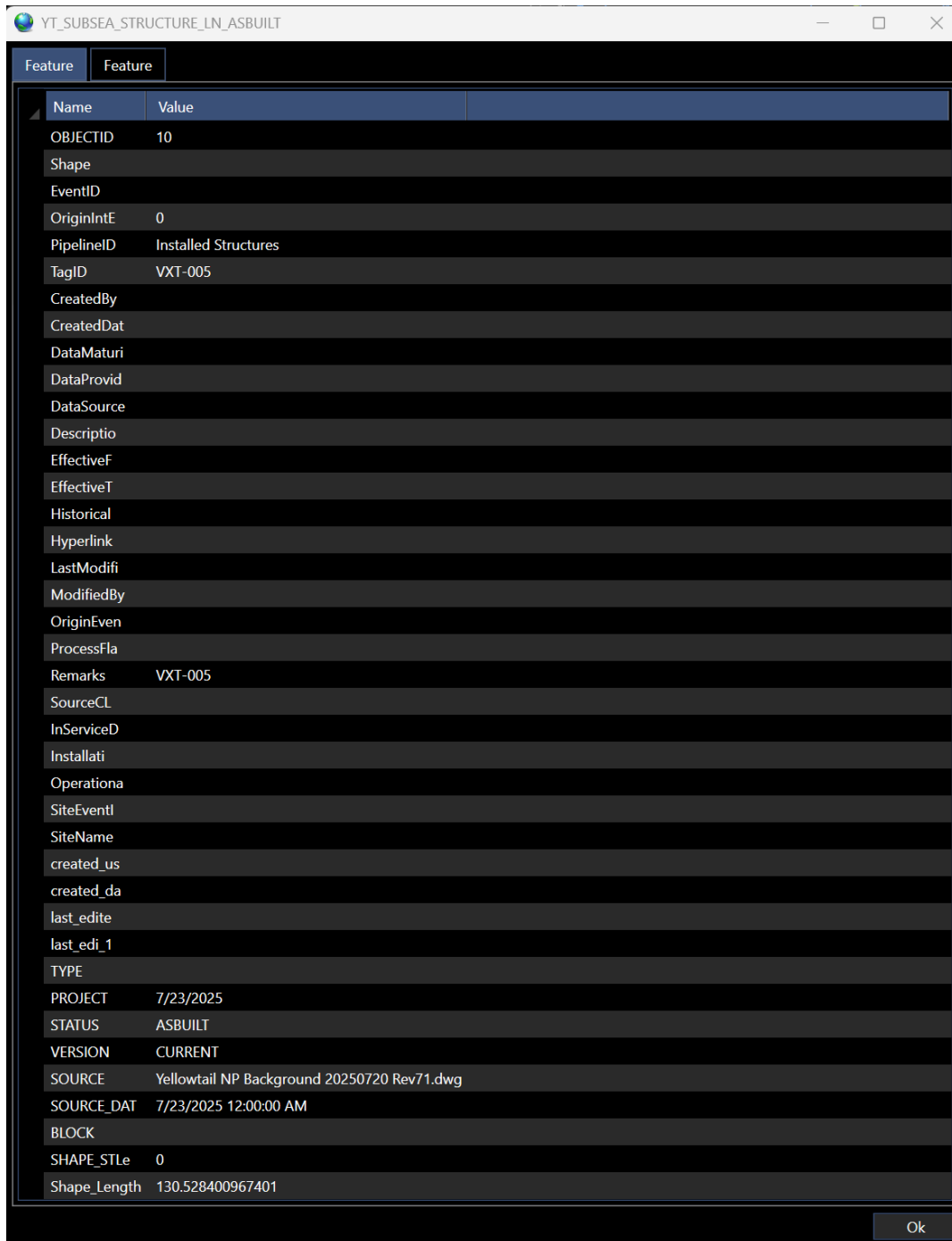


FIGURE 7.2 GIS - DETAILS VIEW

## 8. GUIDANCE CALCULATIONS

Within NavView, there are many different guidance calculations that can be setup for different purposes. This section will detail some of the more useful calculations that can be utilized when operating NavView RigNav. To begin with, Guidance calculations can be accessed using the Setup tab in the Quick Access tool bar, or by navigating to Guidance Calculations through the NavView Explorer window.

### 8.1 POINT-TO-POINT GUIDANCE CALCULATION

A point-to-point guidance calculation is typically used to calculate a range and bearing from a specific offset of a vehicle to a waypoint. For RigNav, it is common to use the nodes of a Rig Move route as the waypoints to navigate to. In order to set this up, once the user has opened the guidance calculation window using one of the two methods listed above, the user can click the plus symbol to create a new guidance calculation. At this point, the user can select which vehicle offset to track from and to which waypoint to navigate to.

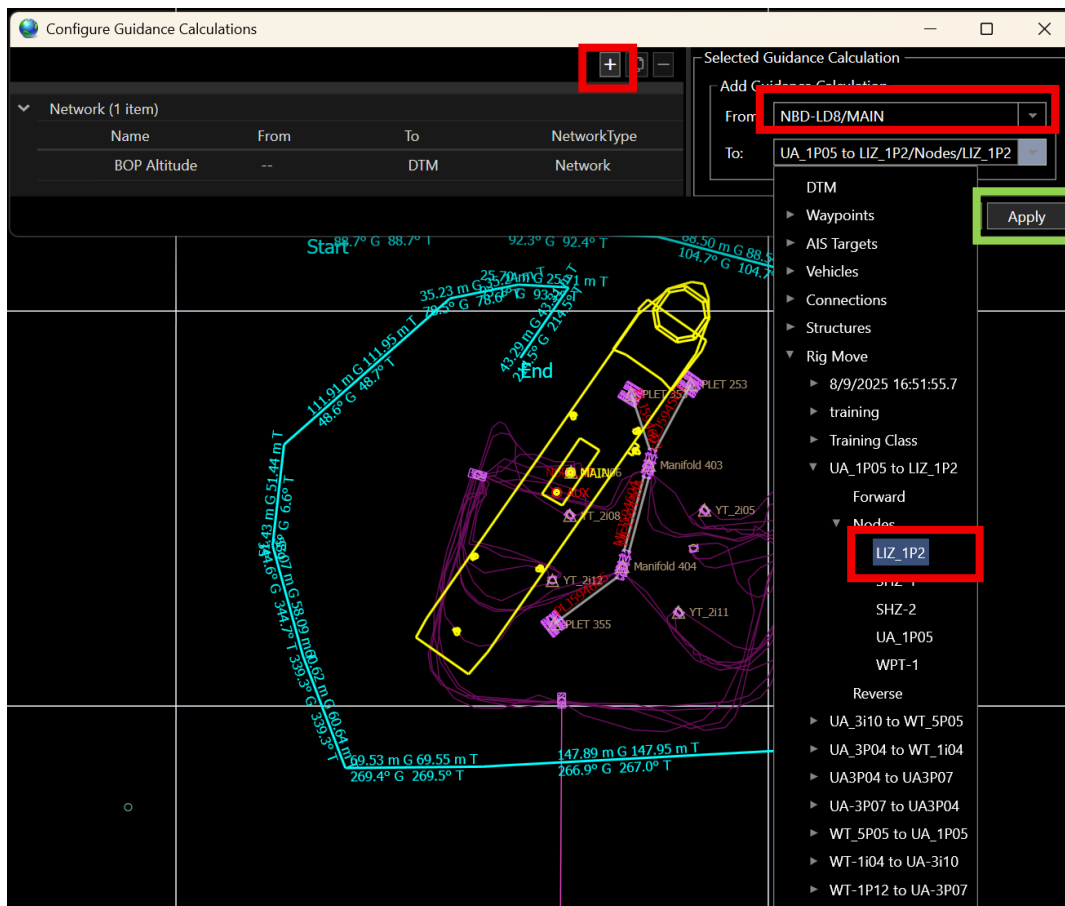


FIGURE 8.1 GUIDANCE CALCULATIONS - POINT TO POINT - TO SELECTION

Once the selections have been made, click the apply button. After clicking apply, more options are available for the guidance calculation. At this point, the guidance

calculation can be named at the discretion of the user. Lastly, the user needs to determine if the guidance needs to be shared on the network. This means, if it is network shared, all other remotes integrated into the NavView network will see the guidance calculation. Once the selections are made, the user can click “apply” then “OK” to exit the guidance calculation window. If another guidance calculation is to be created, the user can click the plus symbol again instead of clicking “OK” to exit the window.

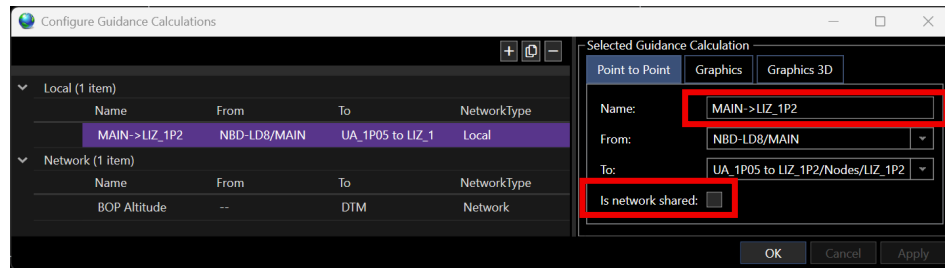


FIGURE 8.2 GUIDANCE CALCULATIONS - POINT TO POINT - FROM SELECTION AND NETWORK SHARE

## 8.2 ROUTE GUIDANCE CALCULATION

A route guidance calculation can be used to track a vehicle to a route determined by the user. Survey Lines, Pipelines, and Rig Moves are all types of features that can have a route guidance calculated to. For this manual, the example shows tracking a rig move for the route guidance.

Like a point to point guidance, a route guidance is added in the same matter. The user can select the offset of the vehicle, and the route to be navigated to. NavView allows for routes to be tracked in the forward and reverse direction. Typically for Rig Moves, the user would select the “Forward” option in the guidance calculation setup.

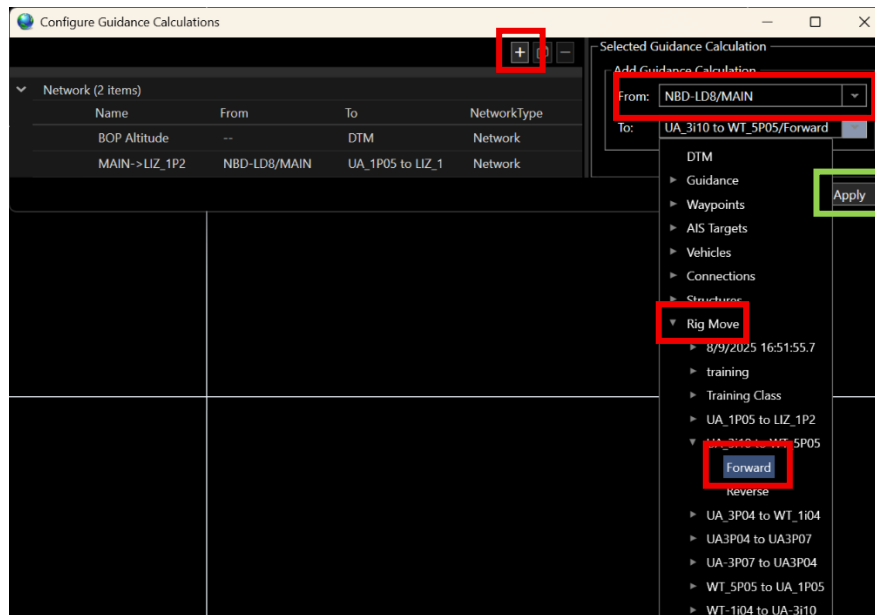


FIGURE 8.3 GUIDANCE CALCULATIONS - POINT TO ROUTE

Once the selections have been made, the user can click apply to access the additional options for the route guidance, just like the point-to-point guidance. The additional options are the as the point-to-point guidance calculation.

### 8.3 DTM VERTICAL CLEARANCE GUIDANCE CALCULATION

The DTM Clearance guidance calculation is often used to determine the altitude of an asset, such as a BOP, above the seabed. However, this calculation can also be made from any vehicle or Drilling Riser Connection. Note that a DTM must first be loaded into the database for this guidance calculation to work.

Just like the other guidance calculations, the DTM Clearance guidance calculation is added in the same manner. The user selects the object that is to be tracked to the DTM. Then the user selects the DTM under the “To:” drop down menu. Once the DTM is selected, click apply to access the additional options for the guidance calculation.

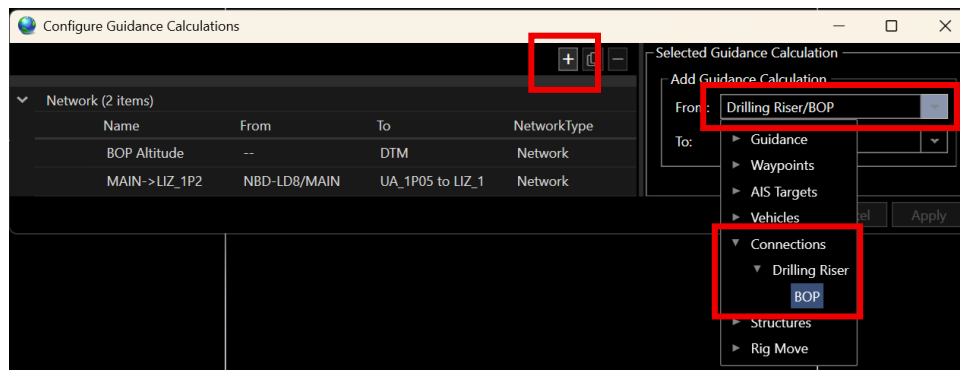


FIGURE 8.4 GUIDANCE CALCULATIONS - POINT TO DTM - FROM SELECTION

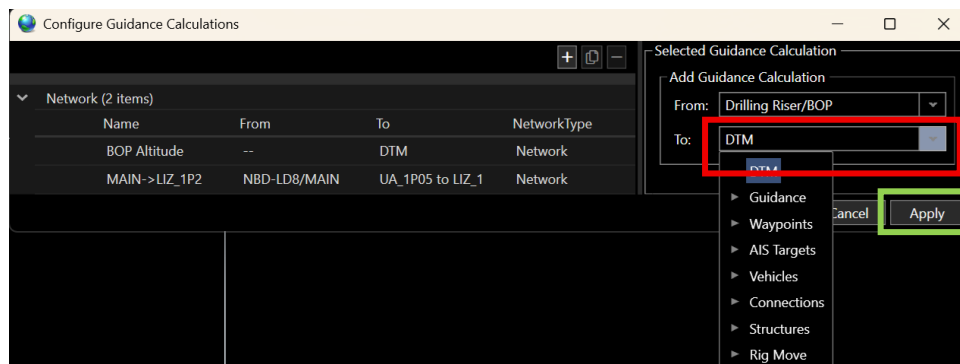


FIGURE 8.5 GUIDANCE CALCULATIONS - POINT TO DTM - TO SELECTION

Just like any other data, the guidance calculation data can be added to tabular text windows. As there are many data items attached to each guidance calculation, the typical text items that are display include, range and bearing information, ETA, transit times, route segment direction, and Clearance.

## 9. SUPPORT

If an error or issue arises with the software, the user can reach out to 4D Nav for support. There are 3 ways to get support: website, email, and phone.

The website for support is <https://4dnav.zendesk.com>. On this website, user guides can be accessed for reference. Furthermore, a ticket can be submitted through the website's "Submit A Request" button located at the top of the web page.

The email address to send a request for support is [support@4dnav.com](mailto:support@4dnav.com)

4D Nav does have a 24-hour support telephone number. This number is only to be used in the even that operations are all stopped due to a 4D Nav software problem. The phone number is +1 (832) 516-6891