CONNECT DOCUMENTATION

Connect Edition Introduction

MicroStation Connect Documentation

OpenRoads Designer Documentation (Survey)

OpenRoads Designer Documentation (Design)

Appendices

OpenRoads Designer

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P-6-1: Creating Cross Section Sheets – Named Boundaries

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Before you begin – Creating ORD Cross Section Cut Sheets - Video

Additional tasks: P-6-1A – E, create existing features, e-row, env, create corridors, p-row, p-utilities, p-drainage, xs detail, End Area Volumes.

Attach Reference Files – Display Information to be Sectioned

Open ORD to the NHDOT Workspace and the project's WorkSet. Open/create the 12345-XSections.dgn.

With the *Default* model active, Reference file attach the Combined.dgn with *live nesting* set to 1. Next, attach all other dgn files that you want to section over. E-Terrain or E-MX-Survey-Terrain, E-MX-Survey-Linear, E-Drainage, E-ENV, E-ROW-Lines, E-Terrain-Rock, E-Utility, Geometry, P-Cor, P-Drainage, P-Utilities, P-Drives, Earthwork, P-Guardrail-Platforms, P-ROW all with *live nesting* set to 0. As you accept through each drawings attachment make sure you see the message that the *Default-3D* models are automatically being attached. Do not include point feature drawings such as the E-MX-Survey-Points as those features are represented in the XS Detail drawings.

View both the *Default* and *Default-3D* models by *Right Clicking* and holding to get the popup menu and select *View Control > Views Plan/3D*. Set the **Default-3D** view active by clicking on the top of the view. The content of the cross sections is determined by what is displayed in this View/Model. Shut off Communication Nodes, Electrical Nodes, Gas and Water nodes. Update the view, *Save Settings* and *Save* the dgn. This will be the Cross Section seed file.

Copy the XS Seed and Attach the appropriate XS Detail

Copy/Rename the seed to *12345-XSect-RoadName.dgn*. Add the *RoadName*. With the *Default* view active, attach the appropriate *12345-XS-Detail-RoadName.dgn*. *Save Settings* and *Save* the file, repeat for each road as needed.

Create named Boundaries

The cross sections are generated through *Named Boundaries*. The cross section boundaries are 3D elements. Ensure you have 2 views open, a view of the *Default* (2D model) and the *Default-3D* model. With View 1 active, use the *OpenRoads Modeling* Workflow's *Drawing Production* tab and select the *Place Named Boundary* tool. Select the cross section image in the top of the tool. Set the drawing seed from the dropdown, this should fill in many of the properties in the tool box. If a previous Group of sections were created, you can add to the group by selecting it from the group dropdown. Otherwise, you are being prompted to Identify a Path Element to create boundaries along. The Name will take on the name of the Feature that you select. The offsets, interval, clearance(s), can be changed but are set for NHDOT standards.

Check the *Create Drawing* and *Show Dialog* boxes then accept through the on cursor prompts to create the Named Boundaries. The Boundaries will be placed in both 2D and 3D views and the create drawing box will display.

Create the Drawings

The *Create Drawing* box is filled in per NHDOT standard setup. Decide whether to have the drawings added to the sheet index or not and hit *OK* to create the Cross Section drawing and sheet model! The progress bar in the lower right will display your progress. Be Patient. The last Cross Section sheet will be displayed when finished.

Review and add Additional Annotation

In the previous step the **NH XS Preferences** Annotation Group was used to annotate the drawings, and much was annotated. From existing features to the ROW and ENV feature to the proposed offset and elevations of the roadway features and the cross slopes. Additional annotation groups label the **NH XS Detail features**, **NH XS Barrier** as well as **XS EAV Anno** for Earthwork material if that information has been generated.

Re-Annotating Sections After Changes

When changes are made to Corridors and other dgns that are referenced to the cross sections or other reference files attached their 3D models will be updated when the sections are opened. The annotation will not be.

Using the *OpenRoads Modeling* Workflow > *Drawing Production* tab > *Annotations* pane select the *Model Annotation* dropdown and select *Remove Model Annotation*. Check the box for all drawing models and accept. This will remove all annotation from the sections. You will have to then re-annotate the sections using each Annotation Group. Start with the NH XS Preferences, then **NH XS Detail**, **NH XS Barrier** if any is present and finally the **XS EAV Anno** if that has been done. Alternately a group called **NH All** can be used that will annotate all the features, but it takes quite a bit of time to run. The annotate **NH All** does not include the EAV box.

After you select a group and accept the command, a box showing the *Annotate Progress Form* will appear. Move your cursor into the box to keep it on top so you can see the progress. If it gets hidden and you start the next command, it may crash or not finish annotating the sections.

Editing Annotation Groups - Changing Top Frame Annotations

The cross sections are set up to annotate a list of features contained in the annotation groups. To edit the list, make the *Default* View active. Open the Explorer's *OpenRoads Standards* Tab, Expand *Standards* and then select the drawing name. Right click on it, then select *Update Standards From dgnlib*. This will update the *Annotation Group* entries to the latest definitions.

Next open the Annotation group used to modify the point annotation list. Expand the > *Drawing Name* > *Annotation Groups* > *Cross Sections* > *Drawing* > *NH XS* Preferences (or *NH All*). Right Click and select *Manage*. Alternately select the annotation group and in the *Properties* pane select the *Annotation List* and click on the … button. This will bring up the annotation Group for editing. The entry for *XS Top Frame* controls the list of points that are annotated with offset and elevation across the top of the section. Select *XS Top Frame*. This will display Row list and Row Properties which shows the Location list of points to be annotated. Click on the Add filter button above the Expression to alter the list.

Highlight an entry and then click on *Remove* to remove it from the list or Scroll to the Bottom of the list and click in the blank box to add a new entry. The old list was an exclusion list meaning it Added all points on the Top line and the entries told it what not to annotate. This new list is an inclusion list meaning whatever is in the list will be annotated. Entries should use the OR setting. As a minimum the *Road Trav Way, Shldr Edge of Pave, Slope Ditch Front* and *Toe* features should be labeled. All others can be removed. When done, click *Apply Expression Changes* to save the list then the *X* to close the box. After editing the *Offset* Row the *Z* or elevation list should be edited to match the same point list entries.

The *Annotation Group Entries* are used in more than one group. If you update the *NH All* group point list the *NH XS* Preferences will be updated also as it has the same entries for the *XS Top Frame*.

Editing Annotation Groups – Changing Slope Annotation Segments

As above, to edit the annotation group in Explorer, Expand the > Drawing Name > Annotation Groups > Cross Sections > Drawing > NH XS Preferences (or NH All). Right Click and select *Manage*. There are 2 entries for Slope annotation, *XS Left (& Right) Slope Annotation*. Select one of them and then click in the Location box and then the … button that appears. The 3 expressions control the selection of points confining them to top line points on the left or right side of the CL. These should not need to be modified. At the top is a dropdown set to > Create list of Segments, the list of segments is at the bottom of the box and can be changed by clicking on the box to the right *Select Segments from Template.*

At the top of the Select Segments box - use the dropdown to select a template. This will fill in the list of available points. Entries in the bottom left can be selected and then using the arrow will copy them to the list of segments. Alternately the Point 1 and Point 2 can be selected from the dropdown lists and the green + will add the segment to the list.

Different Templates can be used to seed the point list so the segment list can be created for a variety of Templates.

Close the *Select Segments* box when done and then *Apply Expression Changes* and close the filter to save it.

Remember to open a section Drawing model, Remove the model annotation and then Reannotate all the sections to see the changes you made to the Group.

End Area Volumes

Cut and fill volumes are created in the Cross Section dgn. Workflow *OpenRoads Modeling* > *Home* tab *Model Analysis and Reporting* pane > select *Civil Analysis* dropdown **Create Cut and Fill Volumes**. Next Use the **Create End Area Volumes report** tool from the dropdown. The Volumes report can be saved for quantity calculations. The EAV boxes are added by selecting **Model Annotation** from the Drawing production tab and selecting the **XS EAV Anno C-F** group. A different group, **XS EAV Anno C-F-R-M** can be used if Muck and or Rock is present on the sections. Check the *All Drawing Models* box.

Entries for Rock or Muck removal can be found in the Volumes Report. They are not automatically filled into the annotation box and must be edited by hand.
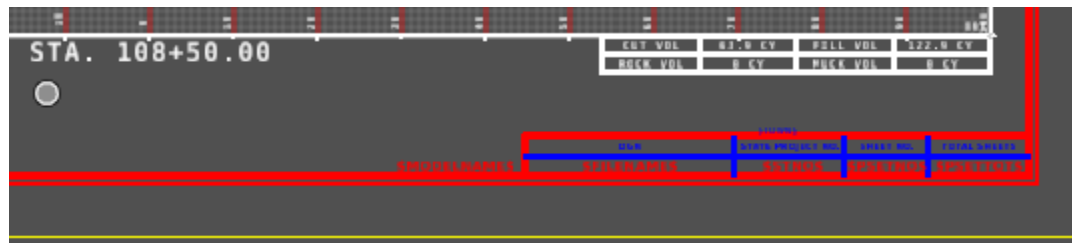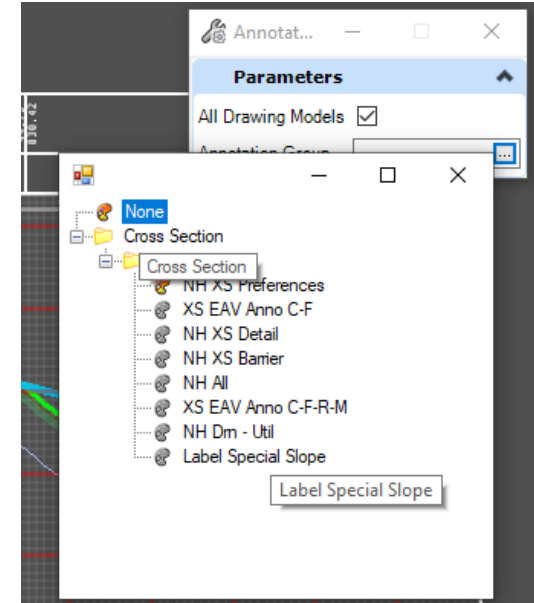
108+50.00

Strata - Exist Pave (removed):	6.48	12.12	1.00	12.12	No
Total Strata - Exist Pave:	6.48	12.12	1.00	12.12	
Strata - Rock (removed):	41.70	38.61	0.00	0.00	No
Total Strata - Rock:	1041.44	1847.90	1.00	1847.90	
Volumes_Cut:	45.39	63.85	1.00	63.85	Yes
Volumes_Fill:	60.09	122.86	1.00	122.86	Yes
Strata - Unsuitable:	81.86	149.80	1.00	149.80	No
XC - 641_ - Loam:	0.69	1.28	1.00	1.28	No
XC - 403_11 - HBP Wearing:	0.00	0.00	1.00	0.00	No
XC - 403_11 - HBP Binder:	0.13	0.23	1.00	0.23	No
XC - 606_ - Barrier:	0.20	0.37	1.00	0.37	No

P-6-1A: Create Features of ENV and ROW Elements

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Before you begin

This process can take place once you have an existing terrain model as well as delineated wetlands or existing row lines drawn. The intent of this process is to featurize and assign elevations to elements that need to be labeled on the cross sections.

Attach Reference Files

Open/Create the drawing to be worked on, the 12345-E-ENV, E-ROW-Lines or P-ROW.

View both the *Default* and *Default-3D* models by *Right Clicking* and holding to get the popup menu and select *View Control > Views Plan/3D*. Set the **Default** view active by clicking on the top of the view. Reference file attach the Combined.dgn with Live Nesting set to 1. Fit View.

Next Reference File Attach the drawing containing the MicroStation elements to be featurized. Live nesting should be set to 0 when attaching the env, erl, or prw files from the Prj directory. In Level Display, turn off all levels in the reference file. Next Turn on only levels that need to be annotated on the Cross sections. In the Reference file Dialog box select the reference file. Use **Tools > Merge into Master** and then click in the view to copy all the elements displayed into the dgn and automatically detach the dgn file.

Save Settings and *Save* the dgn. Use *File > Open* to re-open the dgn. This will make some of the 3D elements from the attached reference files visible in the *Default* view that were previously not displayed.

Create Features from Elements

1. Use element selector and select all elements in the drawing by clicking on Select All. Expand the extended settings by clicking on the triangle at the right if not already expanded, use the level tab to display levels with elements in them. Next unselect all but one level. Start with isolating the top level first and progress through each in turn.

2. In the Feature Definition toggle bar Set the use active feature button on the left and select the linear feature definition for the elements selected. Use the **Create Civil Rule Feature** tool from OpenRoads Modeling workflow, Geometry tab's, General Tools, Design Elements, drop down menu.

3. Data point in the view to create the features.
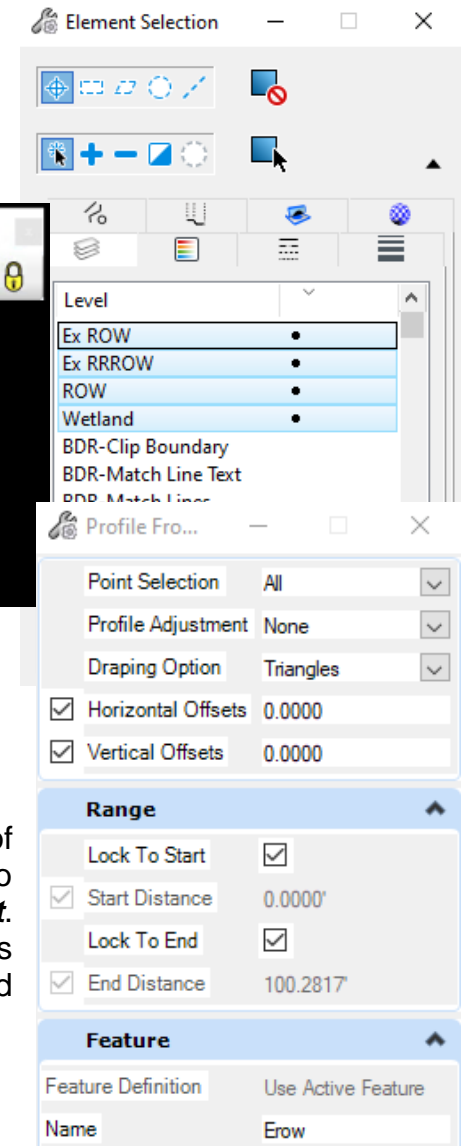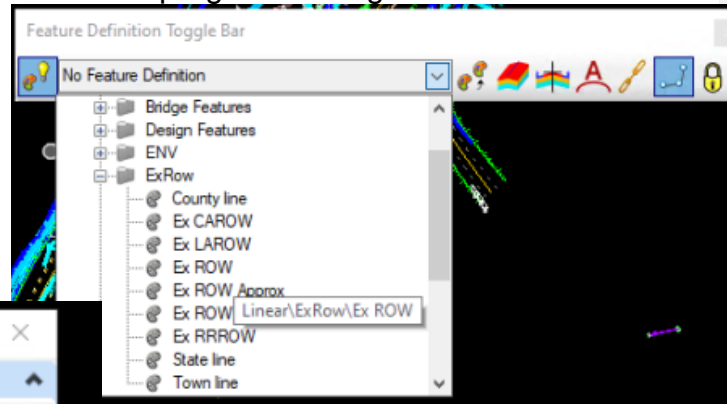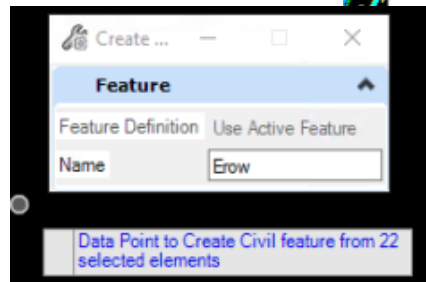
4. With the features still selected use the **Profile From Surface** tool in the Vertical group of the Geometry tools to attach elevations to the new features. Data point on the screen to Profile the selected elements, next **Select the Existing terrain model by clicking on it**. (do not right click to use active terrain model as this can cause problems when the features are imported and no terrain is active). Accept through the rest of the prompts as displayed to the right to attach elevations to the features.

Repeat steps 1 – 4 on each level containing elements.

P-6-1B: XS Detail Tick Features for Section Annotation

Cross section detail tick features are created from point features that are deemed relevant to appear on the cross sections. They include trees, poles, hydrants and such. A point feature station offset elevation report is run on the 12345-E-MX-Survey-Topo.dgn's point features as well as an alignment xyz report to get the information for a macro which draws tick mark elements at the 50 foot stations. These tick marks are featurized and profiled over the terrain model to assign elevations. A separate dgn should be created for each Alignment for the tick features to be included in the XS drawing for that Alignment.

Note: in newer project the E-Detail.dgn contains cells, not point features – use the Survey-Topo.dgn for the report.

DGN setup

Open the *12345-XS-Detail.dgn*'s *Default* model. Check that the Combined.dgn is attached with live nesting 1 to see the project's existing detail drawings. Reference File Attach the *12345-Geometry.dgn* file (no nesting) as well as the *….\OpenRoads\Survey\12345-E-MX-Survey-Topo.dgn* that contains the point features. Save settings, Save the dgn and reopen it. Set the existing terrain model Active.

Using only the *Default* model view, shut off all reference files that don't have point features, except the 12345-Geometry.dgn's *Default* Model. Also shut off the *Default-3D* model reference. The view should now only show the Geometry and the E-MX-Survey-Topo *Default* models. Save Settings and Save the dgn. This file will be the Seed detail file. Continue by Copying/Save As this file as *12345-XS-Detail-RoadName.dgn*

Create Alignment Report

If a 50' interval alignment report in .XLS format already exists, skip this section and continue to create the detail station & offset report. Select the *Horizontal Geometry Report* button that is found on either the *Analysis & Reporting* or the *Horizontal Geometry* Task menus.

Follow the Heads-Up prompt and select the alignment (in the *Default* View) associated with the cross sections you wish to annotate. Click the Right Mouse (Reset) button to complete the selection process.

Confirm that the boxes on the *Horizontal Geometry Reports* panel for Lock to Start, Lock to End and Interval are all checked. Set the Interval value to 50.
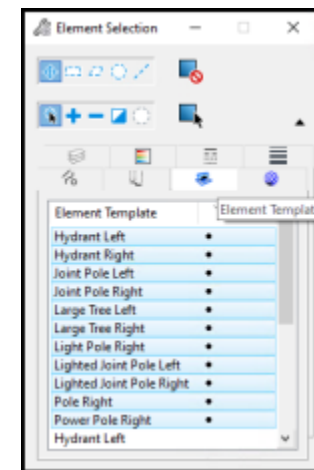
If your alignment does not start at an even 50 value, uncheck the Lock to Start box and enter a start station that is at an even 50 foot value.

The last prompt looks for Profile information. This report does not need to have vertical information, so any response for this prompt will suffice. If there is interest in other reports beyond the scope of this procedure, then specify Active Profile so that the vertical component is included.

OpenRoads will open the Bentley Civil Report Browser and display the default horizontal report. This browser offers many predefined report options on the left side of the panel. The right side of this panel displays the output of the selected report option. From the left side of the report window, select the *HorizontalAlignmentIntervalXYZ.xsl* report.

The report must have the correct station format before saving. *Tools > Format* options > Stations should be set to **SS+SS.SS**   Direction should be **ddd^mm^ss.** When the report is displayed, select *Save As...* from the *File* menu and select the Microsoft Excel option. Provide a File name.
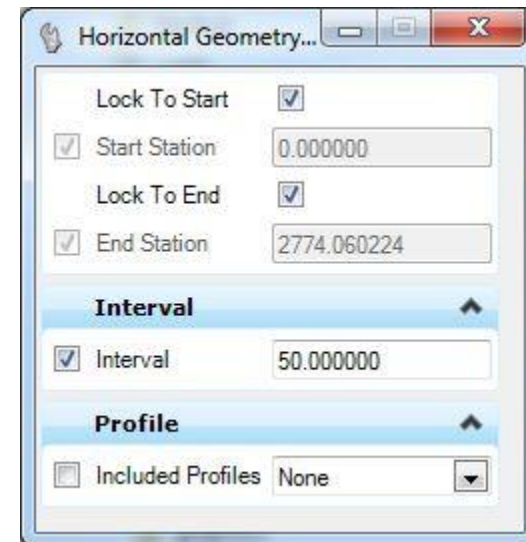
Create Station/Offset Detail Report

Use Element selector and drag a box around all the point features to be reported in the project area selecting them.   Note that only features which typically appear on cross sections will be processed.

Once the point features are selected, choose the Point Feature Station Offset Elevation Report tool from the OpenRoads Modeling Workflow - Model Analysis & Reporting tab - Reports Dropdown. You will be prompted to click on the alignment (select it in the Default view) and then data point to accept the selected detail features. When the default report appears, change the report to **StationOffsetNorthingEastingElevationFeature.xsl**. Use the *Save As* option on the *File* menu of the report window to save this report as an Excel (*.xlsx) file. Open the report to check its contents.

Create Cross-Section Detail Features

Once the reports are created, the next step is to create a series of lines at the even 50' station which is nearest to each detail feature. If not already, Open the *12345-XS-Detail-roadname.dgn*, *Default* model that was created to contain these detail lines. Creating separate drawings for each alignment's detail ticks (by using the **File** > **Save As** command).
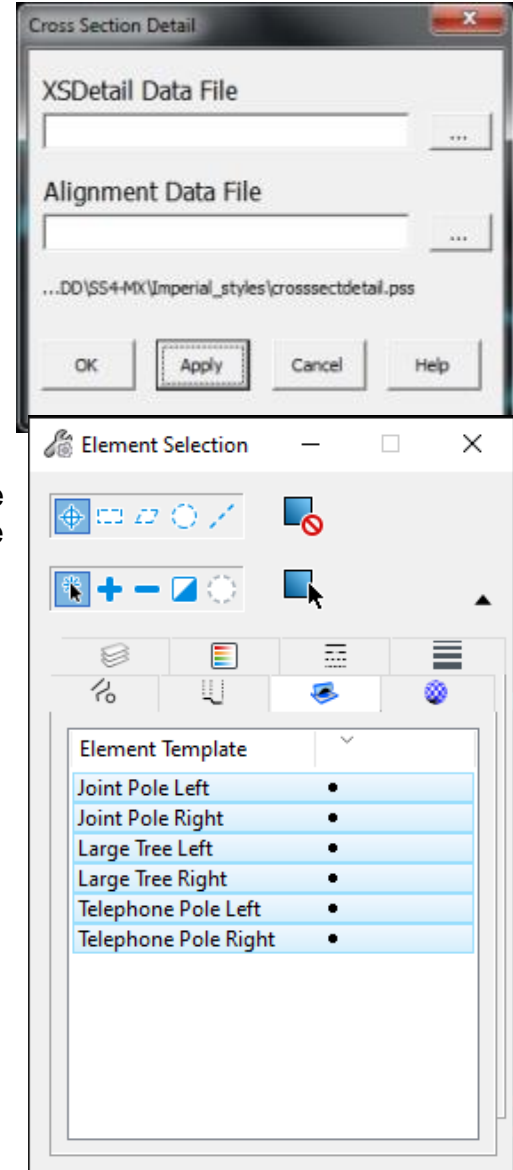
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To create cross section detail features in OpenRoads Designer, set the workflow to *Drawing* > *Utilities* tab > *Macros* pane select *XSDetail* macro from the drop down menu then click Play. Select the detail and alignment xlsx files created in the previous steps. Click *Apply* if you plan to do another alignment after or *OK* if this will be the only one processed. The macro creates short line segments offset at each 50-foot station.

1. Use Element Selector to select everything in the drawing. Switch to the *Element Templates* tab of the element selector. Click (or click and drag) on each to deselect all templates except one, leaving only it selected.
2. Next use the *Feature Definition Toggle* bar drop down list, expand **Linear** > **XS Detail** > and set the feature to match the selection and turn on the **Use Active Feature** toggle button.
3. Use the **Create Civil Rule Feature** tool from the **Geometry** tab's **General Tools** pane > **Design Elements** dropdown list to set the feature definition and Accept. The selected lines should now be features of the type that is active.
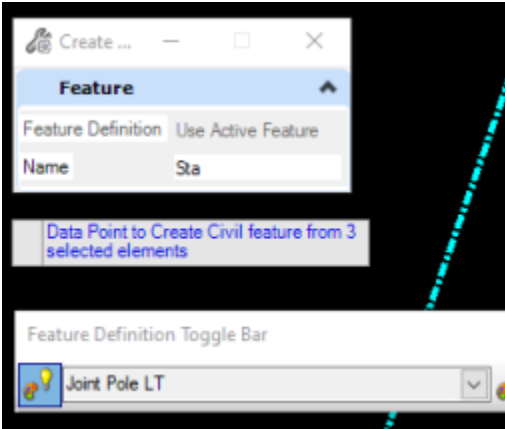
4. The features are in the *Default* model. In order for them to show up on the cross sections, they will need elevations. Use the Geometry tab's Vertical pane's Profile Creation dropdown tool Profile from Surface to attach elevations to the features. Make sure the feature definition is still defined and the elements still selected from the previous step. Accept through the prompts and Right click to use the active Terrain model when asked.
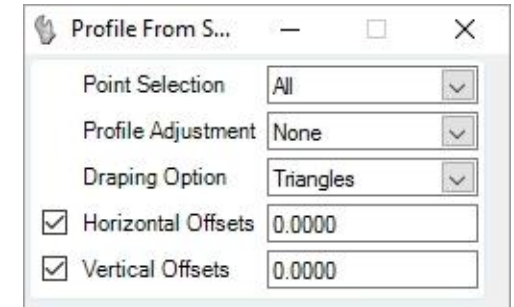
The names of the features can be annotated on the cross sections. Attach the *12345etxt.dgn* for tree sizes and descriptions. The *Point Feature Station Offset Elevation Report* created earlier will provide the + station of the features.

Use *Element Selector* to select each tick and edit the name in Element Information to include the + station value for all features. Pole numbers, tree sizes and descriptions are not required on the sections.

P-6-1C: Cross Section Earthwork Features

Creating Cross Section Earthwork Features

Cross Section Earthwork features include Topsoil, Pavement Removal, Unsuitable Materials as well as Limited Reuse Soils which are delimited with a 2D outline that is used to create clipped terrain models. The depths will be created with surface templates. Muck and Rock will also fall into this category but are dealt with somewhat differently.

This information will be stored in the *12345-Earthwork.dgn*. Note that references to "12345" in file names refer to the project's five-digit Project Number.

Create Earthwork Feature Boundaries

First, the area to be computed needs to be delineated as a closed 2D shape. Set the level to the feature you are going to delineate. The level names are **Strata -** followed by the type.

Use the Fill Area Boundary created previously and any other elements to create closed areas/shapes for the features needed. For example, use Element Selector and select the Fill boundary, drive edges and the existing edge of pavement.

Use the Create Region tool to delineate Topsoil removal areas. Set the fill type to Flood (the left most icon at the top of the panel) and check the box to Keep Original.

To define areas of pavement to be removed, a color plan or the hearing plan can be attached as a reference. The Fill area boundary and the edge of pavement features can be used to determine the area of pavement to be removed.

After all the shapes are defined, use the Terrain Modeling task Create Clipped Terrain Model to create a separate clipped terrain model for each area. Use the **NH_Prop_Earthwork** *Feature Definition* under the *Terrain Display* features and set the *Feature Name* to reflect the area and location as shown below.

Apply Surface Template

A Surface Template needs to be applied to each clipped terrain to define the material and depth. See the chart below. If a different depth of material is needed Open the template editor, Copy the desired template, rename it and re-specify the depths below the origin.

Topsoil removal depth and any unsuitable material should be defined in the geotechnical report. Existing pavement depths may be found in the pavement recommendation or from the borings or straight-line diagrams. Areas of differing depths should be defined separately and a different depth template assigned. Drives usually only have 2 or 3 inches of pavement vs. the roadway possibly having 5 or more.

Earthwork Summary Sheet Description

Terrain Name *

Template Name

2A Bituminous Pavement in Fill Sections	Earth - Pavement	x" Exist Pave
8 Topsoil Removed Beneath Fill Sections	Earth - Topsoil	x" Topsoil
9 Unsuitable Material Removed Beneath Fill Sections	Earth - Unsuitable	x" Unsuitable
Limited Reuse Soils LRS	Earth - LRS Unsuitable	18" LRS Unsuitable

* A description can be added to clarify areas. For example,

Earth - Pavement - LT Sta 21+00 - 22+25

P-6-1D: Rock Excavation Quantities

Introduction

A set of 25' sections is created and sent to Materials & Research for Rock line interpolation. Sheets are returned to design and scanned. Lines are drawn in plan view at each section location and the profile displayed. The scanned files are referenced into each Profile View of the section location traced and set active. Create a terrain model from all sections. Then apply a surface template.

Create Sections for Materials & Research

Create Rock Terrain

Create/Apply Earthwork Surface Template

After the Rock terrain model has been created, review the Dynamic sections to determine the greatest depth of rock removal. Create a new Surface template with the components vertical depth that is greater than the largest rock removal depth. Set the Feature definition to *Mesh\XS Components\Strata – Rock*. This Feature definition should have the *Volume Option* set to *Substrata*.

In the Earthwork.dgn file's *Default* model reference in the Rock Terrain.dgn. Open the *Default-3D* model.

OpenRoads Modeling workflow > *Model Detailing* Tab > Create Closed Mesh tool to create a mesh for rock calculations to be done on.

In the XSections.dgn file attach the Earthwork dgn file as well as the Rock Terrain.dgn file. The Civil analysis tool Compute cut and fill volumes is used. When it finishes, use the Create End Area Volume Report. The report will show the total Rock which can be ignored…. As well as the Strata-Rock (Removed) which is what you want to annotate onto the sections EAV table cell.
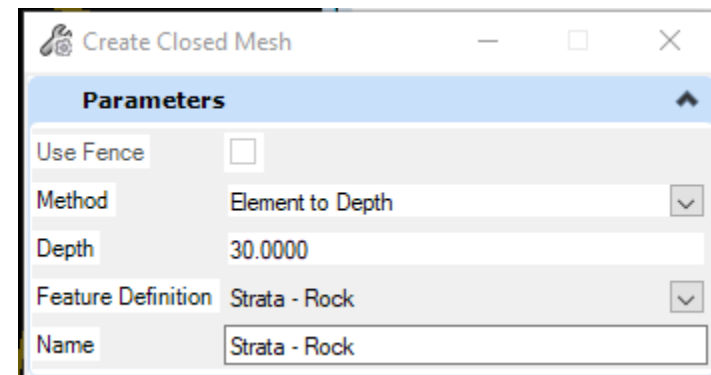
P-6-1E: Skewed Drive Sections (and Profiles)

Introduction

Creating skewed drive sections is a process that includes creating horizontal and vertical geometry, adding extra named boundaries to create sections as well as displaying and referencing the skewed drive profiles into those sections. The process can be done by adding the additional sections into the main group or by creating a new group of just the drives.

Open the Drives.dgn's *Default* model and reference the Combined.dgn with live nesting 1, the Geometry and Corridor dgns with no nesting. Adjust Level Display so that no *Default-3D* Levels or Models are displayed other than the Terrain's.

Create the Drive's Horizontal Geometry

Skewed Drives should be created by elements with a tangent perpendicular from the Mainline alignment out to the P_EP and then skewing along the drive.

Use the *OpenRoads Modeling* Workflow Geometry Tab Horizontal > Geometry Pane > **Place Line Between Points** command. Use Feature Definition *Alignment Elements*. Select 2 points along the CL of the drive in the skewed area. Use the *Trim to Element* command to extend this line back to the Corridor's EP. **Place Line Between Points** and set the snap mode to *Perpendicular*. Select the Mainline alignment and slide the tangent back and forth ensuring it's perpendicular and then snap to the skewed line's endpoint on the EP.

In the feature definition Toggle bar set Alignment Drive and use the Create Complex tool to join the pieces and create the connected drive geometry. If the drive is in a cut section a reference line (Feature = Construction Control) 7' over at the slope of the shoulder from the EP can be created using the Single Offset partial command and then the *Profile by Slope from Element*. Rename the created drive feature adding the approximate station and side for identification purposes.

Create the Drive's Vertical Geometry

Right Click in the default view and hold until the pop-up menu displays. Move into the View Control menu and select *Views Plan/ Profile/3D*. OK. When asked, hit on the Drive alignment in the *Default* view then the bottom view to display the profile in it. In View Attributes the view's Exaggeration can be modified from the Default 10 to 1 so the profile looks more like a section for easier viewing.

In the Profile View, Select **Create 3D Cut**. *Full* and click in the profile view to display the cut of the 3D model. Snaps will be turned off in the referenced Cut graphics. In Level Display Select and right click on the referenced Drive's *Default-3D* model and turn

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Snaps on by checking it. From the *Profile Creation* menu select the **Profile Intersection Point** command. Select the Drive and then the Edge of Pavement element and a point should appear on the profile at the location of the feature showing the location of the drive's intersection elevation point.

Set the *Feature Definition* to **Elements Alignment** again and create the drive profile from elements starting with Lines. The drive profile should start at the EP of the corridor using a Origin Point snap on the intersection point. Back in the profile view select the *Line* command again and you should be able to snap to Corridor's EP. If the drive is in a cut, define the second point using an *Origin* Snap selecting the Construction Control cell that was placed or set the length and slope to the next point. Adjacent Drive Slopes should not exceed a 10% algebraic difference in grades of lengths not less than 10' generally. Place the next line from the previous one with a *Key Point* snap at its end and set the length and slope of the next tangent. Use the Right arrow key to switch between them and lock the entries by hitting the Enter key. Continue until the profile matches in, the last tangent section can be Trimmed to Element to meet the existing ground. Change the *Feature Definition* to **Alignment Drive** and use *Complex Geometry by Elements* to link the pieces together. Select the connected profile and set it active. The drive should now be displayed in the 3D view.

Create Drive Profile Drawing for Xsection Reference

Review the cross section that was cut at the Drive location and determine the height of the section as well as the Top Clearance used.

With the drive's profile view active, use OpenRoads Modeling workflow > tab Drawing Production, then Select the *Place Named Boundary* tool.

- Drawing seed (none), Detail Scale 1"=10'
- the profile should be named for its mainline station value and side.
- Start station set to 0.
- Stop location set to 1+00 for 10 scale sections set vertical.
- Vertical Exaggeration to 1
- Top Clearance to match the sections (typically 14).
- *Available Profile Height* can be limited to 40'.

Accept through the prompts to create the named boundary and bring up the create drawing box.

Fill in the *Create Drawing* box as shown. Click *OK* when done to create the drawing.

Save Settings and Save.

Open the Drawing model just created and shut off all the levels in the active model leaving the levels from the reference file turned on. Plot a skewed drive cell.
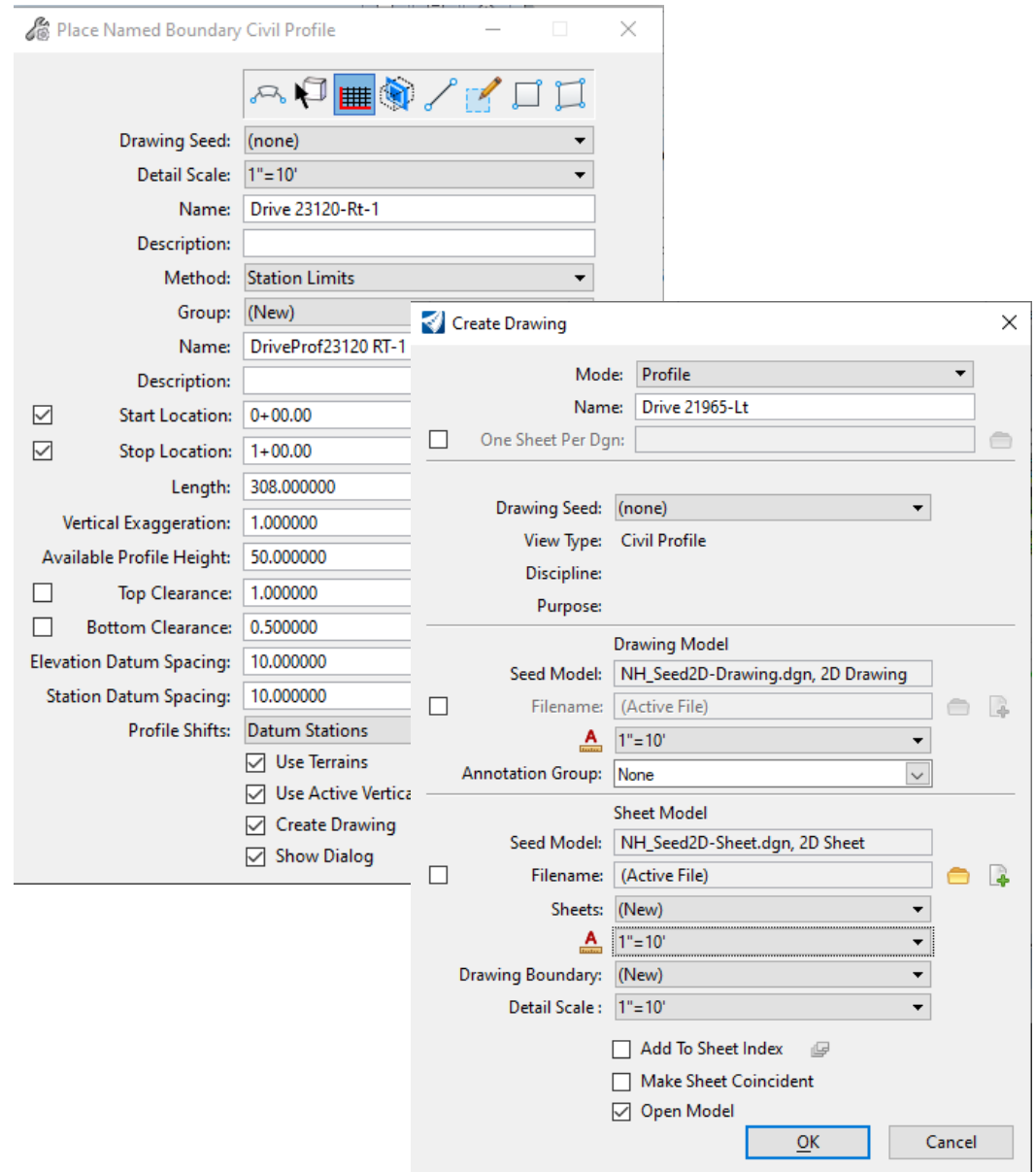
Place a Drive Civil Cell and Manipulate It

After placing the drive civil cell, click on *Create 3D Cut* to display the driveways select materials in the profile view.

Create a Station Offset Report from the Mainline Alignment to each Drive

Set the workflow to *OpenRoads Modeling* > *Home* tab > *Model Analysis* pane, select *Reports* > *Station Offset Report*. Select the roadway alignment and then click on each driveway alignment Reset to complete and have the report show up. Save this report. Each drive's profile can also be reported on and saved.

Open Cross Sections drawing model and reference in the Drive Profile

Open the Cross Section dgn file and then open the drawing model associated to the drive section. Reference file Attach the drive profile with live nesting 99. Proposed and existing levels can be turned off for the actual section which may not follow the drives skew. This information can be clipped out of the sections drawing models reference file. Also shut off the drives profile elevations.

P-6-1F: Controlling Displayed information on the Cross Sections

Introduction

The various reference files contain the base information that is displayed on the sections and the cross section annotation groups control what is annotated on the sections. Other information from reference files is used to generate the End Area Volumes and the Volumes report for quantities but is not needed to be displayed on the finished cross section plots for the contractor. It may be beneficial to Create a Saved View of the display status so it can be used when annotation needs to be updated as well as one to globally shut the levels back off.

Global Display

Global display is used to turn off levels that you don't want displayed on the cross sections. Simply turning off the display of levels in the Default-3D model is not sufficient to turn them off in the actual sections. The Global Display of levels can be achieved thru the Level Manager or thru the Level Display tools.

Construction Plan Check List – for Cross Sections

Review the Construction Plan check list for a list of what should be displayed on the sections. Right click on the screen to open the View Control menu and select *2 Views Plan/3D*. This will display both Default and Default-3D models. Make the Default-3D active. Using the Level Display change the Type from View Display to Global Display. Next shut off levels that don't need to be displayed.

Corridor and drive dgn files can have their base courses shut off so only the Top and Bottom meshes are displayed. The EarthWork.dgn can have all of its levels shut off. All survey point features can be turned off. In the XSections.dgn all of the Volumes- levels can be turned off.

When done updating the levels state, save Settings and then Save the dgn. Create a Saved View for future use to recall the Global display settings if the annotation was redone and levels were turned back on. To ensure that the changes make it to all the sheets it is suggested that the dgn is closed and reopened before printing.