

# DISTRICT THREE DESIGN NEWSLETTER



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Volume 21, Issue 2

April - June, 2016

## From the Editor's Desk - Erosion Control—A Hot New Topic

Kerrie Harrell, P.E., District Consultant Project Management Engineer



It has become apparent in recent months with the numerous large construction projects we have ongoing in the District that we need to increase our erosion control efforts. The Army Corps of Engineers (ACOE) has expressed serious concern with our erosion control measures. For this reason, Construction staff is increasing their efforts to improve performance on ongoing construction projects with several measures: adding environmental compliance staff to our CEI staff on appropriate projects, hiring a FDOT Environmental Specialist to work in the District Construction Office to increase coordination efforts, increasing onsite measures beyond items shown in our design plans, and tracking the effectiveness of the planned erosion control measures versus the actual measures utilized.

Current design requirements for erosion control are found in the Erosion and Sediment Control Manual. According to Section II of this manual, Erosion and Sediments Control drawings *will* depict the following:

- Pre- and post-development drainage patterns
- Critical areas (e.g. highly erodible soils, wetlands, major discharge points, etc.)
- Structural and non-structural Controls
- Locations where offsite flows enter the site
- Discharge locations
- Existing vegetation and limits of clearing
- Erosion and sediment control measures (include proposed sediment basins) and proposed locations
- Proposed post-construction stormwater management measures
- Off-site soil tracking prevention devices.

From a design standpoint, there are steps we can take to improve our process as well. We need to increase all erosion control measures for projects with grade changes, work near wetlands/streams, work adjacent to environmentally sensitive areas (i.e. critical habitat, etc.) and any other specific project elements that may create an impact to an environmental area of concern. Several examples of potential improvement ideas are listed below, but in the end we want our engineers of record

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*District 3 Quarterly Design Newsletter*

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to design the best solution for their projects:

- Use **temporary sod instead of seed and mulch** on slopes that will erode into waterways if extreme storm events occur.
- Install **sheet pile wall** to prevent the slope from eroding instead of simply including silt fence at the toe of steep slopes adjacent to critical habitat waterways.
- Specify **stronger types of silt fence** for sensitive areas versus defaulting to the cheapest solution allowed by the pay item.
- Include quantities to cover **temporary sod placement for interim MOT phases**.
- Develop **specific erosion control plans** to detail areas of needs instead of using the standard summary boxes.
- Develop **project specific details** for the erosion control plan rather than solely depending on the Contractor to review the Erosion and Sediment Control Manual.

It is going to take added work on everyone's part to make this effort successful. Designers, Engineers, and individuals involved in QA/QC need to pay special attention to ensure the design of a successful erosion control plan. Any breach in erosion control has to be reported to the ACOE and could result in a Cease and Desist Order. Therefore, please take ownership in every project to look for ways we can ensure the preservation of our environment.



## Top Ten Quality Control Comments Apr. – Jun., 2016

Lester Forrest - QA/QC Plans Reviewer

1. The project length information box is no longer required on the Key Sheet. ( Reference Roadway Design Bulletin 16-03, May 12, 2016)
2. Designers should be aware that when calling for modifications to bridge anchorage or end anchorage assemblies and the existing run of guardrail is 500' or less they must upgrade the entire run of guardrail to the 2'-1" mounting height.
3. Designers are to evaluate and install barriers to highways adjacent to bodies of water in which a drowning death occurred between July 1, 2006 and July 1, 2016. (Bill 7061 , provision Chloe's Law)
4. Designers should take into consideration the anticipated use of motorcyclist on roadway during design and maintenance of traffic phases of plans development. See Ride Smart Florida Website: <http://ridesmartflorida.com/>; Making Roadways Safer for Motorcycles Video: <http://ridesmartflorida.com/index.php/safety-resources-2/public-service-announcements-and-videos/making-roadways-safer-for-motorcycles/>.
5. When proposed sidewalk is adjacent to an existing paved swale, make sure that saw cutting activity is being called for.
6. For Pay Item 0110-3, the SF quantity for the secondary unit of measure in the summary of structure quantities should match Trnsport APWR (AASHTOWare Project Webgate Reporting).
7. The earthwork under bridge and bridge ends should be included in the earthwork quantities.
8. All permanent grassing areas should receive the 6" finish soil layer except for Treatment I areas where it is included in the costs of the Performance Turf items.
9. Standard sidewalk thickness is 4" thick and 6" thick through driveways and turnouts.
10. When designing bicycle facilities ensure that utility covers that can't be removed are flush with grade. Reference: P.P.M Vol. I , Chapter 8.4

### Design Spotlight

Bryan Brannon, P.E.

Road Designer & Project Manager



Bryan Brannon has been with the Department for 17 years. The majority of his experience has been in Roadway Design where he's worked as a drafter, designer and project manager. He graduated from Florida State University with a Bachelor of Science in Civil Engineering in 2012. Bryan is married to Trish, and they have 2 boys (Noah and Sam). He enjoys spending time with his family, reading history & theological books and playing his guitar.

## *Supplemental Agreement Report – Mar., Apr., May, 2016*

Carol Kreis - QA/QC Plans Reviewer

**Description Code: 503: Change resulting from engineering decision.**

**Reason:** Use a spread footer for the Sound/Noise Barrier Wall for posts installation in lieu of Auger Cast Piles foundations which was necessary to comply with the overhead power line clearance requirements at locations on the project where existing lines could not be de-energized for construction purposes.

**Granted Time: 10 Days**

**Increase: \$41,879.67**

**Response: Unavoidable: No action recommended.**

**Description Code: 001: Subsurface material or feature not shown in the plans.**

**Reason:** To provide for Full Depth Graded Aggregate Base in lieu of Optional Base Group 09 and Granular Base; and Type B Stabilization and Optional Base Group 06 due to the severity of subsurface material.

**Granted Time: 75 Days**

**Increase: \$ 518,585.47**

**Response: Unavoidable: No action recommended.**

**Description Code: 001: Subsurface material or feature not shown in the plans.**

**Reason:** Due to high water tables and existence of highly saturated soils, this allowed Optional Base Group 07 and 1.5" Type SP Traffic Level B to be substituted in lieu of Type B Stabilization and 1" Type SP Traffic Level B for the Multi-Use Trail.

**Granted Time: 0 Days**

**Decrease: \$ 0.00**

**Response: Unavoidable: No action recommended.**

**Description Code: 112: Phasing or plan components not constructible as shown in plans.**

**Reason:** To perform additional work as needed to address tie-in for the sidewalk and curb and gutter to the existing roadway, as well as additional Type F Curb and Gutter, sidewalk, bicycle and pedestrian railing. In addition to the extra work, additional Maintenance of Traffic was required.

**Granted Time: 0 Days**

**Increase: \$ 51,450.21**

**Response: Avoidable: Action recommended.**

**Description Code: 305: Costs Savings Initiative.**

**Reason:** Allow the contractor to use Temporary Guardrail in lieu of Type K Barrier Wall, Crash Cushions and Removable Tape Pavement Markings for reducing the Lane Widths in order to maintain the existing lane widths which would be safer for the traveling public and allow for the contractor to safely operate behind the guardrail in similar fashion as the planned barrier wall.

**Granted Time: 0 Days**

**Decrease: \$ -8,990.60**

**Response: Unavoidable: No action recommended.**

**Description Code: 503: Change resulting from an engineer decision.**

**Reason:** A utility conflict with a drilled shaft location with a mast arm required evaluation for a lateral shift of the location. During the evaluation a design error was discovered for the 22' drilled shaft and a plan revision was

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## ***Supplemental Agreement Report – Mar., Apr., May, 2016***

**Carol Kreis - QA/QC Plans Reviewer**

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required to increase the length of the drilled shaft to 49’.

**Granted Time: 0 Days**

**Increase: \$ 70,022.36**

**Response: Avoidable: Action recommended.**

**Description Code: 001: Subsurface material or feature not shown in the plans.**

**Reason:** For removal of existing battered piles which conflicted with the placement of the new sheet pile wall.

**Granted Time: 1 Day**

**Increase: \$6,824.00**

**Response: Unavoidable: No action recommended.**

**Description Code: 305: Costs Savings Initiative.**

**Reason:** Eliminate Cast-in-place Conflict Structure for installing proposed cross drain and proposed detours and allow continuous operation while maintaining on lane traffic for less impact to the traveling public. Lower existing utilities (water lines) to avoid conflict with the cross drain construction.

**Granted Time: 0 Day**

**Decrease: \$-1624.32**

**Response: Unavoidable: No action recommended.**

**Description Code: 001: Subsurface material or feature not shown in the plans.**

**Reason:** Provide for installation of sheet pile, concrete flume, trench drain, handrail, embankment, finish soil layer and sod to repair severely eroded existing slope; and resolve conflicts with an existing sheet pile wall with cantilevered footer that was discovered below ground and not shown on the plans.

**Granted Time: 47 Day**

**Increase: 180,070.45**

**Response: Unavoidable: No action recommended.**

**Description Code: 305: Costs Savings Initiative.**

**Reason:** Allow the contractor to use the retaining wall to eliminate the risk of installing steel sheet piling in the area directly below the overhead high voltage transmission lines to avoid de-energizing the transmission lines.

**Granted Time: 0 Day**

**Decrease: \$-96,542.35**

**Response: Unavoidable: No action recommended.**

**Description Code: 106: Inaccurate identification of utility with no Joint Project Agreement.**

**Reason:** Allow the contractor to use asphalt base in lieu of Type B Stabilization due to conflicts with utilities which were not shown in the plans.

**Granted Time: 8 Day**

**Increase: \$9,260.48**

**Response: Avoidable: No action recommended.**

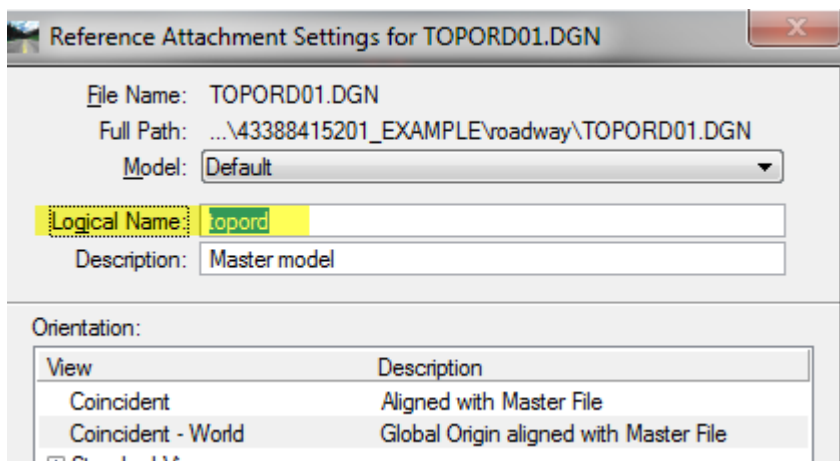
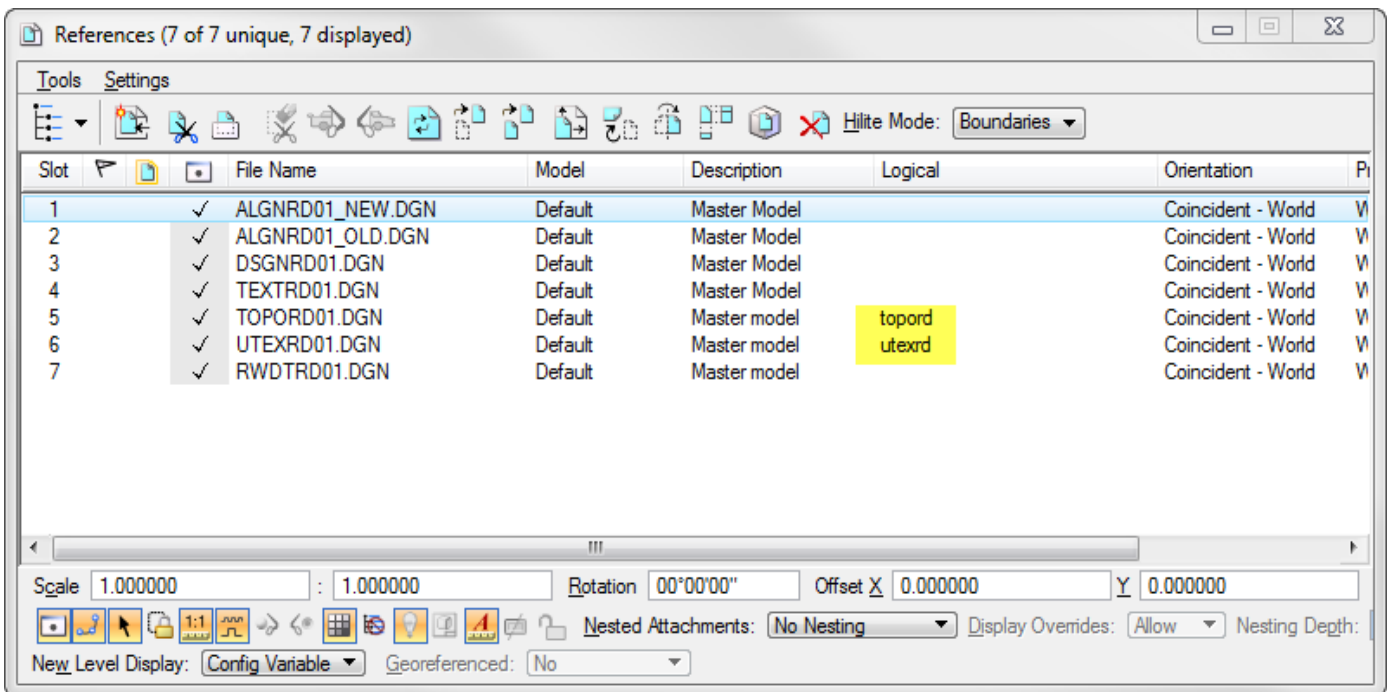
# CADD TRICKS, TIPS, UPDATES - Create & Use a MOTIF

Howard Helms, CADD Manager

Create an MTPLRD01.dgn and open it. (Use FDOT Toolbar)

Reference in what you want in the plan sheets. If you are going to use FDOT\_GrayExisting.tbl when printing plan sheets make sure you give the logical name to the references.

The MTPLRD01.dgn is where you will turn things on and off for your plan sheets, or reference another file in. Simply right clicking and holding down, going to and left clicking Turn Level off by Element, then left clicking what you want turned off.



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Create a CLIPRD01.dgn and open it. (Use FDOT Toolbar)

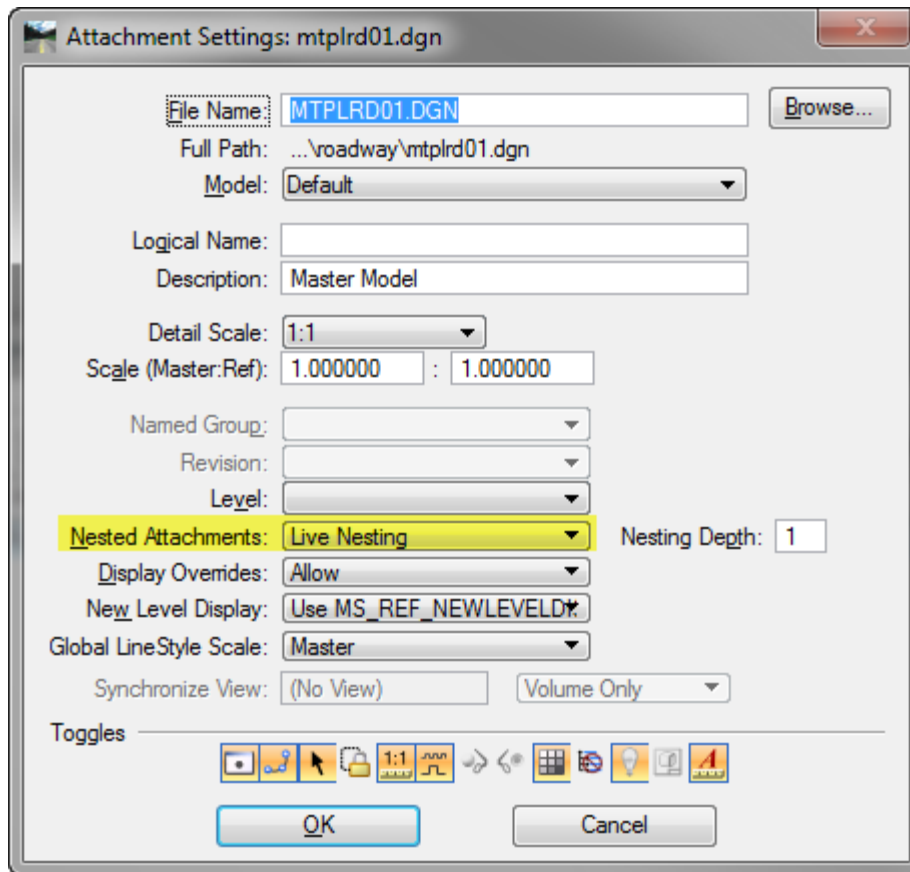
Set your Drawing Scale.

In View Attributes

Turn off Data Fields

Turn on Level Overrides and Transparency

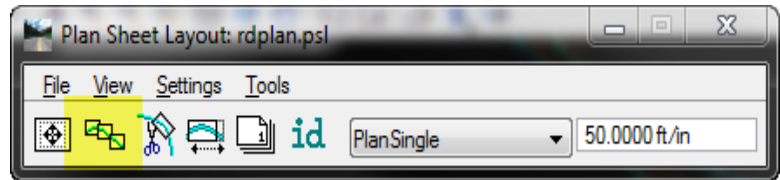
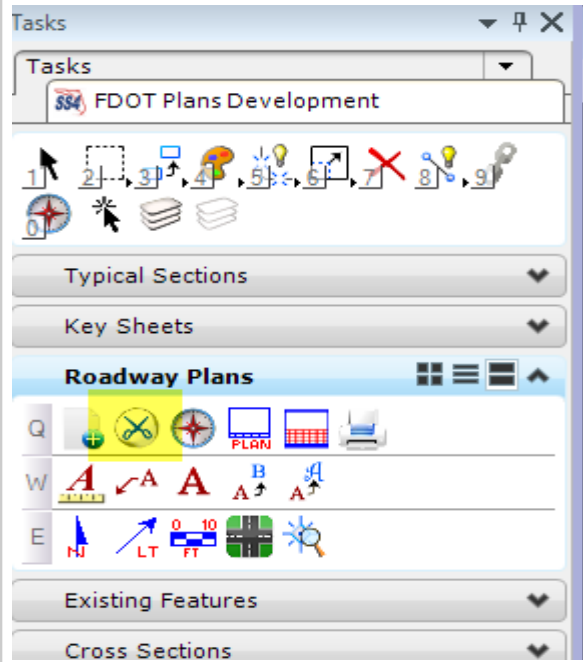
Reference in the MTPLRD01.DGN, use Live Nesting.



Layout your sheet clippings

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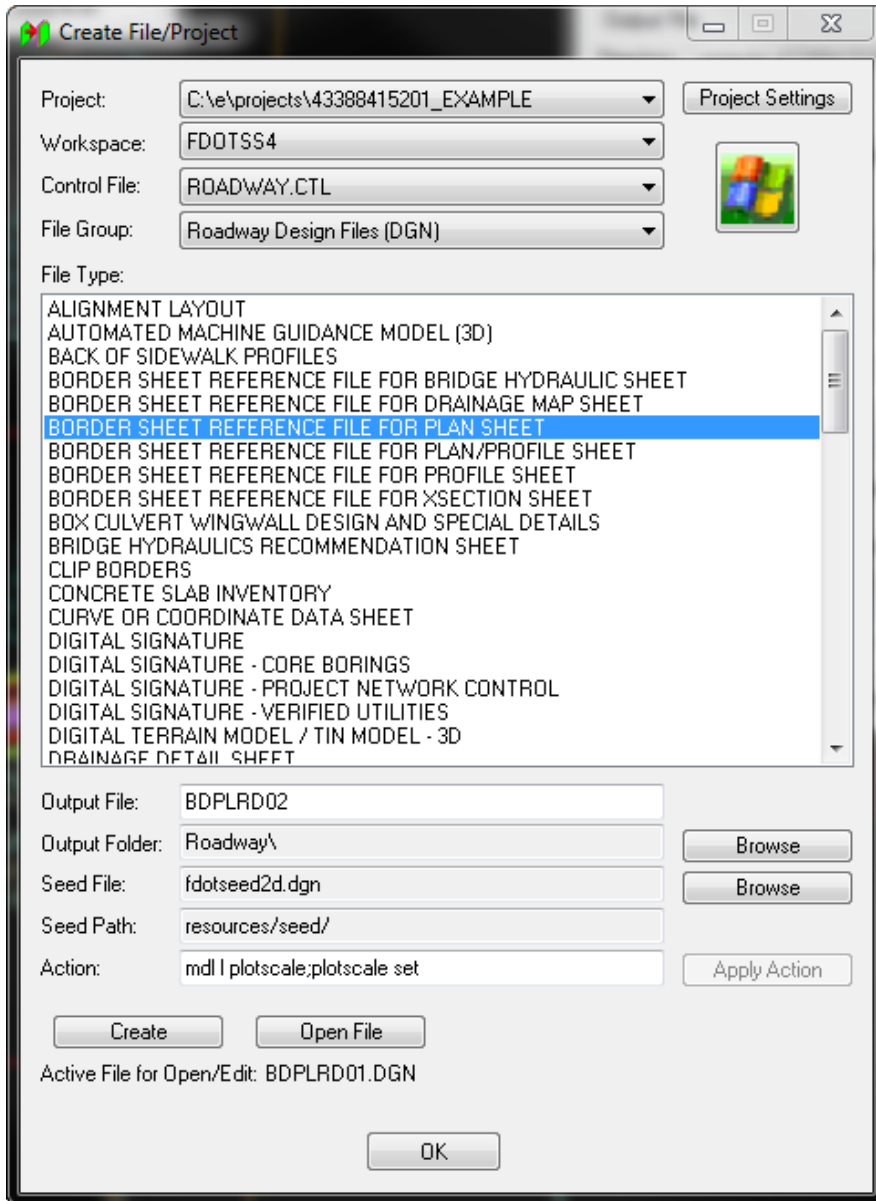
**Create a BDPLRD01.dgn (Use FDOT Toolbar)**



(Continued on page 9)

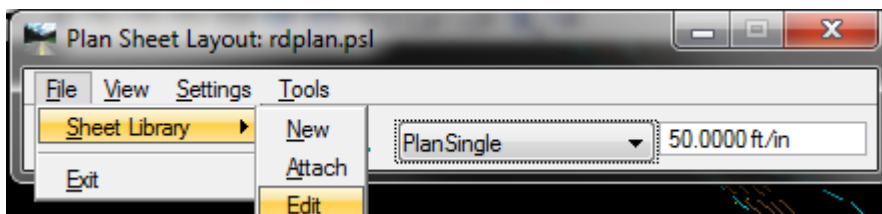


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You do not have to open it, just create it.

In the Plan Sheet Layout: go to File/Sheet Library/Edit

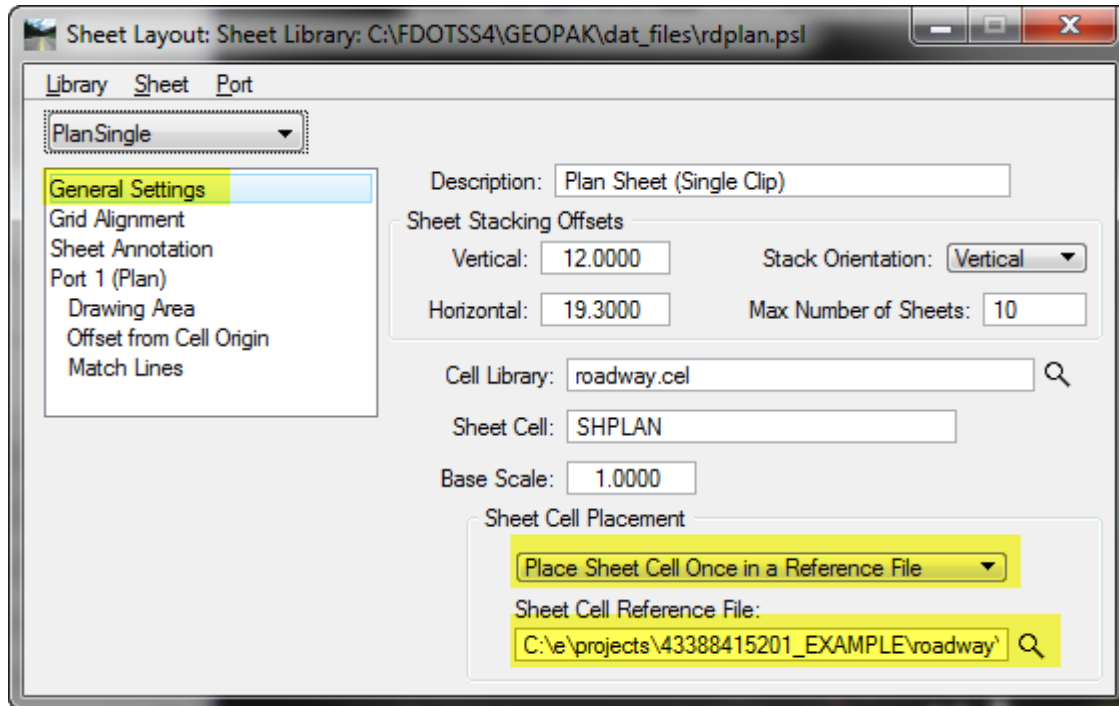


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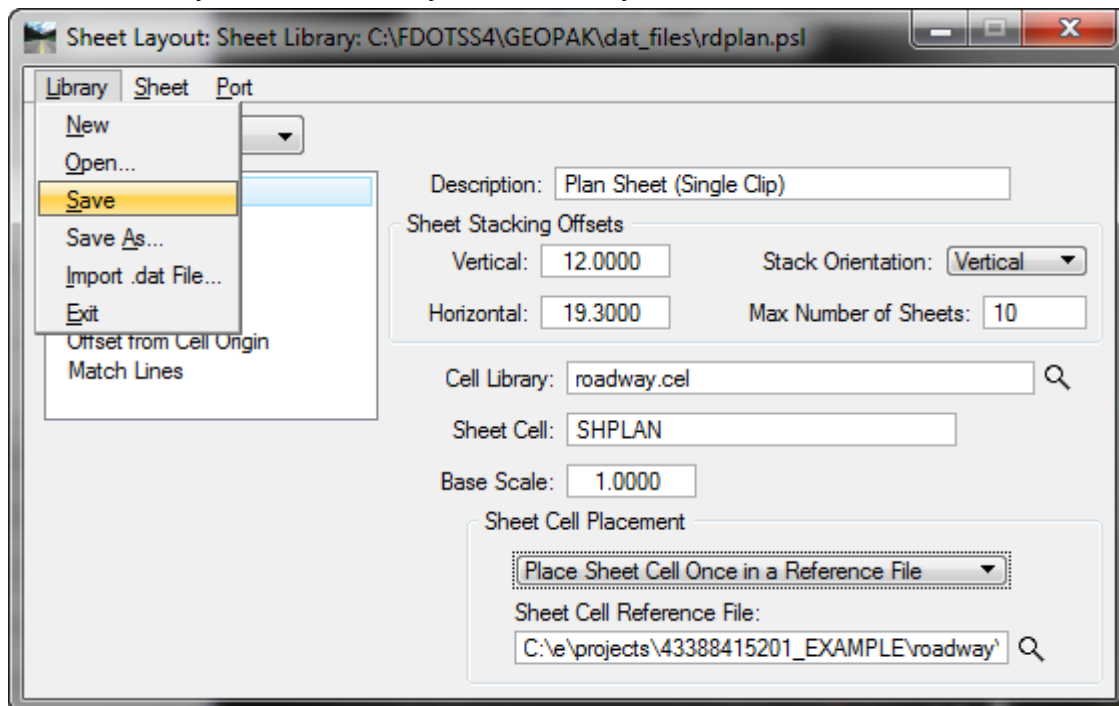
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In the Sheet Layout: Sheet Library: General Settings/Sheet Cell Placement change the drop down to Place Sheet Cell Once in a Reference File.

Then click the magnifying glass and go to the BDPLRD01.dgn file.



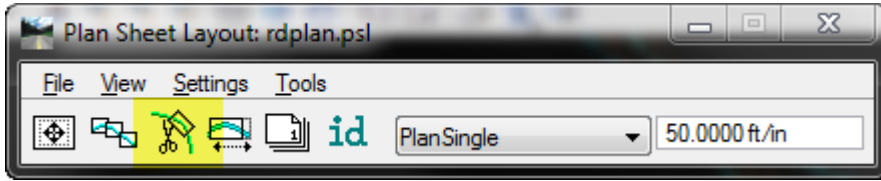
In the Sheet Layout: Sheet Library: Go to Library/Save and close.



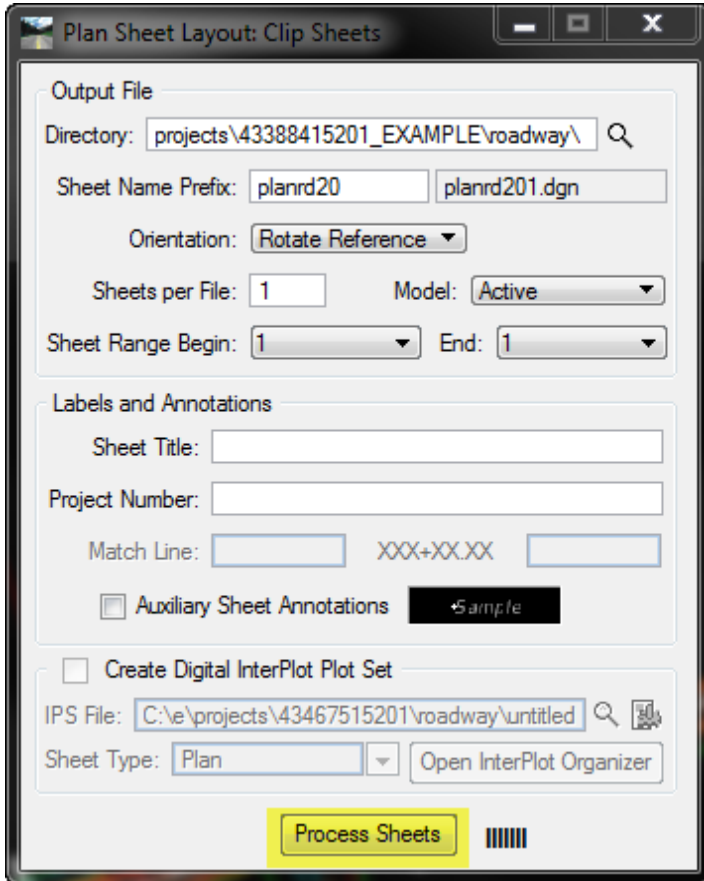
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### Plan Sheet Layout: Clip Sheets



After getting your settings set up click Process Sheets



*"Always bear in mind that your own resolution to succeed is more important than any other." ~ Abraham Lincoln*