

MONTANA
Department of Transportation

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MicroStation / Power GEOPAK V8i (SELECTseries 10) Enhanced Workspace Overview

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OVERVIEW

This document provides a user focused overview of the MDT Enhanced MicroStation / Power GEOPAK V8i (SELECTseries10) workspace.

Much of the workspace content referenced in this document is stored in a file called a DGNLIB. A DGNLIB is simply a MicroStation DGN file with the extension .DGNLIB, and is used for storing and distributing shared resources. DGNLIBs are placed in specific locations throughout the workspace folder structure, those folder locations are defined by the workspace configuration files and read by MicroStation when it loads.

REFERENCES

Docuplot User's Manual and Guides

Plotting Coordinates

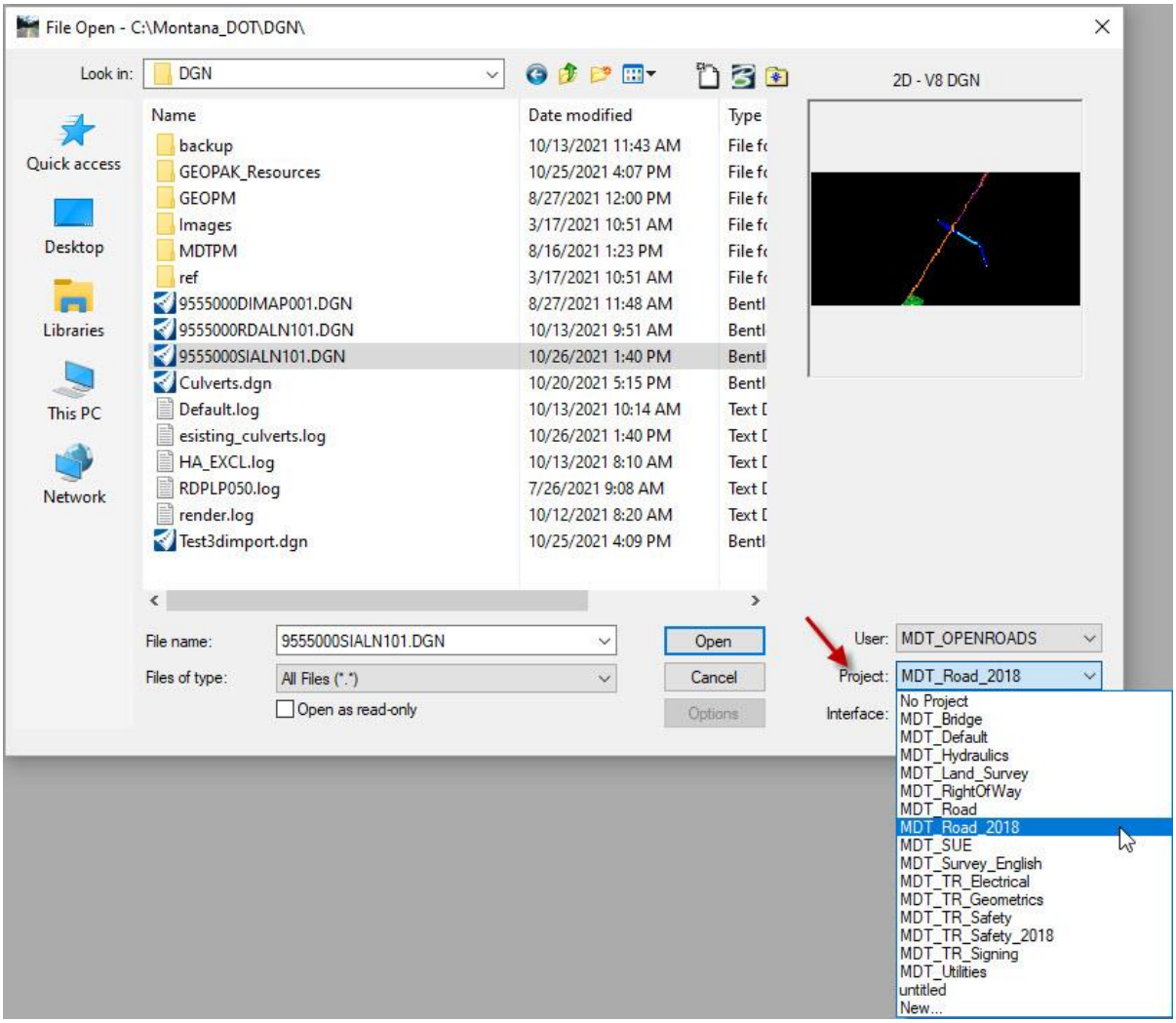
Cross Referencing PCMS Project Directories

Enhanced Workspace Macro Overview

WORKSPACE CONTENTS

PROJECT CONFIGURATION

When starting MicroStation or Power GEOPAK, the user will select a discipline specific Project from the drop-down in **MicroStation Manager**.



The Project selected will load a “PCF” file that will set global standards and, in some cases, determine which MDT macros can be run from the drop-down menus.

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\WORKSPACE\CONFIG

Consultant Workspace:

C:\Montana_DOT\Workspace\Projects

CELLS

Cells are commonly used graphics that the user places repeatedly in the DGN. For example, graphics such as a legend, power pole, manhole, inlet, tables, north arrow, etc. Cells are stored in cell libraries that the user accesses from the **Cell Library** dialog and selecting **File>Attach File** from the menu bar at the top of the dialog. In the **Attach Cell Library** dialog, the folder listed below will be displayed:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\OPENROADS\cell

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\cell

The libraries shown will have a prefix in the file name indicating which discipline they are for. The table below lists the prefix and the associated discipline.

Discipline	Naming Prefix
Road	RD_
Hydraulics	HY_
Bridge	BR_
ROW	ROW_
Signing	SI_
Survey	SU_
Utility	UT_
Electrical	EL_
Shared	MDT_

TEXT STYLES

Text Styles are predefined text format settings such as the Font, Height, Width, Justification, Italic, Underline etc. that the user selects when placing Text or a Note. Text Styles are stored in a DGNLIB, however all user interaction with Text Styles will occur when selecting the desired style from the drop-down menu in **Tool Settings**, or from the **Text Styles** dialog.

Text Styles are used in the following situations:

- Text styles with an **MDT** prefix were developed to assist users in the application of MDT's standard fonts and text attributes for various features.
- The **Civil** and **XS** text styles are in place for the software to make use of in automated processes

Standard text style text sizes are detailed as follows. There may be exceptions where alternate text sizes must be applied.

	Text Size				
File Type ▸	Title/Plan	Detail/Design		X-Sect.	Typ.
11x17 Plot Scale ▸	1"= 200'	1"=100'	1"=50'	1"= 20'	1"= 10'
Title (DETAIL)	48 (*.04)	24 (*)	12 (*)	4.8 (*)	2.4 (*)
Title-Sub (INTERSECTION)	24 (*0.02)	12 (*)	6 (*)	2.4 (*)	1.2 (*)
Heading (Description)	18 (*0.015)	9 (*)	4.5 (*)	1.8 (*)	0.9 (*)
Heading-Sub (NOTES:)	14 (*1.16)	7 (*)	3.5 (*)	1.4 (*)	0.7 (*)
Regular (10+00.00)	12 (*.01)	6 (*)	3 (*)	1.2 (*)	.6 (*)
Regular-Sub (SLOPE = -2%)	10 (*.0083)	5 (*)	2.5 (*)	1.0 (*)	0.5 (*)

*Text sizes noted in parentheses are equivalent text sizes with application of annotation scale. The 1"=200' annotation scale size is used with all plan scales where the proper size will be observed with adjustment of the drawing scale when working in another sheet size such as Detail, Cross Section and Typical sheets as well as design map files.

The Text Styles DGNLIBs are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\OPENROADS\dgnlib

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\dgnlib\Annotations

DIMENSION STYLES

Dimension Styles are predefined dimension format settings that the user selects when placing a dimension in the DGN. Dimension Styles are stored in a DGNLIB; however, all user interaction with Dimension Styles will be from selecting the desired style from the drop-down menu in **Tool Settings** and the **Dimension Styles** dialog.

Dimension Styles are used in the following situations:

- **Road-E –** The Road-E dimension style is primarily used for the typical sections but may be used for other purposes.
- **Civil –** Dimension styles in place for the software to make use of in automated processes.

The Dimension Styles DGNLIBs are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\OPENROADS\dgnlib

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\dgnlib\Annotations

FONTS

From the user's perspective, all interaction with Fonts should be seamless. Fonts are assigned to Text Styles, and a user will select a Text Style prior to placing text in the DGN. The MDT Standard fonts Engineering Bold, Engineering Heavy, and Engineering Regular are true type fonts that have been adopted as MDT's standard plans production fonts, and have been incorporated into all Text Styles, Dimension Styles, and Cell libraries.

Fonts are located in the following folders:

MDT Workspace:

…\CaddStandards\Bentley\OpenRoads\OPENROADS\Resources

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\fonts

LEVELS

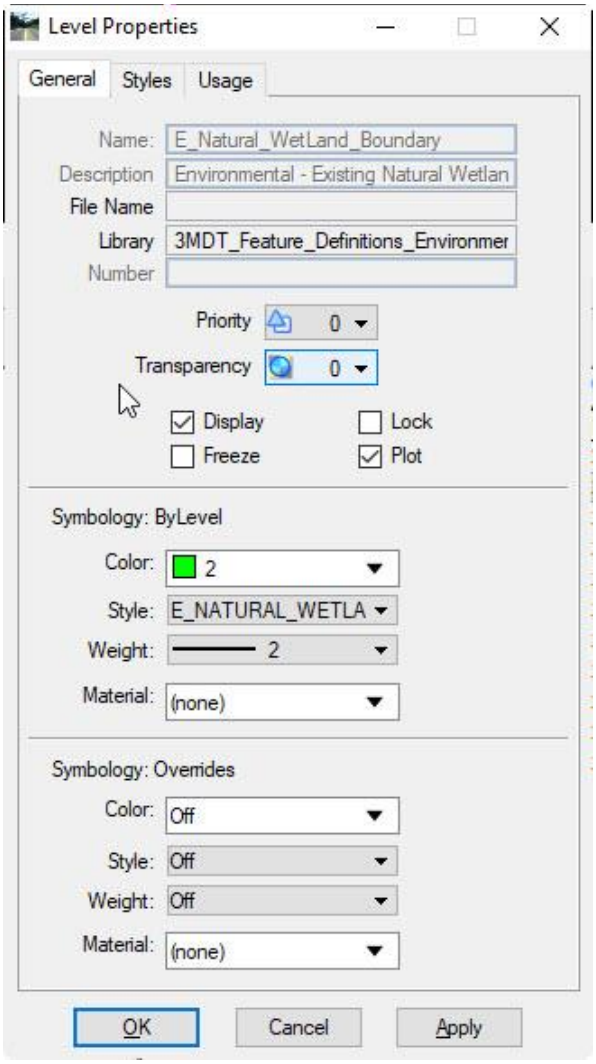
Levels are used to organize elements placed in the DGN and can be used to determine the Attributes (Color, Weight, Line Style) of that element. In the MDT seed files, the Attributes are set to use "ByLevel". When a user sets a Level as Active from the **Attributes Toolbar, Level Manager,** or **Level Display**, the symbology assigned to that level will become the active symbology, and any element placed will be assigned the "ByLevel" symbology settings. All levels are stored in a DGNLIB and will be loaded when MicroStation is launched with MDT's workpace. All interaction with Levels will be from the **Attributes Toolbar**, **Level Manager** and **Level Display** dialogs.

Note: The user only needs to assign an active level when placing MicroStation graphics and text. When using most of the OpenRoads tools, and selecting a Feature Definition, the level is assigned by the Element Template automatically with no additional interaction needed from the user.

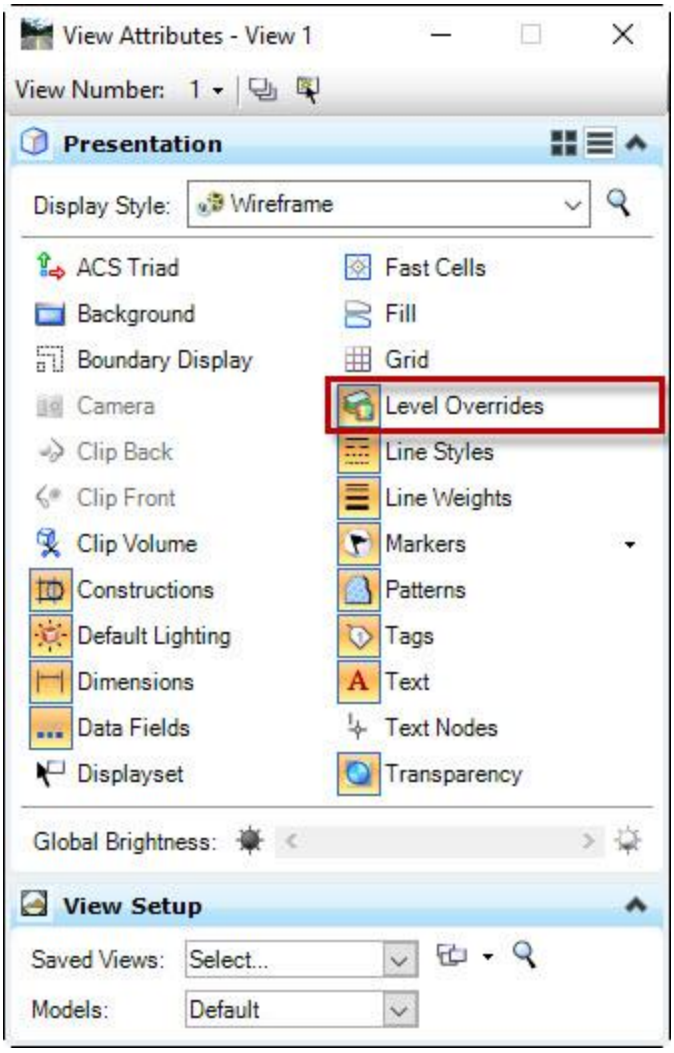
MDT's standard level naming prefixes are listed below:

- E_ (existing)
- P_ (proposed)
- S_ (sheet/standard)
- C_ (construction)
- DL_ (drafting)
- ES_ (existing terrain)
- PM_ (pavement marking)
- PS_ (proposed surface)
- TC_ (template component)
- TL_ (template linear)
- TM_ (template mesh)
- XS_ (cross section)

Levels in the MDT workspace are assigned properties in the DGNLIB where they reside. Level properties can be used to control settings such as Global Display, Freeze, Priority, ByLevel Symbology, etc. The image below shows the **Level Properties** dialog:



- **Priority*** - Controls which levels are displayed in the front and which levels are displayed in the back within a dgn.
- **Transparency*** - Controls if a level is transparent in the DGN. MDT's plotting solution does not fully support transparency.
- **Global Display** - If checked on, all elements placed on the level are displayed.
- **Global Freeze** - If checked on, any elements on that level are not displayed and can't be printed.
- **Plot*** - If checked off, elements on that level won't be printed even if displayed in the DGN.
- **Lock*** - If checked on, elements on that level can't be manipulated or modified.
- **Symbology: ByLevel** - Where the default symbology for levels is set. When an element is placed using ByLevel symbology, it will be assigned the symbology set in this section. Changes to the symbology settings will automatically update all elements placed on that level when ByLevel symbology is used.
- **Symbology: Overrides** - Where users can override the default symbology settings for each level. This is a view-dependent setting, and **Level Overrides** needs to be toggled on in the **View Attributes** dialog.



***Note:** Configuration variables are set that will prevent the user from changing the default settings for Priority, Transparency, Plot, and Lock from the Level Properties dialog accessed from Level Manager. However, a user can place an element and change those attributes at the element level.

DGNLIBs that contain levels are located in the following folders:

MDT Workspace:

…\CaddStandards\Bentley\OpenRoads\OPENROADS\dgnlib

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards-OpenRoads\dgnlib

CUSTOM LINE STYLES

Custom Line Styles supplement the standard 0-7 dash dot Line Styles that are available in MicroStation. They are used to display features graphically such as Utilities, Pavement Markings, etc. that require exact distances with a dash/gap or a line with a combination of text and linework.

MDT's standard custom line style naming prefixes are listed below:

- E_ (existing)
- P_ (proposed)
- PM_ (pavement marking)
- PH_ (photogrammetry)
- XS_ (cross section)

Custom Line Styles are stored in RSC files located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\OPENROADS\dgnlib\Linestyles\Resources

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\symb\LineRSC

Line Styles are sourced from the DGNLIB to be included into the workspace and are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\OPENROADS\dgnlib

...\OPENROADS\dgnlib\Linestyles

Consultant Workspace:

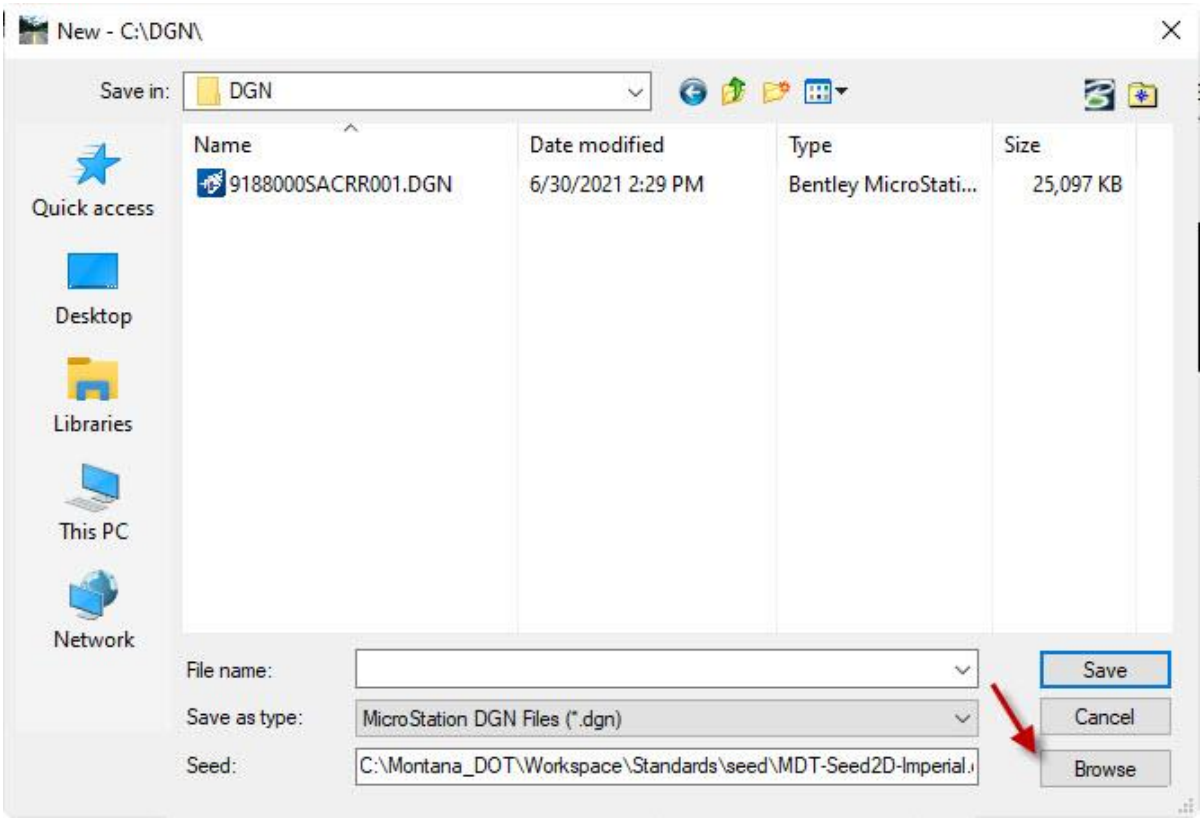
C:\Montana_DOT\Workspace\Standards-OpenRoads\dgnlib

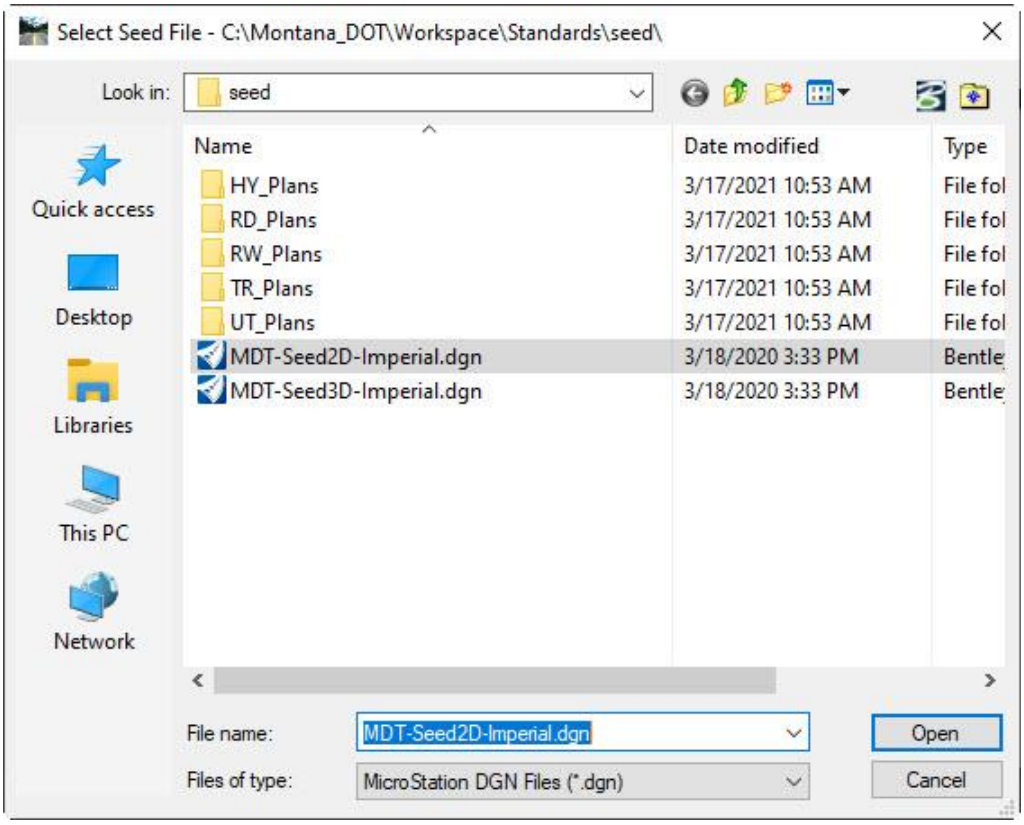
C:\Montana_DOT\Workspace\Standards\dgnlib\Linestyles

From the user's perspective, Custom Line Styles are loaded when MicroStation is launched and are assigned to levels. Interaction with Custom Line Styles will occur when setting a level as active from **Level Manager** or **Level Display** to set the active Attributes with the desired Custom Line Style.

SEED FILES

Seed files are DGN files in the workspace that have preconfigured settings applied and are copied by the software when a new file is created. When a user creates a new DGN, the **New File** dialog will display. To select the Seed File, the user will click the **Browse** button to load the **Select Seed File** dialog and choose the appropriate Seed File.



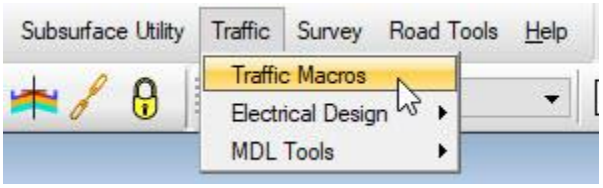


Note: The only time a user will use the **MDT-Seed3D-Imperial.dgn** is to create a new ETR (Existing Terrain Model) and PTR (Design Terrain Model). In all other instances, the **MDT-Seed2D-Imperial.dgn** is used.

RD, HY, and SA sheets can be created by using the Create DGN's macro accessed from **Road Tools > File Utilities > Create DGN's**

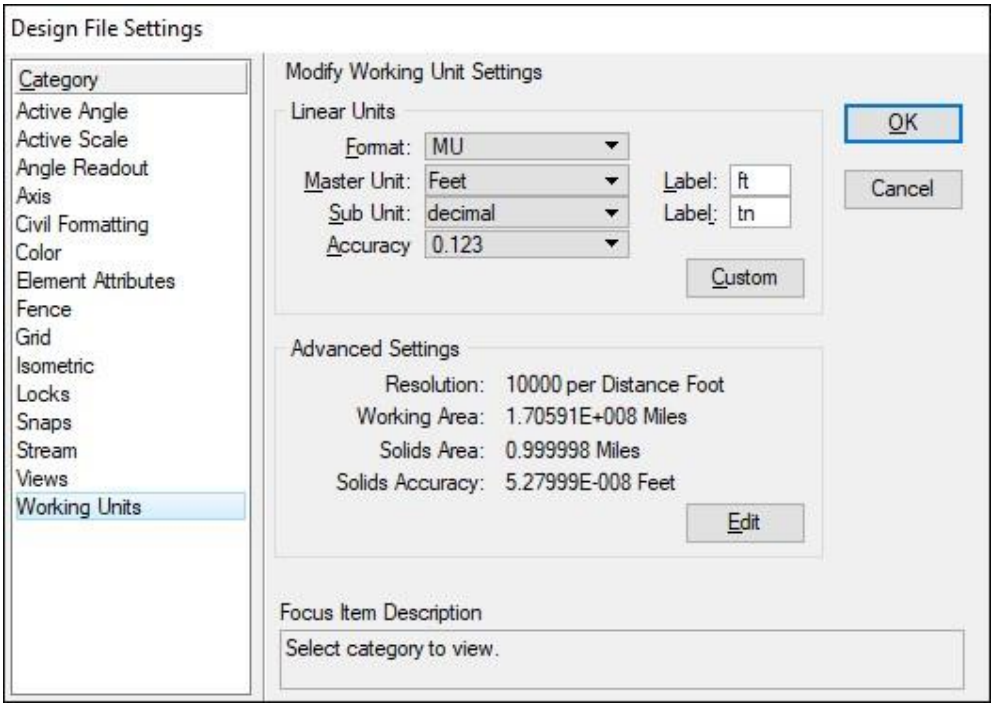


EL, GE and SI sheets can be created by using the Traffic Macros dialog accessed from **Traffic > Traffic Macros.**

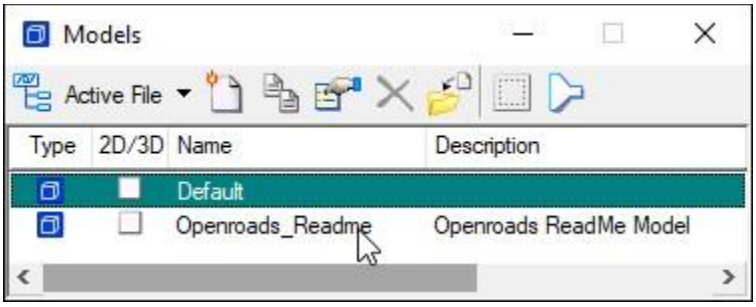


The following seed file parameters are recognized by the Enhanced workspace and Docuplot.

- Design File Settings > Working Units. The working unit resolution must be set to 10000 per Distance Foot.



- OpenRoads_Readme model. All files used in the Enhanced workspace must include an **OpenRoads_Readme** model.



Files having the resolution set to 1000 per Distance Foot and without the OpenRoads_Readme model are considered legacy workspace files and must not be used together with 10000 resolution files on the same project.

Seed Files are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\Seed

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\seed

MDT Bridge seed files are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\WORKGROUP\BRSTD\BR_DWG_SEED

Consultant Workspace:

C:\Montana_DOT\Workgroup\BRSTD\BR_DWG_SEED

MDT ROW sheet seed files are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\Seed\RW_Plans

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\seed\RW_Plans

MDT UT sheet seed files are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\Seed\UT_Plans

Consultant Workspace:

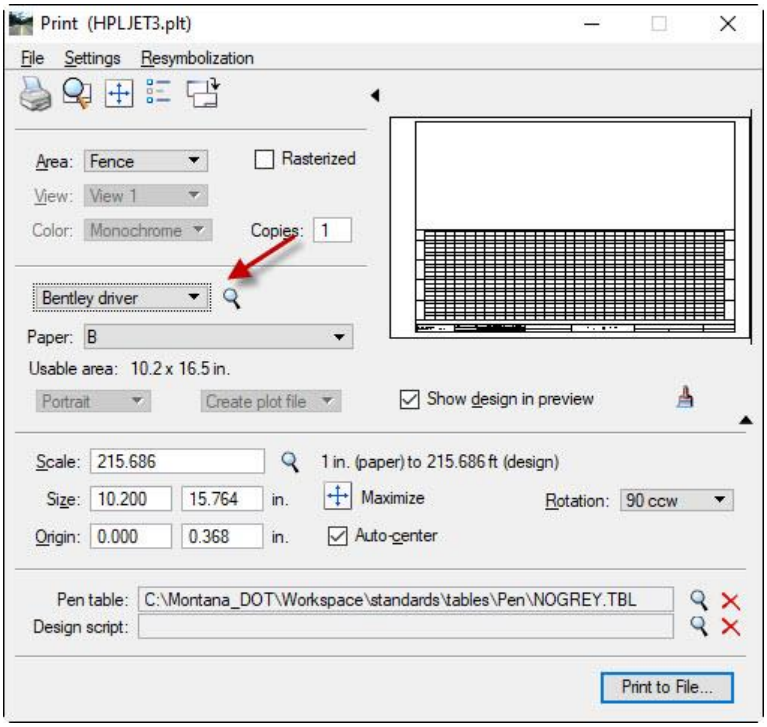
C:\Montana_DOT\Workspace\Standards\seed\UT_Plans

PRINTING

MDT uses an internally developed plotting solution called Docuplot when plotting plans for production use. Docuplot User's Manual and Guides are available for review separately.

The following provides basic information regarding some of Docuplot's plotting functionality.

There are occasions where alternate plotting methods are necessary. Users can print DGN's by going to **File>Print** or by selecting **Ctrl>P** on the keyboard and loading the **Print** dialog. The user will select a PLT printer driver configuration file by selecting the magnifying glass icon indicated by the red arrow in the image.



This will load the **Select Printer Driver Configuration File Dialog**, and the user will select a PLT file from the listing. There are a variety of plot drivers available. Selecting a plot driver will be dependent on the type of sheet being plotted and the desired results. The plot drivers are listed below for full/half size, monochrome/greyscale/color, and english/metric unit plotting.

Greyscale Plotting
All greyscale plot drivers are set up to plot elements using colors 32-47 (3rd color row) and 252-254 with varying grey tone colors and white as follows:

32-47 – RGB 202, 202, 202
252 – RGB 200, 200, 200
253 – RGB 220, 220, 220
254 – RGB 255, 255, 255

Full Size Paper Plotting
Full size paper plot drivers are HP-GL/2 drivers. These drivers create plot files that can be copied to a printer using the command prompt. Full size paper plans production plot drivers are listed below:

- ENGLISHFUL.plt
- ENGLISHFULGS.plt
- METRICFUL.plt
- METRICFULGS.plt

Half Size Paper Plotting
Half size paper plot drivers are postscript drivers. These drivers create plot files that can be copied to a printer using the command prompt. Prolog files are used when creating the encapsulated postscript files. Half size paper plans production plot drivers and prolog files are listed below:

- ENGLISHHLF.plt
- ENGLISHHLFCLR.plt
- ENGLISHHLFGS.plt
- METRICHLF.plt
- METRICHLFCLR.plt
- METRICHLFGS.plt
- 11X17PSCRIPTPLANS.PRO

8.5x11 Paper Plotting
Letter size paper plot drivers are windows drivers sending plots directly to a printer. Using windows plot drivers can't guarantee a precise scale from printer to printer.

- 8x11printgs.plt
- 8x11print.plt

PDF Plotting
Half size pdf plot drivers are XML drivers creating a pdf file offering searchable text and measuring capabilities. Half size pdf plans production plot drivers are listed below:

- EnglishHlfClrPdf.plt
- EnglishHlfGsPdf.plt
- EnglishHlfPdf.plt
- MetricHlfClrPdf.plt

- MetricHlfGsPdf.plt
- MetricHlfPdf.plt

8.5x11 PDF Plotting

- TrafSignCalcsGsPdf.plt
- TrafSignCalcsPdf.plt

Sheet Fencing Coordinates

Fencing coordinates are used to achieve proper position on the sheet when plotting depending on the type of sheet and size of sheet being plotted.

Plotting Coordinates for use when plotting sheets without Docuplot are available separately.

The printer PLT files are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\WORKSPACE\PLOTTING

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\plt

PEN TABLES

Pen Tables are used to re-symbolize elements when printed, such as gray scaling, and adjusting line weights. Interaction with Pen Tables, from the user's perspective, will be minimal as they are loaded when a PLT file is loaded into the **Print** dialog.

Note: Pen tables used for color plotting are configured to plot text and dimensions black regardless of file attribute settings.

The Pen Tables are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\WORKSPACE\PLOTTING

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\tables\pen

SHEET SCALES

Sheet seed files have a border set up at 3200’ x 2100’. When design files are referenced into a sheet border at 1:1, as in the case of a typical rural project, plotting a full size 34”x22” sheet at 100 scale would result in a 1”=100’ scale plot. Sheets are plotted, as a standard, at “half size” to an 11”x17” sheet at 200 scale resulting in a 1”=200’ scale plot. See the figure below demonstrating the variety of supported scale scenarios.

Scale	Sheet Size	Resulting Plot Scale	Station Range	Mapping Reference Scale
100	34x22	100’=1”	3000’	1:1
	11x17	200’=1”	3000’	1:1
50	34x22	50’=1”	1500’	2:1
	11x17	100’=1”	1500’	2:1
20	34x22	20’=1”	600’	5:1
	11x17	40’=1”	600’	5:1
10	34x22	10’=1”	300’	10:1
	11x17	20’=1”	300’	10:1

Note: 25 scale not supported

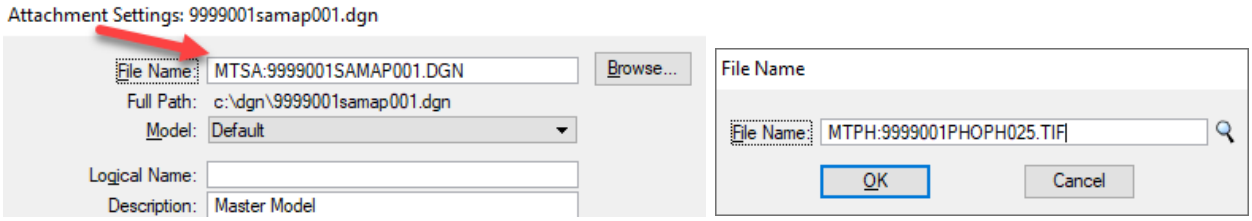
Some sheet files, such as detail and typical sheets, have smaller borders for preparing sheet annotations at scale. These smaller borders are referenced into the larger 3200’ x 2100’ border for plotting purposes.

REFERENCE FILES

A Reference file is an existing DGN that is attached to and displayed within another DGN. When a change is made in a referenced DGN, the changes will appear in the DGN it’s referenced to. This allows users to display content in DGN’s from other disciplines inside their current working file and share content with other users.

A user will attach a reference by clicking the **References** icon on the **Primary Tools** tool bar and selecting **Tools>Attach** from the drop-down menu in the **References** dialog. Once the file is selected, the **Reference Attachment Settings** dialog will appear. Reference file attachment settings may be adjusted. Live Nesting isn’t supported by MDT’s Project Content Management System (PCMS) or plotting solution (Docuplot).

A file name logical prefix will need to be added after the reference file is attached. This also applies to raster file attachments.



The file name logical prefix is used by MDT's Project Content Management System (PCMS) and plotting solution (Docuplot) to locate the attached reference files on the project file server. They also allow the workspace to consistently locate the reference files.

Example: MTRD:9999001RDMAP001.DGN

Project files that reference files from another project must have the project control number added to the file name logical prefix. Cross Referencing PCMS Project Directories is also available as additional guidance.

Example: MTRD9999001:9999001RDMAP001.DGN

Project files that reference files from the CADD Standards workspace must have a unique file name logical prefix added.

Example: MTSTD:RDSHEET.REF

Reference File Attachment File Name Logical Prefixes:

PCMS Project Directory		
Directories	Description	Logical Prefix
AB	As-Builts	MTAB:
BR	Bridge – Plans & Comps	MTBR:
CO	Construction – Plans	MTCO:
CP	Contract Plans	MTCP:
DI	District – Working Plans, Survey Files	MTDI:
EL	Traffic Electrical	MTEL:
EN	Environmental – Plans and Documents	MTEN:
GE	Traffic Geometrics	MTGE:
HY	Hydraulics – Plans & Comps	MTHY:
IN	Traffic Investigations	MTIN:
MA	Materials Pavement etc.	MTMA:
MT	Materials Geology	MTMT:
PH	Photogrammetry	MTPH:
RD	Road Design – Plans and Documents	MTRD:
RO	Right of Way – Plans, Exhibits & Documents	MTRO:
SA	Traffic Safety – Plans & Documents	MTSA:
SI	Traffic Signing – Plans & Documents	MTSI:
SU	Survey – Plans and Documents	MTSU:
UT	Utility – Plans & Documents	MTUT:
VI	Visualization – Plans	MTVI:

Reference File Attachment File Name Logical Prefixes for CADD Standards files:

CADD Standards …Workgroup Directory		
Directories (including STDREF\legacy)	Description	Logical Prefix
BRSTD	Bridge Standards	MTBRSTD:
ELSTD	Electrical Standards	MTELSTD:
HYSTD	Hydraulic Standards	MTHYSTD:
RDSTD	Road Design Standards (legacy only)	MTRDSTD:
ROSTD	Right of Way Standards (legacy only)	MTROSTD:
SISTD	Traffic Signing Standards (legacy only)	MTSISTD:
STDREF (including MT_Raster)	Other Standards	MTSTD:

Note: The **REF Check** macro is available to assist with adding the file name logical prefixes to reference files.

When MicroStation searches for reference file attachments, it will first search for files within the c:\dgn\ (or consultant workspace C:\Montana_DOT\DGN). If the file is not found, MicroStation will next search the c:\dgn\ref\ folder (or consultant workspace C:\Montana_DOT\DGN\Ref). Finally, it will search the workspace for standard reference files. If the file is not found, the ref attachment will be unavailable during the MicroStation session.

The configuration files where the logical prefixes and paths are defined are in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\WORKSPACE\CONFIG\ MDT_OPENROADS.ucf

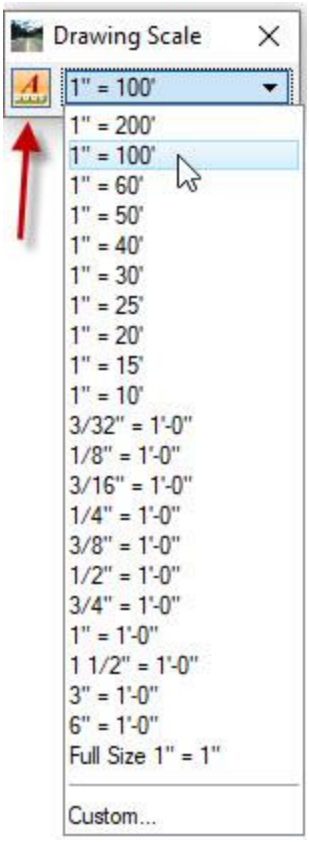
Consultant Workspace:

C:\Montana_DOT\Workspace\Standards\70_MDT_Workgroup_Settings.cfg

ANNOTATION AND DRAWING SCALE

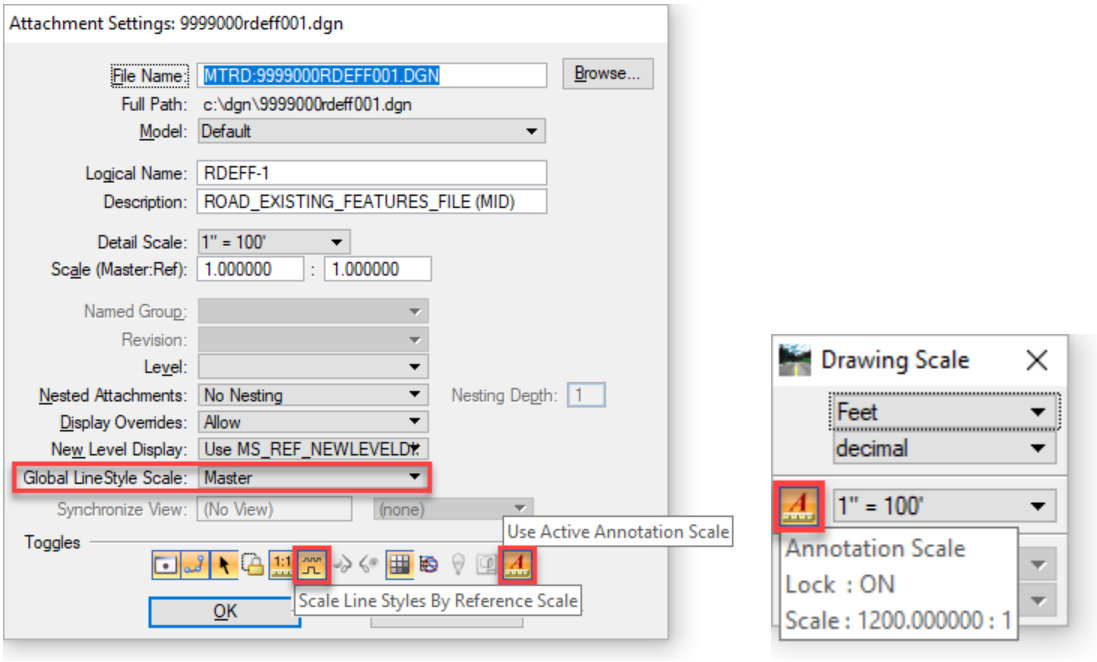
Drawing Scale is used together with Annotation Scale Lock to set the size of Text, Dimensions, and Line Styles placed in the DGN. The size the user sets will typically match the size of the sheet border to be plotted. The MDT standard project sheet border is prepared at full size (3200' x 2100'). The 1"=100' drawing scale will maintain text, dimensions, and line styles at the proper size where annotation scale is applied.

Drawing Scale is accessed by going to **Settings** on the drop-drown menu and selecting **Drawing Scale.** This will open the **Drawing Scale** dialog. From here the user will set the scale, and toggle on the **Annotation Scale** lock as shown in the image below:



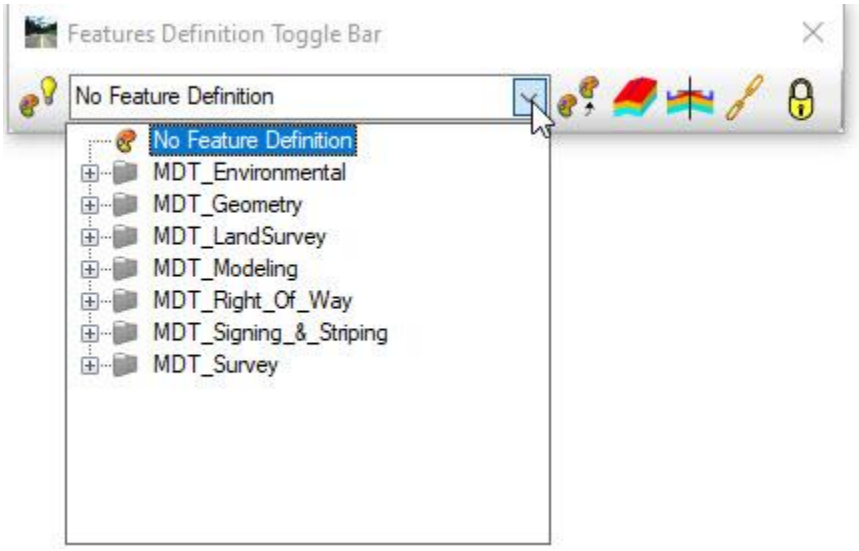
When **Annotation Scale** lock is on, all Text and Dimensions will be placed at the appropriate size for the scale selected. Line Styles will also be scaled accordingly. Using the Annotation Scale lock for elements placed in the project sheet files is not supported.

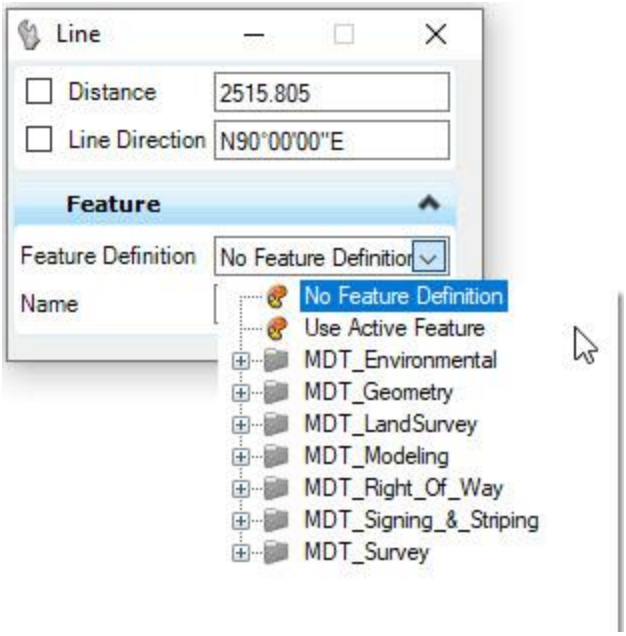
When creating sheets for production, and referencing DGN's, the reference scale is set to the applicable scale. The Attachment Settings dialog **Global Line Style Scale** is recommended to be set to **Master** and **Use Active Annotation Scale** to be **on**. The Drawing Scale in the "Master" file, or the file the user is referencing DGN's into, will be honored to achieve the desired scale. The **Scale Line Styles By Reference Scale** will need to be adjusted depending on the reference scale. The **Annotation Scale Lock** may be toggled **On** or **Off** but will influence contour elevation text display size.



FEATURE DEFINITIONS

Feature Definitions are how the OpenRoads technology determines the display of features that represent real world objects such as centerline of road, edge of pavement, back of curb, sidewalk, etc. by setting the engineering properties and symbology of that feature. The user will assign a Feature Definition every time the OpenRoads geometry tools are used. A listing of Linear Feature Definitions can be seen either from **the Feature Definition Toggle Bar** or **Tool Settings** as shown in the images below:





From the user's perspective, the only interaction with Feature Definitions will be either selecting one from the listings shown above or changing the Feature Definition of a civil object.

The feature definitions are sorted into folders but also named with a prefix that identifies their application as follows:

- EFS – Existing Spot Feature
- EFL – Existing Linear Feature
- RW – Right-of-Way
- WL – Wetlands
- HA – Horizontal Alignments
- DL – User Defined Feature Design Line
- TC – Modeling Template Component
- TL – Modeling Template Linear Feature
- TD – Modeling Terrain Display

The MDT Feature Definitions will load when the MDT Enhanced workspace is launched, and are stored in DGNLIB's located in the following folders:

MDT Workspace:

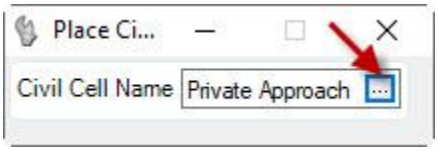
...\CaddStandards\Bentley\OpenRoads\OPENROADS\dgnlib

Consultant Workspace:

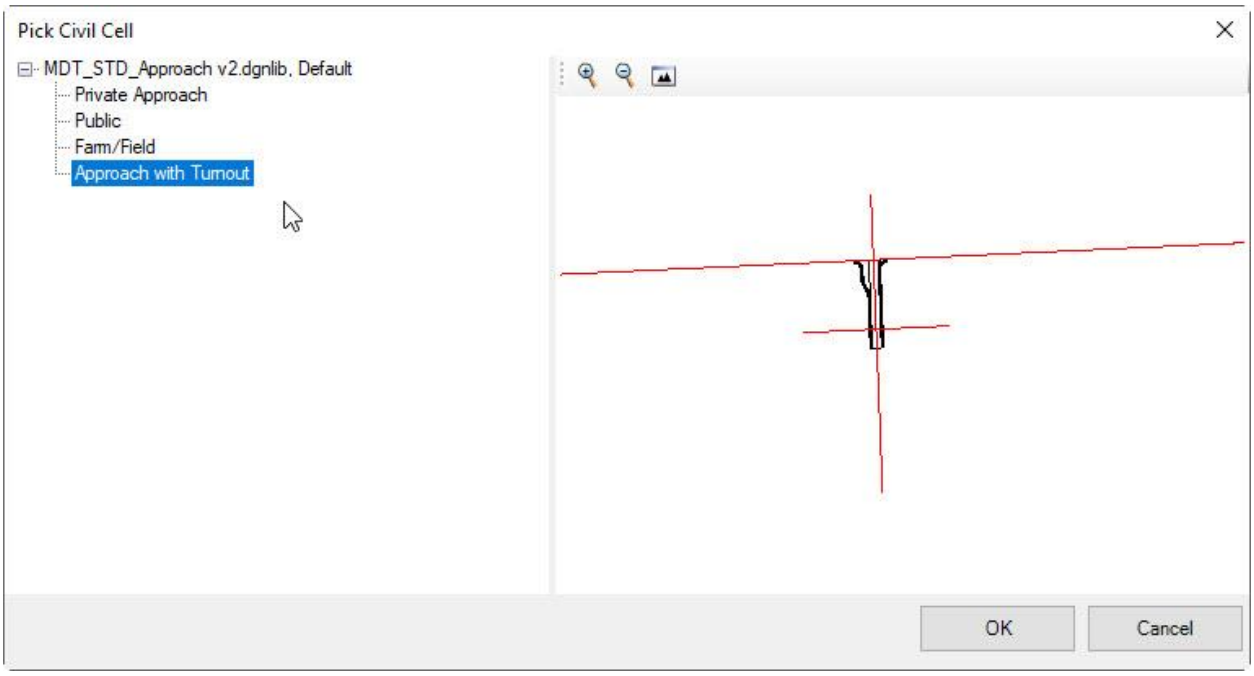
C:\Montana_DOT\Workspace\Standards-OpenRoads\dgnlib

CIVIL CELLS

Civil Cells are self-contained OpenRoads objects that are used for repeatable design solutions and can be adjusted to fit varying situations. The MDT Enhanced workspace provides Civil Cells for standard approaches. User interaction with Civil Cells will occur when a user selects the **Place Civil Cell** tool from the **Civil Cells** tab on **Tasks**. **Tool Settings** will change to show a field with ellipses on the right side that the user will click to load the **Pick Civil Cell** dialog.



The **Pick Civil Cell** dialog will display the contents of the MDT_STD_Approach V2.dgnlib as shown in the image below.



The user will select a Civil Cell and place it in the DGN.

The Civil Cell DGNLIB is located in the following folders:

MDT Workspace:

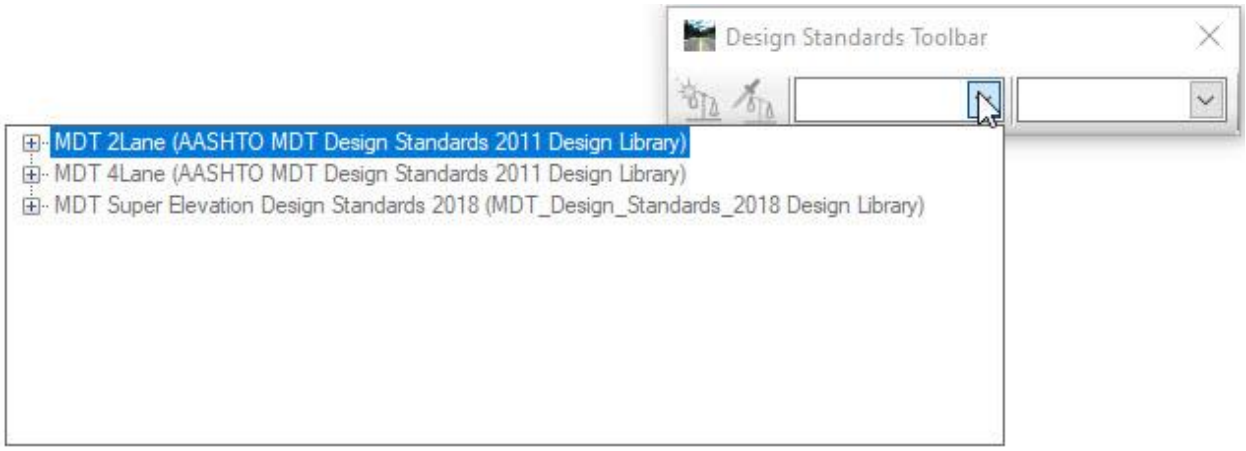
...\CaddStandards\Bentley\OpenRoads\OPENROADS\dgnlib\Civil_Cells

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards-OpenRoads\dgnlib\Civil_Cells

DESIGN STANDARDS

The user applies Design Standards to OpenRoads geometry. Design Standards are stored in a DGNLIB that is loaded when the MDT Enhanced workspace is launched, and from the user's perspective, interaction with the Design Standards will be seamless. The available standards will be displayed when the user clicks on the drop-down arrow on the **Design Standards** toolbar as shown in the image below:



The Design Standards DGNLIB is located in the following folders:

MDT Workspace:

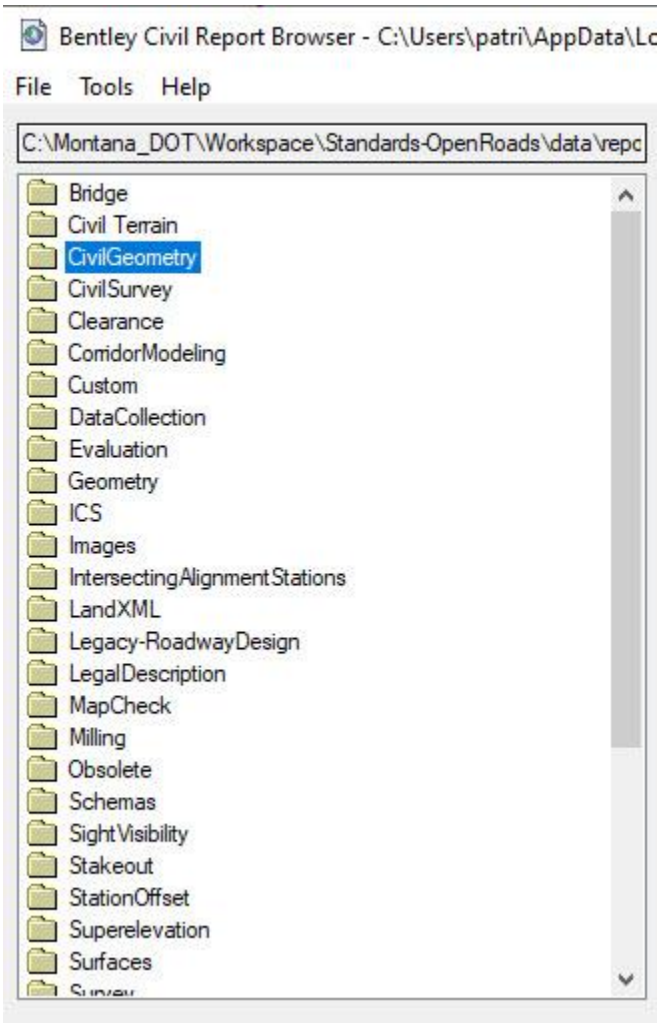
...\CaddStandards\Bentley\OpenRoads\OPENROADS\Design_Standards

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards-OpenRoads\dgnlib\Other

CIVIL REPORTS

Under the **Analysis & Reporting** tab on the **Task** bar, the user can pull various reports on OpenRoads objects. When a report is pulled, the **Civil Reports Browser** dialog will load. The pane on the left will display all the available reports in the MDT Enhanced workspace. The user's interaction with reports will be done through this interface as shown in the image below:



Report content and formatting is driven by Style Sheets that are stored in the following folders:

MDT Workspace:

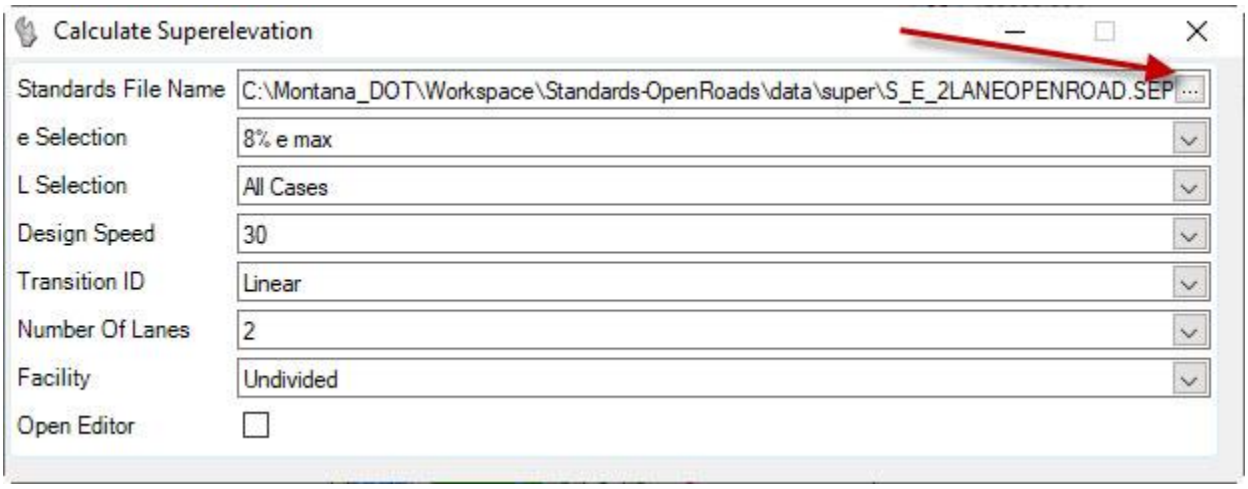
...\CaddStandards\Bentley\OpenRoads\OPENROADS\en

Consultant Workspace:

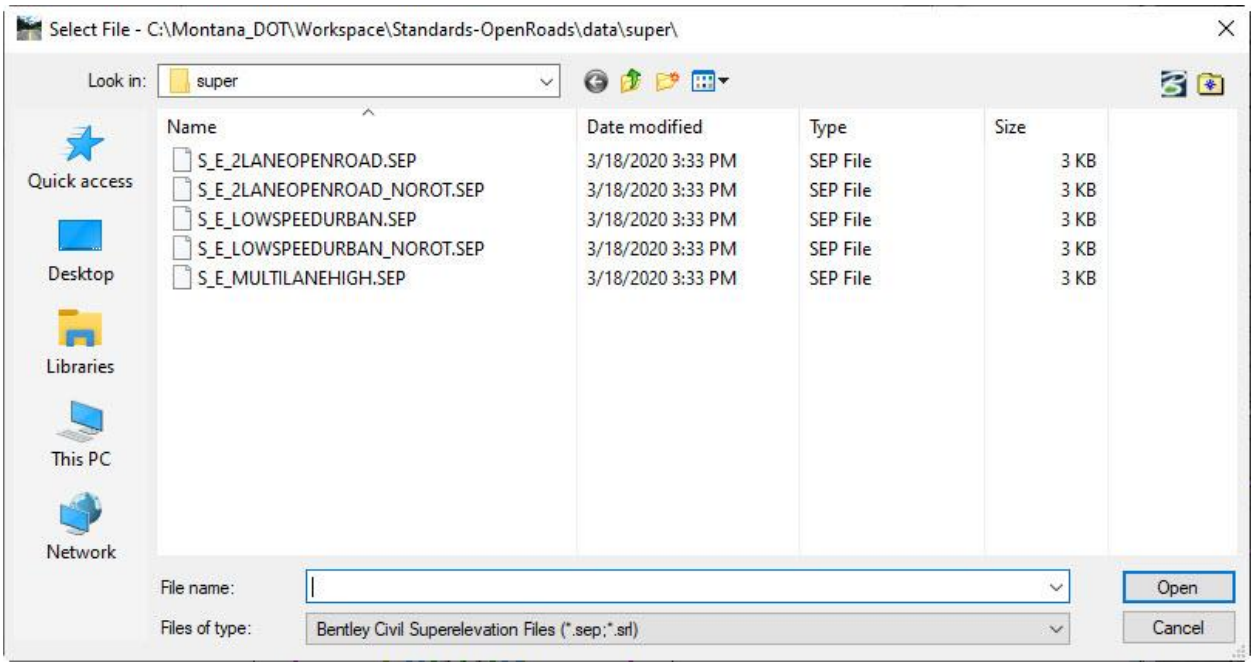
C:\Montana_DOT\Workspace\Standards-OpenRoads\data\reports\en

SUPERELEVATION

Superelevation is applied by the user to an Alignment, and OpenRoads will calculate the superelevation transitions based on settings files that are available in the workspace that the user selects. When the user selects the **Calculate Superelevation** command from the **Task** bar, and selects the Superelevation Section, **Tool Settings** will change to display the options available. At the top where it says **Standards File Name**, the user can click on the ellipses at the right.



This will open the **Select File** dialog where the user will select the .SEP file.



Once the .SEP file is loaded the user can continue with calculating the superelevation. The .SEP files are located in the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\OPENROADS\Super

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards-OpenRoads\data\super

TEMPLATES

Templates are a “typical section” that is extruded along the horizontal and vertical alignment to create a corridor model. Templates are stored in a Template Library(.ITL). The MDT Enhanced workspace is delivered with the Template Library **mdt_civil_templates_imperial_2018.itl** that is located in the following folders:

MDT Workspace:

…\CaddStandards\Bentley\OpenRoads\OPENROADS\data\template_library

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards-OpenRoads\data\template_library

The user will load the MDT standard itl by selecting the **Create Template** icon on the **Corridor Modeling** tab on the **Tasks** bar and selecting **File>Open** from the **Create Template** dialog.

Note: The **Create Project Settings Files** (a\k\a Create GPK Project) macro can be used to create a unique project template file. If an itl file is saved to the c:\dgn (or consultant workspace C:\Montana_DOT\DGN) matching the project number of the open file, it will be automatically loaded in place of the default workspace itl. The first itl file found will be loaded where more than one exists in the working directory.

MACROS

From the user’s perspective, all interaction with macros and macro help documents occurs through the MDT APPS, Road Tools, Traffic and Survey pulldown menus within MicroStation/Power Geopak. Enhanced Workspace Macro Overview is available separately.

Macro vba files are loaded from the following folders:

MDT Workspace:

...\CaddStandards\Bentley\OpenRoads\WORKSPACE\PROGRAMS\VBA\OPENROADS

Consultant Workspace:

C:\Montana_DOT\Workspace\Standards-OpenRoads\vba