

## The OpenRoads Designer Plans and Profiles File (OPNP) for Hydraulics


Displaying a design in drawing and sheet models in an OpenRoads Designer Plans and Profiles (OPNP) file is the only method that OpenRoads Designer provides for expressing the horizontal and vertical design with **permanent** graphics that can be used to produce contract plans. Updated for Hydraulic name changes in March 2026, to use “published” and “container” files. Drainage and Utilities database has been made accessible via referencing for design and annotation.

The OPNP file is a type of Container File and whatever is displayed in the Default model of the OPNP file will be displayed in the drawing and sheet models that are generated. Models that are created in the OPNP file may be attached as references to other files in order to assemble plans.

Using the H\_K#####\_OPNP\_###.dgn as the Hydraulic design deliverable allows you to maintain dynamic connections to referenced civil data that automatically updates in drawings and sheets when changes are made.

### Steps to Create the Hydraulic OPNP File

These steps will create profile sheets that display the drainage network with roadway alignment stationing.

1. Create a new DGN file named H\_K#####\_OPNP\_###.dgn from OpenRoads\_Seed2D.dgn, in the 2\_Plan\_Sheets folder.
2. Working in the Default model, attach a reference to the existing Terrain Container File (in 6\_Civil\_Data), using live nesting, depth=1.
3. Select a terrain element and choose “Set as Active Terrain Model”; this will create the Default-3D model and automatic references.
4. Attach a reference to the Geometry Container File (in 6\_Civil\_Data), using live nesting, depth=1.
5. Attach a reference to the Finish Grade Terrain Base Container File (in 6\_Civil\_Data), using live nesting, depth=1.
6. Attach a reference to the DU Container File (in 6\_Civil\_Data), using live nesting, depth=1.
7. In the Default model, use the command OpenRoads Modeling>Geometry>Horizontal>Offsets and Tapers>Single Offset Entire Element to create a Zero Offset alignment of the Roadway alignment that is parallel to the pipe network.
8. Use OpenRoads Modeling>Geometry>Horizontal>Modify>Start Station to set the “Starting Station” to the initial stationing of the referenced geometry. This info can be seen in a Horizontal Geometry Report or using Analyze Point.
9. Right-press in View 1, Default and choose View Control>2 Views Plan/Profile from the right-click menu.
10. Click [OK] to Create a Dynamic Profile View; select the Zero Offset alignment in the plan view; then click in the profile view. This will display the active terrain in the Zero Offset alignment’s profile window. If the stationing does not match the referenced geometry stationing, go back and perform step #8.
11. Right-click on the active terrain line and select “Set as Active Profile”.
12. Save settings to preserve the Multi-Model Views.
13. Use Drainage and Utilities>Layout>Profile Runs>Project Run; set the feature definition to Linear\Drainage and Utilities\Profile Run; select the referenced profile run graphics on the P\_RDWY\_ALIGN\_General level; then select the Zero Offset alignment in the plan view. This will display the pipe network in the Zero Offset alignment’s profile window.
14. Use Place Named Boundary Civil Profile , select a profile drawing boundary seed with the Method of “Station Limits”. Enter a “Start Location” and a “Stop Location”. Place boundaries in the profile view. If the named boundaries will not place, go back and perform step #11.
15. Create the drawings. Drawing and sheet models will be created and annotated. There may be some automatic vertical geometry annotation that is not normally shown in a drainage profile.
16. Open the drawing model. Select the vertical geometry annotation and delete it.
17. Annotation of the drainage profile run is best performed by the Hydraulic Engineer in the DU published file containing the drainage database. Hydraulic ANNO\_pub files and an ANNO\_bas\_CF may also be used to deliver larger areas of annotation to the project. If the drainage database was created with the latest version of OpenRoads Designer, some Civil Labeling may be performed in the drawing models of the OPNP file. For example, use Drainage>Profile>PRF\_HY\_Conduit\_Size-Length; left-click on the top of a pipe (even though it may say, “Element is not snappable”), then left-click again to place the label.