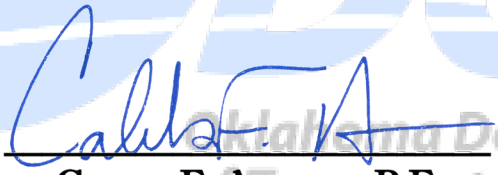
OKLAHOMA DOT ROADWAY DESIGN C.A.D.D. STANDARDS MANUAL

EDITION 1.0
EFFECTIVE APRIL 1, 2015



CALEB F. AUSTIN, P.E.
ROADWAY DESIGN DIVISION ENGINEER

FOREWORD

The Oklahoma Department of Transportation's (ODOT) Roadway Design Division would like to stress the importance of following these CADD Standards. Standards increase the readability and uniformity of design plans. When the format is consistent, readers can find information quicker and a standard level of proficiency is met and maintained.

This CADD Standards manual outlines the best practices to follow for all Oklahoma DOT related engineering work, whether performed by a CADD designer at the Oklahoma DOT, or by a designer in a consulting firm responsible for design drawing deliverables for the Oklahoma DOT.

Forward recommended changes to this manual to:

RoadwayTraininngArea@odot.org

Copies of this manual may be obtained through The Roadway Design page of Oklahoma Department of Transportation's Web site:

http://www.okladot.state.ok.us/roadway/index.htm

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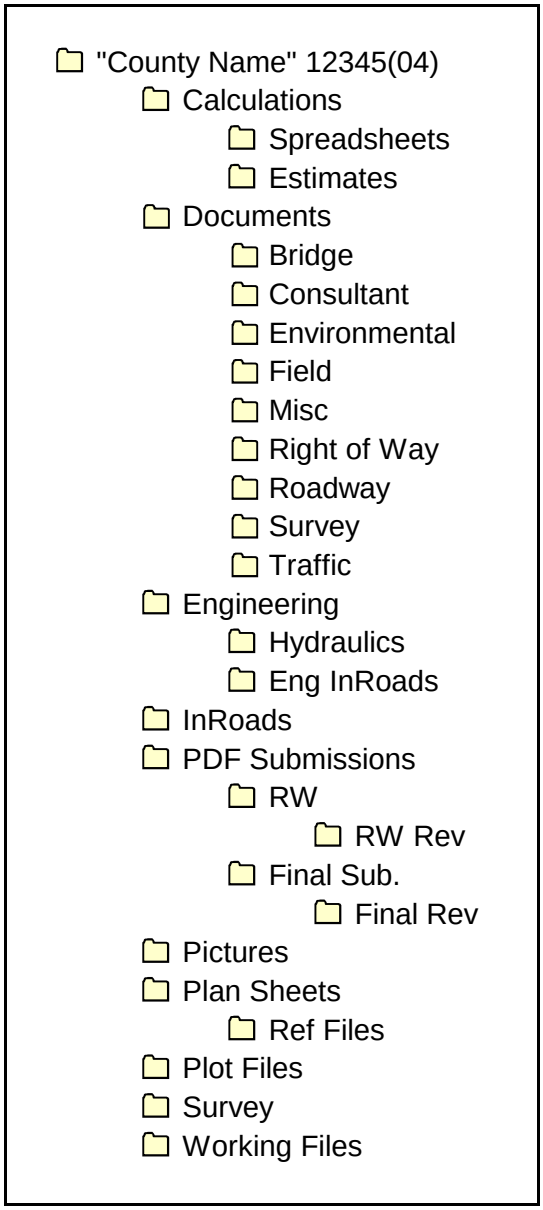
Roadway Design
Standard Folder Format



Location of pre-made file structure: (For ODOT Roadway Design use only)
Y:\#Support Documentation\CADD Standards\County Name 12345(04)

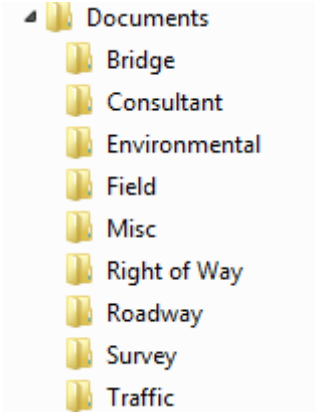
Documents/Correspondence

For ODOT use only

There are several types of correspondence throughout the project design process.
A few of these documents include:

- Reports
- Requests
- Permits
- Applications
- Submittal letters

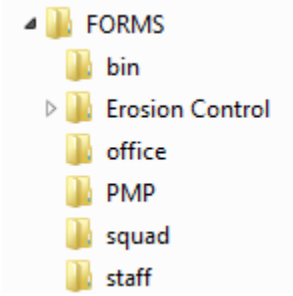
All correspondence should be placed in the project folder under Documents. This folder contains subfolders that correspond to the type of documentation.



All files should follow Roadway Design's standard document naming convention:

"JP#" "Type/Description" "Date" Example: 12345(04) Traffic Request 9-15-14.docx

When requesting information from other divisions and outside entities there are prebuilt request form templates located in the Y:\FORMS folder.



Roadway Design
Standard MicroStation File Naming Convention

Name	Folder Location
12345(04)-Align.dgn	Ref Files
12345(04)-Const.dgn	Ref Files
12345(04)-"Type" Detail.dgn	Plan Sheets
12345(04)-Erosion Control.dgn	Plan Sheets
12345(04)-Geometric Detail.dgn	Plan Sheets
12345(04)-Mass Diagram.dgn	Plan Sheets
12345(04)-Notes.dgn	Ref Files
12345(04)-Pay Quantity.dgn	Plan Sheets
12345(04)-PnP.dgn	Plan Sheets
12345(04)-Profile.dgn	Ref Files
12345(04)-ROW.dgn	Ref Files
12345(04)-Sequence.dgn	Plan Sheets
12345(04)-Summary.dgn	Plan Sheets
12345(04)-Survey Data.dgn	Plan Sheets
12345(04)-SWMP.dgn	Plan Sheets
12345(04)-Title.dgn	Plan Sheets
12345(04)-TOPO	Ref Files
12345(04)-Typical.dgn	Plan Sheets
12345(04)-Utilities.dgn	Ref Files
12345(04)-Xsec Detour.dgn	Plan Sheets
12345(04)-Xsec.dgn	Plan Sheets

Each file in a folder must have a unique name. In the case of multiple sheets of the same name a numeric value shall be added to the end of each file name. (e.g. 2 Typical Section files would be named. 12345(04)-Typical 1.dgn and 12345(04)-Typical 2.dgn)

Roadway Design
Standard InRoads File Naming Convention

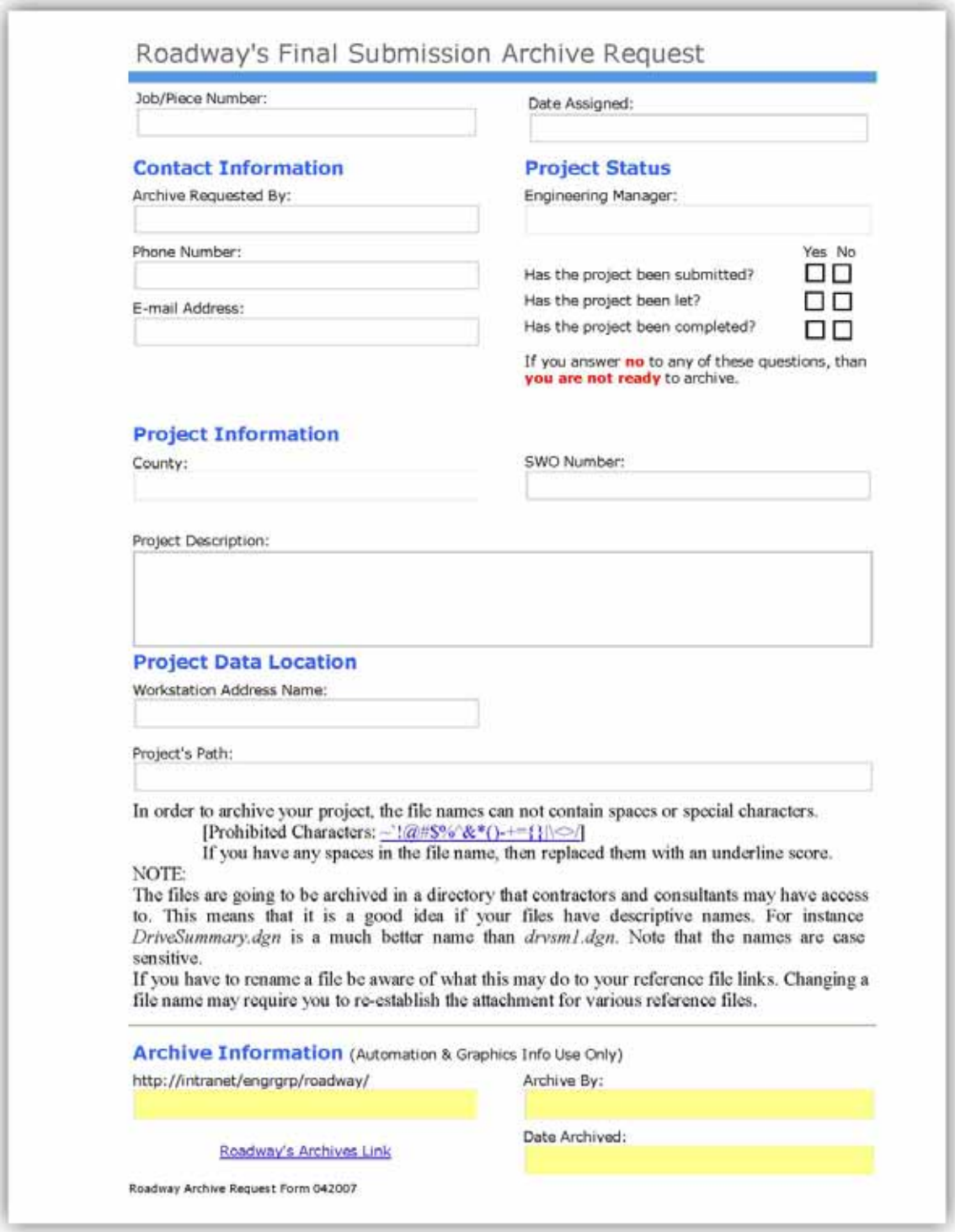
12345(04)-Project.rwk
12345(04)-Geometry.alg
12345(04)-Template.itl
12345(04)-Corridor.ird
12345(04)-Preference V#.xin
12345(04)-Notes.dft
12345(04)-Drainage.ddb
12345(04)-Custom.xsc
12345(04)-PNP Sheet.vdf
12345(04)-Offset Cl and Det.xml
12345(04)-CL Horiz.txt
12345(04)-CRL Vert.txt
12345(04)-Special Ditch Lt Vert.txt
12345(04)-Detour and Exist.eav
12345(04)-Mainline and Exist with Detour.eav
12345(04)-Phase 2 and mainline with existing.eav
12345(04)-Existing V#.dtm
12345(04)-Mainline.dtm
12345(04)-Detour.dtm
12345(04)-Phase 1.dtm
12345(04)-Phase 2.dtm
12345(04)-Phase 3.dtm

Each file in a folder must have a unique name. In the case of multiple files of the same name a numeric value shall be added to the end of each file name. (e.g. 2 Mainline files would be named. 12345(04)-Mainline 1.dtm and 12345(04)-Mainline 2.dtm)

Archiving

For ODOT use only

(Page Reserved)



Roadway's Final Submission Archive Request

Job/Piece Number:

Date Assigned:

Contact Information

Archive Requested By:

Phone Number:

E-mail Address:

Project Status

Engineering Manager:

	Yes	No
Has the project been submitted?	☐	☐
Has the project been let?	☐	☐
Has the project been completed?	☐	☐

If you answer **no** to any of these questions, than **you are not ready** to archive.

Project Information

County:

SWO Number:

Project Description:

Project Data Location

Workstation Address Name:

Project's Path:

In order to archive your project, the file names can not contain spaces or special characters.
[Prohibited Characters: ~`!@#$%^&*()-+={}|\<>/]
If you have any spaces in the file name, then replaced them with an underline score.

NOTE:
The files are going to be archived in a directory that contractors and consultants may have access to. This means that it is a good idea if your files have descriptive names. For instance *DriveSummary.dgn* is a much better name than *drvsm1.dgn*. Note that the names are case sensitive.
If you have to rename a file be aware of what this may do to your reference file links. Changing a file name may require you to re-establish the attachment for various reference files.

Archive Information (Automation & Graphics Info Use Only)

http://intranet/engrgrp/roadway/

Archive By:

Date Archived:

Roadway's Archives Link

Roadway Archive Request Form 042007

Electronic Data Submission for Bidding

Electronic files compress folder set naming convention.

CO###_YYMMDD_JP#######_DesFiles.zip

- CO### > Call Order number issued by Office Engineer > contact them to apply
- YYMMDD > Year Month and Day of Letting
- JP####### > Job Piece number assigned to the project
- DesFiles > Designated as the design plans for this project
- Zip > file extension assigned by compressing file set application

Folders and files included in compress file set

01 Project Control

- ◊ ####### – Survey Alg.txt > cogo points list
- ◊ ####### – Survey Data.dgn

02 Existing Topographic Data

- ◊ ####### – TOPO.dgn

03 Original Ground Surface

- ◊ ####### – **Existing Ground Land.xml
- ◊ ####### – Utilities.txt

04 Horizontal & Vertical Information, Design Features > (EOP, Shoulders, etc…)(Phase Construction)

- ◊ ####### – Construction.dgn
- ◊ ####### – Detour Vertical.txt
- ◊ ####### – Horizontal Alignment.dgn
- ◊ ####### – Proposed Mainline Vertical.txt
- ◊ ####### – **Detour Design Land.xml
- ◊ ####### – Detour Horizontal.txt
- ◊ ####### – **Geometry Project Land.xml
- ◊ ####### – **Mainline Design Land.xml
- ◊ ####### – Vertical Profiles.dgn (Showing Special Ditches)
- ◊ ####### – CL Survey Horizontal.txt

05 Cross Sections > (with labels for invent points)

- ◊ ####### – Cross Section.dgn > (Showing Special Ditch Elevation)
- ◊ ####### – Superelevation Work Sheet.pdf

1-3 ~ Survey Data
4-5 ~ Roadway Design Data
** NOTE: All XML are to be generated as LandXML files.

ProjectWise

(Page Reserved for ProjectWise File Structure Information)

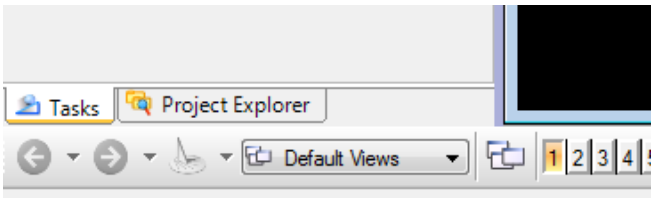
ProjectWise is a Bentley Systems, Incorporated software package that serves as a document management system to manage architecture, engineering, construction and operations project documents.

ProjectWise can manage any document type including MicroStation and InRoads files, Microsoft Office Documents, as well as project photos and aerial images. Other software such as the Microsoft Office Suite can also be integrated into the ProjectWise environment. ProjectWise provides a secure environment where project information can be stored. Individuals can check out a document for revisions and check it in when the revisions are done. Others can read the document while the document is checked out but cannot revise it.

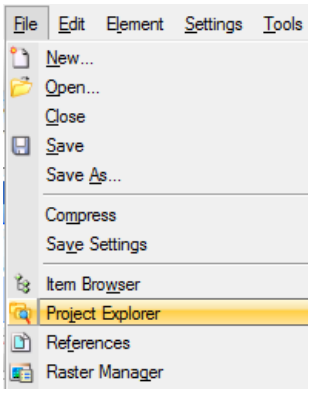
Project Explorer

Project Explorer is used to browse and manage the content within a file and link MicroStation and other files associated to a project together.

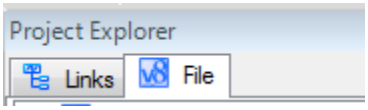
The Project Explorer dialog is normally docked to the left-hand edge of the application window, beneath the docked Tasks dialog.



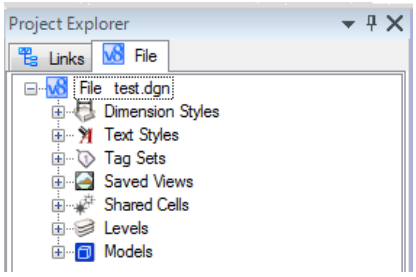
It can also be accessed by selecting the Project Explorer icon in the Primary Tools toolbox or navigating to Project Explorer under the File menu.



The Project Explorer dialog consists of a File tab and a Links tab.

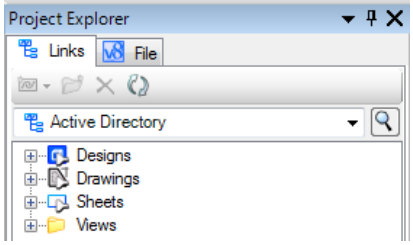


The File tab can be used to browse and manage the file content such as displays models, saved views, references, levels, dimension styles, text styles, shared cells, and other file content.



You can also view the content of the active model. The model content includes saved views, levels, named groups, rasters, point clouds, references, elements, and so on. The model content is displayed by expanding the active model under the Models category. You can view the content of the active model only.

The Links tab can be used to see the linked data.



Project data is stored in link sets in a DGN file or in a DGN library. A link set contains hierarchical information about links or grouped information in project data. Links to MicroStation elements can be created from:

Files, Folders, Key-in commands, and URL's (Web addresses)

Section 2
MicroStation User Setup

- **WorkSpaces**
- **User Preferences**
- **Settings**
  - **Task Dialog**
  - **AccuDraw**
  - **Snaps**
- **Working Units & Global Origin**
- **Oklahoma State Plane Coordinate System Zones**
  - **North and South Zone Map**
  - **Checking Active Coordinate Zone**
- **Seed Files**
- **Scale Factors**
- **Element Templates**

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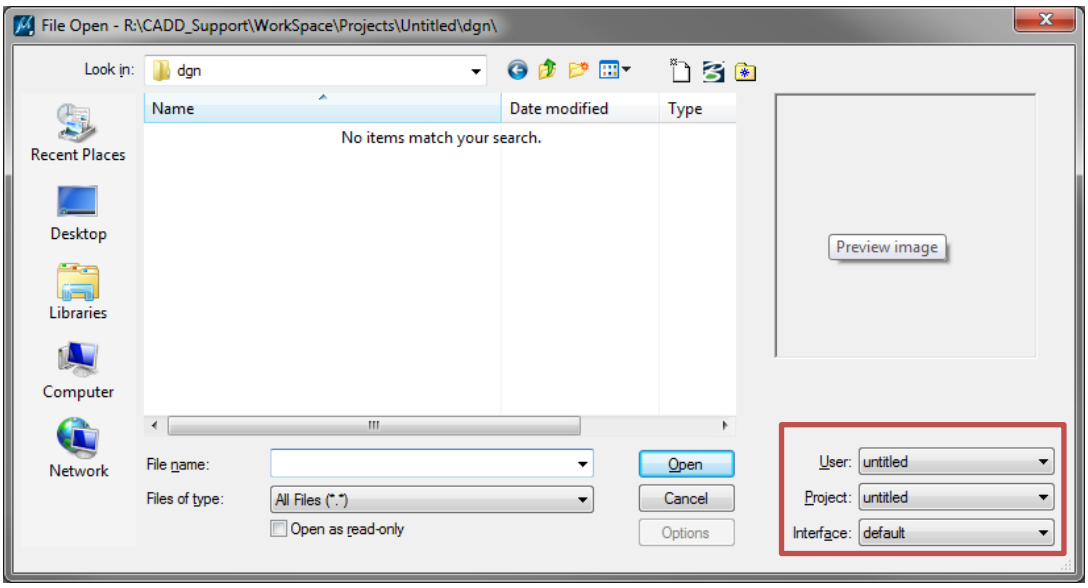
WorkSpaces

A workspace is a custom working environment in MicroStation. When you run MicroStation, you enter a workspace. The following components make up a workspace:

User - The user configuration file and the user preference file
Project - The (optional) project configurations file (and project folders)
Interface - The user interface folder (and modification files)



Each workspace component holds information to customize the working environment.

The user configuration or UCF file holds configuration variables that are unique to a single user and are not intended to be shared with a group.

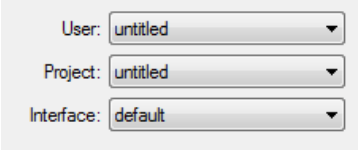
The user preference or UPF file holds user preference settings. User preference settings include all those settings found in the Preferences dialog box in MicroStation, plus other user specific settings such as file history, tool locations and settings boxes.

The Project Configuration (PCF) File and Folders hold standard resource files to be shared by all users working together on a particular project. The project configuration or PCF file holds configuration variables that point to the standards in the project folders.

Roadway Design uses a redirect file to maintain this basic configuration.
This file points to a master configuration file on the R: Drive. The Master file controls the configuration variables that a standard Roadway user will need. Some of these Include print styles, line styles, dimension styles and text styles.

Once MicroStation software is loaded on a machine the **xRDYredirect.cfg** file should be copied into the following location:
C:\ProgramData\Bentley\MicroStation V8i (SELECTseries)\WorkSpace\Standards

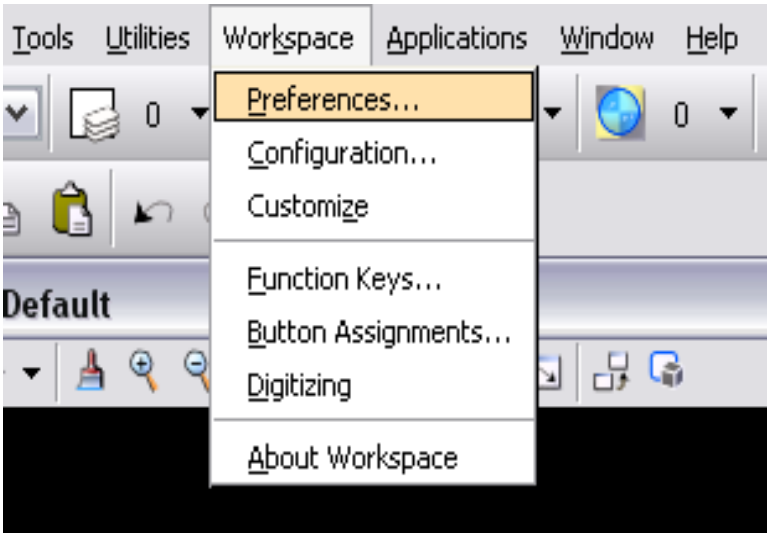
When MicroStation is launched the first time the following workspace settings should be active. This is the default and should not be changed.

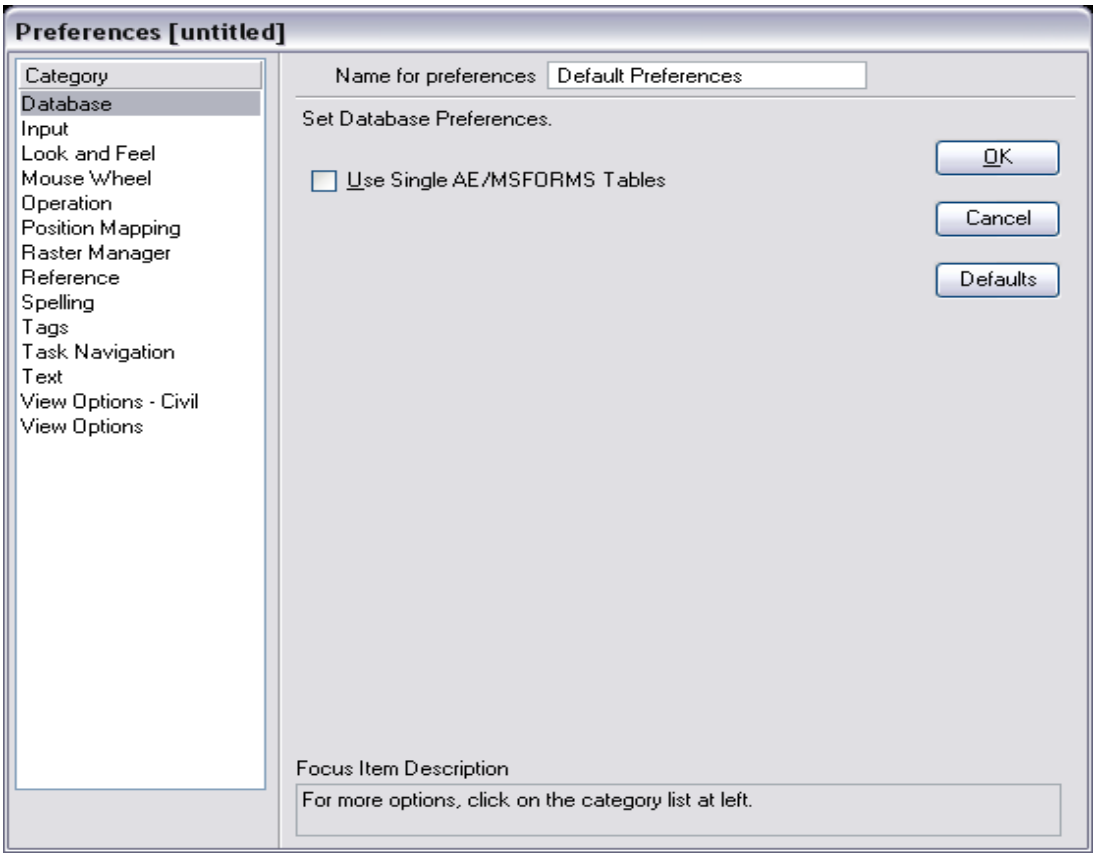


MicroStation User Preferences

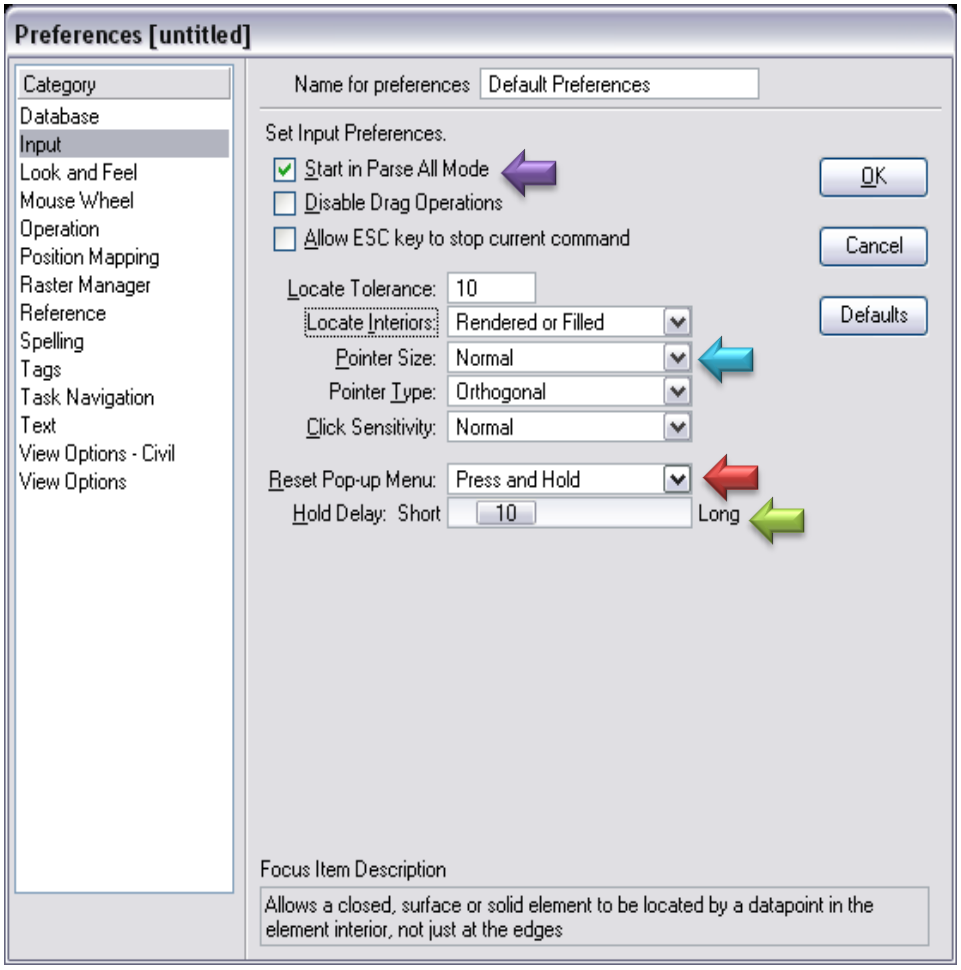
User preferences are settings that control the operation of Microstation.
This section covers the most common settings a user will change.

Users can adjust these settings to suit personal likes and dislikes without adjusting the settings of other users.

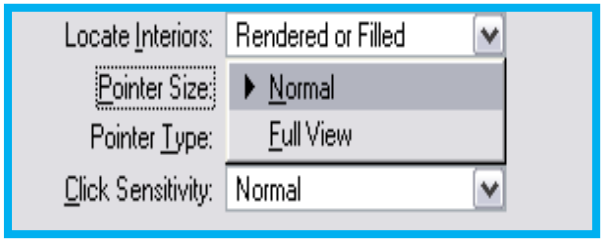




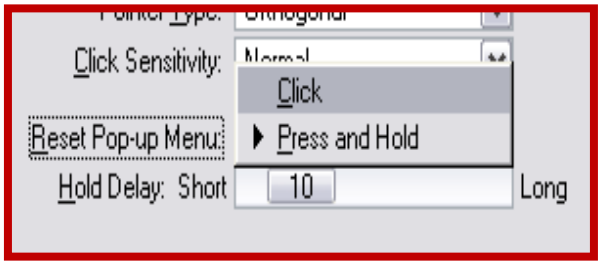
Preferences "Input"



If on, pressing <ESC> deactivates the selected tool and activates the default tool.



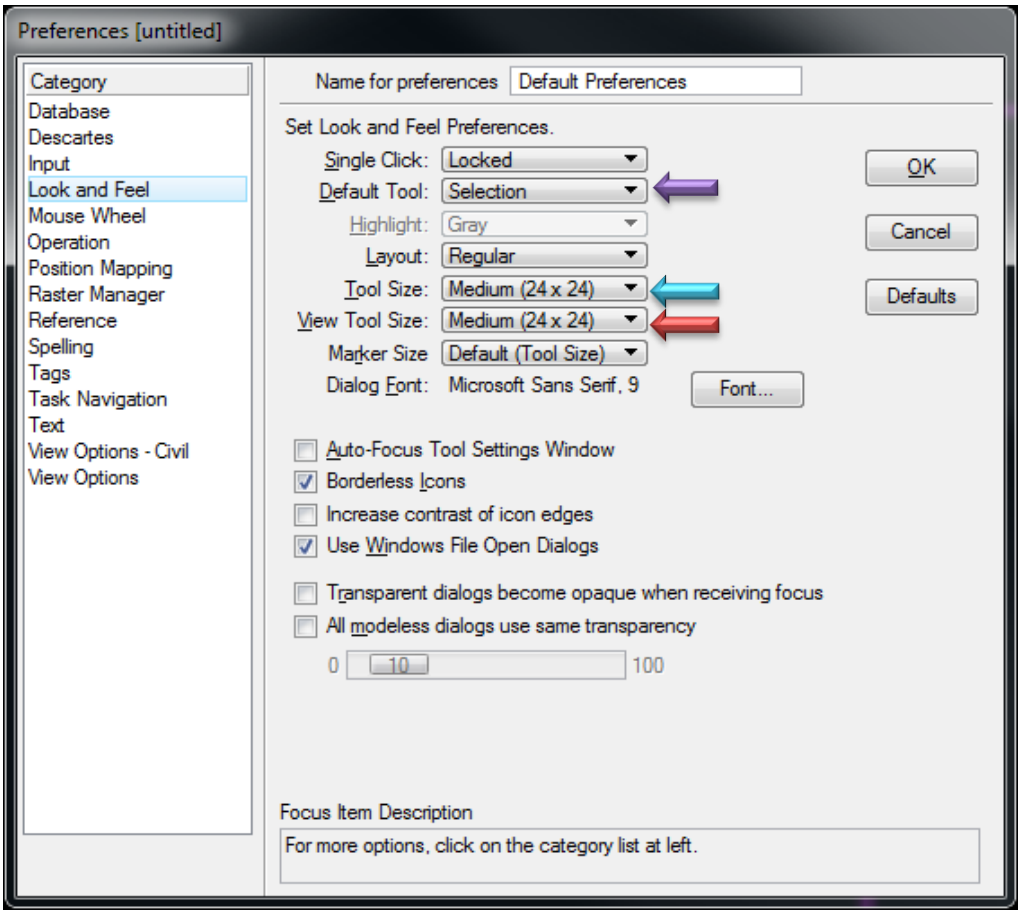
Sets the size of the pointer cross hairs.



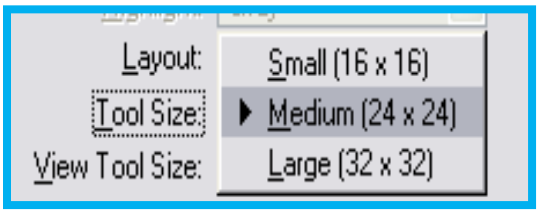
Sets the reset button action. Click- the reset menu appears with one click. *Press and Hold-* holding the reset button causes the menu to appear.

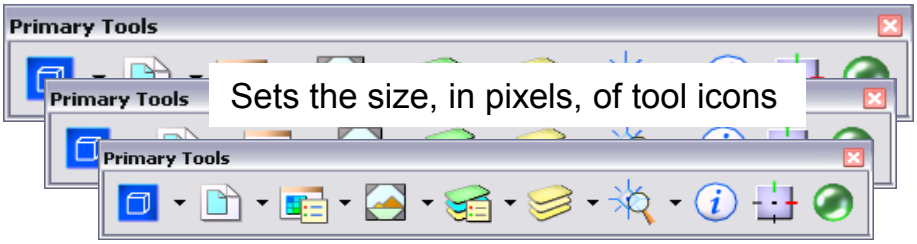
Sets the time interval, in ticks (60ths of a second), during which the Reset button must be pressed and held to cause the Reset pop-up menu to appear.

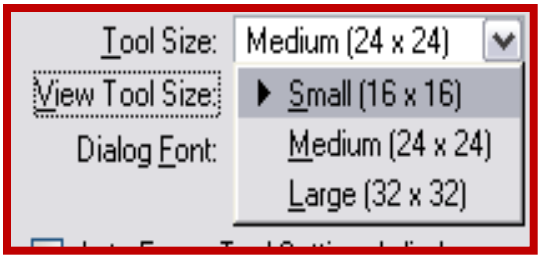
"Preferences Look and Feel"



Sets the tool that is automatically selected if <ESC> function is active or upon completion of a one-time function.(Default is Selection)

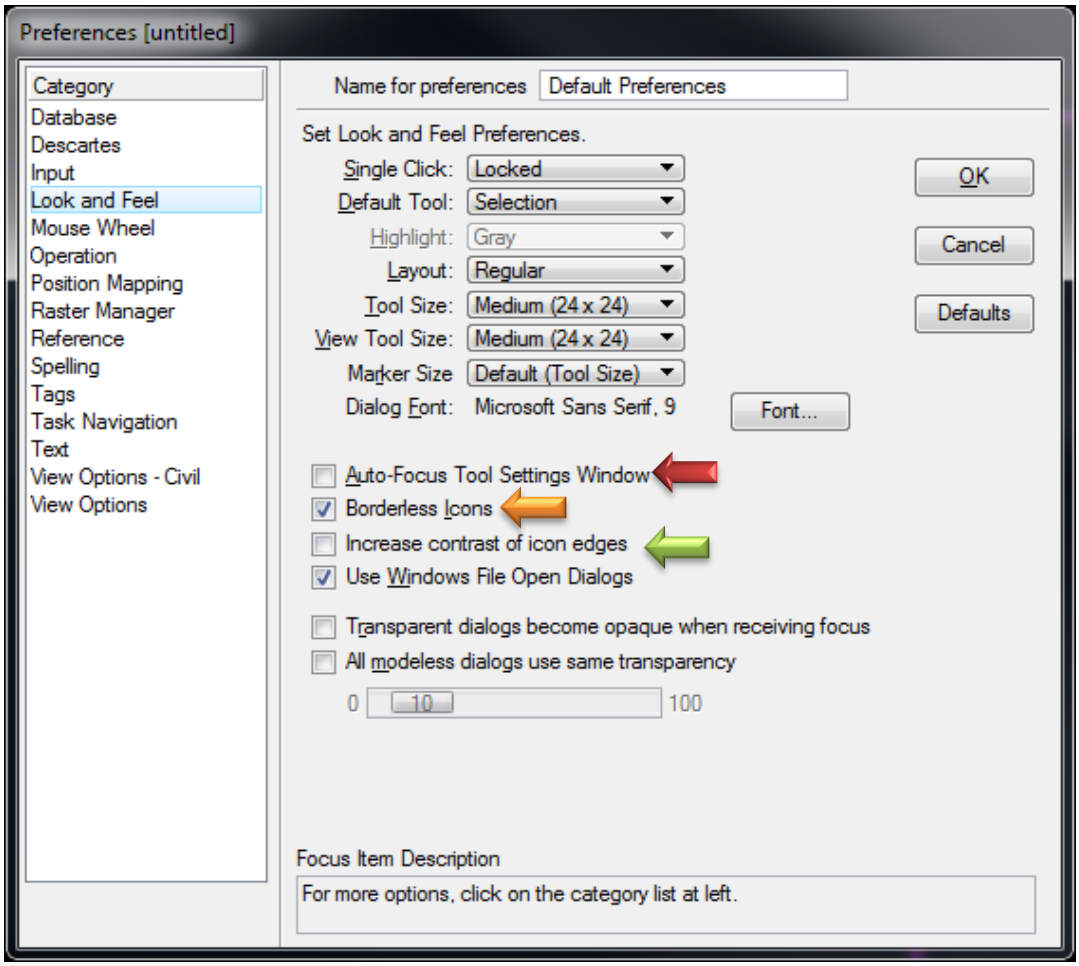


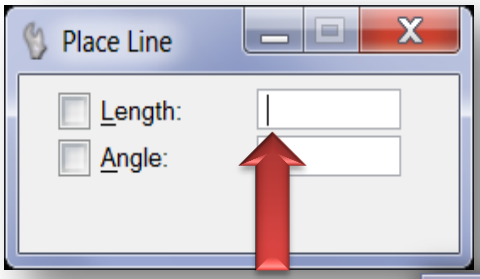




Sets the size, in pixels, of tool icons in toolboxes docked to open view windows. The effect of this setting is visible only while Window > view toolbox is on.

Preferences "Look and Feel"

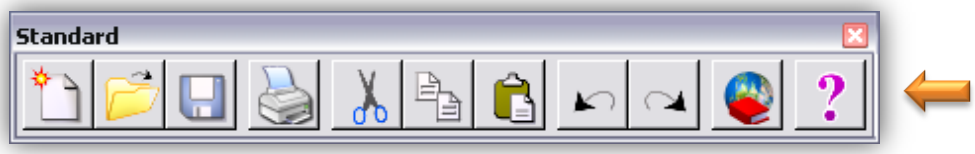




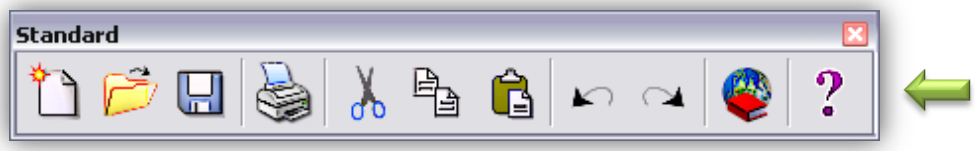
Auto-Focus Tool Settings Window – when a tool has settings, the input focus (curser) automatically moves to the tools settings window (default is off).

Borderless Icons

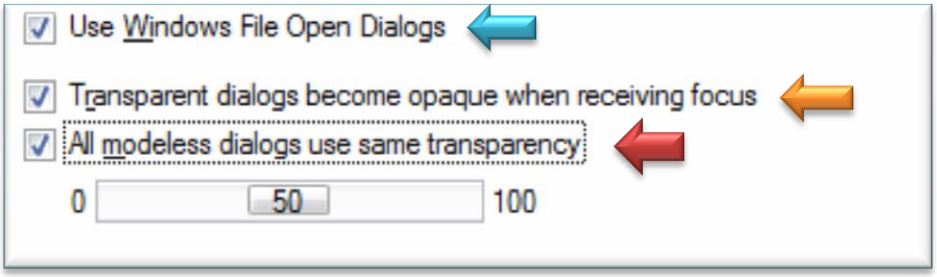
Icons with Border



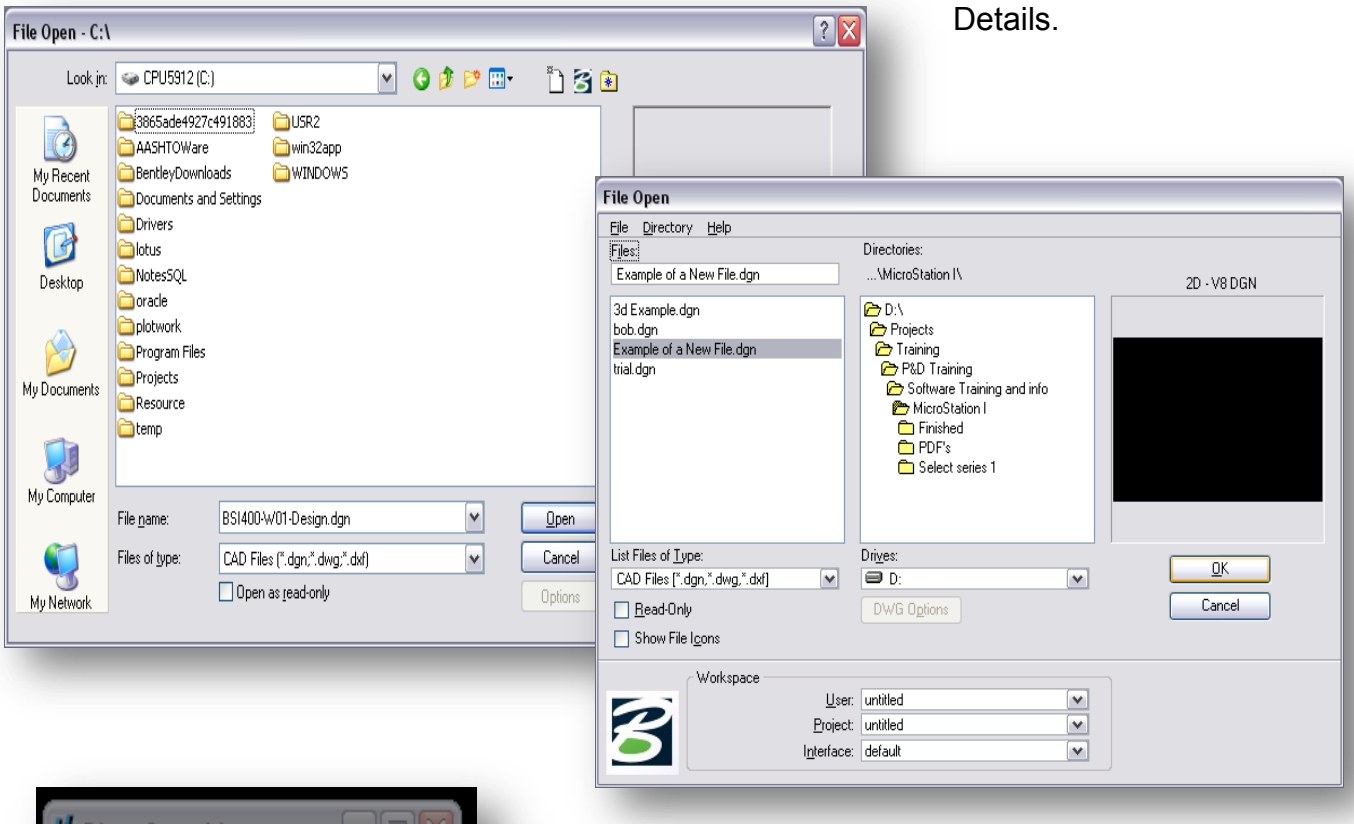
Contrasted Edges

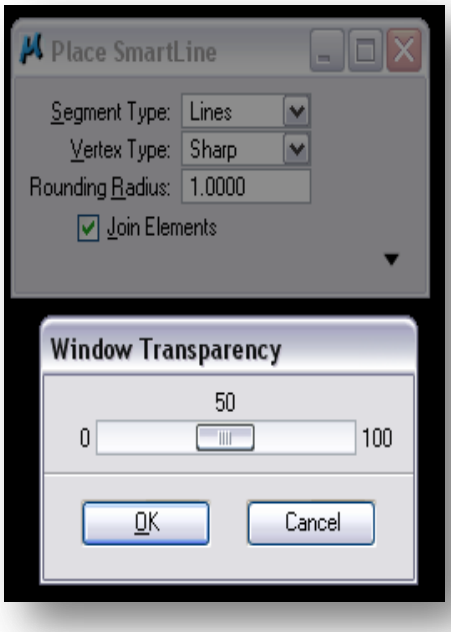


Preferences "Look and Feel



If on (the default), native Windows file selection dialogs are used instead of the MicroStation file open dialogs. This Dialog allows you to display filenames as Thumbnails, Tiles, Icons, List (the default), and Details.

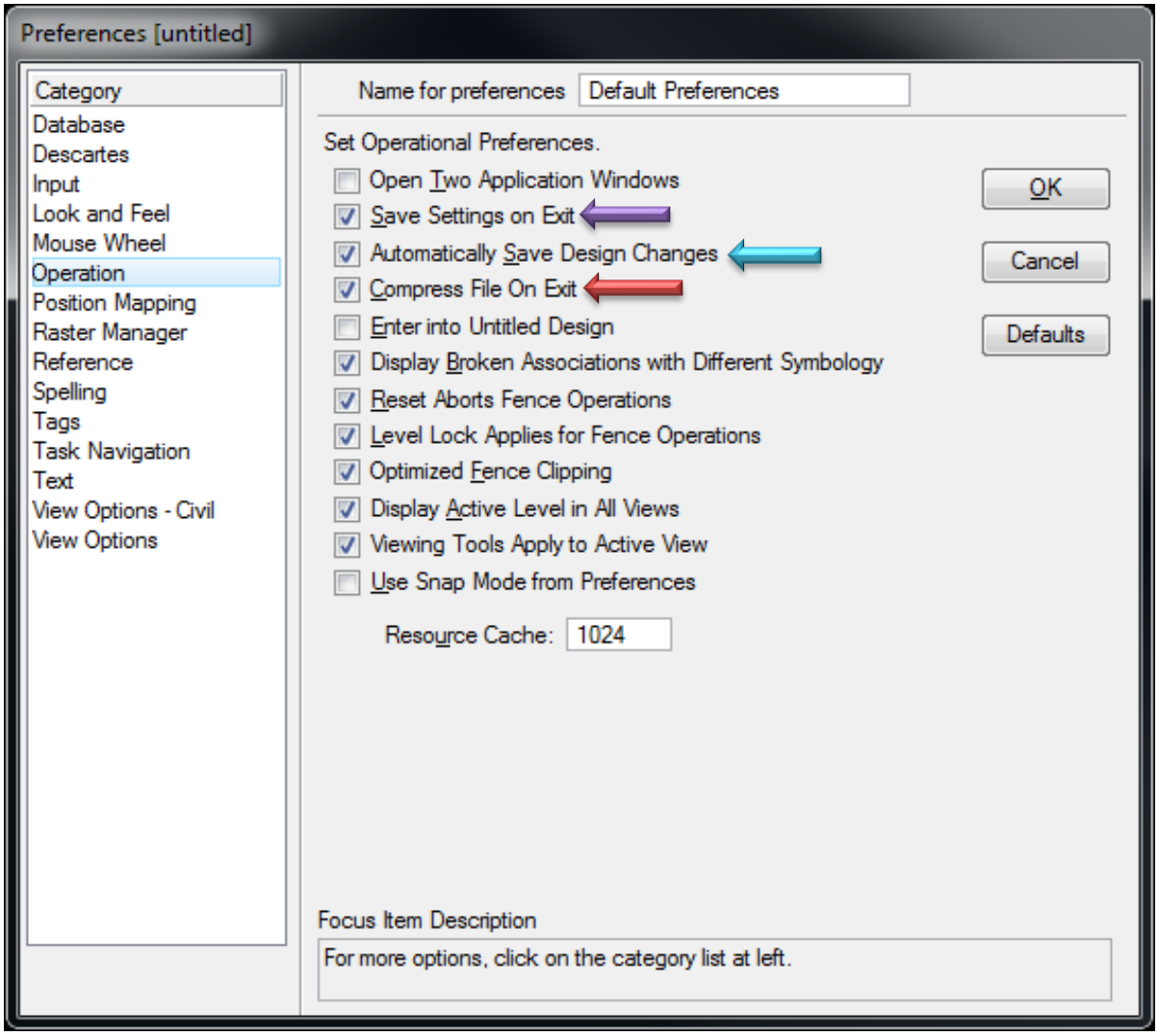




Transparent dialogs become opaque when receiving focus- if on and the transparency is set, the dialog becomes opaque when selected (default is off).

All modeless dialogs use same transparency-
If on, all modeless dialogs use the same transparency from 0-100 as set in the slider scale where a value of 0% indicates no transparency and a value of 100% indicates full transparency (default is off).

Preferences "Operation"

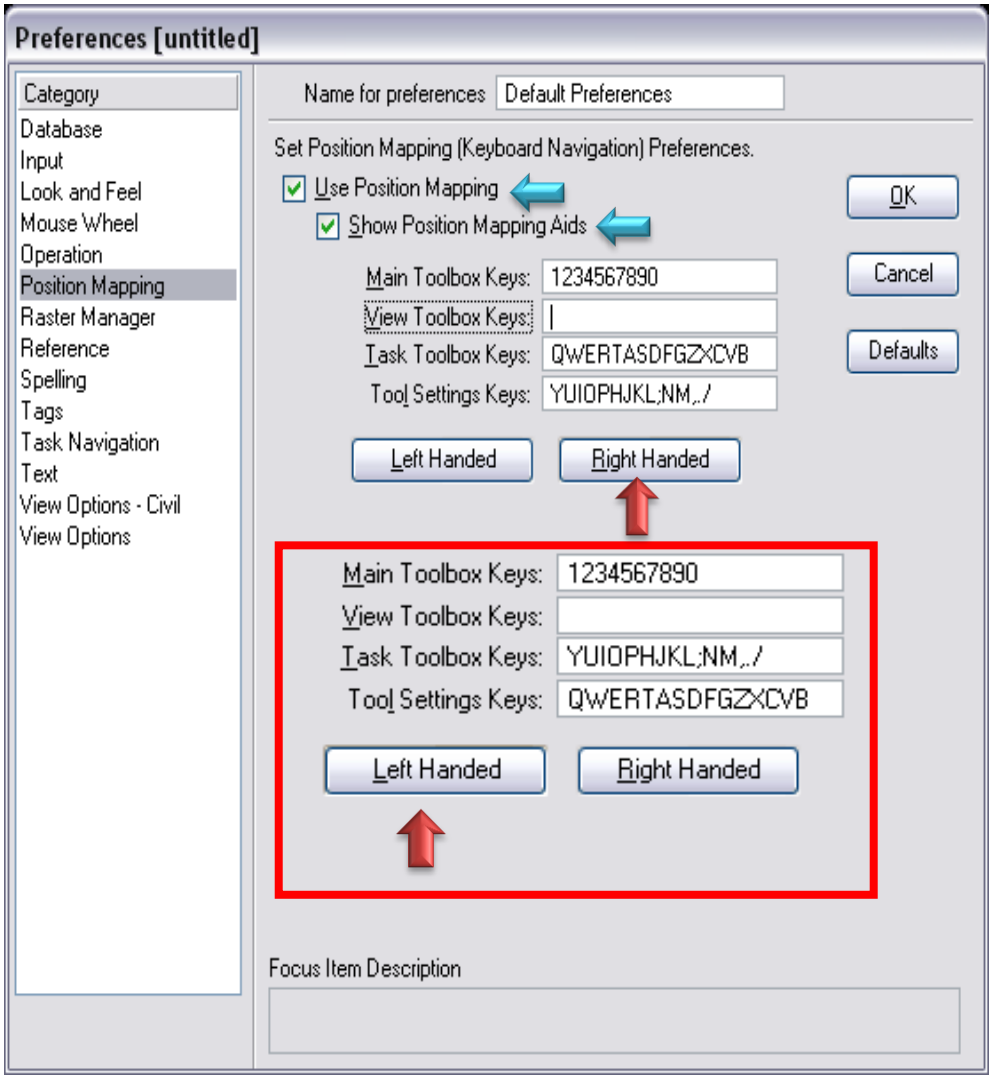


Save Settings on Exit- (default is off)
If on, automatically saves settings such as active color and view setup along with the changes to the DGN file.

Automatically Save Design Changes-
(default is on) If on, automatically saves changes to the DGN file.

Compress File on Exit- (default is off)
If on, the active design file is automatically compressed when closed. The compression operation permanently removes elements marked for deletion
(this action empties the undo buffer).

Preferences "Position Mapping"

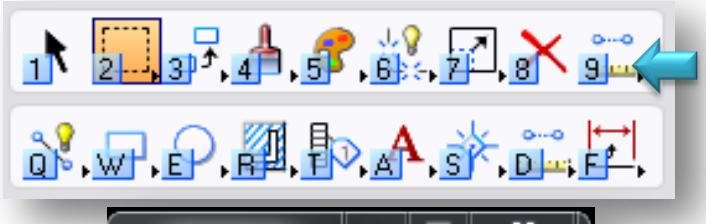


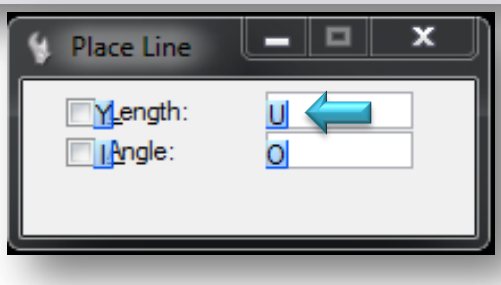
Use Position Mapping- (default is on) If on, it activates the positional keyboard navigation that is used to map the keyboard to collections of interface items. This technique lets you use the keyboard to select tools, open dialog boxes, and change settings.

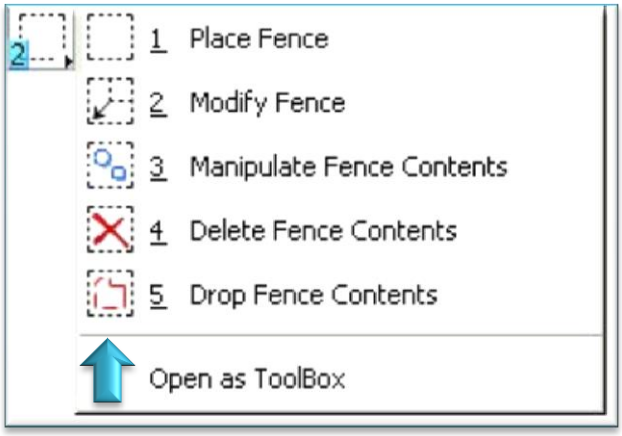
Left handed and right handed buttons- (right is the default)

Sets task toolbox keys to the default mapping letters.

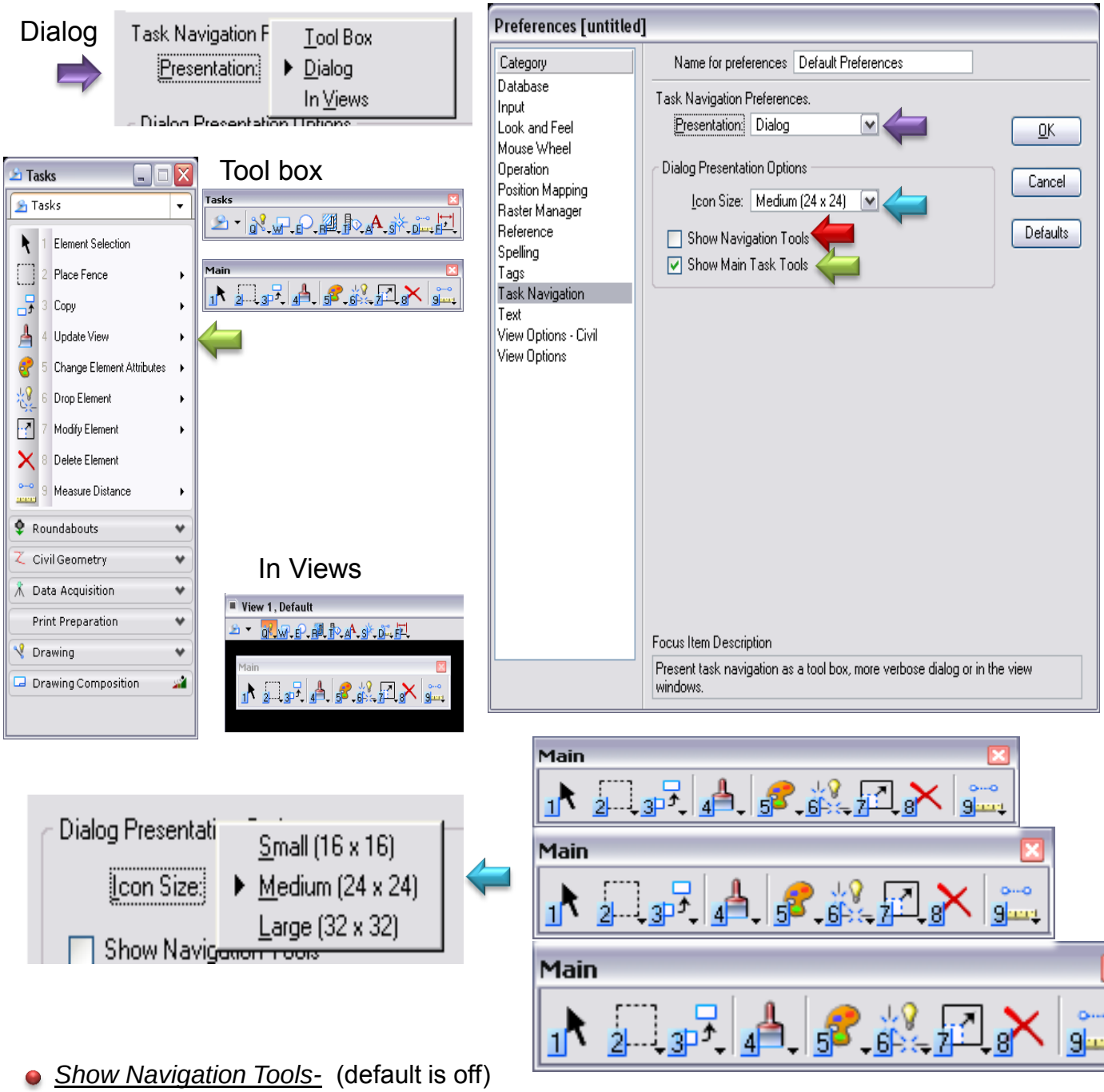
Show Position Mapping Aids- (default is on) If on, the keyboard key labels are displayed on tool icons as navigational aids on tool icons accessible via positional keyboard navigation.







Preferences "Task Navigation"



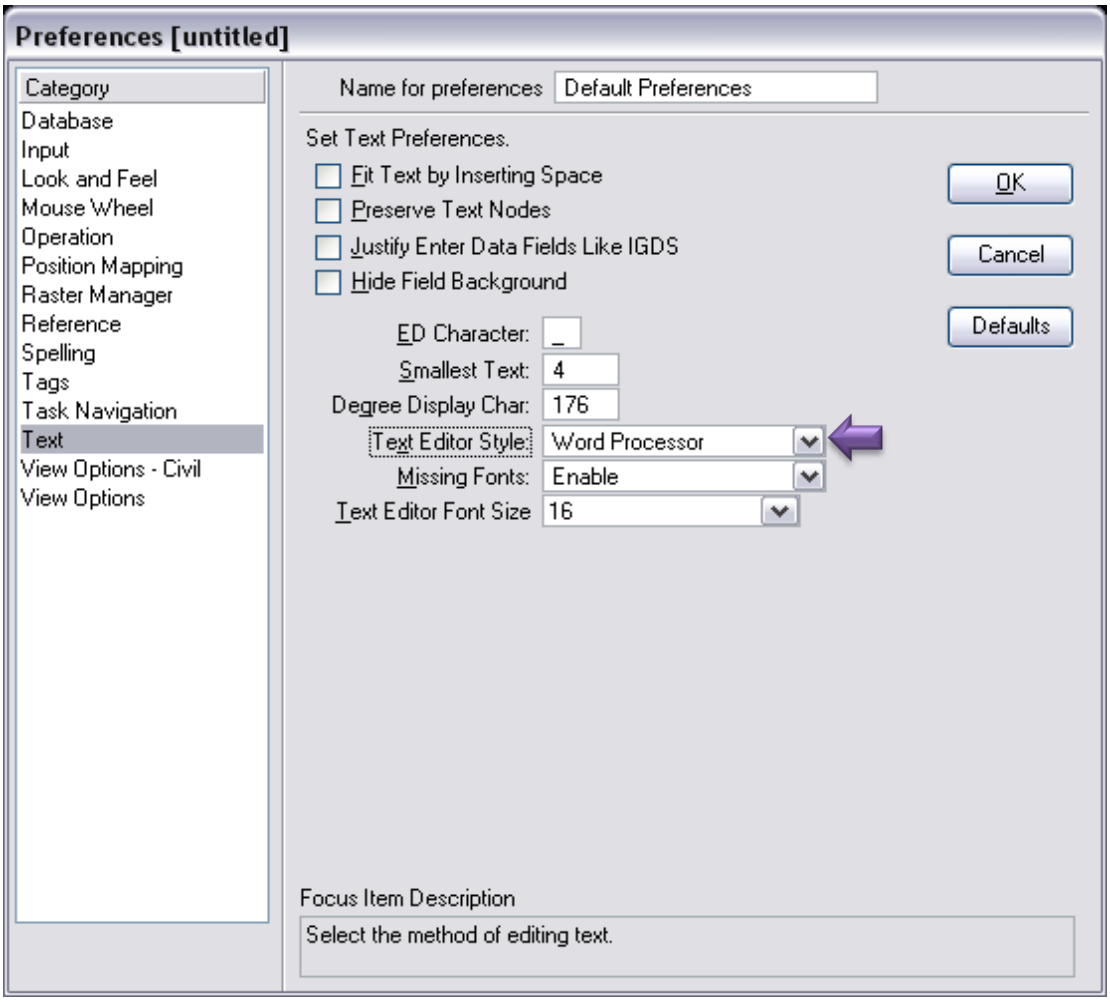
- *Show Navigation Tools-* (default is off)

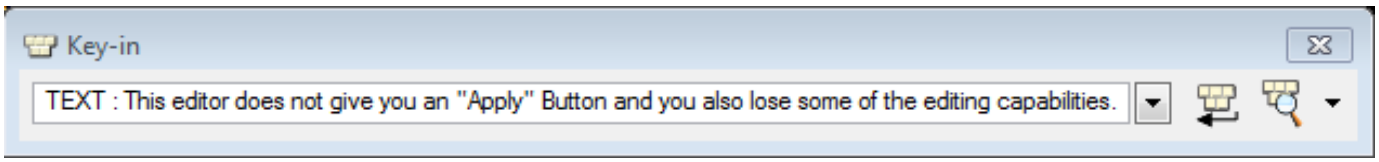
If on, displays the navigation icons on the tasks dialog.

This tool allows you to move back and forth between task views or return to the task root .

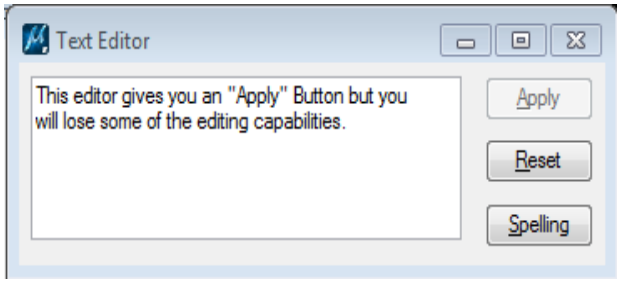
- *Show Main Task Tools-* (default is on) If on incorporates the Main task into the Tasks dialog.

Preferences “Text”

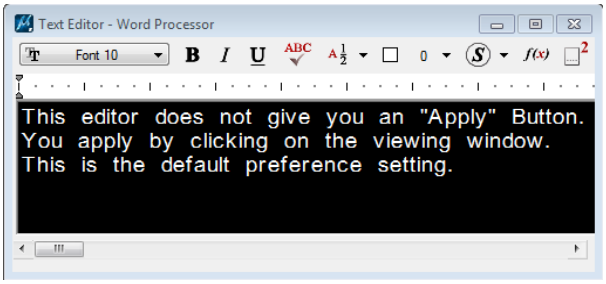




Dialog box

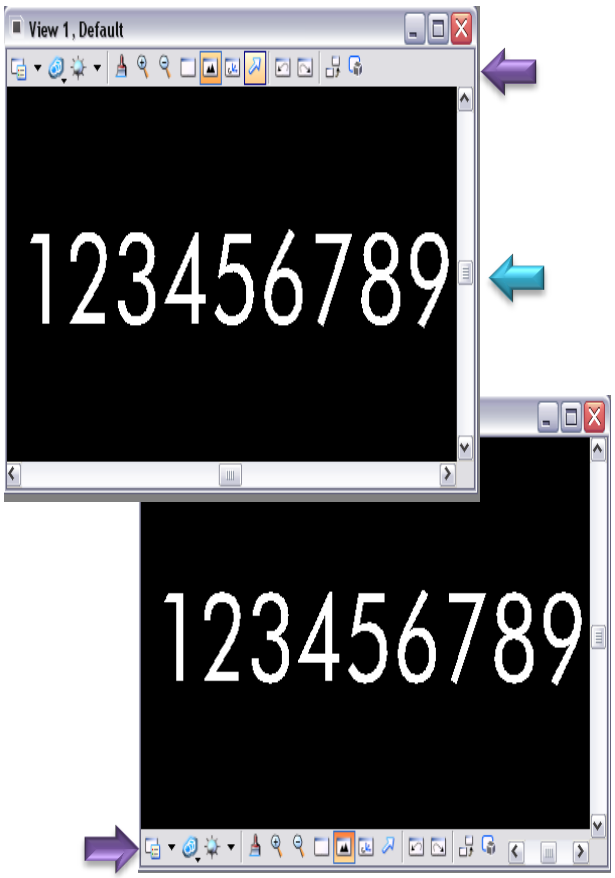


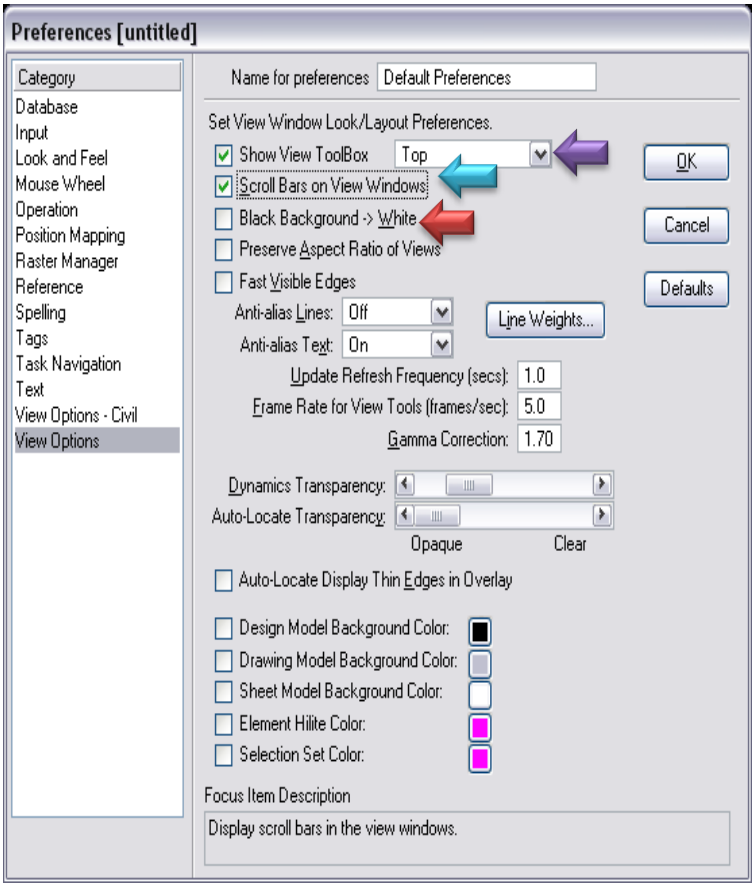
Word processor



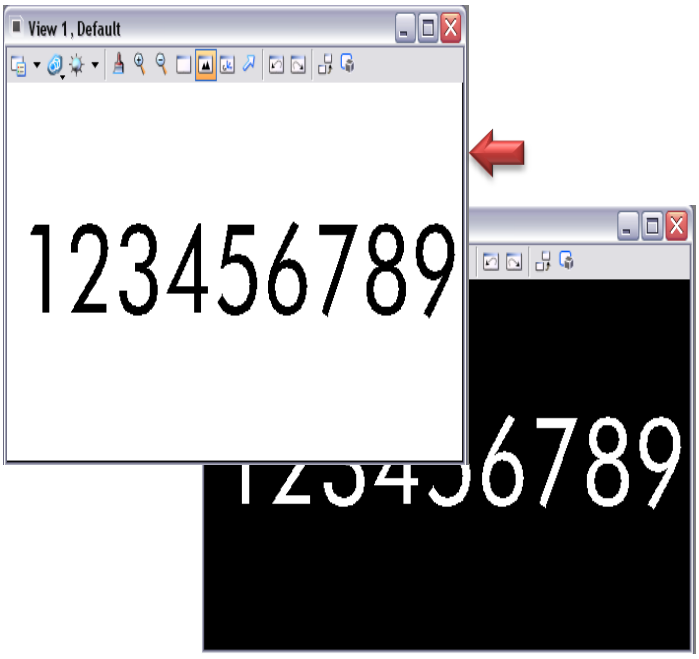
Preferences "View Options"

- *Show View ToolBox -* (default is on & top) If on, sets the position of where to dock the tools in a view window.





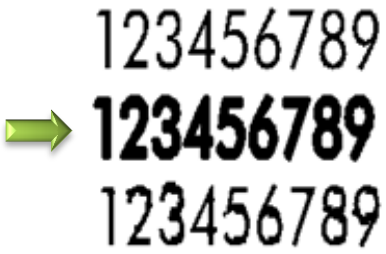
- *Scroll Bars on View Windows-* (default is off) If on, view windows are displayed with the scroll bars. You may also set this under window>scroll bars.

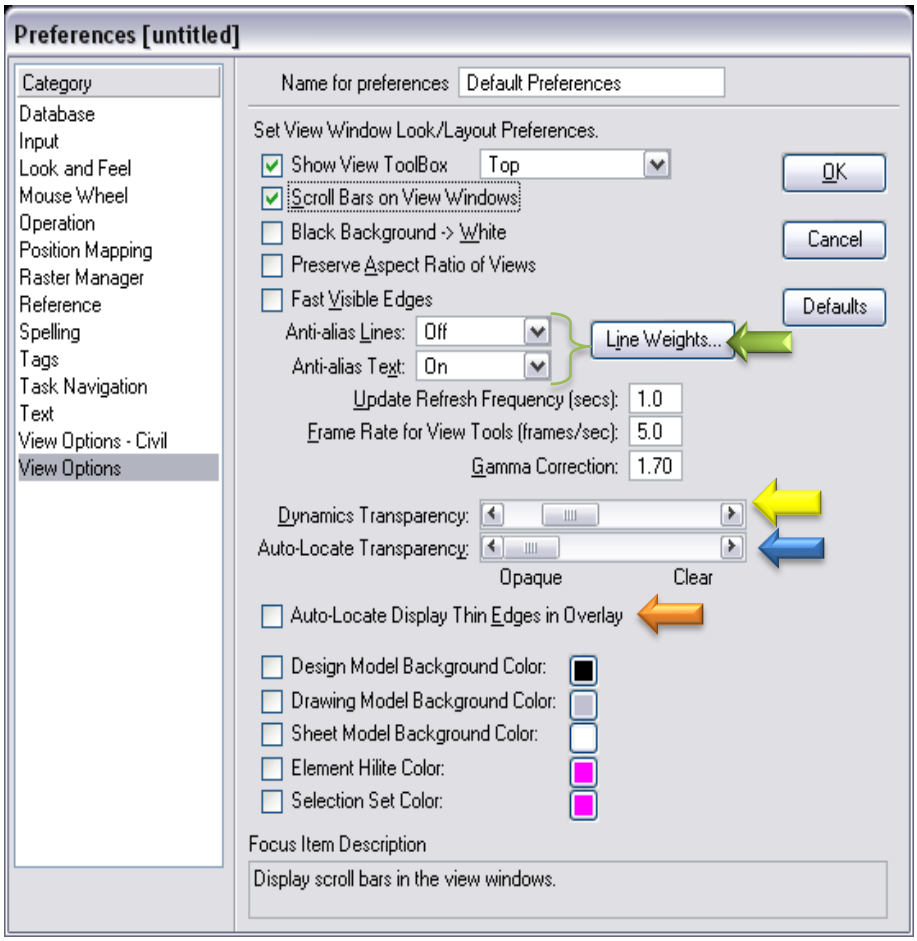


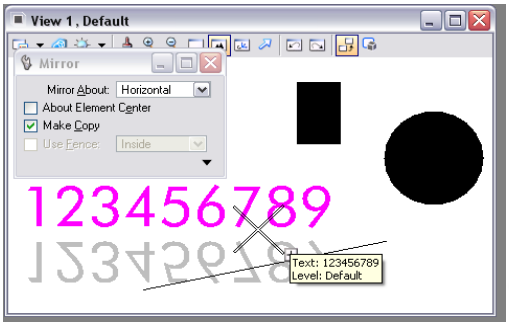
- *Black Background -> White* - (default is off) If on, the view background color (if set to black) is displayed in white.

Preferences "View Options"

Anti-alias lines (off is default) If on, angled lines appear smoother (jagged edges are smoothed) in views.
Anti-alias text (on is default) If on, truetype fonts appear smoother (jagged edges are smoothed) in views.

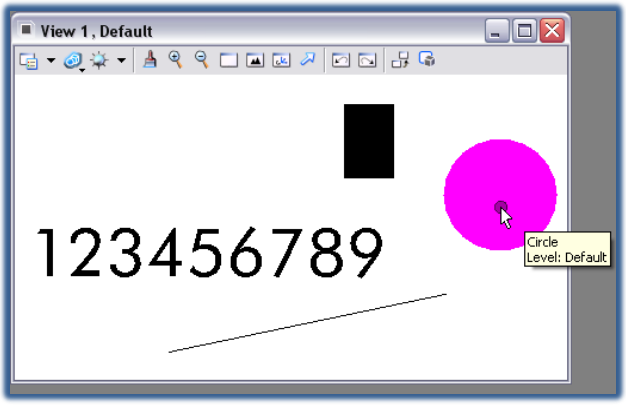


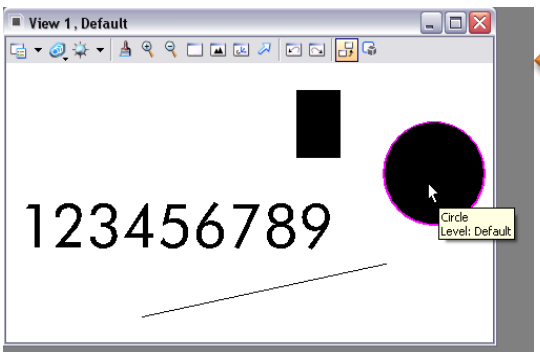




Dynamics Transparency - (default setting is moderately opaque)Sets the amount of transparency used to display elements in dynamics. This is particularly useful when working in shaded views.

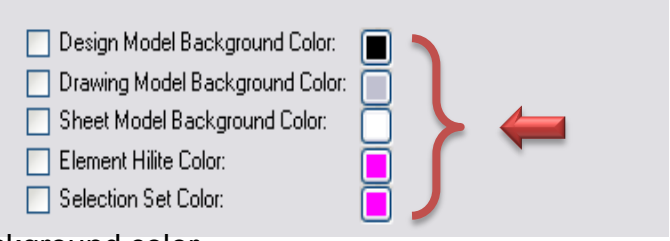
When set to opaque, highlighted elements appear in the element highlight color. As the slider moves towards clear, progressively less of the highlight color and more of the original element color is seen.





Auto-Locate Display Thin Edges in Overlay-
(The default is off) If on, auto-locate displays the edges of elements as they are highlighted in views.

Preferences "View Options"



Design Model Background Color- (default is off)
If on, sets the color used as the design model background color
(this overrides the *black background -> white preference).*

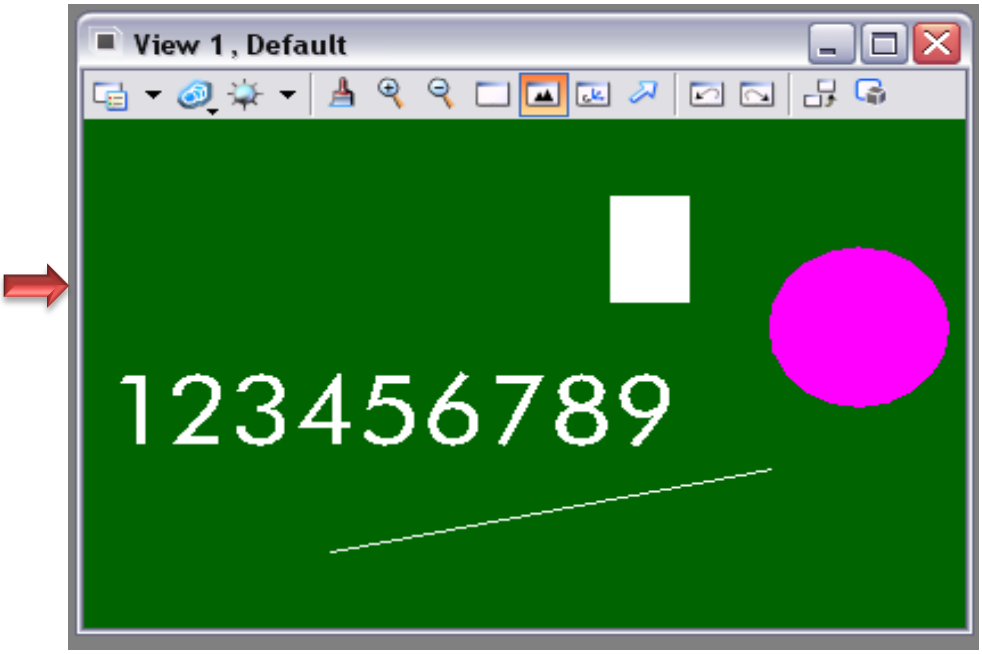
Drawing Model Background Color- (default is off)
If on, sets the color used as the drawing model background color.

Sheet Model Background Color- (default is off)
If on, sets the color used as the sheet model background color..

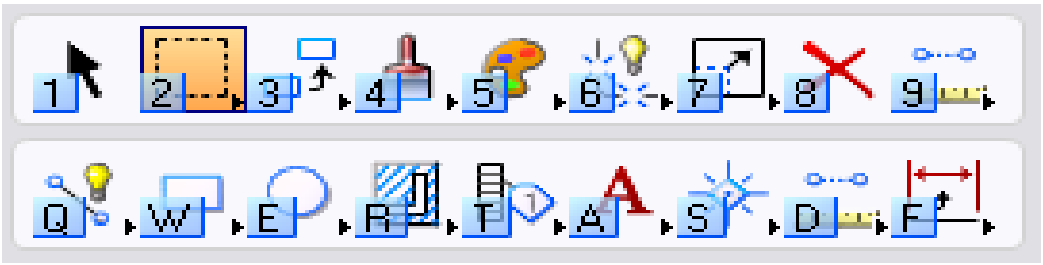
Element Hilite Color- (default is off)
If on, sets the color used to highlight the active element
(this overrides the element highlight color in the design file settings).

Selection Set Color- (default is off)
If on, sets the color used to display the selection set
(this overrides the selection highlight color in the design file settings).

To change the any color, click the color icon and select a color from the Color Override Preference dialog.



Settings “Task Dialog”

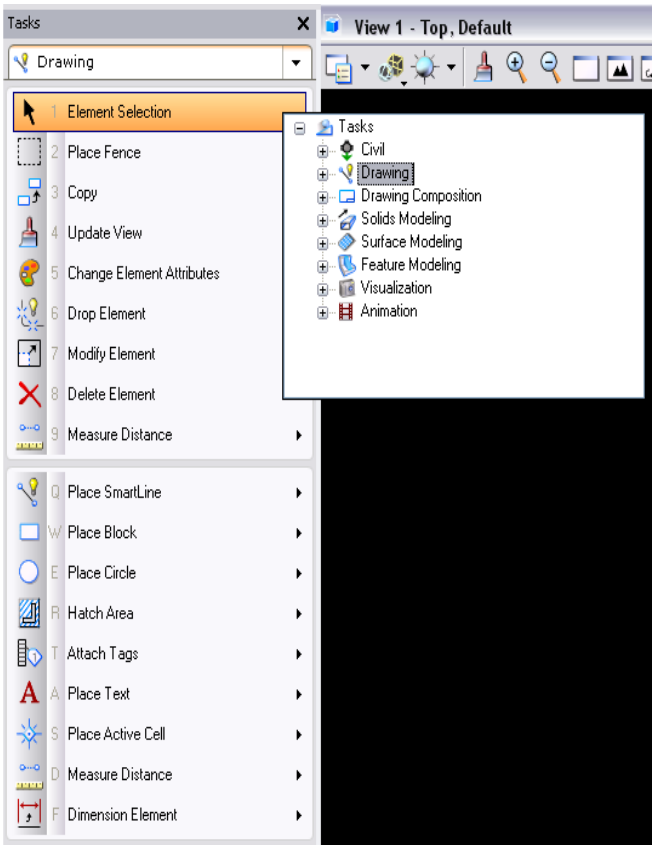


A Task is a set of tools grouped to facilitate a particular workflow.
By defining and grouping tasks, you can create a task-based interface.

The tools grouped into a given task can be standard MicroStation tools, custom tools, or a mixture of both types.

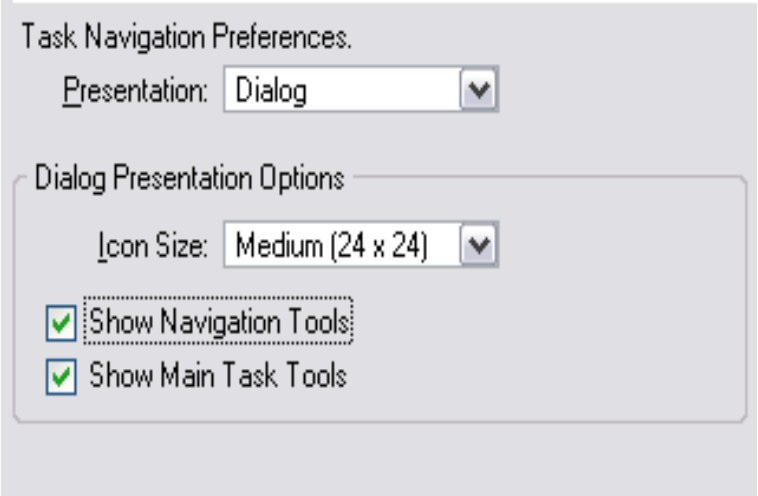
Tasks contain references to tools, tool boxes, and tool frames, and can therefore contain overlapping sets of tools.

For example: a user-defined Drafting task and Drawing Composition task likely would both contain the text tools.

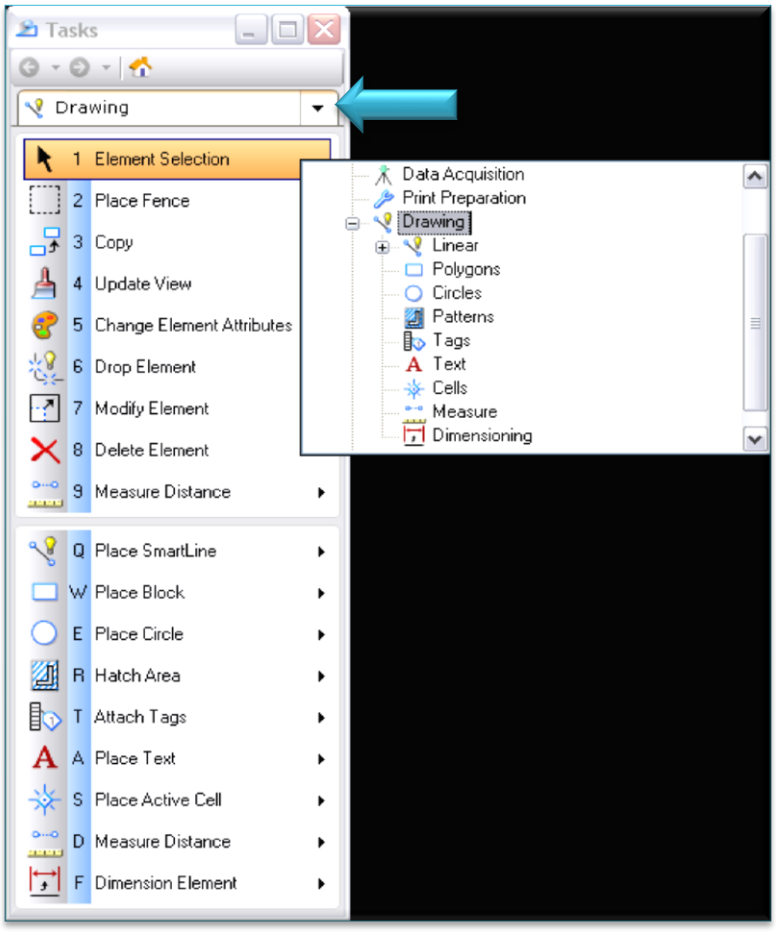


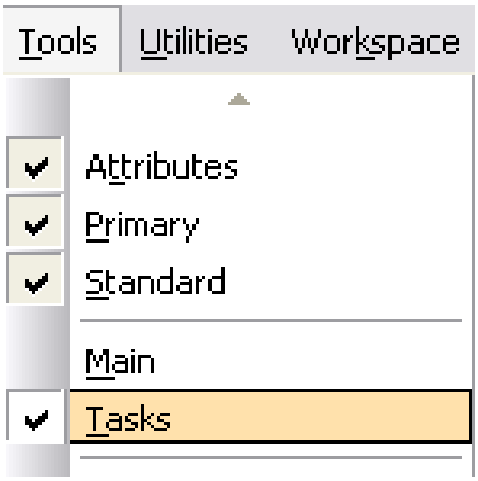
Settings “Task Dialog”

The Task Navigation default preference for presentation is dialog.



The task dialog can be accessed under tools>tasks



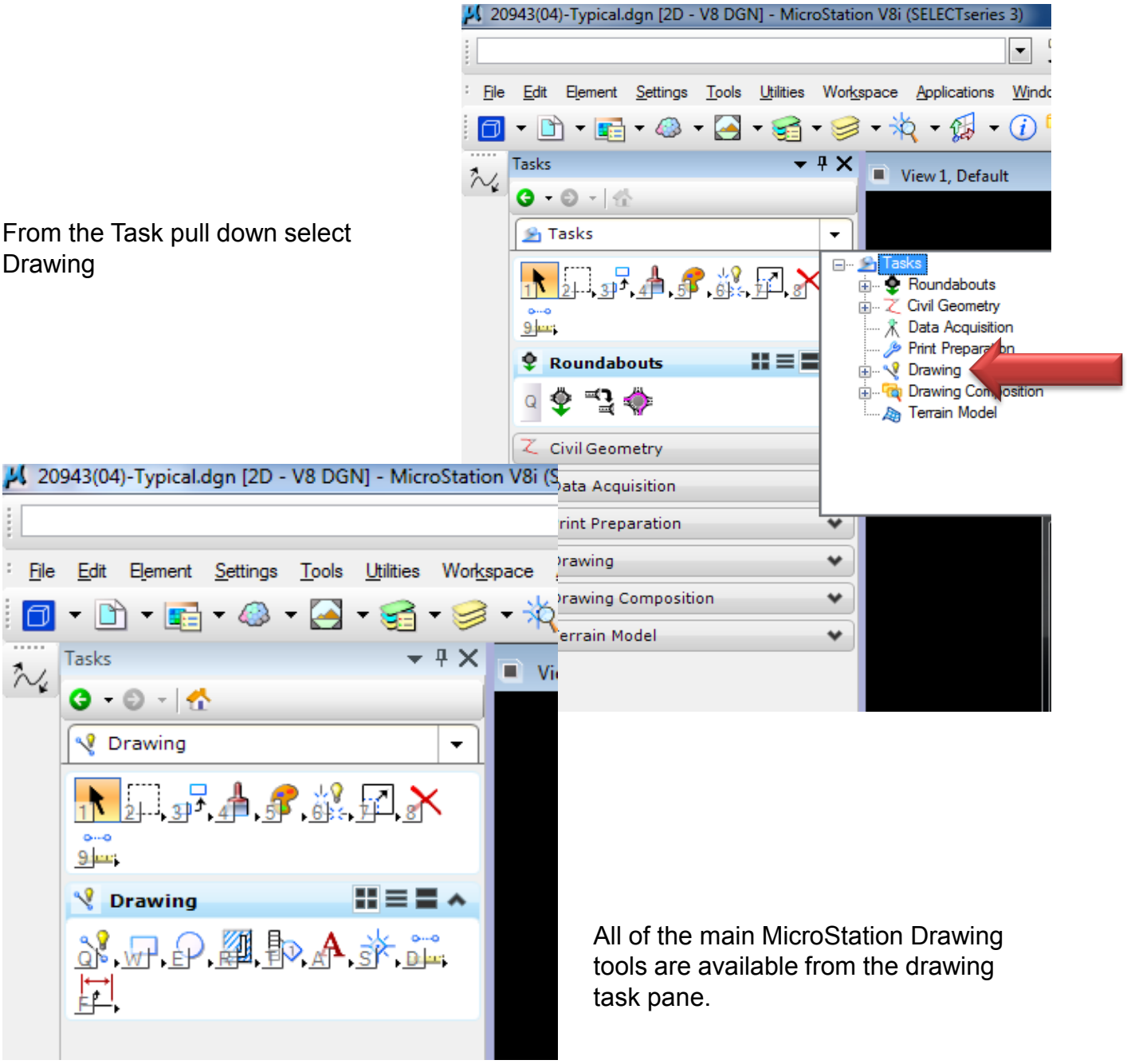


Click the down arrow in the task dialog to access the drawing tools.
The Main And Drawing Tools Cover Most Of The Commands Commonly Used.

Settings “Task Dialog”

Depending on which task you select, different tools will be made available. If tasks is selected, most all tools will be made available.

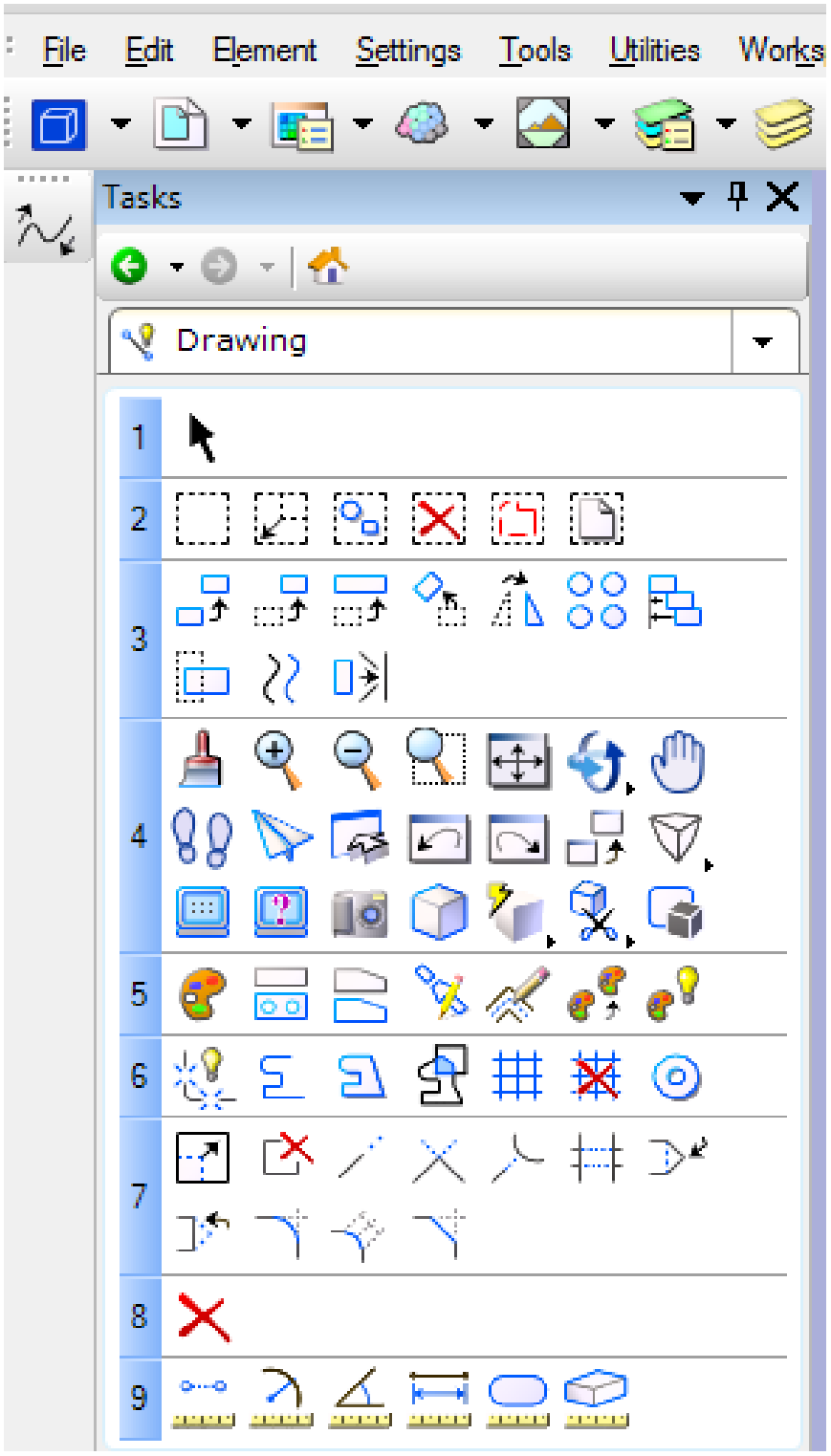
From the Task pull down select Drawing



All of the main MicroStation Drawing tools are available from the drawing task pane.

Settings “Task Dialog Tools”

The Main toolbar is always present on the top of the task pane.



1. Element Selection
2. Fence
3. Manipulate
4. View Controls
5. Change Attributes
6. Groups
7. Modify
8. Delete
9. Measure

Settings “Task Dialog Tools”

The Drawing tasks contain the following toolbars.

Linear

Polygons

Circles

Patterns

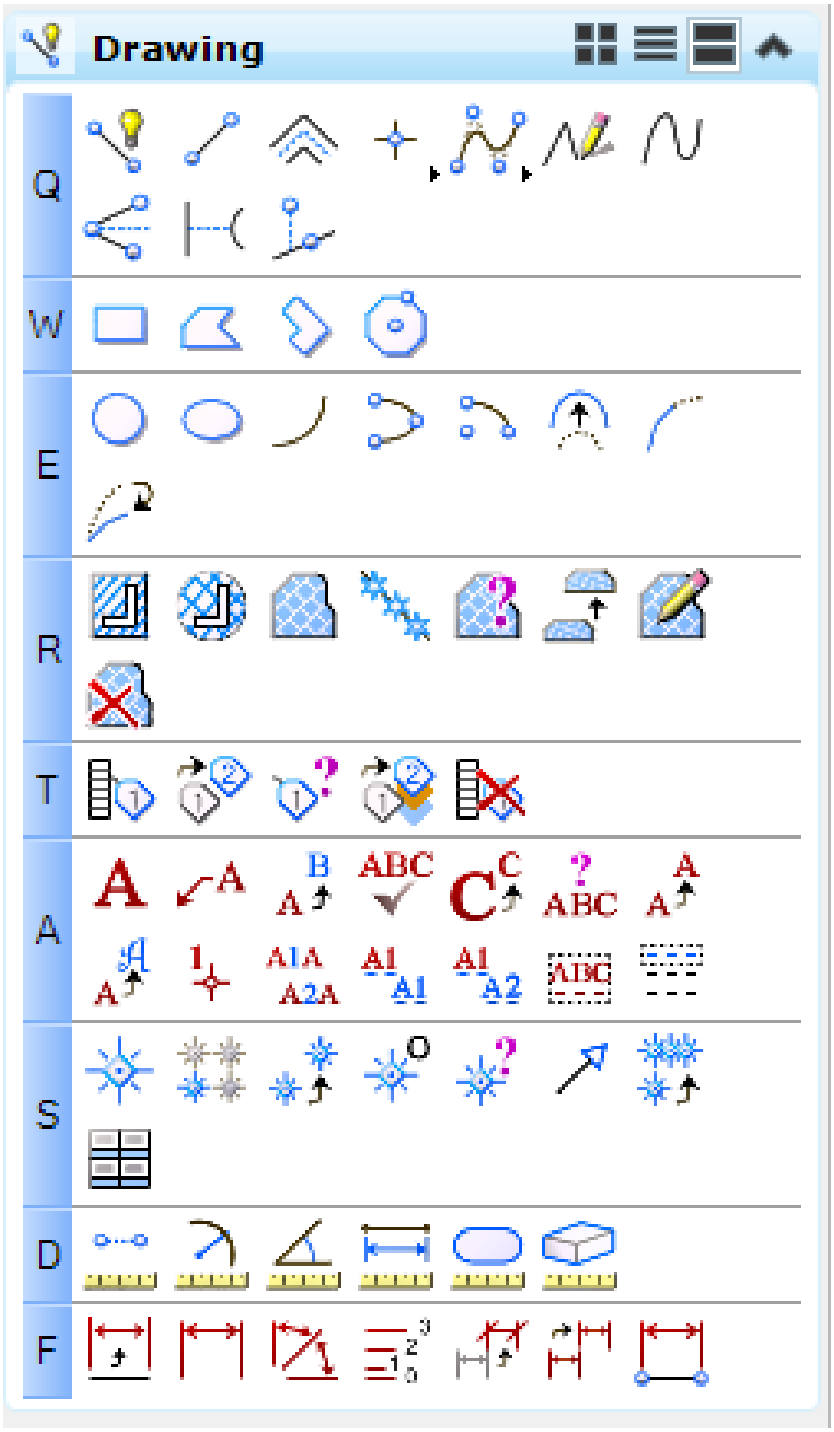
Tags

Text

Cells

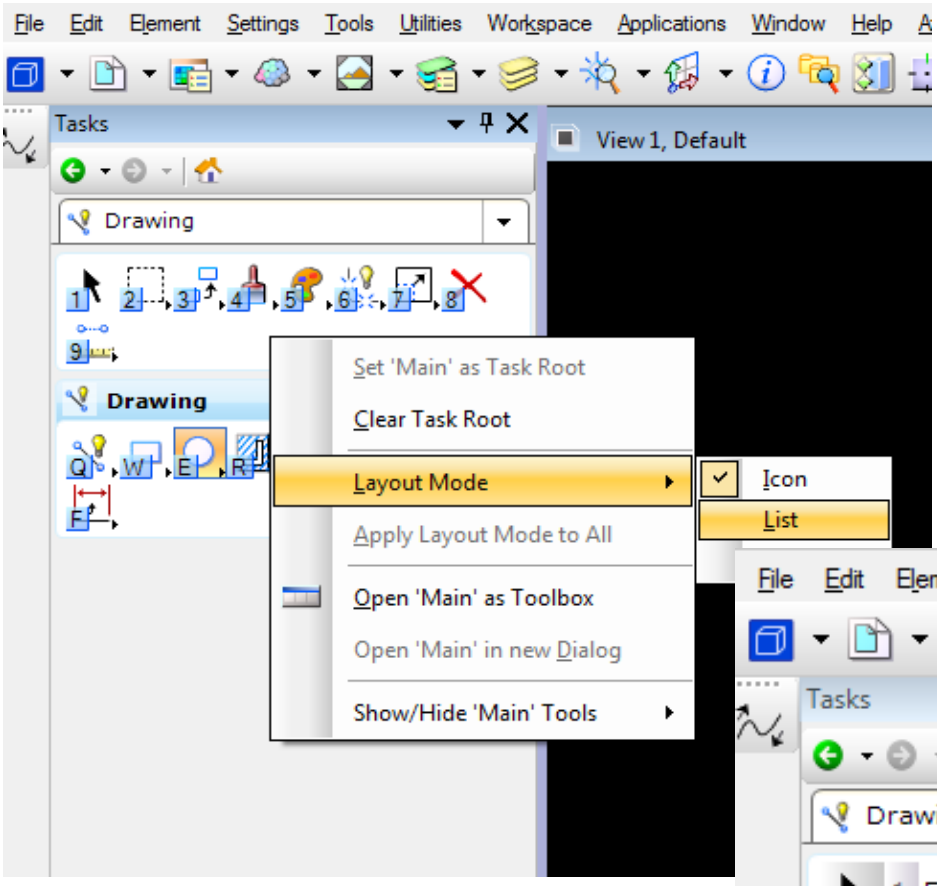
Measure

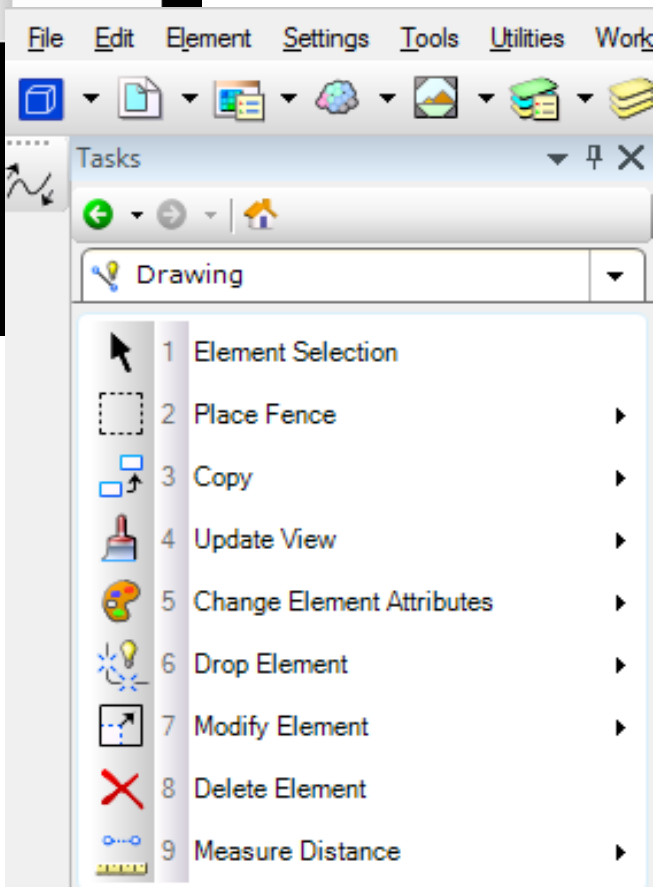
Dimensioning



Settings “Task Dialog Tools”

Right click on the main tools in the task pane and select layout mode> list.

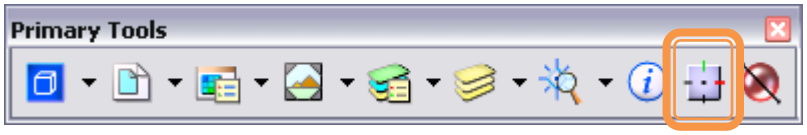




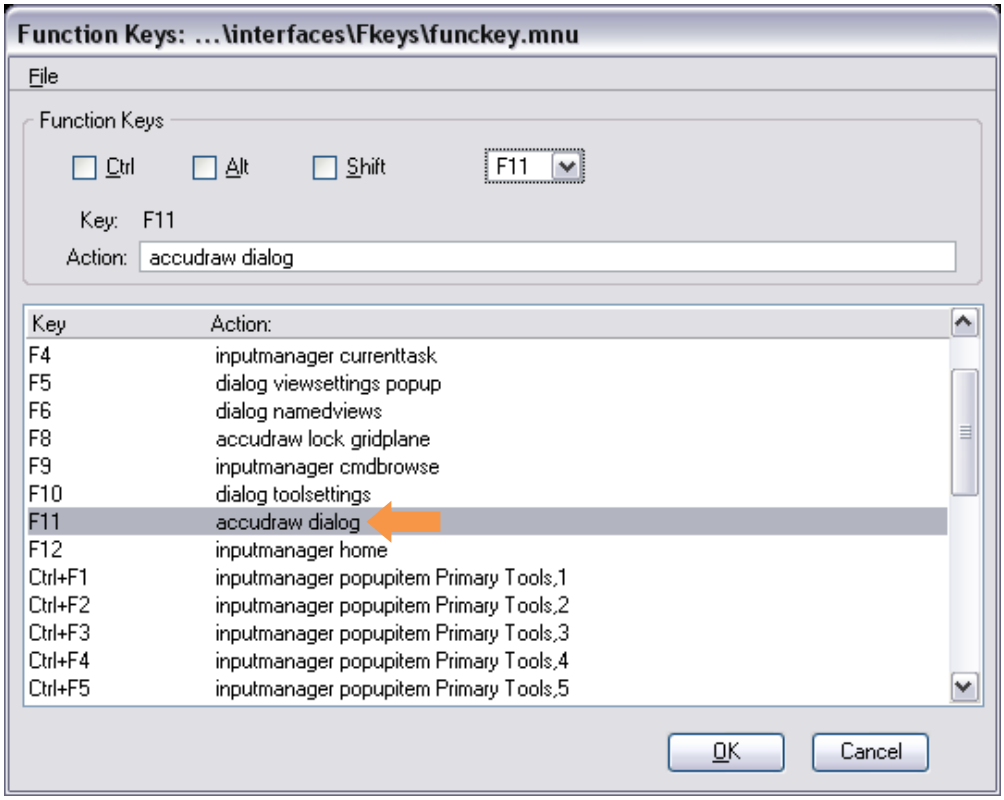
All of the tools are available from the pull out menus. The first tool of each toolbar is listed. Once a tool is used it becomes the active tool for that toolbox. This just means if the icon is selected, that tool is activated.

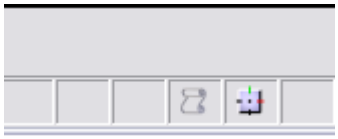
Settings “AccuDraw”

AccuDraw is used to facilitate data point entry.
The AccuDraw window opens or closes when the AccuDraw icon is clicked on the Primary Tools toolbox.



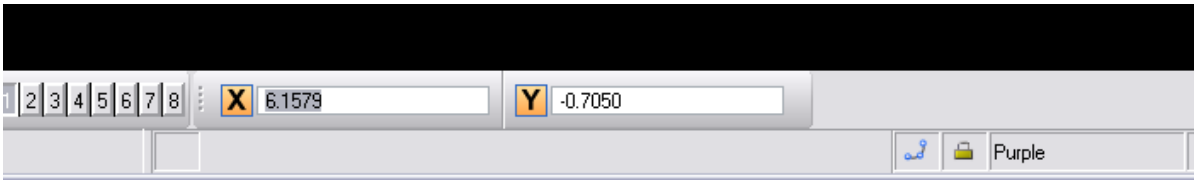
When using the default function key menu, pressing <F11> opens the AccuDraw window.
If it is already docked or open, pressing <F11> sends focus to the AccuDraw window.





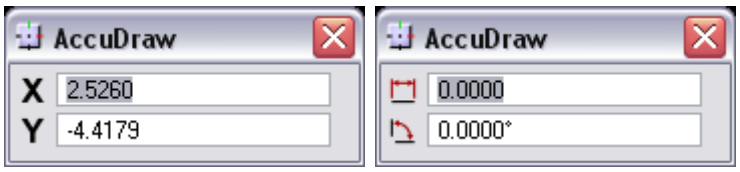
Once opened, the AccuDraw window automatically takes the focus whenever dynamic update occurs with a drawing tool selected.

The AccuDraw window is dockable.



Settings “AccuDraw”

An option in AccuDraw is to use polar coordinates.
To shift from rectangular to polar coordinates, press the <spacebar>.



Repeated pressing of the <spacebar> toggles between rectangular and polar coordinates. Rectangular or polar coordinates also can be set from the AccuDraw settings dialog.

X (Rectangular coordinates only)
Sets the distance, in working units, along the drawing plane x-axis to locate the next data point. When a value is entered in the X field, the X button automatically is pressed to lock the pending data point to the specified distance, as indicated by dynamic update. The button automatically resets when the data point is entered.

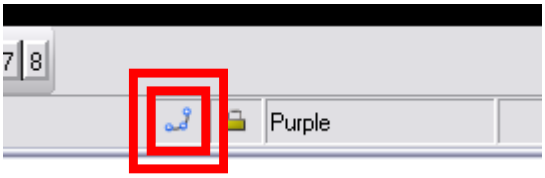
Y (Rectangular coordinates only)
Sets the distance, in working units, along the drawing plane y-axis to locate the next data point. When a value is entered in the Y field, the Y button automatically is pressed to lock the pending data point to the specified distance, as indicated by dynamic update. The button automatically resets when the data point is entered.

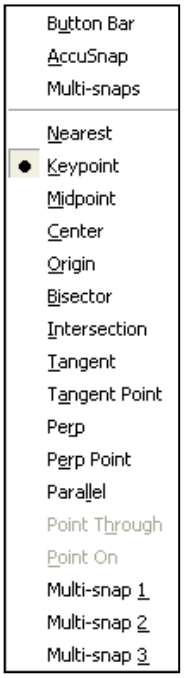
Z (3D only)
Sets the distance, in working units, along the drawing plane z-axis to locate the next data point. When a value is entered in the Z field, the Z button automatically is pressed to lock the pending data point to the specified distance, as indicated by dynamic update. The button automatically resets when the data point is entered.

Distance (Polar coordinates only)
Sets the distance, in working units, relative to the drawing plane origin to locate the next data point. When a value is entered in the Distance field, the Distance button automatically is pressed to lock the pending data point to the specified distance, as indicated by dynamic update. The button automatically resets when the data point is entered.

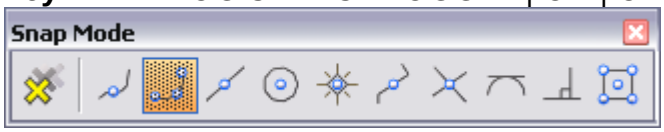
Angle (Polar coordinates only)
Sets the angle, in degrees, relative to the drawing plane origin to locate the next data point. When a value is entered in the Angle field, the Angle button automatically is pressed to lock the pending data point to the specified angle, as indicated by dynamic update. The button automatically resets when the data point is entered. Conventional angles are measured from the x axis.

Settings “Snaps”



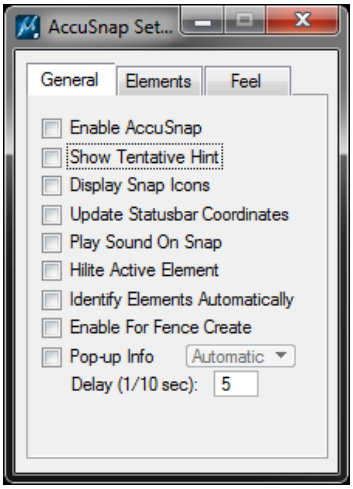


Button Bar
Opens when you select Snap Mode > Button Bar in the status bar.
Key-in: DIALOG SNAPS <TOGGLE | ON | OFF> enough

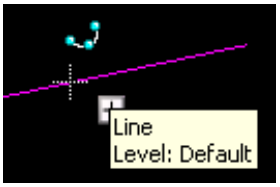


AccuSnap

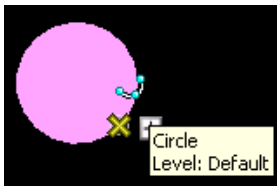
AccuSnap Settings dialog General tab contains controls to enable or disable AccuSnap, and to define the way it operates.



Enable AccuSnap- If on (default), AccuSnap is automatically turned on.
You can also turn AccuSnap on or off from the Toggle AccuSnap icon on the Snap Mode button bar.

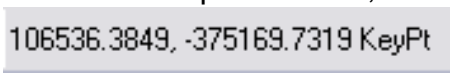


Show Tentative Hint - If on (default), and the pointer is within the range of the Snap Tolerance, AccuSnap displays the nearest snap point with a cross-hair.



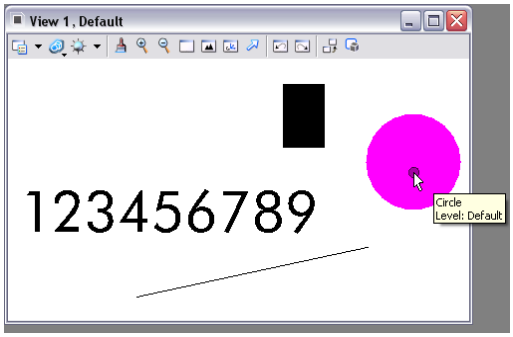
Display Snap Icon- If on (default), AccuSnap displays the icon of the current snap mode at the snap point.

Update Statusbar Coordinates - If on, each time that AccuSnap snaps to a point on an element, or when you click the tentative point button, the coordinates for the snap point appear in the status bar.



Play Sound on Snap- If on, a sound is played when you snap to an element.

Settings "Snaps"



Hilite Active Element-
If on, the active element highlights as soon as the pointer is within the range of the Snap Tolerance.
If off, the active element highlights only when a tentative snap point is displayed.

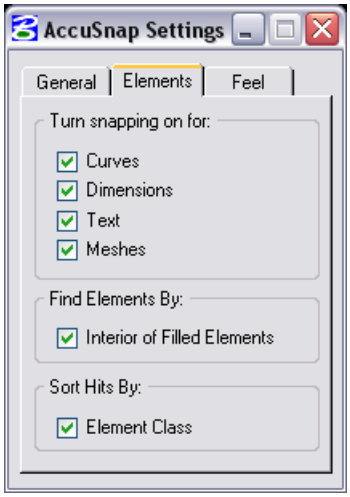
Identify Elements Automatically- If on, elements are identified automatically, as you pass the pointer over them.

Enable For Fence Create- If on, AccuSnap is active when placing a fence.

Pop-up Info- If on, and you pause the pointer over a highlighted element, a pop-up displays information about the element. An option menu lets you define when this information appears.

(Automatic) Pop-up information appears whenever you pause the pointer over a highlighted element.
(Tentative) Pop-up information appears only when you manually snap a tentative point to an element and then hold the pointer over any part of the highlighted element**.**

AccuSnap Settings dialog Elements tab
Contains controls that enable/disable AccuSnap snapping to Curves, Dimensions, Text, or Meshes.



Curves, Dimensions, Text, & Meshes
If on, AccuSnap can snap to these elements.
If off, AccuSnap ignores these elements. *
(When the pointer locates an element, and the Display Icon is turned on, AccuSnap displays an icon indicating that the element is being ignored. You can override this setting by entering a manual tentative snap point.)

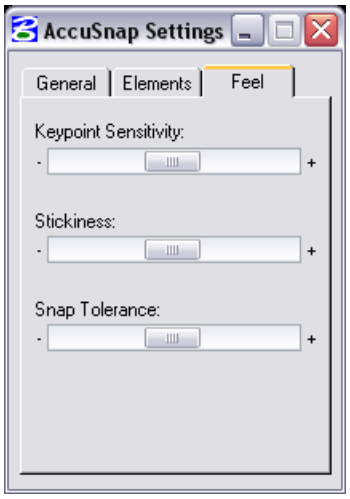
(Find Elements By) Interior of Filled Elements
If on, AccuSnap can snap to the interior area of filled elements.

(Sort Hits By) Element Class
If on, the order in which AccuSnap snaps to overlapping elements is determined by their class — Primary elements first, followed, in order, by Construction, Pattern, and Dimension elements.

Settings “Snaps”

AccuSnap Settings dialog Feel tab
Contains controls that affect AccuSnap's sensitivity in locating elements.

Keypoint Sensitivity
Let’s you adjust how close the screen pointer must be to the snap point, before AccuSnap snaps to it. Move the slider to the right (+) to increase, or to the left (-) to reduce, the allowable distance.



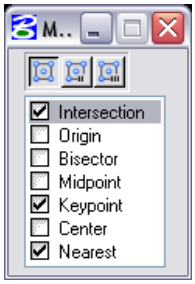
Stickiness
Lets you adjust the sensitivity of AccuSnap to the current element. When you are snapped to an element, as long as you move the pointer along that element, the snap system will have a preference for that element over other elements that may have snap points closer to the cursor. The further to the right (+) that you set the Stickiness slider, the further away from the active element you can have the pointer without AccuSnap snapping to another element. Alternatively, the further to the left (-) that you set the Stickiness slider, the closer to the element you must be for AccuSnap to “stick” to the active element.

Snap Tolerance
Let’s you adjust how close the pointer must be to an element in order to snap a tentative point to it. Move the slider to the right (+) to increase, or to the left (-) to decrease, the snap tolerance.

Settings “Snaps”

Multi-snaps dialog

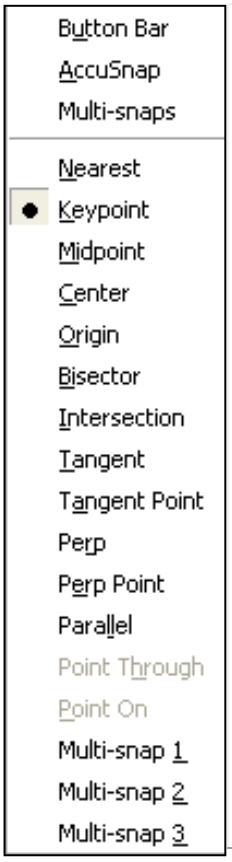
Used to set up groups of snaps known as multi-snaps. Opens when Settings > Snaps > Multi-snaps is chosen.



When a multi-snap is active, AccuSnap and Tentative Point snap processes the list of snaps that it represents. To change the order in which the snaps are processed, drag and drop the list entries.

Icon bar (Top)-Used to set the multi-snap mode to define.
Multi-snap 1 by default: Intersection, Keypoint, Nearest.
Multi-snap 2 by default: Intersection, Keypoint, Center.
Multi-snap 3 by default: Midpoint, Intersection, Center.

Snap Modes : Sets the manner in which tentative points can be snapped to elements or used to constrain elements.



Snap Mode	Tentative Points Snap To
Keypoint	Pre-defined keypoints on elements.
Midpoint	The midpoints of elements and segments of elements.
Center	The centers and centroids of elements.
Origin	The origins of cells.
Bisector	The midpoints of entire elements.
Intersection	Intersect another element with the point of intersection at its starting or ending point.
Tangent	Be tangent to another element.
Tangent Point	Be tangent to another element at a specific point.
Perp	Be perpendicular to another element.
Perp Point	Be perpendicular to another element at a specific point.
Parallel	Be parallel to another element.
Point Through	Pass through a particular point on the design plane.
Point on	Constrains an element to begin or end on an element in the design file.
Multisnap1, Multisnap2, Multisnap3	Multiple snap modes

Key-in: LOCK SNAP [NEAREST | KEYPOINT | MIDPOINT | CENTER | ORIGIN | BISECTOR | INTERSECTION | TANGENCY | PTTANGENT | PERPENDICULAR | PTPERPENDICULAR | PARALLEL | PTTHROUGH | POINTON | MULTISNAP1 | MULTISNAP2 | MULTISNAP3]

Working Units and Global Origin

Note: The working units and global origin have already been set in the Roadway Design Seed Files. Using a preset seed file eliminates having to setup the working units in the drawing files.

English (Imperial):

Master Units: US Survey Feet*
Sub Units: US Survey Inches

Resolution: 1200 per Distance US Survey Foot

Working Area: 1421593635 Square Miles (X and Y Axis)
677.868669 Miles (Z Axis)

Global Origin: Lower Left
2d => GO = 0.0000, 0.0000
3d => GO = 0.0000, 0.0000, 0.0000

* One International foot equals 0.999998 U.S. Survey feet. OR One U.S. Survey foot equals 1.000002 International feet. It might not seem like much, but over a distance of miles this will add up and will cause points and elements to be in the wrong location.

Metric:

Master Units: Meters
Sub Units: Centimeters

Resolution: 1200 per Distance Foot

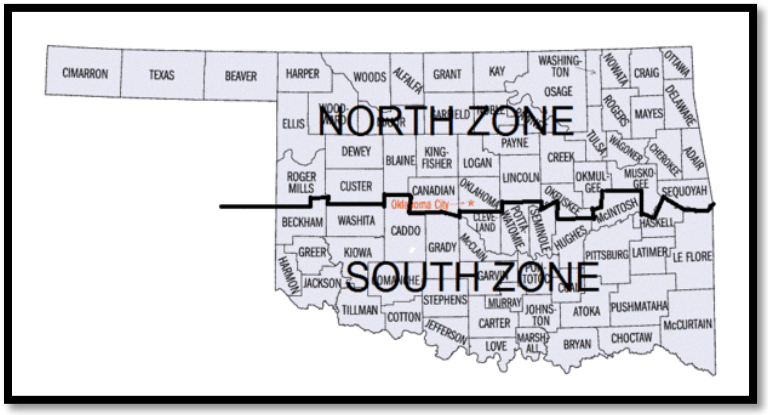
Working Area: 1421590791 Square Miles (X and Y Axis)
677.867313 Miles (Z Axis)

Global Origin: Lower Left
2d => GO = 0.0000, 0.0000
3d => GO = 0.0000, 0.0000, 0.0000

Oklahoma State Plane Coordinate System Zones

Oklahoma statute establishing state plane coordinate systems
Title 60. Property
Chapter 19 - Oklahoma Coordinate Systems
Section 1001 - Official System of Coordinates

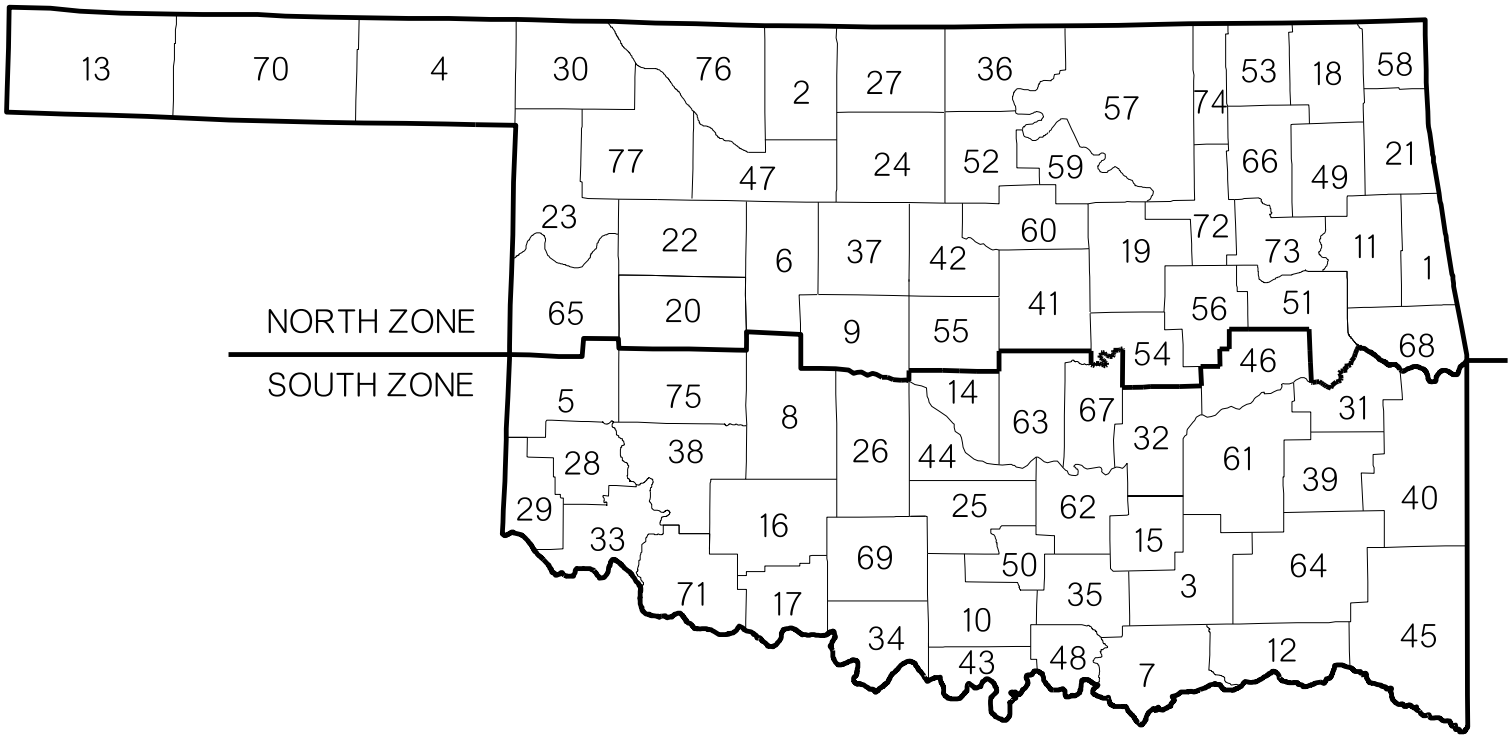
A. The systems of plane coordinates which have been established by the National Ocean Service/National Geodetic Survey, formerly the United States Coast and Geodetic Survey, or its successors for defining and stating the geographic positions or locations of points on the surface of the earth within the State of Oklahoma are hereafter to be known and designated as the Oklahoma Coordinate System of 1927 and the Oklahoma Coordinate System of 1983.
For the purpose of the use of these systems, the state is divided into a North Zone and a South Zone.



B. 1. As established for use in the North Zone, the Oklahoma Coordinate System of 1927 or the Oklahoma Coordinate System of 1983 shall be named; and in any land description in which it is used, it shall be designated the "Oklahoma Coordinate System of 1927 North Zone" or the "Oklahoma Coordinate System of 1983 North Zone".

2. As established for use in the South Zone, the Oklahoma Coordinate System of 1927 or the Oklahoma Coordinate System of 1983 shall be named; and in any land description in which it is used, it shall be designated the "Oklahoma Coordinate System of 1927 South Zone" or the "Oklahoma Coordinate System of 1983 South Zone".

Oklahoma North and South Zone Map



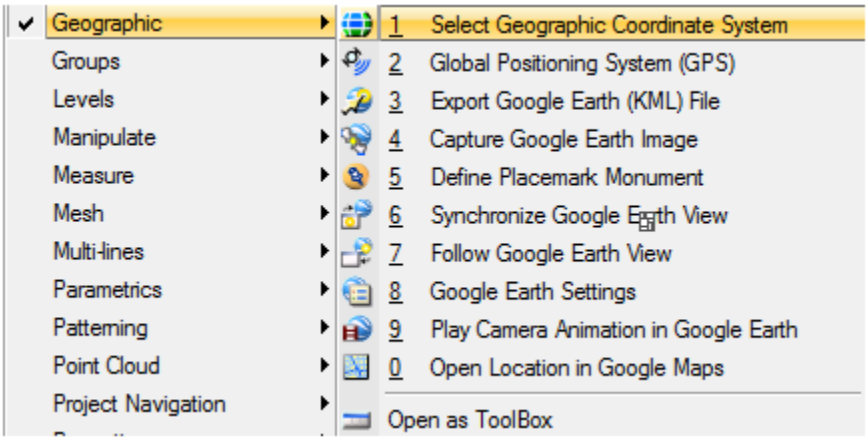
#	COUNTY	DIV	ZONE
1	ADAIR	1	NORTH
2	ALFALFA	6	NORTH
3	ATOKA	2	SOUTH
4	BEAVER	6	NORTH
5	BECKHAM	5	SOUTH
6	BLAINE	5	NORTH
7	BRYAN	2	SOUTH
8	CADDO	7	SOUTH
9	CANADIAN	4	NORTH
10	CARTER	7	SOUTH
11	CHEROKEE	1	NORTH
12	CHOCTAW	2	SOUTH
13	CIMARRON	6	NORTH
14	CLEVELAND	3	SOUTH
15	COAL	3	SOUTH
16	COMANCHE	7	SOUTH
17	COTTON	7	SOUTH
18	CRAIG	8	NORTH
19	CREEK	8	NORTH
20	CUSTER	5	NORTH
21	DELAWARE	8	NORTH
22	DEWEY	5	NORTH
23	ELLIS	6	NORTH
24	GARFIELD	4	NORTH
25	GARVIN	3	SOUTH
26	GRADY	7	SOUTH

#	COUNTY	DIV	ZONE
27	GRANT	4	NORTH
28	GREER	5	SOUTH
29	HARMON	5	SOUTH
30	HARPER	6	NORTH
31	HASKELL	1	SOUTH
32	HUGHES	3	SOUTH
33	JACKSON	5	SOUTH
34	JEFFERSON	7	SOUTH
35	JOHNSTON	3	SOUTH
36	KAY	4	NORTH
37	KINGFISHER	4	NORTH
38	KIOWA	5	SOUTH
39	LATIMER	2	SOUTH
40	LE FLORE	2	SOUTH
41	LINCOLN	3	NORTH
42	LOGAN	4	NORTH
43	LOVE	7	SOUTH
44	MAJOR	3	NORTH
45	MARSHALL	2	SOUTH
46	MAYES	1	NORTH
47	MCCLAIN	6	SOUTH
48	MCCURTAIN	2	SOUTH
49	MCINTOSH	8	SOUTH
50	MURRAY	7	SOUTH
51	MUSKOGEE	1	NORTH
52	NOBLE	4	NORTH

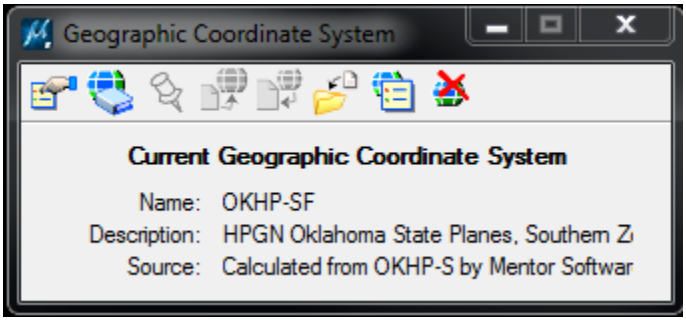
#	COUNTY	DIV	ZONE
53	NOWATA	8	NORTH
54	OKFUSKEE	3	NORTH
55	OKLAHOMA	4	NORTH
56	OKMULGEE	1	NORTH
57	OSAGE	8	NORTH
58	OTTAWA	8	NORTH
59	PAWNEE	8	NORTH
60	PAYNE	4	NORTH
61	PITTSBURG	2	SOUTH
62	PONTOTOC	3	SOUTH
63	POTTAWATOMIE	3	SOUTH
64	PUSHMATAHA	2	SOUTH
65	ROGER MILLS	5	NORTH
66	ROGERS	8	NORTH
67	SEMINOLE	3	SOUTH
68	SEQUOYAH	1	NORTH
69	STEPHENS	7	SOUTH
70	TEXAS	6	NORTH
71	TILLMAN	5	SOUTH
72	TULSA	8	NORTH
73	WAGONER	1	NORTH
74	WASHINGTON	8	NORTH
75	WASHITA	5	SOUTH
76	WOODS	6	NORTH
77	WOODWARD	6	NORTH

Checking Active Coordinate Zone

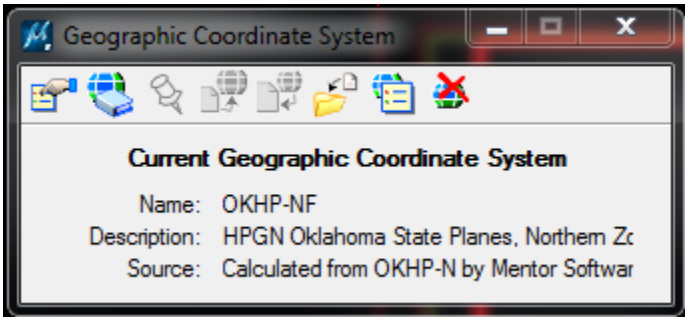
In the Microstation window navigate to the Tools>Geographic>Select Geographic Coordinate System tool.



When the “Select Geographic Coordinate System” tool is activated a new window will open. Here you can see the name of the currently activated system and details about it.



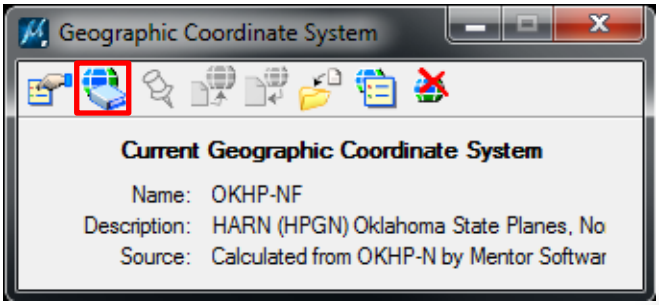
In this example the System is set to OKHP-SF which is the South Zone.



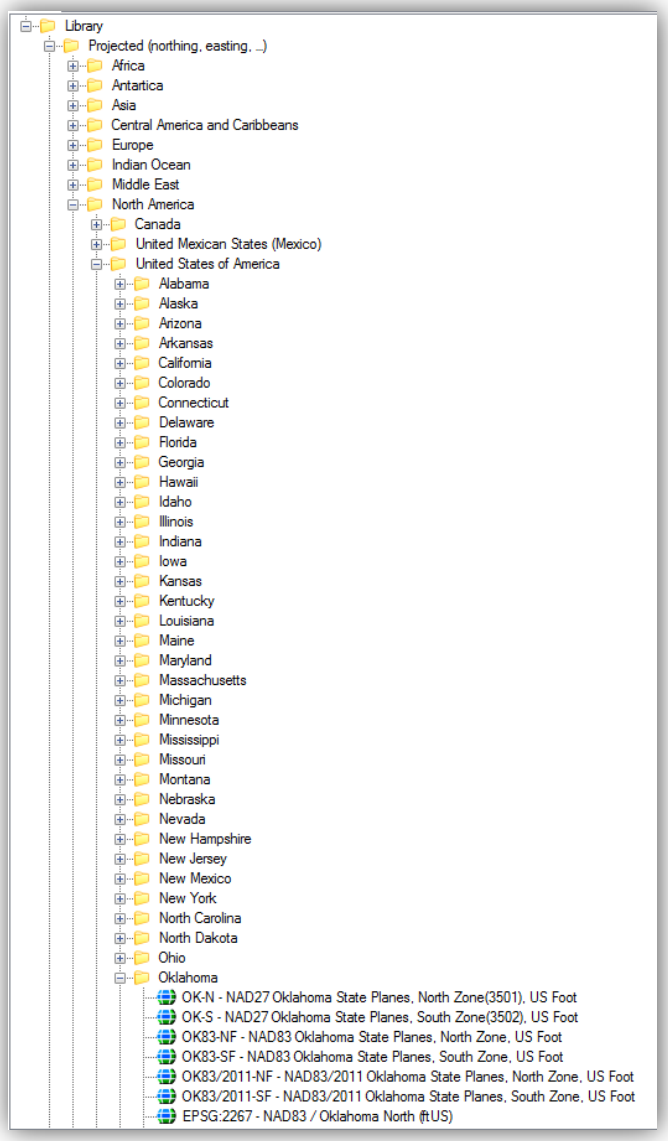
If the zone is set to the North zone then the name will be OKHP-NF

Checking Active Coordinate Zone

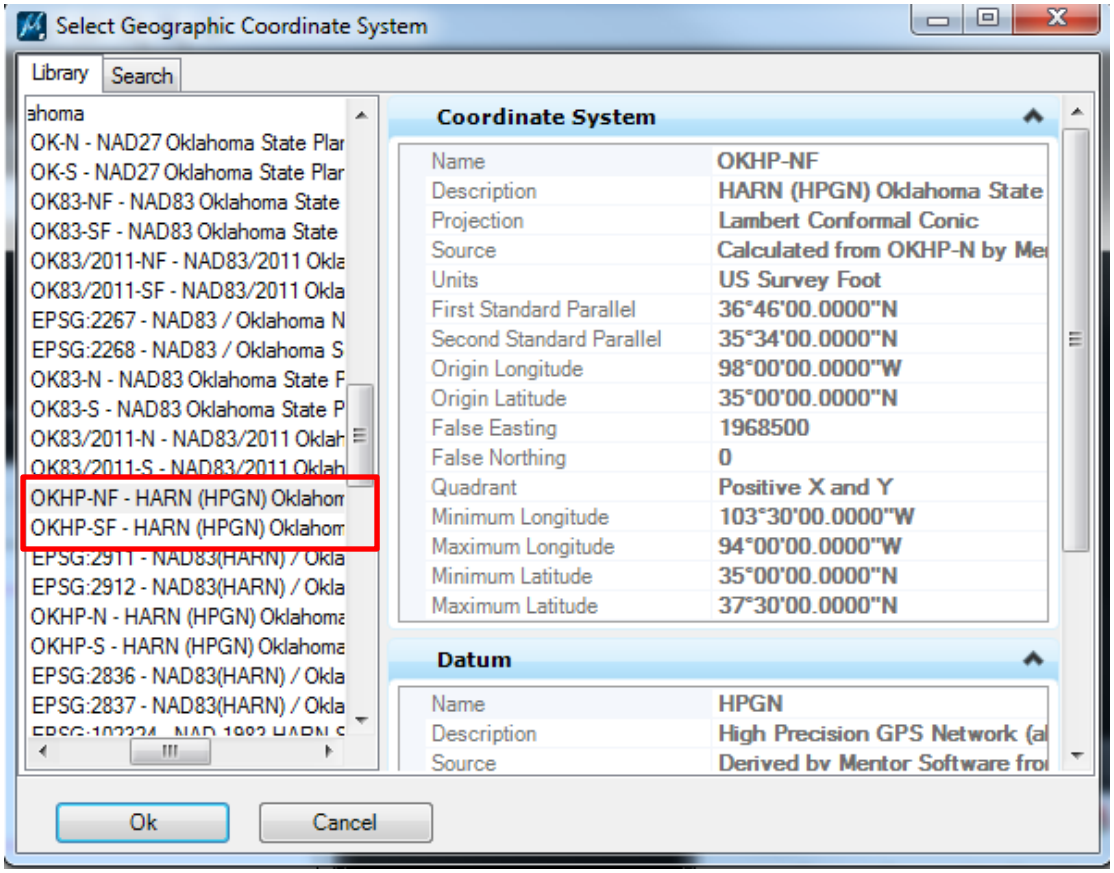
If no coordinate system is active or if the wrong coordinate system is active then it is possible to change it from this menu by pressing the “load from library” button.



If no Coordinate System is active then you must navigate to Oklahoma’s North and South zone. The path is Library>Projected (northing, easting, …)>North America>Oklahoma>HARN (HPGN) Oklahoma State Planes, North Zone, US Foot OR HARN (HPGN) Oklahoma State Planes, South Zone, US Foot



Checking Active Coordinate Zone



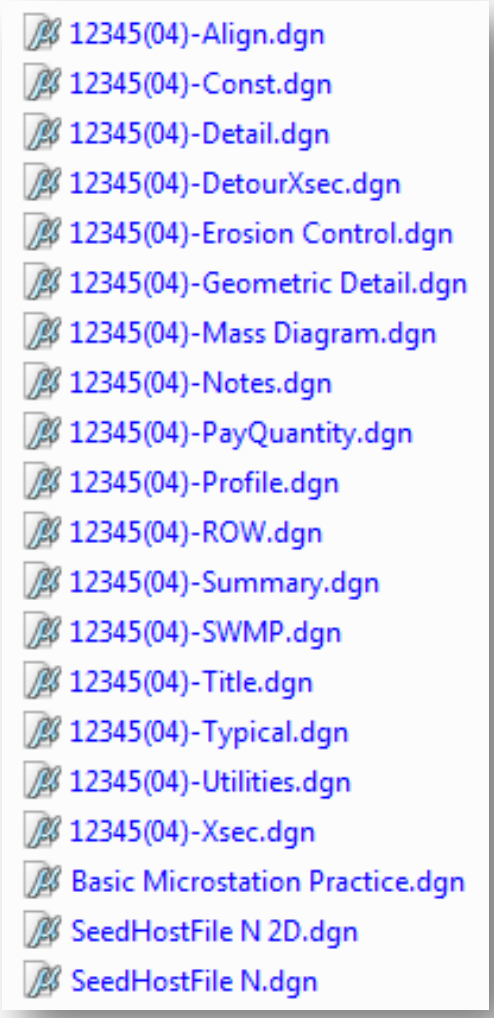
When changing between North and South zone the “Select Geographic Coordinate System” will automatically be in the right path, and the desired coordinate system simply needs to be selected.

Seed Files

A seed file is a MicroStation template used to create new design files. When using the File/New option, MicroStation generates a new file with the same content and settings as the original template. Seed files standardize and automate the design file creation process. Every new file will have the same models, elements, cell libraries, view groups, saved views, working units, color table, ACS location, global origin, geographic coordinate system and 2D or 3D environment as the seed file selected.

Roadway Designs Seed File Location:
R:\CADD_Support\MicroStation\Seed Files\Roadway\(select the ZONE)North (or) South

Roadway Designs seed files are also available at:
http://www.okladot.state.ok.us/roadway/CADD_Support/MicroStation/Seed_Files/



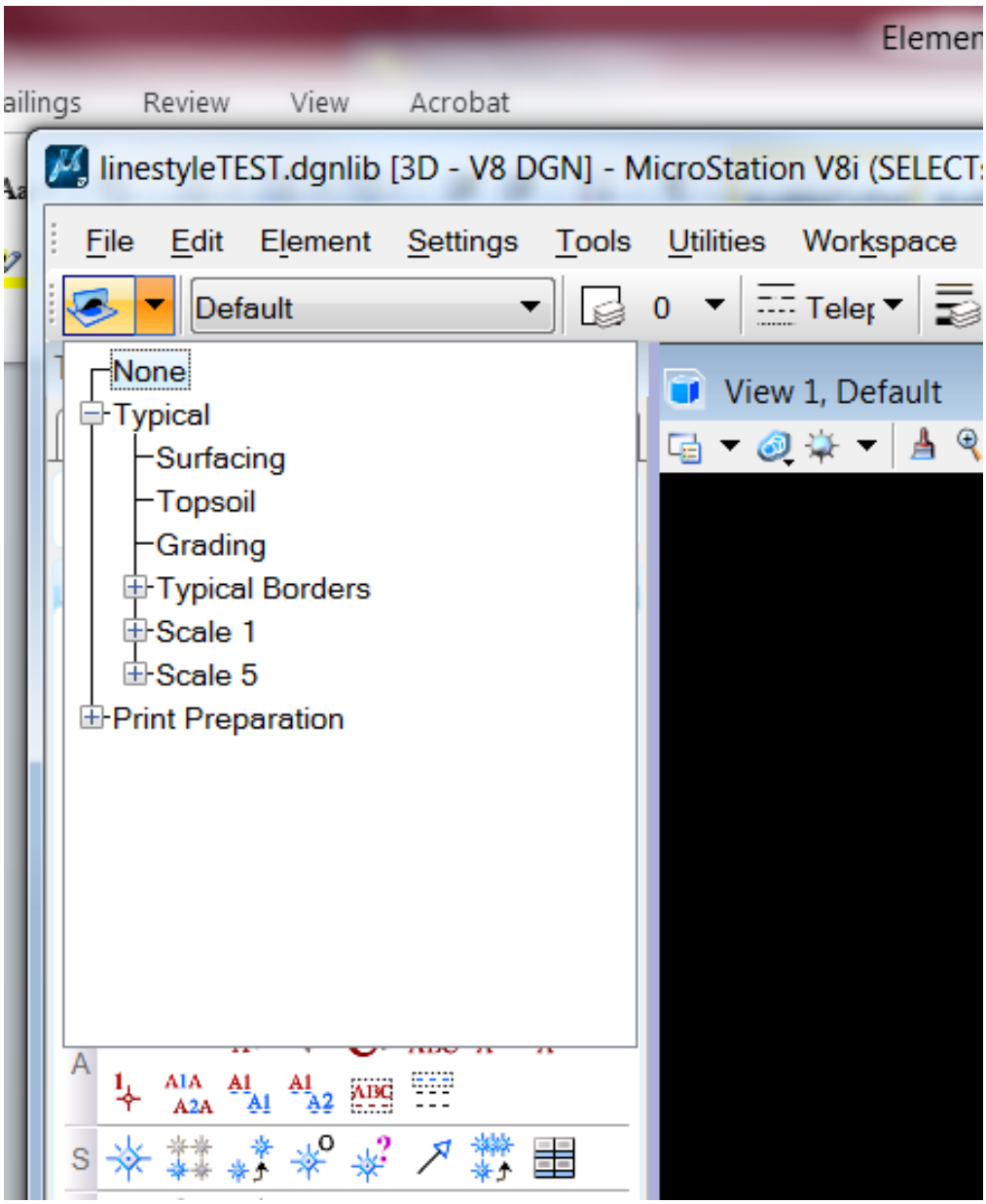
Scale Factors

Sheet Name	Scale as measured on Full Sheet	Full size Print Scale (24"x36")	Half Size Print Scale (11"x17")
Title*	1"= 10,560'	1"=1'	1"= 2'
	1" = 5280'	1"=1'	1"= 2'
	1" = 1760'	1"=1'	1"= 2'
	1" = 880'	1"=1'	1"= 2'
Typical	1"=1'	1"=1'	1"=2'
	1"=2'	1"=2'	1"=4'
	1"=3'	1"=3'	1"=6'
	1"=4'	1"=4'	1"=8'
	1"=5'	1"=5'	1"=10'
	1"=6'	1"=6'	1"=12'
	1"=7'	1"=7'	1"=14'
Plan and Profile	1"= 100'	1"=100'	1"=200"
	1"= 50'	1"=50'	1"=100'
	1"=20'	1"=20'	1"=40'
CrossSection	1"=10'	1"=10'	1"=20'
Mass Diagram	1"=Varies**	1'= 150'	1"=300'
Erosion Control Detail	1"= 100'	1"=100'	1"=200"
	1"= 50'	1"=50'	1"=100'
	1"=20'	1"=20'	1"=40'
Summary	1"=100'	1"=100'	1"=200'
Pay Quantity and Notes	1"=100'	1"=100'	1"=200'
Detail	Varies***	Varies***	Varies***

* = County map is scaled to fit the sheet border. Most commonly used scales are shown, but any scale that is divisible by or multiplied to 5,280 can be used. Regardless of scale, a print scale of 1"=1' for full size prints and 1"=2' for half size prints is to be used.
**= The Mass Diagram is scaled to fit the sheet border. The horizontal scale will be different than the vertical scale in most cases. For these reasons the scale of the Mass Line sheet is not noted on the plans. A print scale of 1"=150' for full size prints and 1"=300' for half size prints is always used regardless of drawing scale.
***= Detail sheets are unique drawings and come in a large variety of scales and sizes. It is up to the CADD designer to set drawing and print scales for detail sheets. The drawing scale should be noted on the plans.

Element Templates

An **element template** defines the properties of elements, and can be used to easily satisfy drawing standards. Element templates can be created by the CADD Manager for everyone to use or they can be created in a particular drawing by the CADD Specialist. They also make it easier to update drawings if the CADD Standards happen to change.



Section 3
MicroStation Commands

- **Key-In Commands**
  - **Standard**
  - **Precision Input**
  - **InRoads**
  - **AccuDraw**
- **Positional Keyboard Navigation**
- **Function Keys**
- **Right Click Options**
- **OkDOT Fonts**
  - **OkDOT Font Alternate Key-Ins**
  - **OkDOT Font Custom Characters**
- **Text Styles**
- **Dimensioning Styles**
  - **How to use Dimension tool**

“This Page Is Intentionally Left Blank.”

Key-In Commands

Key-ins are typed instructions entered into the Key-in window to control MicroStation. The effect of nearly all key-ins can be obtained using the graphical user interface. However, a key-in can be quicker at times, especially since MicroStation recognizes abbreviations.

The Key-in Window is used to browse, construct, and enter key-ins. If the key-ins of a single application (MicroStation or selected MDL) are browsable, the title bar identifies the application.

The Key-in window opens when any of the following occurs:

Utilities > Key-in is chosen

Help > Key-in Browser is chosen. If the window is docked, it is undocked and simultaneously expanded to its full size.

With the focus at home, <Enter> is pressed. The window pops up at the location of the pointer and closes when the pointer is removed from the window.

If you are using the default function key menu, <F9> is pressed. If the window is already open or docked, this sends input focus to the window

Standard Key-Ins

AA = set active angle
AC = set active cell; place absolute
AP = set active pattern cell
AR = set active cell; place relative
AS = set active scale factors
AZ = set active depth
CC = create cell
CD = delete cell from cell library
CM = place active cell matrix
CO = set active color
DA = set active displayable attribute type
DD = set display depth (relative)
DF = open fonts settings box
DI = data point-distance, direction
DL = data point-delta coordinates
DP = set display depth
DS = specify fence filter
DV = delete saved view
DX = Data point-delta view coordinates
DZ = set active depth (relative)
FT = set active font
GO = global origin
KY = set snap divisor
LC = set active line style
LD = set dimension level
LL = set active text line length
LS = set active text node line spacing
LT = set active terminator
LV = set active level
OF = set level display off
ON = set level display on
PA = set active pattern angle
PD = set active pattern delta (distance)
PS = set active pattern scale
PT = set active point
RC = open cell library
RD = open design file
RF = attach reference file
RS = name report table
RV = rotate view (relative)
SV = save view
TB = set tab spacing for importing text
TH = set active text height
TI = set copy and increment value
TS = set active terminator scale
TW = set active text width
TX = set active text size (height/width)
VI = attach named view
WT = set active line weight
XS = set active X scale
XY = data point-absolute coordinates
YS = set active Y scale
ZS = set active Z scale

The following are examples of commonly used key-ins:

dp=100000,-100000 Display Depth - Sets the range in which elements are visible along the “z” axis. Example: if the display depth is set to 500,-500. Elements that have an elevation greater than 500 or less than -500 will not show in the view. If an element starts within and ends outside the display range, only the part within is visible.

az=0 (3D only) Used to graphically set a view's Active Depth — the plane, parallel to the screen in a view, on which data points are placed. For view-independent ACS, Active Depth is the depth at which the origin of the ACS triad is located. The Set Active Depth tool relocates the ACS to the set point in the view.

dx=100,0|25 Used in conjunction with the Copy Increment Text enabled, click on a number you want incremented. In the Key-In window, type “dx=(x distance),(y distance)|(number of copies)” and press enter.

Precision Input Key-ins

Precision input is a method of entering data points with the keyboard. Using this method, you can specify the exact location of a data point by specifying any of the following:

- Design plane coordinates, the distances along the x-axis and y-axis (and z-axis in 3D) from the global origin, which has the coordinates “0,0” (“0,0,0” in 3D).

xy= x, y,(z) - Measured along the x and y (and z) axis from the Global Origin.

- Distance and angle relative to the view x-axis, from the most recently entered tentative point or data point.

di= distance, direction(angle) - Measured from the last data or tentative point given. The angle is measured irrespective of view rotation (0 is always to the right, 90 is always up, etc.)

- Distances, along the design plane axes, from the most recently entered tentative point or data point.

dl= x, y,(z) - Measured along the x and y (and z) axis from the last data or tentative point. The distances are measured along the axis, the result will look different in views that are rotated differently.

- Distances, along the view axes, from the most recently entered tentative point or data point.

dx= x, y,(z) - Measured along the view axis from the last data or tentative point. The distances are measured along the view. X will always be the left/right axis, y will always be the up/down axis, and z will always be the in/out axis.

InRoads Key-Ins

Station key-in formats
When using English alignment station values conventionally there is a plus sign “+” between the second and third digits. InRoads will allow you to input the station with or without the plus sign in the MicroStation Key-in Browser and InRoads dialogs.
e.g.: 45+23.71 or 4523.71

so= station, and offset
This key-in identifies a point perpendicular to the active alignment at the given offset distance. A negative offset distance is left of the alignment, a positive offset distance is right of the alignment. (see note)

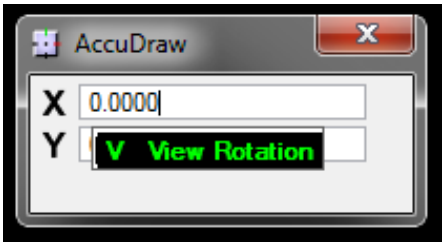
soe= station, offset, and elevation
This key-in identifies a point perpendicular to the active alignment at the given offset distance and at a specific elevation. A negative offset distance is left of the alignment, a positive offset distance is right of the alignment. (see note)

se= station, and elevation
This key-in identifies a point in a profile by the station and elevation. The station and elevation specified must be within the limits of the profile window as displayed. If this command does not work, snap to an element within the profile (like a grid line) then use the key-in. (see note)

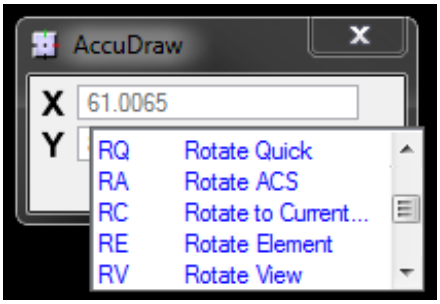
NOTE: "so=", “soe-“, and "se=" commands only work when InRoads and an .alg file is loaded. If there’s no active alignment the commands have no point of reference.

AccuDraw Key-Ins

AccuDraw includes a wide variety of single and double character command directives known as the shortcut key-ins. By pressing the appropriate key, you can direct AccuDraw to perform a specific task.



When AccuDraw is activated and the menu receives focus within MicroStation. A pop-up indicator confirms single letter shortcuts below the focused input field. This function not only confirms the key-ins and illustrates which key is being pressed but also serves to communicate that the shortcut is received via AccuDraw's input fields.



Two letter shortcuts appear attached to the focused input field, and confirm the action through the temporary appearance of the shortcut dialog. The pop-down list adjacent to the input field illustrates where the shortcut comes from so that you can “follow the action.”

The following table lists keyboard shortcuts that affect AccuDraw's operation. These shortcuts are effective only while the AccuDraw window has the focus. For a complete list of AccuDraw Keyboard Shortcuts topic see the MicroStation help menu.

Key	Key-in
<Enter>	ACCUDRAW LOCK SMART
<Space>	ACCUDRAW MODE
<O>	ACCUDRAW SETORIGIN
<V>	ACCUDRAW ROTATE VIEW
<T>	ACCUDRAW ROTATE TOP
<F>	ACCUDRAW ROTATE FRONT
<S>	ACCUDRAW ROTATE SIDE
<B>	ACCUDRAW ROTATE BASE TOGGLE
<E>	ACCUDRAW ROTATE CYCLE
<X>	ACCUDRAW LOCK X
<Y>	ACCUDRAW LOCK Y
<Z>	ACCUDRAW LOCK Z
<D>	ACCUDRAW LOCK DISTANCE
<A>	ACCUDRAW LOCK ANGLE

AccuDraw Key-Ins

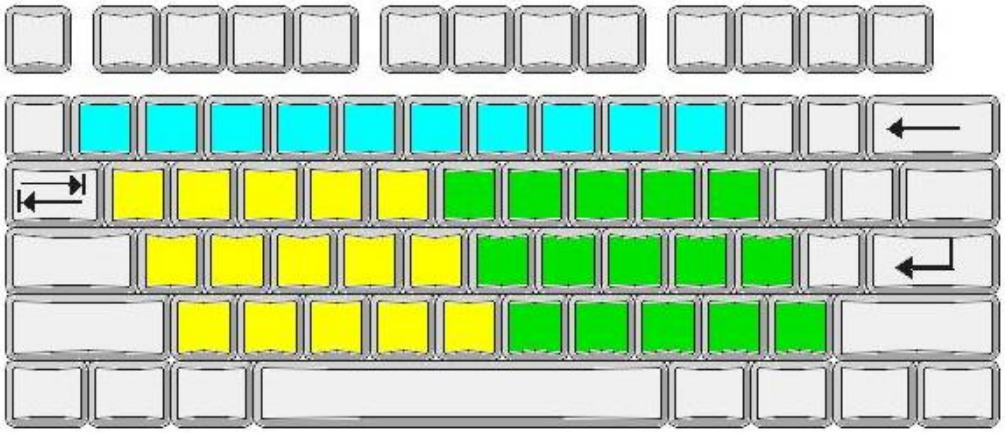
<L>,<I>	ACCUDRAW LOCK INDEX
<L>,<P>	ACCUDRAW LOCK GRIDPLANE
<L>,<A>	LOCK ACS TOGGLE
<L>,<S>	LOCK SNAP CONSTRUCTION TOGGLE
<L>,<Z>	ACCUDRAW LOCK STICKYZ
<R>,<Q>	ACCUDRAW ROTATE QUICK
<R>,<A>	ACCUDRAW ROTATE ACS
<R>,<C>	ACCUDRAW ROTATE CURRENTACS
<R>,<E>	ACCUDRAW ROTATE ELEMENT
<R>,<V>	ACCUDRAW ROTATE ORIENTVIEW
<R>,<X>	ACCUDRAW ROTATE X
<R>,<Y>	ACCUDRAW ROTATE Y
<R>,<Z>	ACCUDRAW ROTATE Z
<?>	ACCUDRAW DIALOG SHORTCUTS
<~>	ACCUDRAW BUMP TOOLSETTING
<G>,<T>	DIALOG TOOLSETTING
<G>,<K>	DIALOG CMDBROWSE
<G>,<S>	ACCUDRAW DIALOG SETTINGS
<G>,<A>	ACCUDRAW DIALOG GETACS
<W>,<A>	ACCUDRAW DIALOG SAVE ACS
<P>	POINT KEYIN SINGLE
<M>	POINT KEYIN MULTIPLE
<I>	SNAP INTERSECT
<N>	SNAP NEAREST
<C>	SNAP CENTER
<K>	ACCUDRAW DIALOG SNAPDIVISOR
<H>,<A>	ACCUDRAW Toggle
<H>,<S>	ACCUSNAP Toggle
<H>,<U>	ACCUSNAP SUSPEND
<Q>	ACCUDRAW QUIT

Example: Offset snap- With AccuDraw activated, Tentative to an element but do not accept it with a data point. Press the “O” key for Origin. Type in an x & y distance in the AccuDraw bar and data point to accept.

Positional Keyboard Navigation

Positional keyboard navigation is a technique that utilizes a position-mapped keyboard. Position mapping is the mapping of keyboard zones to logical collections of controls in the user interface.

MicroStation position maps your keyboard by default. The following figure shows the default position mapping:



Default position mapping.

The **blue keys** are mapped to the icons in the **Main Task Dialog Box**.

(1), (2), (3), (4), (5), (6), (7), (8), (9), and (0)

The **yellow keys** are mapped to the icons in the **Tasks Dialog Box**.

(Q), (W), (E), (R), (T), (A), (S), (D), (F), (G), (Z), (X), (C), (V), and (B)

The **green keys** are mapped to the controls in the **Tool Settings window**.

(Y), (U), (I), (O), (P), (H), (J), (K), (L), (;), (N), (M), (,), (.), and (/)

(Enter): Opens the Key-in window at the pointer location or if the window is already open, puts focus within the browsable lists of keywords if they are visible.

(Spacebar): Moves focus to the AccuDraw window.

(Tab): Change to the next element under the pointer.

(PgUp): Next task

(PgDn): Previous task

(Esc): Tool Aids

Positional Keyboard Navigation Default Main Task Dialog Box

1: **Element Selection**

2: **Fence Tool Box**

2 1: Place Fence
2 2: Modify Fence
2 3: Manipulate Fence Contents
2 4: Delete Fence Contents
2 5: Drop Fence Contents
2 6: Copy/Move Fence Contents To File

3: **Manipulate Tool Box**

3 1: Copy
3 2: Move
3 3: Scale
3 4: Rotate
3 5: Mirror
3 6: Array
3 7: Align Elements By Edge
3 8: Stretch
3 9: Move Parallel
3 0: Move to Contact

4: **View Control Tool Box**

4 1: Update View
4 2: Zoom In
4 3: Zoom Out
4 4: Window Area
4 5: Fit View
4 6: View Rotation
4 7: Pan View
4 8 Walk
4 9 Fly
4 0: Navigate View
4 Q: View Previous
4 W: View Next
4 E: Copy View
4 R: Change View Perspective
4 T: Set Display Depth
4 Y: Show Display Depth
4 U: Setup Camera
4 I: Render
4 O: View Display Mode
4 P: Clip Volume
4 A: Clip Mask

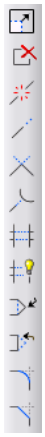
5: **Change Attributes Tool Box**

5 1: Change Element Attribute
5 2: Change To Active Area
5 3: Change To Active Fill Type
5 4: Modify Line Style Attributes
5 5: Change Multi-Lines
5 6: Match Element Attributes
5 7: Smart Match

6: **Group Tool Box**

6 1: Drop Element
6 2: Create Complex Chain
6 3: Create Complex Shape
6 4: Create Region
6 5: Add to Graphic Group
6 6: Drop From Graphic Group
6 7: Group Hole

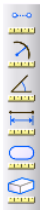
7: **Modify Tool Box**



7 1: Modify Element
7 2: Partial Delete
7 3: Break Element
7 4: Extend Line
7 5: Extend Elements to Intersection
7 6: Extend Element to Intersection
7 7: Trim Element
7 8: IntelliTrim
7 9: Insert Vertex
7 0: Delete Vertex
7 Q: Construct Circular Fillet
7 W: Construct Chamfer

8: **Delete Element**

9: **Measure Tool Box**



9 1: Measure Distance
9 2: Measure Radius
9 3: Measure Angle
9 4: Measure Length
9 5: Measure Area
9 6: Measure Volume

Positional Keyboard Navigation Default Task (Drawing) Dialog Box

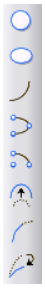
Q: **Linear Took Box**

Q 1: Place Smart Line
Q 2: Place Line
Q 3: Place Multi-Line
Q 4: Points
Q 5: Create Curves
Q 6: Place Stream Line String
Q 7: Place Point or Stream Curve
Q 8: Construct Angle Bisector
Q 9: Construct Minimum Distance Line
Q 0: Construct Line at Active Angle

W: **Polygons Tool Box**

W 1: Place Block
W 2: Place Shape
W 3: Place Orthogonal Shape
W 4: Place Regular Polygon

E: **Circles Tool Box**



E 1: Place Circle
E 2: Place Ellipse
E 3: Place Arc
E 4: Place Half Ellipse
E 5: Place Quarter Ellipse
E 6: Modify Arc Radius
E 7; Modify Arc Angle
E 8: Modify Arc Axis

R: **Pattern Tool Box**

R 1: Hatch Area
R 2: Crosshatch Area
R 3: Pattern Area
R 4: Linear Pattern
R 5: Show Pattern Attributes
R 6: Match Pattern Attributes
R 7: Change Pattern
R 8: Delete Pattern

T: **Tags Tool Box**

T 1: Attach Tags
T 2: Edit Tags
T 3: Review Tags
T 4: Change Tags
T 5: Delete Tags

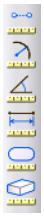
A: **Text Tool Box**

A 1: Place Text
A 2: Place Note
A 3: Edit Text
A 4: Spell Checker
A 5: Display Text Attributes
A 6: Match Text Attributes
A 7: Change Text Attributes
A 8: Place Text Node
A 9: Copy/Increment Text
A 0: Copy Enter Data Field
A Q: Copy/Increment Enter Data Field
A W: Fill in Single Enter Data Filed
A E: Automatic Fill in Enter Data Fields

S: **Cells Tool Box**

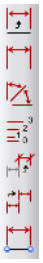
S 1: Place Active Cell
S 2: Place Active Cell Matrix
S 3: Select and Place Cell
S 4: Define Cell Origin
S 5: Identify Cell
S 6: Place Active Line Terminator
S 7: Replace Cell
S 8: Place Cell Index

D: **Measure Tool Box**



D 1: Measure Distance
D 2: Measure Radius
D 3: Measure Angle Between Lines
D 4: Measure Length
D 5: Measure Area
D 6: Measure Volume

F: **Dimensioning Tool Box**



F 1: Dimension Element
F 2: Dimension Linear
F 3: Dimension Angular
F 4: Dimension Ordinates
F 5: Change Dimension
F 6: Match Dimension Attributes
F 7: Reassociate Dimension

Positional Keyboard Navigation

In Microsoft Windows and other graphical computer interfaces, the focus — sometimes called the input focus or keyboard focus — refers to the window or control to which keyboard input is directed.
The model is hierarchical with the top level called home.

In this model MicroStation follows your actions and attempts to move input focus for common operations. For example, when you place a line the focus moves from home to the AccuDraw window, then back to home.

When the focus is home, positional keyboard navigation can be used.
To move the focus home Press <Esc>.

A field in the status bar indicates the focus location:

• Home 

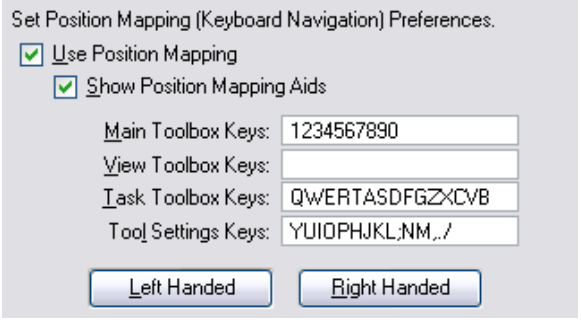
• Tool Settings — the Tool Settings window has the focus. 

• Key-in — the Key-in window has the focus. 

• AccuDraw — the AccuDraw window has the focus. 

• (No icon) — another window or dialog box has the focus

This positional keyboard navigation preference is on by default. To disable positional keyboard navigation, turn off the preference Use Position Mapping in the Position Mapping category of the Preferences dialog box.
(Workspace > preferences>Position Mapping).



Positional Keyboard Navigation

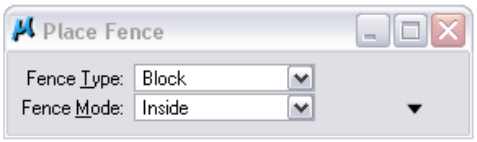
Example:

If you wanted to select the Place Fence tool in the Fence Tool Box using positional keyboard navigation you would do the following:

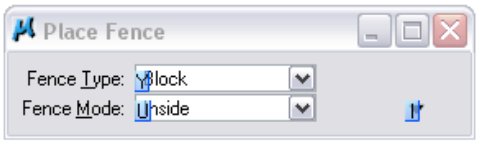
Press (2) to open the Fence task.

Conveniently the toolbox opens at the location of your pointer.

Press (1) to open the Place Fence Tool.



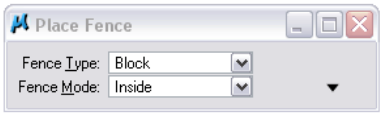
Press (Esc) to view the Tool Aids.
Press (y) to change the Fence Type.
Press (u) to change the Fence Mode.
Press (i) to open the Save Fence Options.

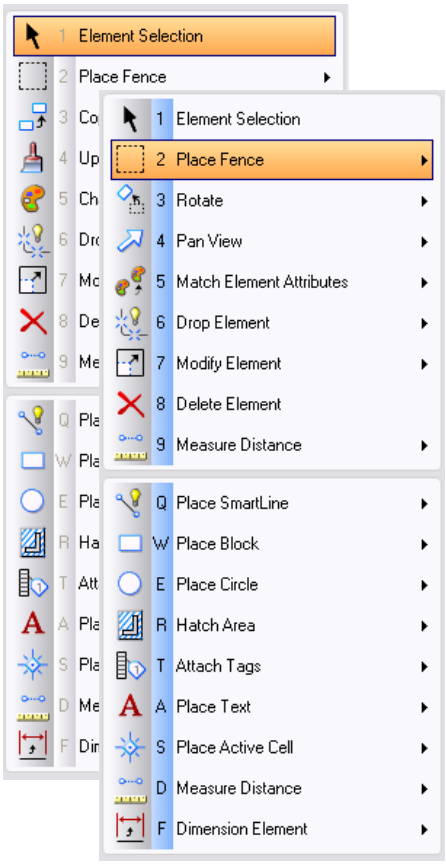


To activate a tool quickly, press the (Shift) key plus the number or letter corresponding to the representative tool in the Main task or in the Tasks dialog.

The most recent Tool used under the selected tool bar will initiate.

Example: Select (Shift 2) to initiate the place Fence tool.

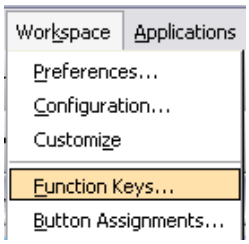


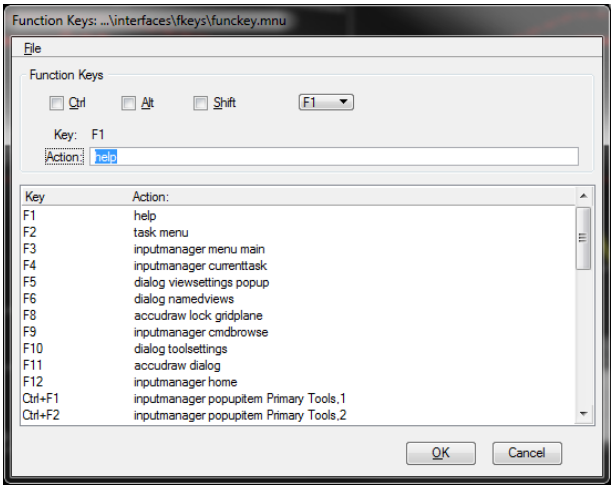


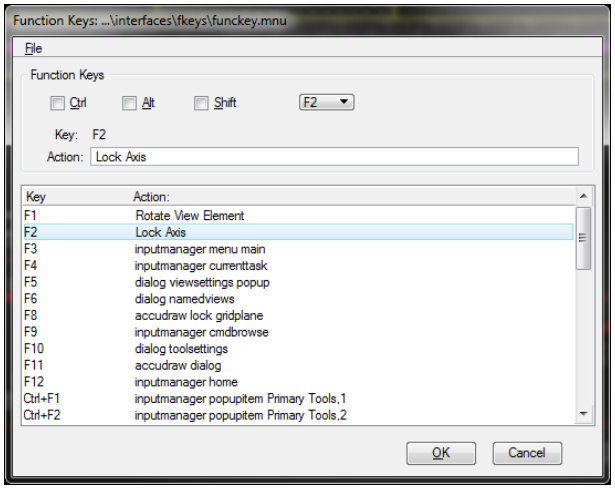
Function Key Menu

A function key menu contains keyboard function key definitions, (assignments of actions) to function keys. Function key definitions contain action strings that cause an action to occur when you press the function keys.

The Function Keys dialog (Workspace > Function Keys) is used to modify function key menus. You can also define new function keys and add them to the menu.







To change or add a new function key:
Open the function key dialog.

Select the function key you would like by turning on the <Ctrl>, <Alt>, and/or <Shift> check boxes and choosing the desired function key from the list box, by choosing from the display window or by picking the desired function keys with the keyboard.

In the Action text box, edit the definition. The definition must be specified as an action string (key-in command).

Hint: Use the MicroStation Search to locate key-in commands.

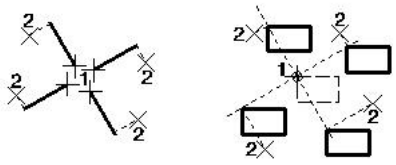
Example: Change F1 to rotate view element. Change F2 to lock axis.

Design File Settings dialog Axis category

Consists of controls that are also available in the Locks dialog. (Settings menu > Locks > Full).

⊟ Axis Lock

If on, each data point is forced to lie at an angle (or multiples of that angle) from the previous data p
Increment relative to the (Axis) Start Angle.

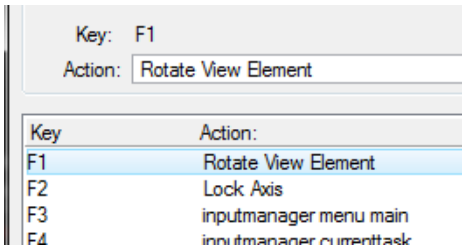


Axis Lock with Axis Start Angle 30° and Axis Increment 90°. Left: Lines placed with the Place Line angles. Right: Movement with Move Element is constrained in a similar way.

Key-in: LOCK AXIS [OFF | ON | TOGGLE]

Function Key Menu

To save the function key definitions, choose save, to overwrite the open function key menu. Choose save as, to open the function key menu as dialog and create a function key menu with a different name or location.



Click the OK button to finish this command.
(if not saved, an alert box will open).

Example: Change F1 to rotate view element.
Change F2 to lock axis.

The following Chart Contains the Default Bentley Function Keys.

	Description of the Action
<F1>	Opens Help for the active dialog.
<F2>	Displays the Tasks toolbox's Task List.
<F3>	Displays the Main toolbox.
<F4>	Displays the active task.
<F5>	Displays the View Attributes dialog.
<F6>	Opens the Saved Views dialog.
<F7>	Unassigned
<F8>	Turns on or off the display of the grid in the open view.
<F9>	Sends input focus to the Key-in window if it is docked or open. Opens the Key-in window if it is not already open.
<F10>	Sends input focus to the Tool Settings window if it is docked or open. Opens the Tool Settings window if it is not already open.
<F11>	Sends input focus to the AccuDraw window if it is docked or open. Activates AccuDraw if it is not active and opens the AccuDraw window.
<F12>	Sends input focus to home.
<alt-F8>	Opens the Macros dialog.
<alt-F11>	Opens the Visual Basic Editor.
<ctrl-F1>	Activates the first tool in the Primary Tools toolbox. The default is to display the Models dialog.
<ctrl-F2>	Activates the second tool in the Primary Tools toolbox. The default is to display the References dialog.
<ctrl-F3>	Activates the third tool in the Primary Tools toolbox. The default is to display the Raster Manager dialog.
<ctrl-F4>	Activates the fourth tool in the Primary Tools toolbox. The default is to display the Point Clouds dialog.

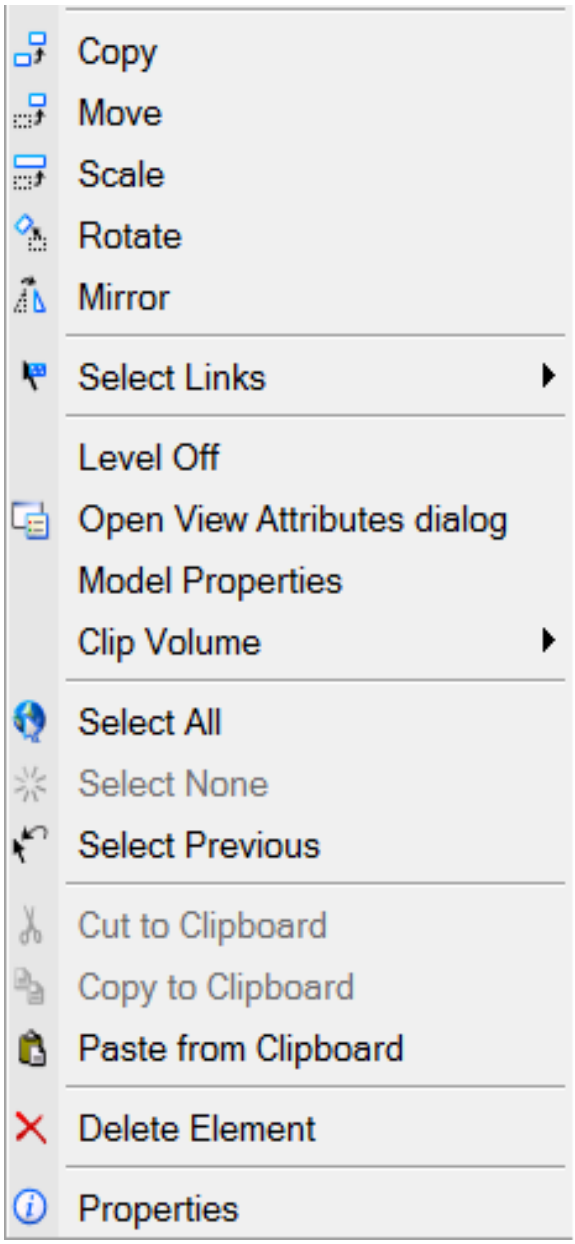
Function Key Menu

<ctrl-F5>	Activates the fifth tool in the Primary Tools toolbox. The default is to display the Saved Views dialog.
<ctrl-F6>	Activates the sixth tool in the Primary Tools toolbox. The default is to display the Level Manager dialog.
<ctrl-F7>	Activates the seventh tool in the Primary Tools toolbox. The default is to display the Level Display dialog.
<ctrl-F8>	Activates the eighth tool in the Primary Tools toolbox. The default is to display the Cell Library dialog.
<ctrl-F9>	Activates the ninth tool in the Primary Tools toolbox. The default is to display the Auxiliary Coordinates dialog.
<ctrl-F10>	Activates the tenth tool in the Primary Tools toolbox. The default is to display the Element Information dialog.
<ctrl-F11>	Activates the eleventh tool in the Primary Tools toolbox. The default is to open or close Project Explorer.
<ctrl-F12>	Activates the twelfth tool in the Primary Tools toolbox. The default is to open the Item Sets dialog.
<ctrl-Alt-F1>	For 3Dconnexion devices. Opens the Main toolbox in a pop-up menu.
<ctrl-Alt-F2>	For 3Dconnexion devices. Opens the active task in a pop-up menu.
<ctrl-Alt-F3>	For 3Dconnexion devices. Opens the View Attributes dialog in a pop-up menu.
<ctrl-Alt-F4>	For 3Dconnexion devices. Sends input focus to the Key-in window if it is docked or open. Opens the Key-in window in a pop-up menu if it is not already open.
<ctrl-Alt-F5>	For 3Dconnexion devices. Opens the View Control toolbox in a pop-up menu.
<ctrl-Alt-F6>	For 3Dconnexion devices. Opens the Saved Views dialog.
<shift-F1>	Activates the first tool in the Attributes toolbox. The default is to display the active element template.
<shift-F2>	Activates the second tool in the Attributes toolbox. The default is to display the Active Level list box.
<shift-F3>	Activates the third tool in the Attributes toolbox. The default is to display the Active Color dialog.
<shift-F4>	Activates the fourth tool in the Attributes toolbox. The default is to display the Active Line Style list box.
<shift-F5>	Activates the fifth tool in the Attributes toolbox. The default is to display the Active Line Weight list box.
<shift-F6>	Activates the sixth tool in the Attributes toolbox. The default is to display the Active Element Transparency list box.
<shift-F7>	Activates the seventh tool in the Attributes toolbox. The default is to display the Active Element Priority list box.
<shift-F8>	Activates the eighth tool in the Attributes toolbox.
<shift-F9>	Activates the ninth tool in the Attributes toolbox.
<shift-F10>	Activates the tenth tool in the Attributes toolbox.

Right Click Options

The right click options menu in MicroStation is a tool that allows quick access too many of the more common commands in the MicroStation interface. Most of these tools are exactly the same as the task menu, or are common right click options. If specific elements are selected more relevant options may appear in the right click options.

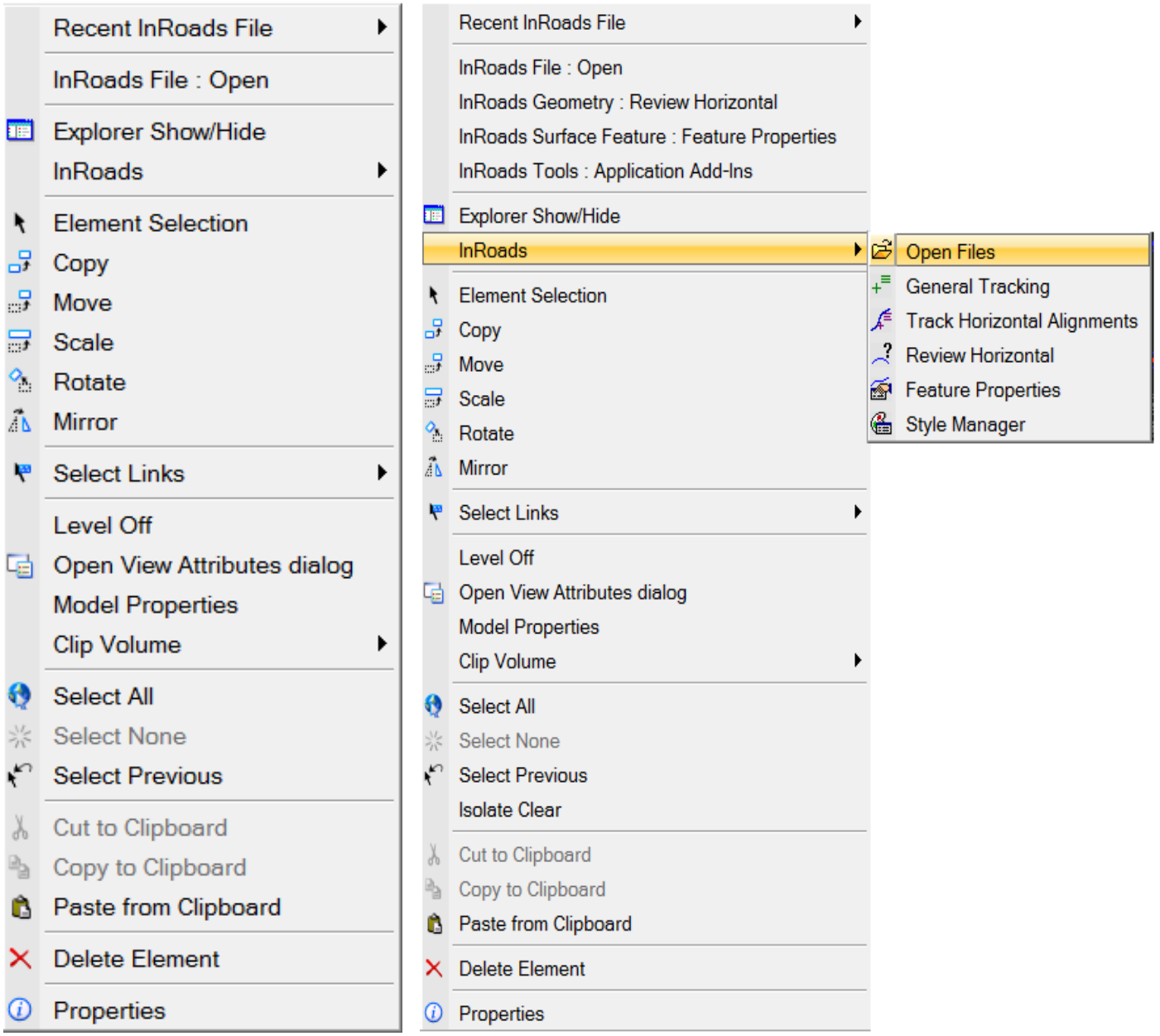
MicroStation Standard



Right Click Options

When InRoads is activated several InRoads tools are added to the right click options menu. Most notably: a list of recently used InRoads commands, the “Recent InRoads File” pull out menu which shows recently opened InRoads files, and the “InRoads” pull out menu which has quick access to tools such as *Tracking*, *Review Horizontal*, and an InRoads *Open files* command. Some of the “Application add ins” are also added to the InRoads right click menu when activated in MicroStation.

MicroStation with InRoads “InRoads” pull out menu



OkDOT Font

To promote consistency in preparing ODOT drawings as well as prevent the replacement of fonts and loss of custom characters. ODOT has created a custom font based on a standard engineering style of lettering. This font is available on our website at: http://www.okladot.state.ok.us/roadway/CADD_Support/MicroStation/Symbology

	Version	***Date***
OkDOT.ttf	**1.31**	**1/23/15**
OkDOT Bold.ttf	**1.31**	**1/23/15**
OkDOT Imprint.ttf	**1.31**	**1/23/15**
OkDOT Italic.ttf	**1.1**	**1/21/15**

ODOT design plans use True Type Font OkDOT. The new construction notes shall be in the default style while existing design element notes shall be italicized. Both new and existing note lettering shall be capitalized.

Note: OkDOT font carries a standard MicroStation line weight of 1. Notes needing additional emphasis may be bolded.

The following list contains the character name & example for each style of OkDOT font.

Character Name	OkDOT	OkDOT Bold	*OkDOT Italic*	OkDOT Imprint
.notdef				
.null				
nonmarkingreturn				
space				
Centerline	℄	℄	℄	N.A.
Quotedbl	"	"	*″*	”
numbersign	#	#	*#*	#
dollar	$	$	*$*	$
percent	%	%	*%*	%
ampersand	&	&	*&*	&
quotesingle	‘	‘	*‘*	’
parenleft	(	(	*(*	(
parenright	)	)	*)*	)
asterisk	*	*	***	*
plus	+	+	*+*	+
comma	,	,	*,*	,
hyphen	-	-	*-*	-
period	.	.	*.*	.

OkDOT Font

slash	/	/	/	/
zero	0	0	*0*	0
one	1	1	*1*	1
two	2	2	*2*	2
three	3	3	*3*	3
four	4	4	*4*	4
five	5	5	*5*	5
six	6	6	*6*	6
seven	7	7	*7*	7
eight	8	8	*8*	8
nine	9	9	*9*	9
colon	:	:	*:*	:
semicolon	;	;	*;*	;
sectionline	℄	℄	℄	N.A.
equal	=	=	*=*	=
baseline	℔	℔	℔	N.A.
question	?	?	*?*	N.A.
at	@	@	*@*	@
A	A	A	*A*	A
B	B	B	*B*	B
C	C	C	*C*	C
D	D	D	*D*	D
E	E	E	*E*	E
F	F	F	*F*	F
G	G	G	*G*	G
H	H	H	*H*	H
I	I	I	*I*	I
J	J	J	*J*	J
K	K	K	*K*	K
L	L	L	*L*	L
M	M	M	*M*	M
N	N	N	*N*	N
O	O	O	*O*	O
P	P	P	*P*	P
Q	Q	Q	*Q*	Q
R	R	R	*R*	R

OkDOT Font

S	S	S	*S*	S
T	T	T	*T*	T
U	U	U	*U*	U
V	V	V	*V*	V
W	W	W	*W*	W
X	X	X	*X*	X
Y	Y	Y	*Y*	Y
Z	Z	Z	*Z*	Z
bracketleft	[	[	*[*	[
flowline				\
bracketright	]	]	*]*	]
degree	°	°	°	N.A
underscore	_	_	_	_
grave	`	`	`	`
a	a	a	*a*	A
b	b	b	*b*	B
c	c	c	*c*	C
d	d	d	*d*	D
e	e	e	*e*	E
f	f	f	*f*	F
g	g	g	*g*	G
h	h	h	*h*	H
i	i	i	*i*	I
j	j	j	*j*	J
k	k	k	*k*	K
l	l	l	*l*	L
m	m	m	*m*	M
n	n	n	*n*	N
o	o	o	*o*	O
p	p	p	*p*	P
q	q	q	*q*	Q
r	r	r	*r*	R
s	s	s	*s*	S
t	t	t	*t*	T
u	u	u	*u*	U
v	v	v	*v*	V

OkDOT Font

w	w	w	w	w
x	x	x	x	x
y	y	y	y	y
z	z	z	z	z
propertyline	ℙ	ℙ	ℙ	N.A.
delta	Δ	Δ	Δ	N.A.
braceleft	{	{	{	{
braceright	}	}	}	}
asciitilde	~	~	~	~
greater	>	>	>	>
excalm	!	!	!	!
backslash	\	\	\	\
less	<	<	<	<
brokenbar	¦	¦	¦	N.A
bar	|	|	|	N.A
center_to_center	℄	℄	℄	N.A
copyright	©	©	©	N.A
wideflange	WF	WF	WF	N.A
guillemotleft	«	«	«	N.A
supscript_4	⁴	⁴	⁴	N.A
registered	®	®	®	N.A
kips	ᴷ	ᴷ	ᴷ	N.A
asciicircum	°	°	°	°
plusminus	±	±	±	N.A.
square_root	²	²	²	N.A.
cube	³	³	³	N.A.
lessthanequal	≤	≤	≤	N.A.
greaterthanequal	≥	≥	≥	N.A.
romanfive	Ⅴ	Ⅴ	Ⅴ	N.A.
periodcentered	·	•	•	N.A.
diameter	∅	∅	∅	N.A.
onesuperior	¹	¹	¹	N.A.
ordmasculine	º	º	º	N.A.
guillemotright	»	»	»	N.A.
onesixteenth	1⁄16	1⁄16	1⁄16	N.A.
oneeightth	1⁄8	1⁄8	1⁄8	N.A.

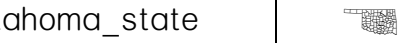
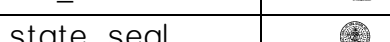
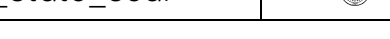
OkDOT Font

threesixteenth	3⁄16	3⁄16	3⁄16	N.A.
onequarter	1⁄4	1⁄4	1⁄4	N.A.
ficesixteenth	5⁄16	5⁄16	5⁄16	N.A.
threeeightth	3⁄8	3⁄8	3⁄8	N.A.
sevensixteenth	7⁄16	7⁄16	7⁄16	N.A.
onehalf	1⁄2	1⁄2	1⁄2	N.A.
ninesixteenth	9⁄16	9⁄16	9⁄16	N.A.
fiveeightth	5⁄8	5⁄8	5⁄8	N.A.
elevensixteenth	11⁄16	11⁄16	11⁄16	N.A.
threesixteenth	3⁄16	3⁄16	3⁄16	N.A.
thirteensixteenth	13⁄16	13⁄16	13⁄16	N.A.
seveneightth	7⁄8	7⁄8	7⁄8	N.A.
fifteensixteenth	15⁄16	15⁄16	15⁄16	N.A.
square03	▬	▬	▬	N.A.
square04	▬	▬	▬	N.A.
square05	◧	◧	◧	N.A.
square06	◨	◨	◨	N.A.
square07	◩	◩	◩	N.A.
square08	◪	◪	◪	N.A.
square09	◪	◪	◪	N.A.
square10	◪	◪	◪	N.A.
square_ft	⏍	⏍	⏍	N.A.
micro	µ	µ	µ	N.A.
parallel	⫽	⫽	⫽	N.A.
angle	∢	∢	∢	N.A.
multiply	×	×	×	N.A.
revision01	⚠	⚠	⚠	N.A.
revision02	⚠	⚠	⚠	N.A.
revision03	⚠	⚠	⚠	N.A.
revision04	⚠	⚠	⚠	N.A.
revision05	⚠	⚠	⚠	N.A.
revision06	⚠	⚠	⚠	N.A.
revision07	⚠	⚠	⚠	N.A.
revision08	⚠	⚠	⚠	N.A.
revision09	⚠	⚠	⚠	N.A.
revision10	⚠	⚠	⚠	N.A.

OkDOT Font

revision11	11	11	11	N.A.
revision12	12	12	12	N.A.
revision13	13	13	13	N.A.
revision14	14	14	14	N.A.
revision15	15	15	15	N.A.
revision16	16	16	16	N.A.
revision17	17	17	17	N.A.
revision18	18	18	18	N.A.
revision19	19	19	19	N.A.
revision20	20	20	20	N.A.
revision21	21	21	21	N.A.
revision22	22	22	22	N.A.
diamond1	◇	◇	◇	N.A.
diamond2	◆	◆	◆	N.A.
diamond3	◆	◆	◆	N.A.
diamond4	◆	◆	◆	N.A.
diamond5	◆	◆	◆	N.A.
diamond6	◆	◆	◆	N.A.
circle01	○	○	○	N.A.
circle02	●	●	●	N.A.
circle03	◑	◑	◑	N.A.
divide	÷	÷	÷	N.A.
triangle1	△	△	△	N.A.
triangle2	▲	▲	▲	N.A.
triange3	▽	▽	▽	N.A.
triangle4	▼	▼	▼	N.A.
triangle5	◭	◭	◭	N.A.
triangle6	◭	◭	◭	N.A.
triangle7	◸	◸	◸	N.A.
triangle8	◸	◸	◸	N.A.
circle04	◐	◐	◐	N.A.
circumflex	ˆ	ˆ	ˆ	N.A.
caron	ˇ	ˇ	ˇ	N.A.
circle05	◪	◪	◪	N.A.
circle06	◓	◓	◓	N.A.
circle07	◒	◒	◒	N.A.

OkDOT Font

circle08	◐	◐	◐	N.A.
circle09	◑	◑	◑	N.A.
circle10	◑	◑	◑	N.A.
log10	LOG_{10}	$\mathbf{LOG_{10}}$	$\mathit{LOG_{10}}$	N.A.
endash	–	–	–	N.A.
emdash	—	—	—	N.A.
quoteleft	‘	‘	‘	N.A.
quoteright	’	’	’	N.A.
quotesinglbase	‚	‚	‚	N.A.
quotedblleft	“	“	“	N.A.
quotedblright	”	”	”	N.A.
quotedblbase	„	„	„	N.A.
phi	ϕ	ϕ	ϕ	N.A.
bullet	•	•	•	N.A.
ellipsis	…	…	…	N.A.
guilsinglleft	‹	‹	‹	N.A.
guilsinglright	›	›	›	N.A.
fraction	⁄	⁄	⁄	N.A.
square01	□	□	□	N.A.
square02	■	■	■	N.A.
trademark	™	™	™	N.A.
minus	−	−	−	N.A.
squarerootofE	$\sqrt{E}$	$\mathbf{\sqrt{E}}$	$\mathit{\sqrt{E}}$	N.A.
infinity	∞	∞	∞	N.A.
Oklahoma_state				N.A.
odot_seal				N.A.
ok_state_seal				N.A.

OkDOT Font Alternate Key-Ins

OkDOT font (Standard, Bold, and Italic)
OkDOT font needs to be the active font. Press and hold down the alt key, as you key in the four digit number equated to the symbol and then release.

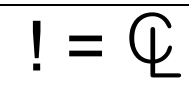
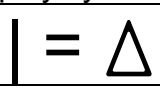
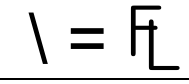
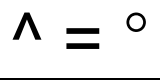
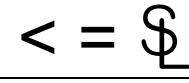
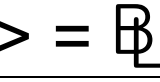
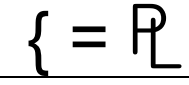
Alt+0128	=	^	Alt+0184	=	∅	Alt+0222	=	△7
Alt+0130	=	‘	Alt+0185	=	¹	Alt+0223	=	△8
Alt+0132	=	„	Alt+0186	=	º	Alt+0224	=	△9
Alt+0133	=	…	Alt+0187	=	»	Alt+0225	=	△10
Alt+0136	=	ˆ	Alt+0188	=	¼	Alt+0226	=	△11
Alt+0139	=	‹	Alt+0189	=	½	Alt+0227	=	△12
Alt+0145	=	‘	Alt+0190	=	¾	Alt+0228	=	△13
Alt+0146	=	’	Alt+0191	=	1⁄16	Alt+0229	=	△14
Alt+0147	=	“	Alt+0192	=	5⁄16	Alt+0230	=	△15
Alt+0148	=	”	Alt+0193	=	3⁄8	Alt+0231	=	△16
Alt+0149	=	•	Alt+0194	=	7⁄16	Alt+0232	=	△17
Alt+0150	=	–	Alt+0195	=	1⁄8	Alt+0233	=	△18
Alt+0151	=	—	Alt+0196	=	9⁄16	Alt+0234	=	△19
Alt+0153	=	™	Alt+0197	=	5⁄8	Alt+0235	=	△20
Alt+0155	=	›	Alt+0198	=	11⁄16	Alt+0236	=	△21
Alt+0161	=	>	Alt+0199	=	3⁄16	Alt+0237	=	△22
Alt+0162	=	!	Alt+0200	=	13⁄16	Alt+0238	=	◇
Alt+0163	=	\	Alt+0201	=	7⁄8	Alt+0239	=	◆
Alt+0164	=	<	Alt+0202	=	15⁄16	Alt+0240	=	◆
Alt+0165	=	{	Alt+0203	=	▬	Alt+0241	=	◆
Alt+0166	=	¦	Alt+0204	=	▬	Alt+0242	=	◆
Alt+0167	=	|	Alt+0205	=	◧	Alt+0243	=	◆
Alt+0168	=	℅	Alt+0206	=	◨	Alt+0244	=	○
Alt+0169	=	©	Alt+0207	=	◩	Alt+0245	=	●
Alt+0170	=	Ⓦ	Alt+0208	=	◪	Alt+0246	=	◑
Alt+0171	=	«	Alt+0209	=	◪	Alt+0247	=	÷
Alt+0172	=	⁴	Alt+0210	=	◪	Alt+0248	=	△
Alt+0173	=	-	Alt+0211	=	◫	Alt+0249	=	▲
Alt+0174	=	®	Alt+0212	=	μ	Alt+0250	=	▽
Alt+0175	=	ᴷ	Alt+0213	=	⌋⌊	Alt+0251	=	▼
Alt+0176	=	°	Alt+0214	=	⊲	Alt+0252	=	◭
Alt+0177	=	±	Alt+0215	=	×	Alt+0253	=	◭
Alt+0178	=	²	Alt+0216	=	△1	Alt+0254	=	◸
Alt+0179	=	³	Alt+0217	=	△2	Alt+0255	=	◹
Alt+0180	=	≤	Alt+0218	=	△3	2248+Altx	=	ODOT
Alt+0181	=	≥	Alt+0219	=	△4			
Alt+0182	=	∇	Alt+0220	=	△5			
Alt+0183	=	·	Alt+0221	=	△6			

OkDOT Font Alternate Key-Ins

OkDOT font (Imprint)
OkDOT Imprint needs to be the active font. Press and hold down the alt key, as you key in the four digit number equated to the symbol and then release.

ALT+0209 = ①
ALT+0210 = ②
ALT+0211 = ③
ALT+0212 = ④
ALT+0213 = ⑤
ALT+0214 = ⑥
ALT+0215 = ⑦
ALT+0216 = ⑧
ALT+0217 = ⑨
ALT+0218 = ⑩
ALT+0219 = ⑪
ALT+0220 = ⑫
ALT+0221 = ⑬
ALT+0222 = ⑭
ALT+0223 = ⑮
ALT+0224 = ⑯
ALT+0225 = ⑰
ALT+0226 = ⑱
ALT+0227 = ⑲
ALT+0228 = ⑳
ALT+0229 = ㉑
ALT+0230 = ㉒
ALT+0231 = ㉓
ALT+0232 = ㉔
ALT+0233 = ㉕
ALT+0234 = 🅕1
ALT+0235 = 🅕2
ALT+0236 = 🅕3
ALT+0237 = 🅕4
ALT+0238 = 🅕5
ALT+0239 = 🅕6
ALT+0240 = 🅕7
ALT+0241 = 🅕8
ALT+0242 = 🅕9

OkDOT Font Custom Characters

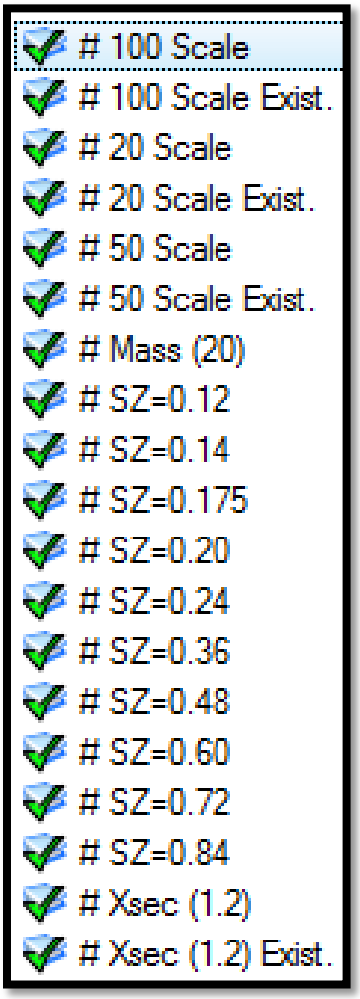
Standard Keyboard Custom Replacements Note: OkDOT must be the active font to display symbols.	
! = 	| = 
\ = 	^ = 
< = 	> = 
{ = 	

Text Styles

For ODOT Roadway Design use only

Text styles are named sets of text attributes, such as font, width, height, and color. They allow you to place text within a model in a consistent and automated manner. Text elements placed with a text style are automatically updated when the style is modified.

Standard Roadway Design Text Styles

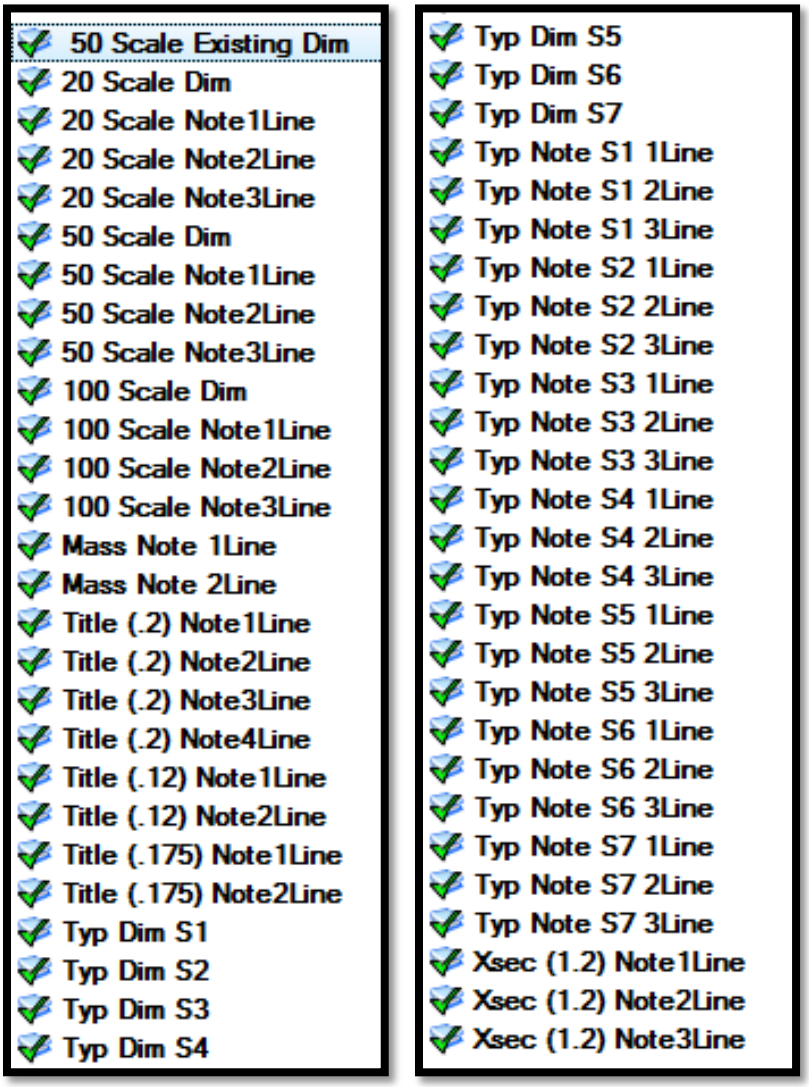


Dimension Styles

For ODOT Roadway Design use only

A dimension style is a saved set of dimensioning settings. You can define dimension styles and apply them to dimension elements during placement. Changes made to dimension styles are dynamic and can be applied to all dimensions previously placed with that style in the active DGN file.

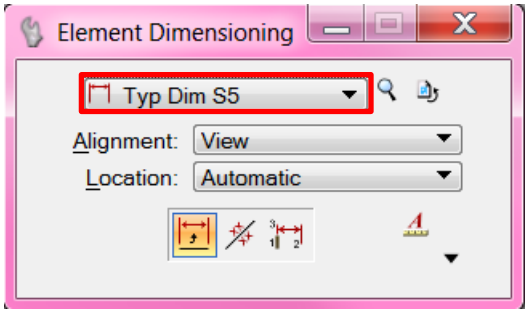
Standard Roadway Dimension Styles



How To Use Dimension Tools

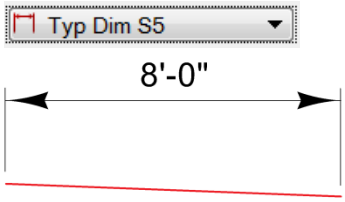
Begin by setting the level “Dimension Line” active.
Go to the *Dimensioning Tools* Tool Bar and select the Dimension Linear command 

Select a dimension style. The scale of the typical border is the scale used for your dimensions style. If you are using the prebuilt typical borders they are a scale of 5 so the dimension style will be Typ Dim S5.

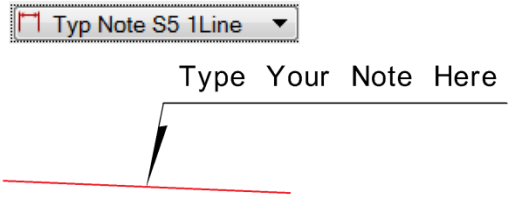


If there are no dimension styles in the list pick the magnifying glass then in the Dimension Styles window go to *Style/Import/Typical/Open.*

The Styles “Typ Dim S*” have full arrow heads.



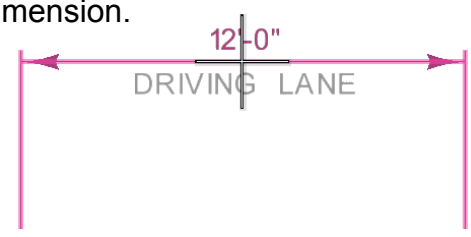
The Styles “Typ Note S* *Line” have half arrow heads.



Snap to each edge of driving lane and then pull the dimension upward until it is the correct height and accept.

If what you are dimensioning is one solid element you can use the 
Dimension Element command pick once on the element, drag the dimension up and accept.

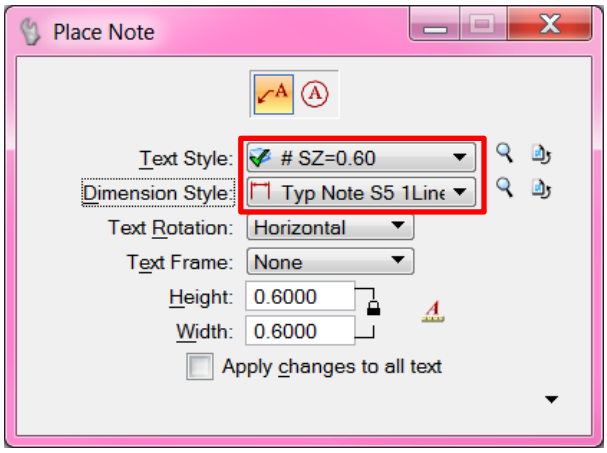
To place the Driving Lane text underneath the dimension go to the Place Cell command Change the scale to the same as the border (prebuilt typicals will be a 5). Pick the cell called NoteDL and snap to the center of the driving lane dimension.



How To Use Dimension Tools

The cells are already set to the correct spacing below the dimension line. Most of the dimension text needed for a typical has been added to the cell library. See page 3 for a full list of these cells. To place a dimension with a leader line and arrow use the Place Note command.

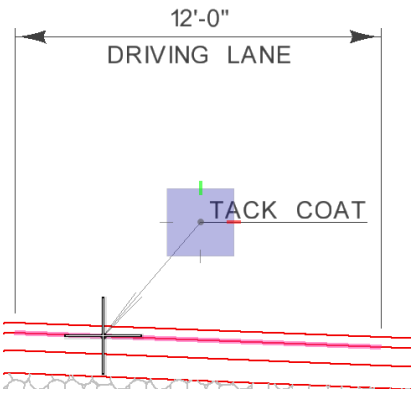
In the *Text* Tool Bar
Pick the Place Note command 

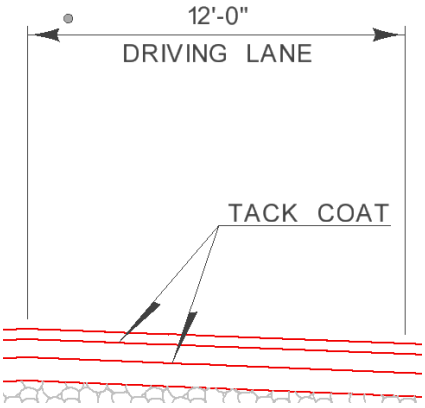


Change the text style to the correct size and the dimension style to the correct scale and lines of text you will be using.

You can either type the note in the Text Editor box that appears or if you just want to place the leader line and arrow leave the box blank.

Pick the point where the leader line needs to start. Drag the line, pick an end point and accept.

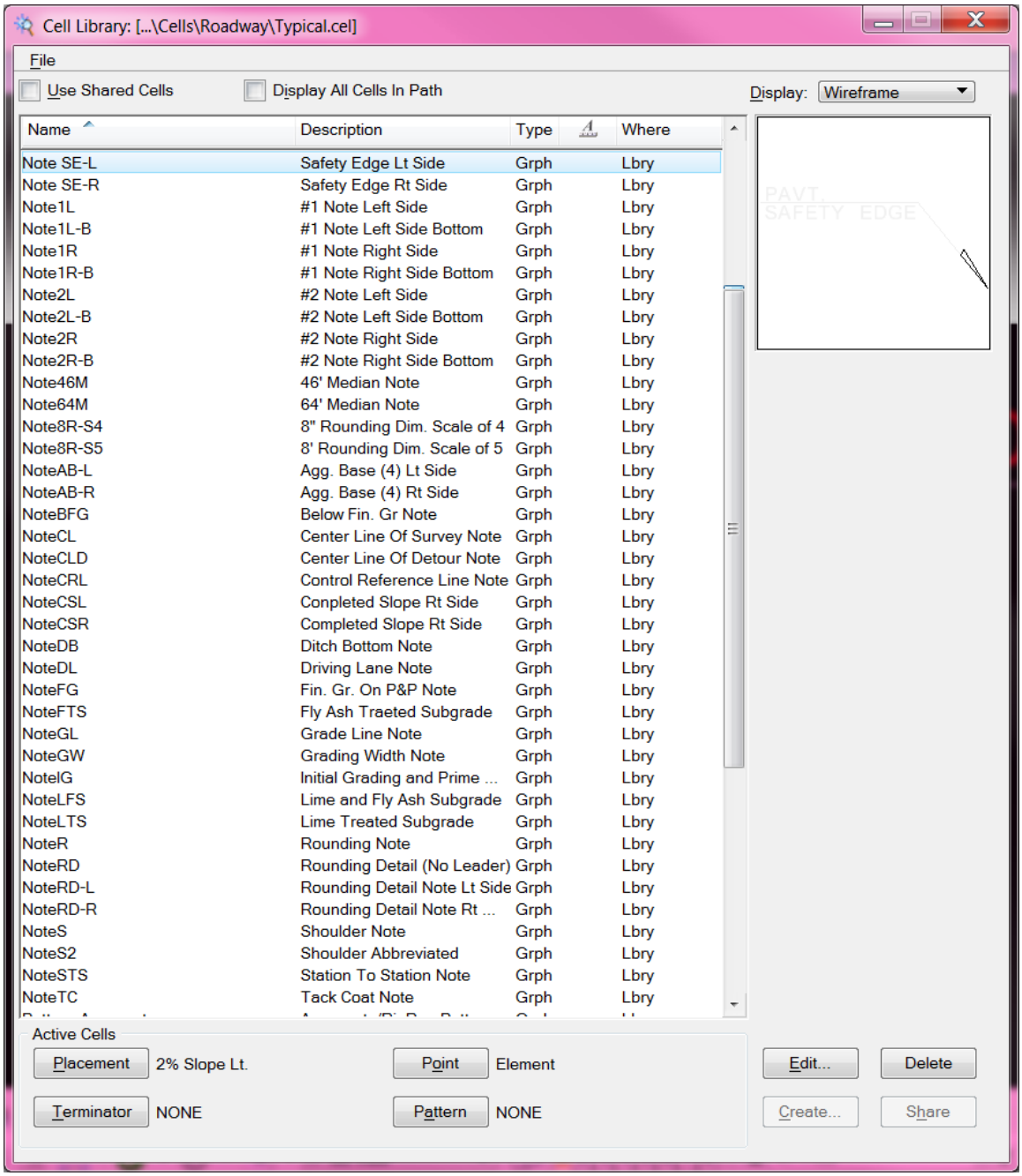




If dimensions are already placed and the scale needs to be changed select all the dimensions that need to be corrected. Select the Change Dimension command  pick the correct style and accept. This will change all dimensions that were selected to the new dimension style.

How To Use Dimension Tools

Below is a list of all the prebuilt cells and their descriptions used in the dimensioning of a typical.



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Section 4
MicroStation Attributes

- **Level Manager**
  - **Filters**
- **Level Display**
- **Levels, Color, Line Style, Line Weight, & Grayscale**
- **Scaling Line Styles**
- **Color Table/Grayscale**
- **Grayscale**

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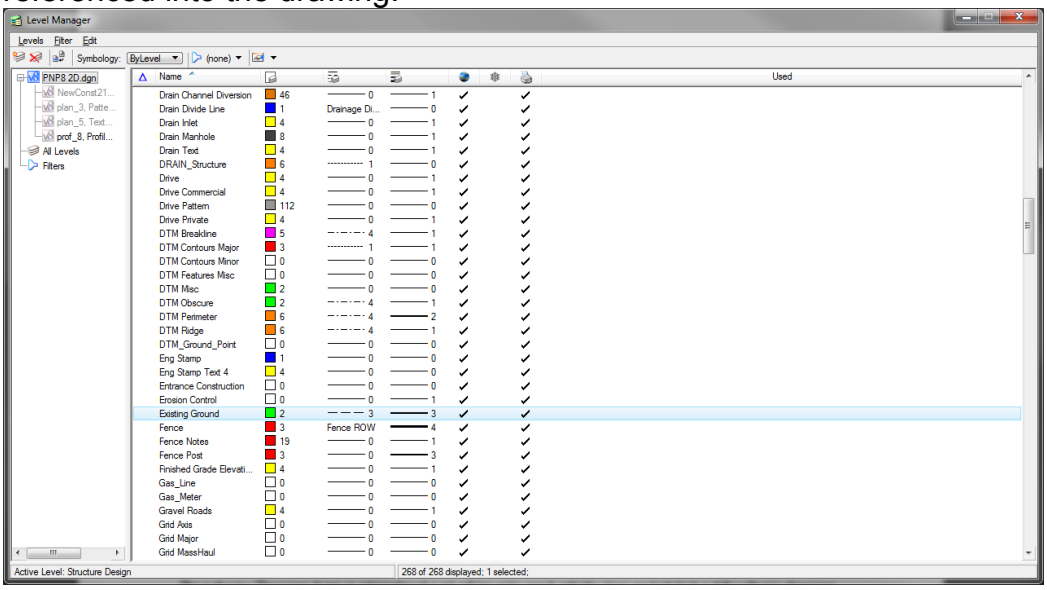
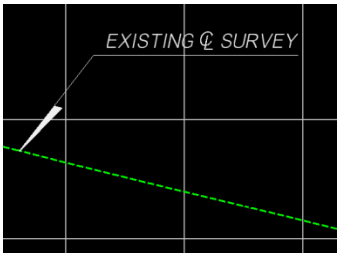
Level Manager

The **Level Manager** controls the level attributes, display, & ability to print within MicroStation. It controls levels in the current DGN file & the levels of any DGN that is referenced into the drawing.



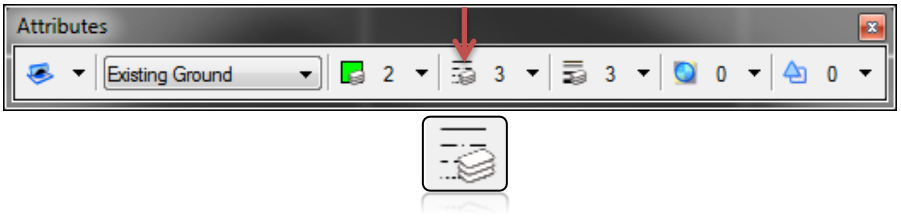
A basic working knowledge of the Level Manager is necessary for plan production and can save a MicroStation user a lot of time.

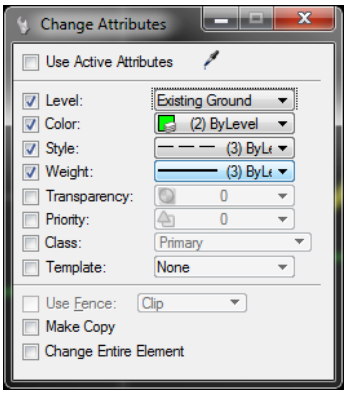
Roadway Design has a standard set of levels and attributes established for their design projects. Each level is named according to the element(s) needing represented.
E.g. the level Existing Ground will contain the elements (lines strings, curves, points…) used to represent the ground prior to construction.



The color, style and weight established in the level manager are classified its ByLevel attributes. When placing a new design element the color, style and weight should be set to ByLevel.

On the MicroStation Attributes toolbar the  represents ByLevel settings.

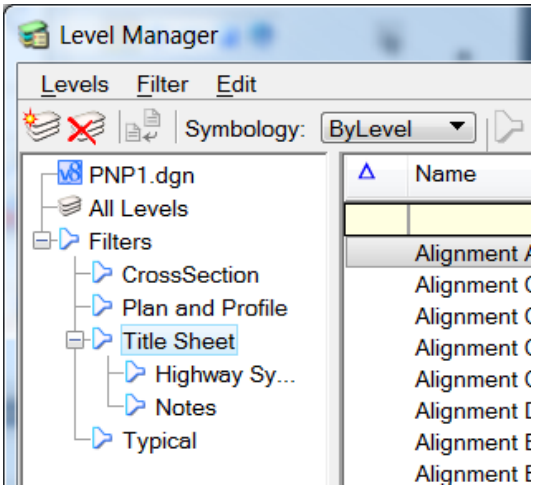




Level Filters

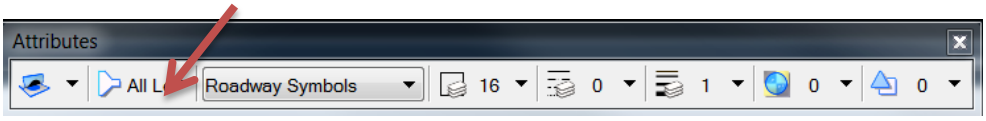
(Currently Under Development)

Filters are a useful way to group associated levels for the purposes of viewing or not viewing as a group. You can have DGN file with several hundred levels. Within these levels could be filters for different plan sheets such as Title Sheet, Typical Sheet, or CrossSection.

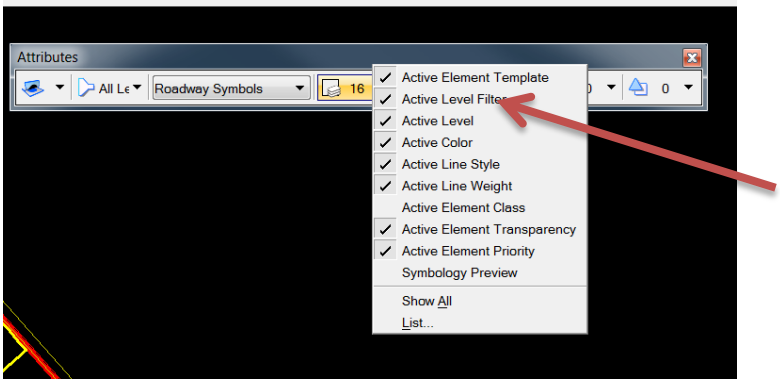


For example, a Title Sheet level filter would only displays levels that are used to construct a Title Sheet. Within this filter we can further break down the levels into subcategories such as Notes, Highway Symbols, etc.

Level Filters can be accessed from the Attributes toolbox.



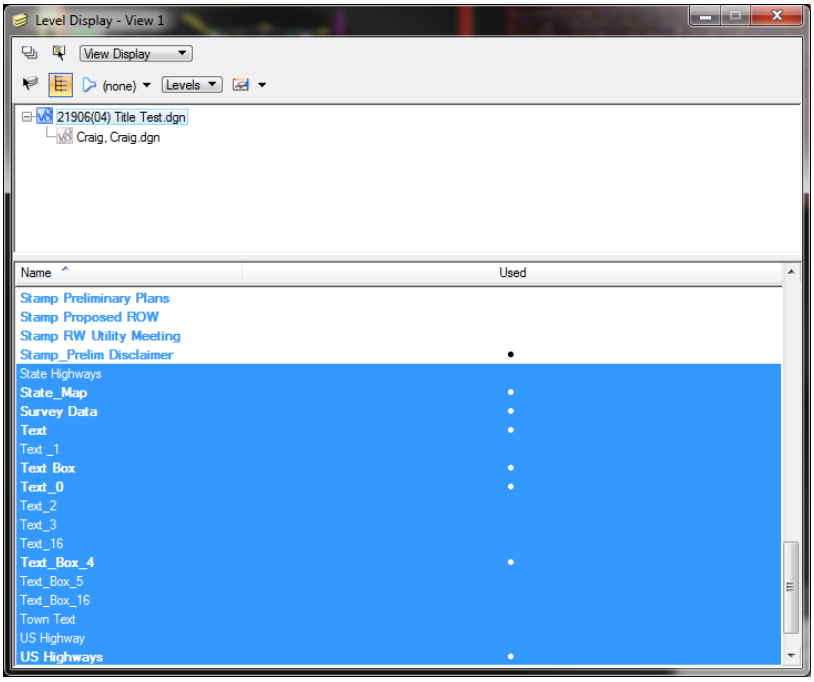
If the Active Level Filter option is not visible on the toolbar, right-click the toolbar and select “Active Level Filter” from the display list to view it.

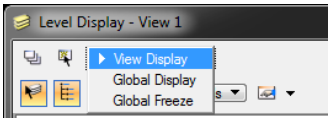


Level Display

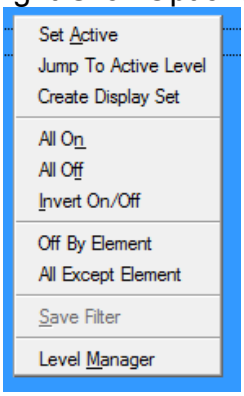
Level Display is used to turn on and off levels in a design model and any attached references models. It contains the display control options (on/off switches) for: View Display, Global Display, and Global Freeze. It can also be used to apply a filter created in the Level Manager dialog. Blue indicated a level is on and white represents a level that is turned off. When elements are missing from a design file it is always important to check the level display to see if it is off.

Note: When using a select all within MicroStation even elements that are not displayed will be manipulated. E.g. Select All and Delete will eliminate all elements not frozen and empty the design file.





Right Click Options



Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Alignment Alternative	23	0	0		
Alignment CL Point	20	0	1		
Alignment CL Text	6	0	1		X
Alignment Cogo Points	20	0	1		
Alignment Curve Tangent	20	0	1		
Alignment Data Sheet Notes	20	0	0		
Alignment Detour	23	0	5		
Alignment Existing	22	0	5		
Alignment Existing Stationing	6	0	3		X
Alignment Notes	20	0	1		
Alignment PI	20	0	1		
Alignment PI Existing	20	0	1		
Alignment PI Proposed	20	0	1		
Alignment Points	16	0	0		
Alignment Proposed	21	0	3		
Alignment Proposed Data	21	0	1		
Alignment Spiral	18	0	2		
Alignment Stationing	21	0	3		
Alignment Text Alternative	23	0	0		
Alignment Text Existing	6	0	1		X
Alignment Text Proposed	20	0	1		
Alley or Driveway	16*	2	0		
Angle of Variance	20	0	1		
Annotation	17	0	0		
Axis	16	0	0		
Bank Toe	16	3	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Bank Top	16	0	1		
Barrier	23	0	1		
Bearing	25	0	0		
BLKN	16*	0	0		
Berm	16*	0	1		
Border 0	19	0	0		
Border 3	19	0	3		
Border 5	19	0	5		
Border 9	19	0	9		
Border Text	16	0	1		
City Streets	18	0	1		
Clipping Boundary	17	1	0		
COGO Points	20	0	1		
Concrete	25	0	0		
Construction Detour	20	0	1		
Construction Mainline	19	0	1		
Construction Widening Left	19	0	1		
Construction Widening Right	20	0	1		
County Line	19	ROW County Line	4		
County Name	18	0	2		
Culvert	20	0	1		
Curb	20	Curb	1		
Curb and Gutter	20	0	0		
Curb Integral	20	Curb	1		
Curve Data	20	0	0		
Dam	16*	Dam	0		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Date Stamp	16*	0	1		
Default	0*	0	0		X
Design Data	18	0	2		
Detour	20	0	1		
Dimension Arrow	16*	0	0		
Dimension Line	16*	0	0		
Direction Box	16*	0	1		
Ditch Paved	16*	0	3		
Ditch Special	16*	2	1		
Ditch Special Detour Lt	19	5	0		
Ditch Special Detour Rt	21	4	0		
Ditch Special Lt	22	5	1		
Ditch Special Rt	31	6	1		
Drain	16	0	0		
Drain Channel	21	0	1		
Drain Channel Diversion	46	0	1		
Drain Divide Line	17	Drain Divide	0	D	
Drain Inlet	20	0	1		
Drain Manhole	8	0	1		X
Drain Structure	23	0	1		
Drain Text	20	0	1		
Drive	20	0	1		
Drive Commercial	20	0	1		
Drive Pattern	112	0	0		
Drive Private	20	0	1		
Drive Text	16	0	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Drive Text	20	0	1		
DTM Breakline	24	4	1		
DTM Contours Major	19	1	1		
DTM Contours Minor	16*	0	0		
DTM Features Misc	16*	0	0		
DTM Misc	18	0	0		
DTM Obscure	18	4	1		
DTM Perimeter	22	4	2		
DTM Ridge	22	4	1		
ENG Stamp	17	0	0		
ENG Stamp Text 4	20	0	0		
Entrance Construction	16*	0	0		
Erosion Control	16*	0	1		
Existing Ground	2	3	3		X
Fence	19	Fence ROW	1		
Fence Post	19	0	3		
Finished Grade Elevation	20	0	1		X
Gravel Roads	20	0	1		
Grid Axis	0*	0	0		X
Grid Major	0*	0	0		X
Grid MassHaul	0*	0	0		X
Grid Minor	0*	0	0		X
Guardrail	20	Guardrail	1		
Index of Sheets	19	0	1		
InRoads Misc	16*	0	0		
Instructions	16*	0	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Iplot Plot Limits	19	0	0		
Joint Contraction	19	0	0		X
Joint Expansion	18	0	0		X
Joint Longitudinal	20	0	1		
Joint Tongue	20	0	3		
Lakes	17	0	0		
Level 2	0*	0	0		X
Level 11	0*	0	0		X
Line CL Survey	20	0	1		
Line Fabric	22	0	4		
Line Grading	18	0	3		
Line Surfacing	19	0	1		
Line Surface Existing	20	3	1		
Line Topsoil	18	2	1		
Mailbox	20	0	0		
Major/US Highway	16*	2	0		
MassHaulLine	18	0	4		
Median	20	0	1		
North Arrow	21	0	1		
Note	16*	0	0		
Note Const.	16*	0	0		
Note Drainage	16*	0	0		
Note Drive	16*	0	0		
Note Leader	0*	0	0		X
Note RW	19	0	0		
Note Text	16*	0	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
ODOT Seal 0	16*	0	0		
ODOT Seal 1	16*	0	1		
ODOT Seal 2	16*	0	2		
ODOT_Seal_0	0*	0	0		X
ODOT_Seal_1	0*	0	1		X
ODOT_Seal_2	0*	0	2		X
Okie	16*	0	0		
Pattern	25	0	0		
Pattern Detour	16*	0	0		
Pattern Grayscale	9*	0	0		X
Pattern Secondary	16*	0	0		
Pattern Solid	16*	0	0		
Pave Asphalt	16*	0	0		X
Paved Roads	18	0	2		
Pavement Removal	23	0	1		
Pay Quantity Data	16*	0	0		
Pay Quantity Notes	16*	0	0		
Pay_Quantity_Data	0*	0	0		X
Phase 1 Label	19	0	1		
Phase 2 Label	19	0	1		
Phase 3 Label	19	0	1		
Phase 4 Label	19	0	1		
Phase 5 Label	19	0	1		
Phase End Areas and Volumes Label	16*	0	0		
Phase1 Shape	19	0	1		
Phase2 Shape	19	0	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Phase3 Shape	19	0	1		
Phase4 Shape	19	0	1		
Phase5 Shape	19	0	1		
Plot Border	36	0	0		
Plot Shape Full	60	0	0		
Plot Shape Full 2	122	0	0		
Plot Shape Half	60	0	0		
Plot Shape Half 2	122	0	0		
Plot Shape Half 3	19	0	0		
Plotting Info	2	0	0		X
Print Snap Lines	16*	0	0		
Profile Grid Major	16*	0	0		
Profile Grid Minor	16*	0	0		
Profile Grids	14	0	0		X
Profile Reference Dots	17	0	1		
Profile Tick Marks	19	0	0		
Project Information	26	0	2		
Project Layout Map Text	16*	0	3		
Project Line	19	0	3		X
Project Type	17	0	2		
Property Line	21	ROW Property Line	1		
Quantities	23	0	1		
RailRoad, Class 1A	16*	RailRoad Custom City	0		
RailRoads	9	0	1		X
Ramp Wheelchair	20	0	1		
Reinforced Steel	23	0	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Residential Road	16*	2	0		
Road Asphalt	23	0	1		
Road Concrete	20	0	1		
Road Shoulder	16*	0	2		
Road UnPaved	20	0	1		
Roadway Symbols	16*	0	1		
Rock Filter Dam	16*	0	0		
Rounding Detail	16*	0	0		
RW Dimension	19	0	1		
RW Present	1	Present ROW	2		X
RW Proposed	19	0	4		
RW Proposed Access	19	Access ROW	4		
RW Proposed Channel	19	Present ROW	4		
RW Proposed Fence	19	Fence ROW	4		
RW Proposed Fence Access	19	Access ROW	4		
RW Proposed Temporary	31	Present ROW	4		
RW Proposed Text	19	0	1		
RW Proposed Utility Easement	18	Present ROW	2		
RW Text	16*	0	1		
Scale	17	0	3		X
Scale Box	17	0	3		X
Section	19	0	0		
Section Axis	16*	0	0		
Section Border	16*	0	0		
Section Grid Major	1	0	0		X
Section Grid Minor	1	0	0		X

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Section Line Feature	19	Section Line	0		
Section Line Return	20	0	1		
Section Lines	16*	0	1		X
Section Numbers	20	0	1		
Section Numbers	16*	0	1		X
Sediment Filter	22	0	1		
Shading Dark	112*	0	0		
Shading Light	9*	0	0		X
Sheet Border	19	0	0		
Sheet Border Dividing Line	19	0	2		
Sheet Estimate	16*	0	1		
Sheet Notes	16*	0	1		
Sheet Notes Dirt Back Fill	16*	0	1		
Sheet Notes Other Items Back Fill	22	0	1		
Sheet Notes TBSC Back Fill	20	0	1		
Sheet Text	20	0	1		
Sheets	16*	0	0		
Shoreline	113	0	0		X
Sidewalk	20	0	1		
Silt Dike	21	0	1		
Silt Fence	19	0	1		
Squad Blank	20	0	1		
Squad Austin	20	0	1		
Squad Davidson	20	0	0		
Squad Eduardo	20	0	1		
Squad Mark	20	0	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Squad Mazloompour	20	0	1		
Squad McIntosh	20	0	1		
Squad Mohamed	20	0	1		
Squad Murphy	20	0	1		
Squad Russel	20	0	1		
Squad Woods	20	0	1		
Stamp Change in Plans	18	0	1		
Stamp Final Field Meeting	19	0	1		
Stamp for Information and Station Purposes Only	16*	0	0		
Stamp Information Only	18	0	1		
Stamp PIH 30%	19	0	1		
Stamp PIH 75%	19	0	1		
Stamp PIH and Utility Meeting	19	0	1		
Stamp Prelim Disclaimer	19	0	1		
Stamp Prelim Field Review and RW Util	18	0	1		
Stamp Preliminary Plans	19	0	1		
Stamp Proposed ROW	19	0	1		
Stamp Revised Proposed RW	19	0	1		X
Stamp Revised Sheet	19	0	1		
Stamp Revision Block	19	0	1		
Stamp RW Utility Meeting	19	0	1		
Stamp Send Comments	19	0	1		
State Highway	19	0	2		
State Map	16*	0	3		
Stream	17	0	0		
Strip Dividing	20	0	1		

*Levels display as white in MicroStation

Levels, Color, Line Style, Line Weight, and Gray Scale

Level Name	Color	Line Style	Line Weight	Example	Grayscale
Structure Design	23	0	1		
Structure Existing	6	2	1		X
Structure Temporary	55	0	1		
Structure Text	16*	0	1		
Subgrade	19	0	3		
Summary Grid Border	30	0	3		
Summary Grids	64	0	0		
Summary Text	22	0	1		
Survey Data	19	0	1		
Table Grids	16*	0	0		
Text	31	0	1		
Text 0	0*	0	1		X
Text Box	20	0	1		X
Text Station Extents	20	0	1		X
Title Block Text	16*	0	1		
Toe of Slope	23	6	1		X
Toes	19	3	1		X
Top of Cut	19	3	1		
Town Text	18	0	1		
Unknown Line Type	16*	2	0		X
US Highway	16*	0	3		X
Utility Fiberoptic	38	fiberoptic	0	FO	
Utility Gas	36	Gas Line	0	G	
Utility Oil	20	Oil Line	0	O	

*Levels display as white in MicroStation

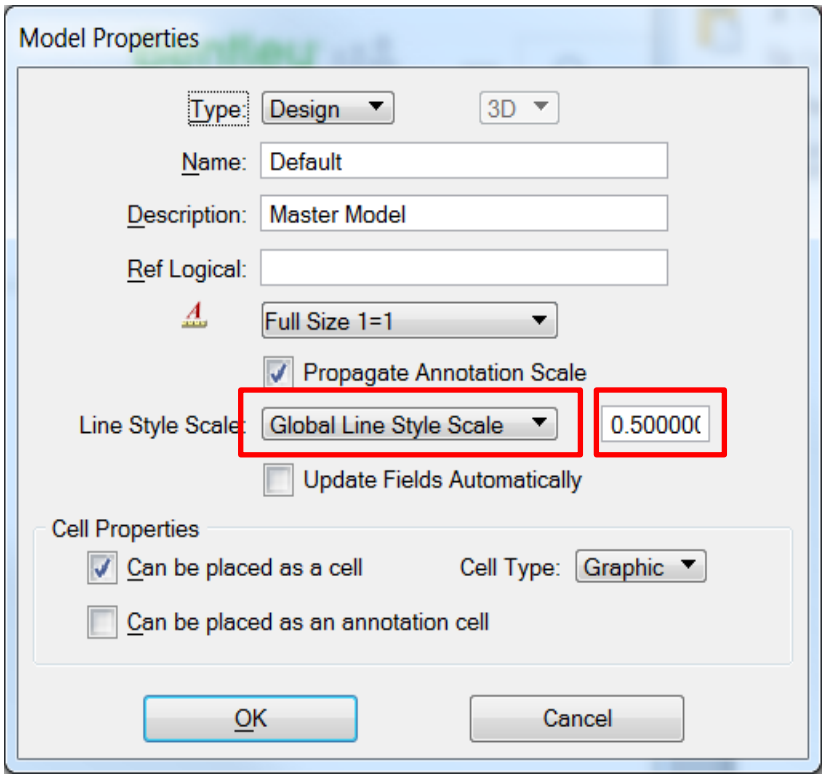
Scaling Line Styles

Linestyle scales are set to display correctly for a 100 scale project using the current seed files. There are times when it may be necessary to change the scale of the linestyles. The following methods should be utilized when changing line style scales.

Changing the Global Line style scale

When it is necessary to change the linestyles for the entire drawing follow these steps…

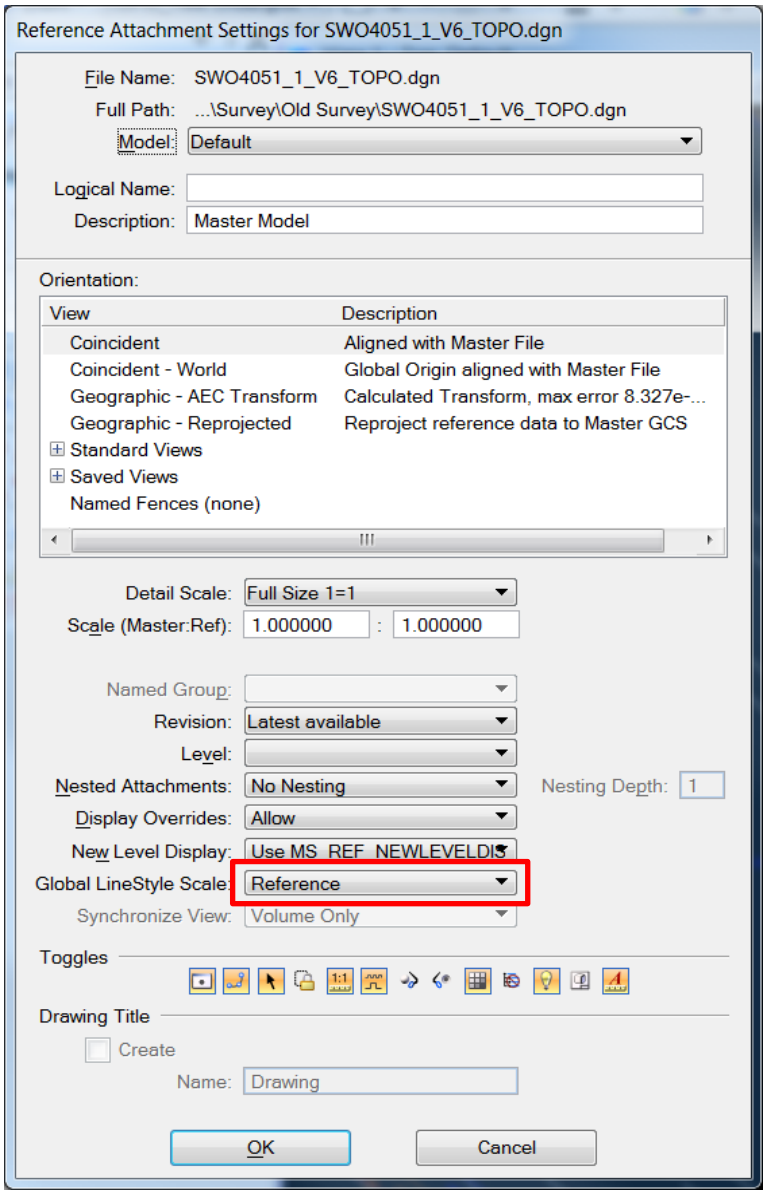
1. Open Models Dialog (File > Models)
2. Open Model Properties Dialog (Right-click on model > Properties)
3. Ensure that the Line Style Scale is set to Global Line Style Scale
4. Set the Global Line Style Scale.



Scaling Line Styles

When a drawing is referenced into another the line scales will inherit the scale of the master drawing. One solution to override this is to change the master drawing's line scales to match the referenced drawing.

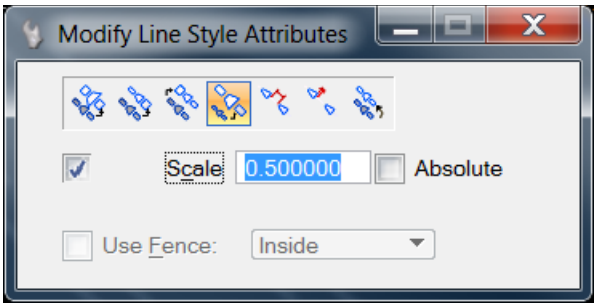
When it is necessary to keep the line scales of the master drawing intact then the Global Linestyle setting Scale will need to be set for the reference in the drawing as shown below.



Scaling Line Styles

Changing the Line Style Scale of a Single Element

To change the line style of a single element; the Modify Line Style Attributes command is the best method. (Tools>Custom Linestyles> Modify Line Style Attributes)



Recommended Line Style Scales

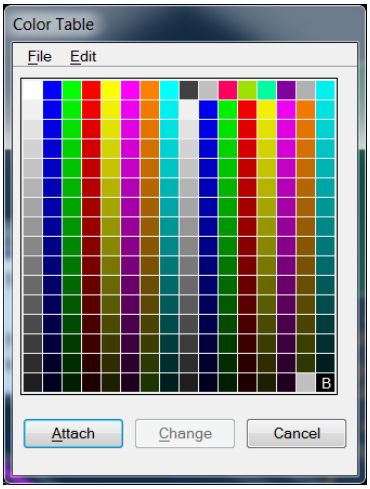
Often, line style scales will need to be changed when creating PNP Sheets and when showing utility crossings in the cross sections. The following global linescales are recommended for PNP sheets

50 scale = .5 global scale factor
20 scale = .2 global scale factor

A line scale of .01 is recommended for showing utility crossings on CrossSections.

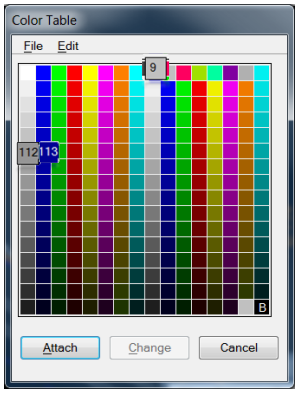
Color Table

A **color table** assigns a numerical value to each color that is used in MicroStation. Roadway Design Division uses Bentley's default color table.

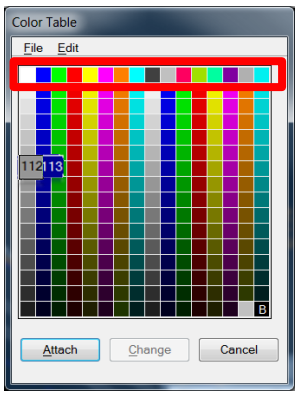


Grayscale

Grayscale is used on the plans to make notes and elements of existing infrastructure recede in the background and/or to highlight proposed construction. Roadway Design uses two primary types of print styles that behave differently in regards to grayscale.



When using the "BW" (black and white), print style the colors 9, 112, and 113 print in grayscale. 9 is the lightest, 112 is darker, and 113 is the darkest.



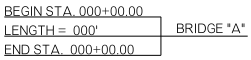
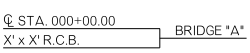
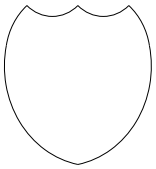
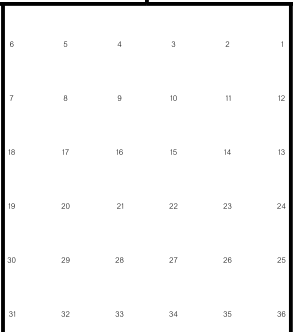
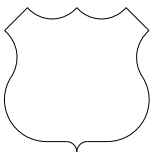
When using the "grey" print style the top row of colors in the color table (colors 0-15) print in grayscale along with colors 112 and 113.

Section 5
MicroStation Components

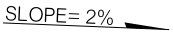
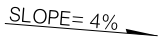
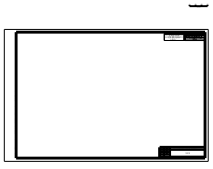
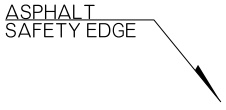
- **Cells**
- **Patterning and Pattern Cells**
- **Plan View Shading**

“This Page Is Intentionally Left Blank.”

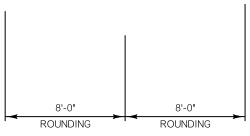
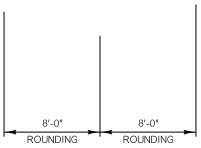
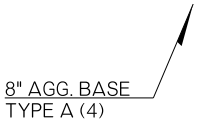
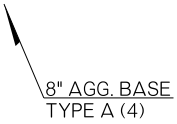
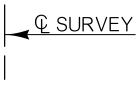
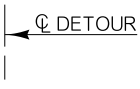
ODOT Roadway Design Title Sheet Cells
Title_Sheet

 Arrow Right Terminator Filled	 HALF ARROW	 BRIDGE LOCATION	 BRIDGE BOX LOCATION	 CITY LIMITS
CORPORATE BOUNDRY	COUNTY LINE	GRAVEL ROAD	 INTERSTATE SHIELD	 NORTH ARROW
 RAIL ROAD	SECTION LINE	 SECTION NUMBERS	 U.S. HIGHWAY SHIELD	

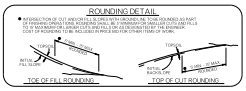
ODOT Roadway Design Typical Cells
Typical

 2% Slope Lt.	 2% Slope Rt.	 2% Small Lt.	 2% Small Rt.	 4% Slope Lt.
 4% Slope Rt.	 4% Small Lt.	 4% Small Rt.	 Arrow	 Arrow Curved
 Arrow Double	 Arrow Half	 Arrow Half 2	 CG-6inBarrier-2.67	 CG-6inMountable-1.67
 CG-6inMountable-2.67	 CG-8inBarrier-1.67	 CG-8inBarrier-2.67	 Generic Sheet Border	 Note SE-L

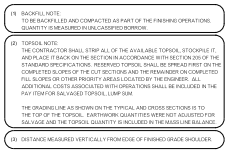
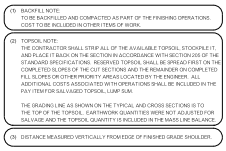
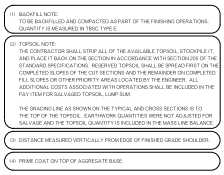
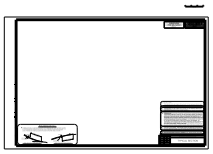
ODOT Roadway Design Typical Cells
Typical

 Note SE-R	 Note1L	 Note1L-B	 Note1R	 Note1R-B
 Note2L	 Note2L-B	 Note2R	 Note2R-B	 Note46M
 Note64M	 Note8R-S4	 Note8R-S5	 NoteAB-L	 NoteAB-R
 NoteBFG	 NoteCL	 NoteCLD	 NoteCRL	 NoteDB

ODOT Roadway Design Typical Cells
Typical

DRIVING LANE NoteDL	FIN. GR. AS SHOWN ON P&P SHEETS NoteFG	GRADE TO THIS LINE NoteGL	ROUNDING NoteR	SEE ROUNDING DETAIL THIS SHEET NoteRD
SEE ROUNDING DETAIL THIS SHEET NoteRD-L	SEE ROUNDING DETAIL THIS SHEET NoteRD-R	SHOULDER NoteS	SHLDR. NoteS2	TYPICAL NO. 1 STA. 00+00.00 TO STA. 00+00.00 NoteSTS
TACK COAT NoteTC	 Pave Chart 2-4 Ln 2L	 Pave Chart 2-4 Ln 3L	 Pave Chart 2-4 Ln 4L	 Pave Chart 2-4 Ln 5L
 Pave Chart Div 4 Ln 2L	 Pave Chart Div 4 Ln 3L	 Pave Chart Div 4 Ln 4L	 Pave Chart Div 4 Ln 5L	 Rounding Detail

ODOT Roadway Design Typical Cells
Typical

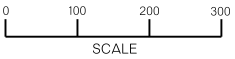
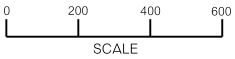
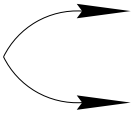
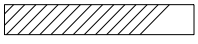
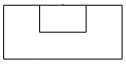
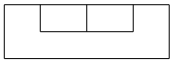
 Standard Note Borrow	 Standard Note Other Items of Work	 Standard Note TBSC	 Standard Typical Border	

LIMITS OF 8" FLY ASH TREATED SUBGRADE AT #% FOR ENTIRE PROJECT NoteFTS	GRADING WIDTH AS SHOWN ON CROSS SECTION SHEETS NoteGW
INITIAL GRADING AND PRIME COAT NoteIG	LIMITS OF 8" LIME PRETREATMENT AT #% FOR #% OF THE PROJECT FOLLOWED BY FLY ASH AT #% FOR ENTIRE PROJECT NoteLFS

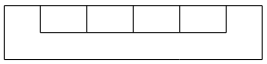
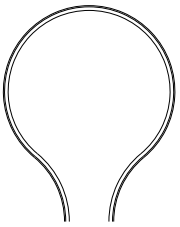
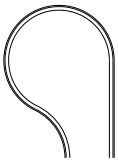
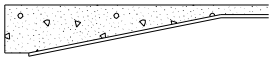
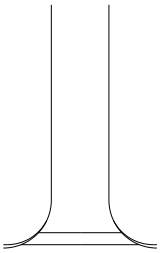
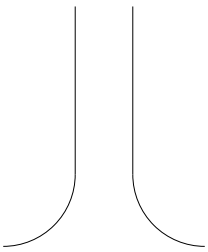
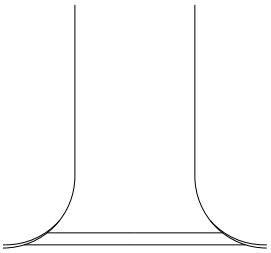
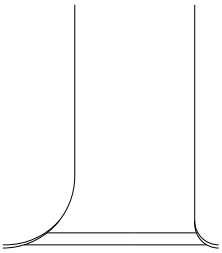
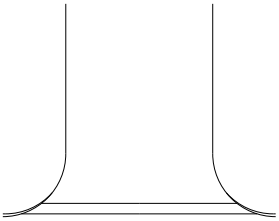
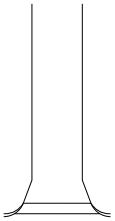
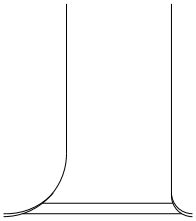
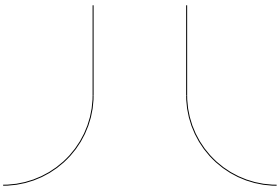
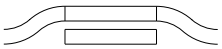
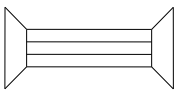
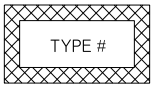
LIMITS OF 8" LIME TREATED SUBGRADE AT #% FOR ENTIRE PROJECT

NoteLTS

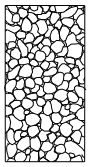
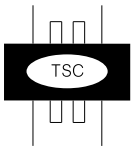
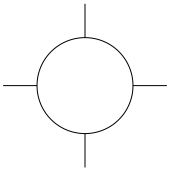
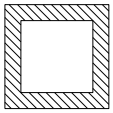
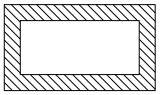
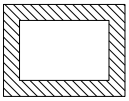
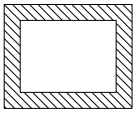
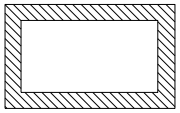
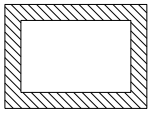
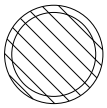
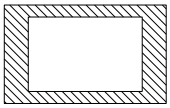
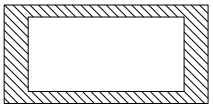
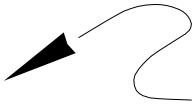
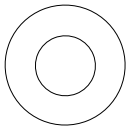
ODOT Roadway Design Cells
Roadway_v8

 100_Scale	 200_Scale	 50_Scale	 Arrow Curved	 Arrow Flow
 Arrow Half	 Arrow Large	 Arrow Left	Half Arrow 2	 Arrow Right
 Arrow Right 2	 Arrow Right Double	 Arrow Right Terminator Filled	 Arrow Right Terminator Unfilled	 Barrier_Bale
 Berm_Brush	 Berm_Sandbag	 Cattle_Guard	 Cl_Curb_Inlet_1	 Cl_Curb_Inlet_2

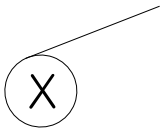
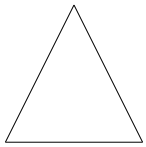
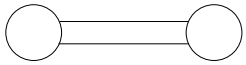
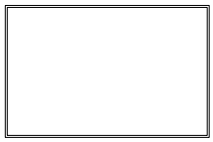
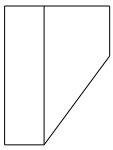
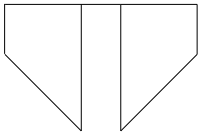
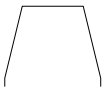
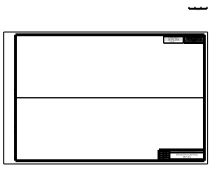
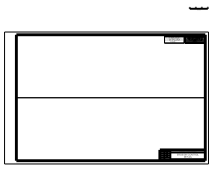
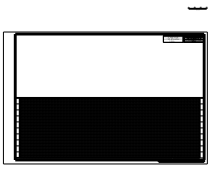
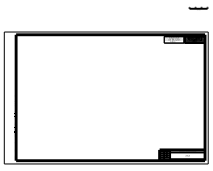
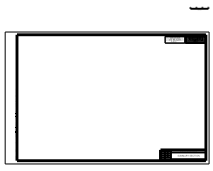
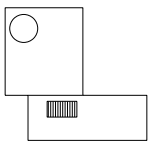
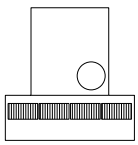
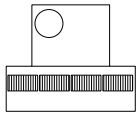
ODOT Roadway Design Cells
Roadway_v8

 Cl_Curb_Inlet_4	 Cul_De_Sac_47	 Cul_De_Sac_Off_30	 Cul_De_Sac_Res_30	 Curb_Beginning
 Curb_End	 Driveway_10R_1_Private	 Driveway_15R_Private	 Driveway_25_TP2	 Driveway_25_ TP2A_1-Way
 Driveway_35_TP2	 Driveway_5R_1_ Flare_Private	 Driveway_5R_ 2A_Commercial	 Driveway_Return_ 26_Rural	 Grading_Channel_ Diversion
 Grading_Dam_Rock_Filter	 Grading_Drain_ Slope_Temp	 Grading_Sediment_Basin	 Grading_Sediment_ Filter_Temp	 Grading_Sediment_ Trap_Temp

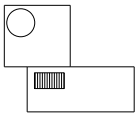
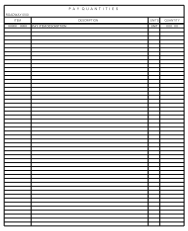
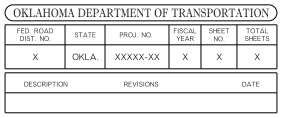
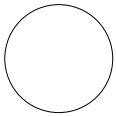
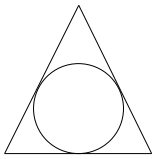
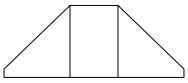
ODOT Roadway Design Cells
Roadway_v8

 Grading_Stabilized_ Construction_Exit	 Gradding_Stream_ Crossing_Temp	 Hydrant_Fire	 Inlet_Drop_R46E_0	 Inlet_Drop_R47E_RC_30
 Inlet_Drop_R48E_RC_45	 Inlet_Drop_R68E_RC_0x	 Inlet_Drop_R69E_RC_45x	 Inlet_Drop_R70E_RC_30x	 Inlet_Drop_R78E ST_Pipex
 Inlet_Grated_ Pipe_R77E1x	 Inlet_Grated_ Pipe_R77E2x	 Inlet_Median_R73E _18-36x	 Leader_6	 Leader_9
 Mailbox_New	 MH_Storm_Proposed	 North_Arrow_1	 North_Arrow_2	 Note_PL

ODOT Roadway Design Cells
Roadway_v8

 Note_Structure	 ODOT_Seal	 PI_Triangle	 Pipe_Vent	 Print Block Full Size
 Print Block Half Size	 Profile_Cl_Curb_Inlet_L	 Profile_Cl_Curb_Inlet_S	 Profile_Cl_Curb_ Inlet_Sumo	 Profile_Manhole
 Standard Erosion Border	 Standard Geometric Border	 Standard PP Sheet	 Standard Sheet	 Standard Summary Sheet
 Standard_Sheet_ Joint_Legend	 Standard_Sheet_Title_ Block_Text	 Storm_Jct_Box_L	 Storm_Jct_Box_ Multiple_Grate_L	 Storm_Jct_Box_ Multiple_Grate_S

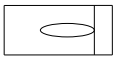
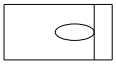
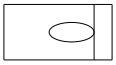
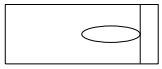
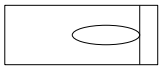
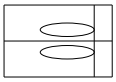
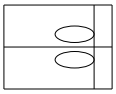
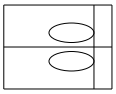
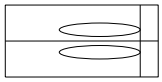
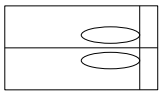
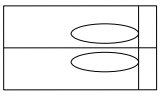
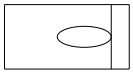
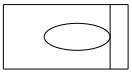
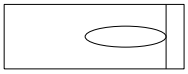
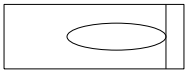
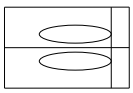
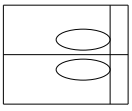
ODOT Roadway Design Cells
Roadway_v8

 Storm_MH_Jct_Box_S	 Summary of PQ Chart	 Title_Block	TOC/TOS Vertical Circle	 Vertical Circle
	 Vertical Curve Symbol	 Wheel_A6_Curb_Ramp	 Wheel_B6_Curb_Ramp	

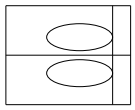
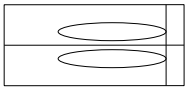
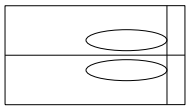
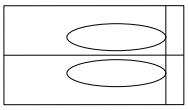
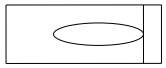
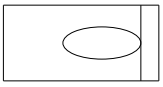
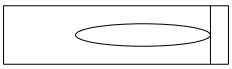
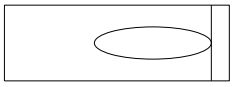
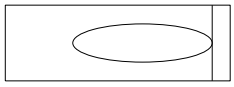
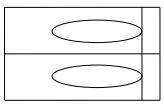
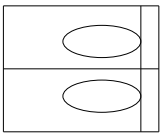
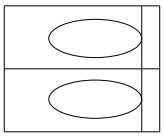
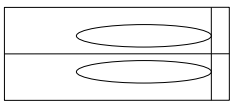
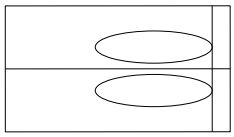
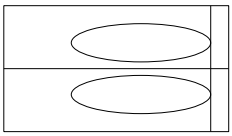
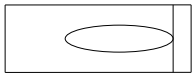
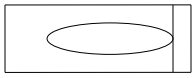
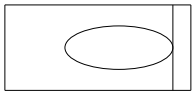
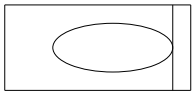
ODOT Roadway Design Stamp Cells
Stamp

OKLAHOMA DEPARTMENT OF TRANSPORTATION CHANGE IN PLANS DATE Change in Plans Stamp	OKLAHOMA DEPARTMENT OF TRANSPORTATION FINAL FIELD MEETING DATE Final Field Meeting	OKLAHOMA DEPARTMENT OF TRANSPORTATION FOR INFORMATION & STATIONS PURPOSES ONLY DATE Info and Station Purp Only	OKLAHOMA DEPARTMENT OF TRANSPORTATION FOR INFORMATION ONLY DATE Information Only	REGISTERED PROFESSIONAL ENGINEER P.E.'s NAME ##### OKLAHOMA PE Stamp
OKLAHOMA DEPARTMENT OF TRANSPORTATION PRELIM FIELD REVIEW & R/W UTILITY MEETING DATE Prelim Field Review and RW Utill Meeting	OKLAHOMA DEPARTMENT OF TRANSPORTATION THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT. DATE Preliminary Disclaimer	OKLAHOMA DEPARTMENT OF TRANSPORTATION PRELIMINARY PLANS DATE Preliminary Plan	OKLAHOMA DEPARTMENT OF TRANSPORTATION PROPOSED R/W DATE Proposed RW	OKLAHOMA DEPARTMENT OF TRANSPORTATION REVISED PROPOSED R/W DATE Revised Proposed RW
OKLAHOMA DEPARTMENT OF TRANSPORTATION REVISION AFTER LETTING DATE Revision Block	OKLAHOMA DEPARTMENT OF TRANSPORTATION FED. ROAD DIST. NO. / STATE / JOB PIECE NO. / FISCAL YEAR / SHEET NO. / TOTAL SHEETS 6 / OKLA. / / / / / DESCRIPTION / REVISIONS / DATE Revision Block	X Revision Symbol	OKLAHOMA DEPARTMENT OF TRANSPORTATION R/W UTILITY MEETING DATE RW Utility Meeting	OKLAHOMA DEPARTMENT OF TRANSPORTATION SEND COMMENTS DATE Send Comments
OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD REVISIONS DESCRIPTION / DATE ⚠ XXXXXXXXXX / XX/XX/XX Standard Drawing Revision 2015	OKLAHOMA DEPARTMENT OF TRANSPORTATION THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT. DATE CHANGE IN PLANS DATE OKLAHOMA DEPARTMENT OF TRANSPORTATION PRELIMINARY PLANS DATE All Stamps in One		PREPARED BY: OKLAHOMA DEPARTMENT OF TRANSPORTATION DESIGN DIVISION DOT NICHOLAS [illegible], P.E. OKLA. REG. NO. 2[illegible] DATE REGISTERED PROFESSIONAL ENGINEER NICHOLAS OKLAHOMA State Signature Box	

ODOT Roadway Design Structures Plan View Cells
Structures Plan View

 A4 CET 18"	 A4 CET 22"x13"	 A4 CET 26"x15"	 A6 CET 18"	 A6 CET 22"x13"
 A6 CET 26"x15"	 AA4 CET 18"	 AA4 CET 22"x13"	 AA4 CET 26"x15"	 AA6 CET 18"
 AA6 CET 22"x13"	 AA6 CET 26"x15"	 B4 CET 24"	 B4 CET 28"x18"	 B4 CET 36"x22"
 B6 CET 24"	 B6 CET 28"x18"	 B6 CET 36"x22"	 BB4 CET 24"	 BB4 CET 28"x18"

ODOT Roadway Design Structures Plan View Cells
Structures Plan View

 BB4 CET 36"x22"	 BB6 CET 24"	 BB6 CET 28"x18"	 BB6 CET 36"x22"	 C4 CET 30"
 C4 CET 43"x26"	 C4 CET 51"x31"	 C6 CET 30"	 C6 CET 43"x26"	 C6 CET 51"x31"
 CC4 CET 30"	 CC4 CET 43"x26"	 CC4 CET 51"x31"	 CC6 CET 30"	 CC6 CET 43"x26"
 CC6 CET 51"x31"	 D4 CET 36"	 D4 CET 42"	 D4 CET 58"x36"	 D4 CET 65"x40"

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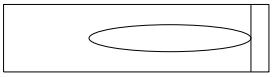
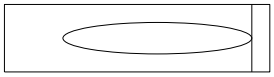
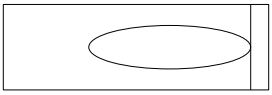
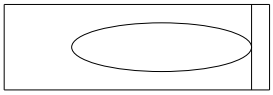
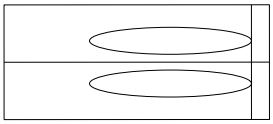
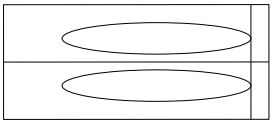
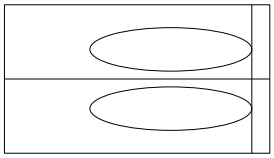
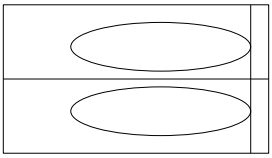
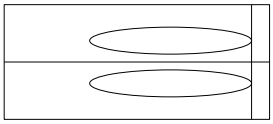
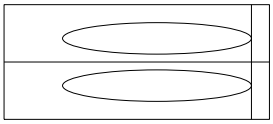
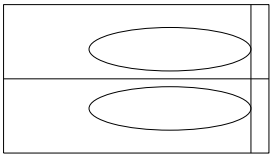
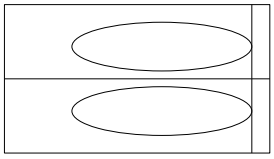
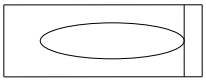
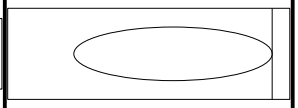
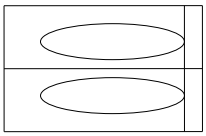
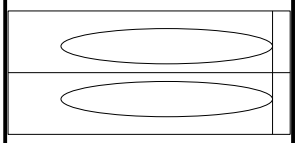
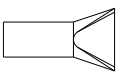
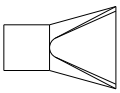
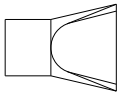
 D6 CET 36"	 D6 CET 42"	 D6 CET 58"x36"	 D6 CET 65"x40"	 DD4 CET 36"
 DD4 CET 42"	 DD4 CET 58"x36"	 DD4 CET 65"x40"	 DD6 CET 36"	 DD6 CET 42"
 DD6 CET 58"x36"	 DD6 CET 65"x40"	 E4 CET 48"	 E6 CET 48"	 E6 CET 73"x45"
 EE4 CET 48"	 EE6 CET 48"	 Concrete PCES 18"	 Concrete PCES 24"	 Concrete PCES 24" 18"x28"

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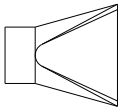
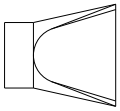
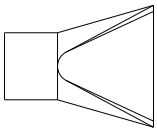
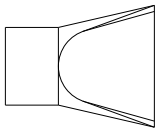
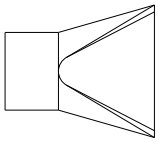
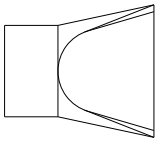
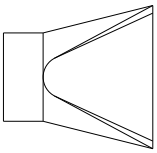
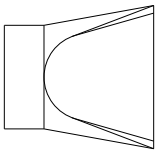
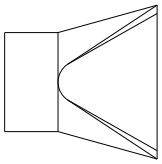
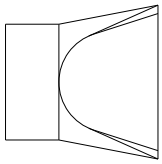
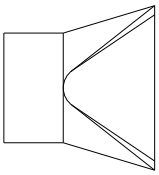
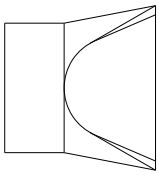
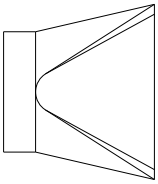
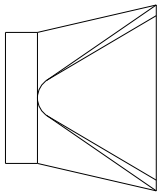
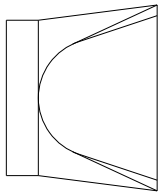
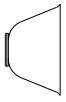
 Concrete PCES 30"	 Concrete PCES 30" 22"x36"	 Concrete PCES 36"	 Concrete PCES 36" 26"x43"	 Concrete PCES 42"
 Concrete PCES 42" 31"x51"	 Concrete PCES 48"	 Concrete PCES 48" 36"x58"	 Concrete PCES 54"	 Concrete PCES 54" 40"x65"
 Concrete PCES 60"	 Concrete PCES 60" 45"x73"	 Concrete PCES 66"	 Concrete PCES 72"	 Concrete PCES 72" 54"x88"
 Metal PCES 12" Round	 Metal PCES 15" Round	 Metal PCES 17"x13" Arch	 Metal PCES 18" Round	 Metal PCES 21" Round

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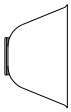
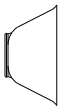
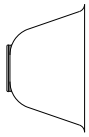
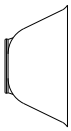
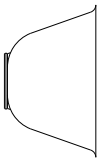
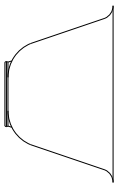
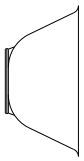
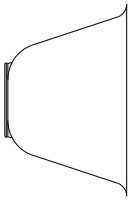
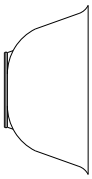
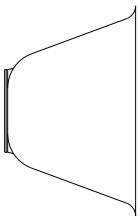
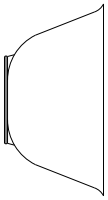
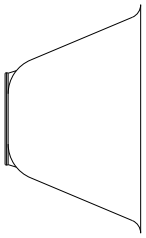
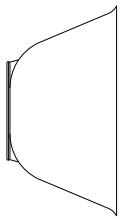
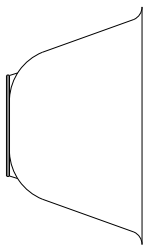
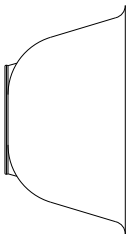
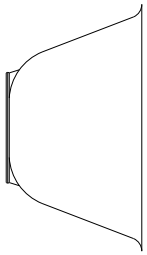
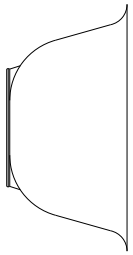
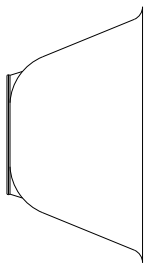
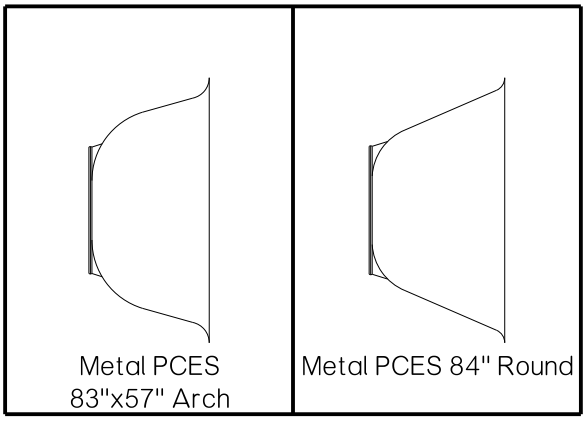
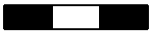
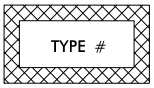
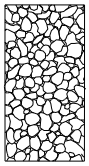
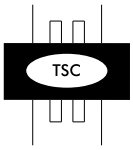
 Metal PCES 21"x15" Arch	 Metal PCES 24" Round	 Metal PCES 24"x18" Arch	 Metal PCES 28"x20" Arch	 Metal PCES 30" Round
 Metal PCES 35"x24" Arch	 Metal PCES 36" Round	 Metal PCES 42" Round	 Metal PCES 42"x29" Arch	 Metal PCES 48" Round
 Metal PCES 49"x33" Arch	 Metal PCES 54" Round	 Metal PCES 57"x38" Arch	 Metal PCES 60" Round	 Metal PCES 64"x43" Arch
 Metal PCES 66" Round	 Metal PCES 71"x47" Arch	 Metal PCES 72" Round	 Metal PCES 77"x52" Arch	 Metal PCES 78" Round

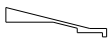
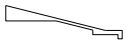
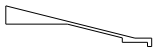
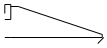
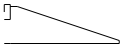
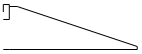
ODOT Roadway Design Structures Plan View Cells
Structures Plan View



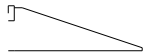
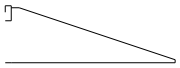
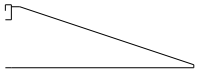
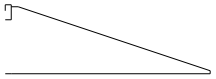
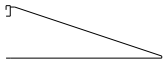
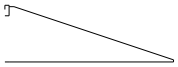
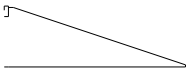
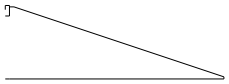
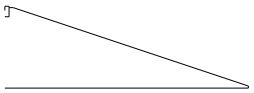
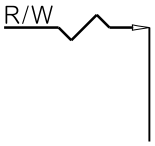
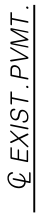
ODOT Roadway Design Erosion Control Cells
erosion_V8

 Arrow Curved	 Half Arrow	 Fiber Log	 Grading_Dam_Rock_Filter	 Grading_Sediment_Basin
 Grading_Sediment_ Filter_Temp	 Grading_Sediment_ Trap_Temp	 Grading_Stabilized_ Construction_Exit	 Grading_Stream_ Crossing_temp	 Key
 Silt Dike	 Silt Fence			

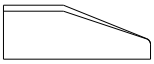
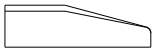
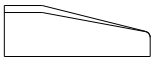
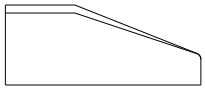
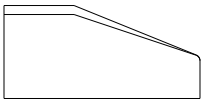
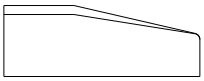
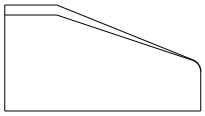
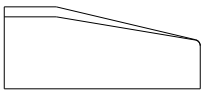
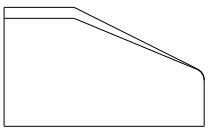
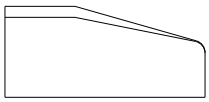
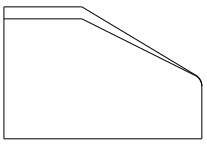
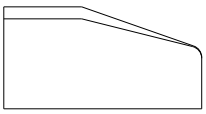
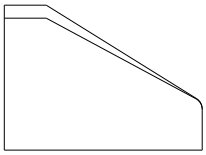
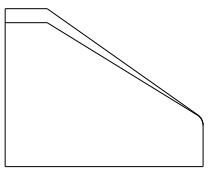
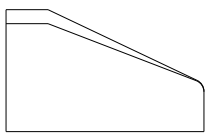
ODOT Roadway Design Xsec Cells
Xsec

 18" 4 to 1 CET	 18" 6 to 1 CET	 24" 4 to 1 CET	 24" 6 to 1 CET	 30" 4 to 1 CET
 30" 6 to 1 CET	 36" 4 to 1 CET	 36" 6 to 1 CET	 42" 4 to 1 CET	 42" 6 to 1 CET
 48" 4 to 1 CET	 48" 6 to 1 CET	 Arrow	 Arrow Curved	 Arrow Half
 Barrier Design 1	 Box 2' Height	 Box 3' Height	 Box 4' Height	 Box 5' Height

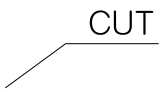
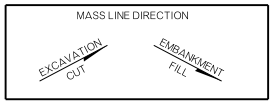
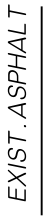
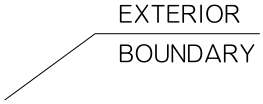
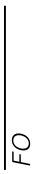
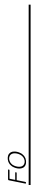
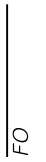
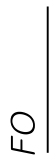
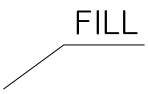
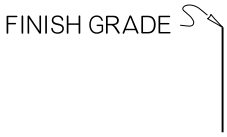
ODOT Roadway Design Xsec Cells
Xsec

 Box 6' Height	 Box 7' Height	 Box 8' Height	 Box 9' Height	 Box 10' Height
 Box 11' Height	 Box 12' Height	 Box 15' Height	 Box 17' Height	 BROKEN_PROP_ RW_facingLt
 BROKEN_PROP_ RW_facingRt	 Building	Centerline Detour Lt	Centerline Detour Rt	 Channel RW
 CL CHANNEL	 CL EXISTING PAVEMENT	CL Railroad	CL SURVEY	CL SURVEY 1

ODOT Roadway Design Xsec Cells
Xsec

 Clear Zone	 Concrete PCES 18"	 Concrete PCES 24"	 Concrete PCES 24" 18"x28"	 Concrete PCES 30"
 Concrete PCES 30" 22"x36"	 Concrete PCES 36"	 Concrete PCES 42"	 Concrete PCES 42" 31"x51"	 Concrete PCES 48"
 Concrete PCES 48" 36"x58"	 Concrete PCES 54"	 Concrete PCES 54" 40"x65"	 Concrete PCES 60"	 Concrete PCES 60" 45"x73"
 Concrete PCES 66"	 Concrete PCES 72"	 Concrete PCES 72" 54"x88"	CRL	 CRL LT

ODOT Roadway Design Xsec Cells
Xsec

 CRL RT	 CRL2	 Cut	 DIRECTION BOX	 Ditch Backslope
 Ditch Bottom	 Ditch Foreslope	 Drive Asphalt	 Drive TBSC	 Edge of Pavement
 Existing Asphalt	 Exterior Boundary	Fiberoptic Line	 Fiberoptic Line 2	 Fiberoptic Line 3
 Fiberoptic Line 4	 Fiberoptic Line 5	 Fill	 FINISH GRADE	 Gas Line

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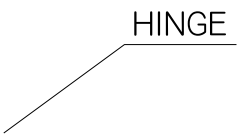
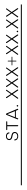
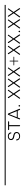
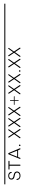
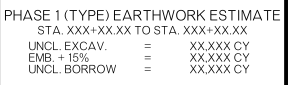
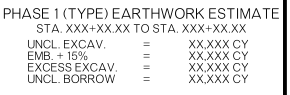
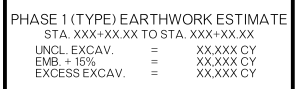
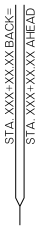
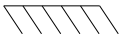
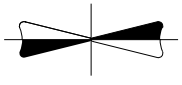
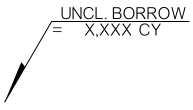
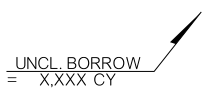
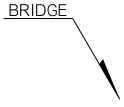
 Gas Line 2	 Hinge	 Mass Balance Station A Lt	 Mass Balance Station A Rt	 Mass Balance Station B Lt
 Mass Balance Station B Rt	 Mass Earthwork Estimate Borrow	 Mass Earthwork Estimate Both	 Mass Earthwork Estimate Excess	 Mass Equation Note A
 Mass Equation Note B	 Mass Feather 1	 Mass Feather 2	 Mass Half Arrow 1	 Mass Half Arrow 2
 Mass Half Shaded Arrow	 Mass Half Shaded Arrow Double	 Mass Note Borrow A	 Mass Note Borrow B	 Mass Note Bridge Lt.

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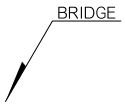
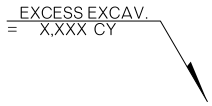
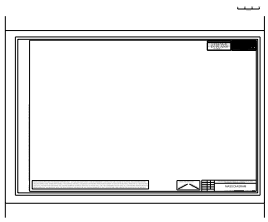
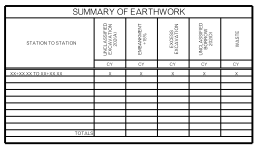
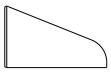
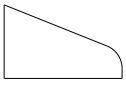
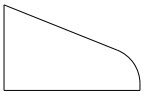
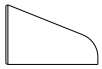
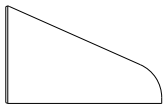
 Mass Note Bridge Rt.	 Mass Note Excess A	 Mass Note Excess B	 Mass Sheet Border	 Mass Summary Box
 Metal PCES 12"	 Metal PCES 15"	 Metal PCES 17"x13"	 Metal PCES 18"	 Metal PCES 21"
 Metal PCES 21"x15"	 Metal PCES 24"	 Metal PCES 24"x18"	 Metal PCES 28"x20"	 Metal PCES 30"
 Metal PCES 35"x24"	 Metal PCES 36"	 Metal PCES 42"	 Metal PCES 42"x29"	 Metal PCES 48"

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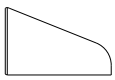
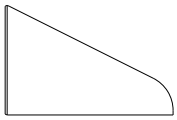
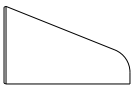
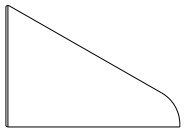
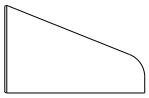
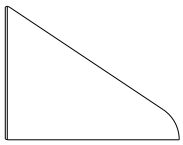
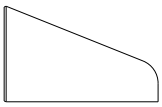
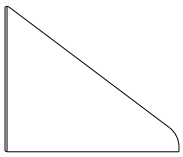
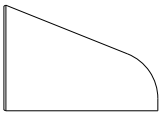
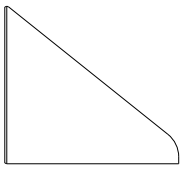
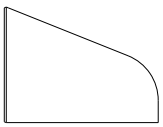
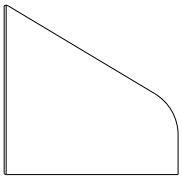
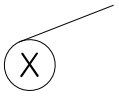
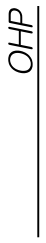
 Metal PCES 49"x33"	 Metal PCES 54"	 Metal PCES 57"x38"	 Metal PCES 60"	 Metal PCES 64"x43"
 Metal PCES 66"	 Metal PCES 71"x47"	 Metal PCES 72"	 Metal PCES 77"x52"	 Metal PCES 78"
 Metal PCES 83"x57"	 Metal PCES 84"	 Note_Structure	 Oil Line	 Oil Line 2
 Overhead Powerline	Overhead Telephone	 Perp Util Ease Temp Const 2	 Perp Util Ease Temp Const 3	 Perpetual Utility and Temp Const Ease

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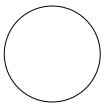
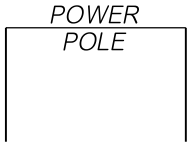
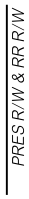
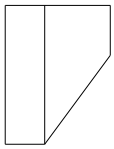
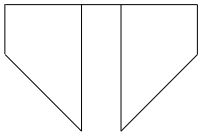
 Pipe_18	 Pipe_24	 Pipe_30	 Pipe_36	 Pipe_42
 Pipe_48	 Pipe_Corrugated_ Metal	 Power O.H.	 Power Pole Cells	 Present RW
 Present RW 2	 Present RW and RR RW	 Present RW and RR RW 2	 Present RW and RR RW 3	 Profile_CI_Curb_I nlet_L
 Profile_CI_Curb_I nlet_S	 Profile_CI_Curb_I nlet_Sump	Proposed Utility Easement	 Proposed Utility Easement 2	 Proposed Utility Easement 3

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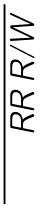
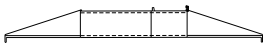
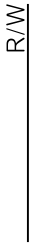
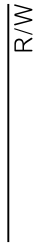
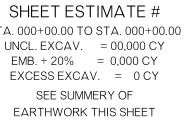
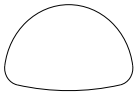
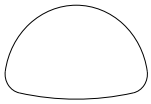
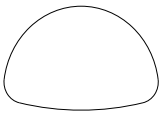
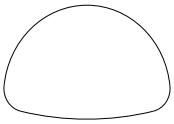
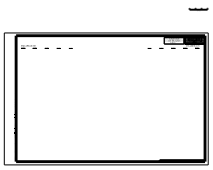
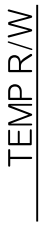
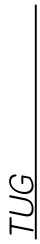
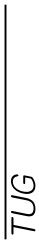
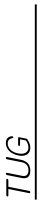
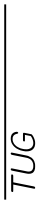
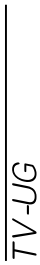
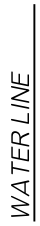
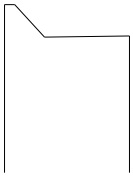
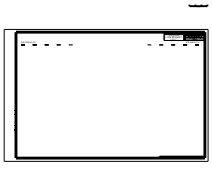
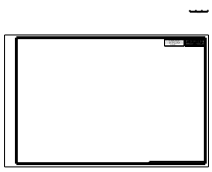
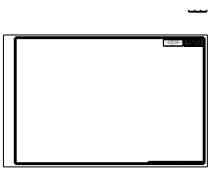
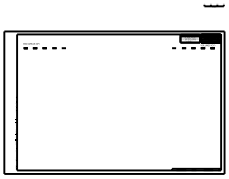
 PUG Line	 PUG Line 2	 Railroad RW	 Railroad RW 2	 RC Box
 RW	 RW 2	 Safety Slope	 Sanitary Sewer	 Sanitary Sewer 2
 Sheet Estimate	 Shoulder	 Steel Pipe 18	 Steel Pipe 21	 Steel Pipe 24
 Steel Pipe 30	 Steel Pipe 36	 Steel Pipe 42	 Steel Pipe 48	 Steel Pipe 54

ODOT Roadway Design Xsec Cells
Xsec

 Steel Pipe 60	 Steel Pipe 66	 Steel Pipe 72	 Survey Sections Border	 Temporary RW
 Temporary RW 2	 Tug Line	 Tug Line 2	 Tug Line 3	 Tug Line 4
 TVUG Line	 TVUG Line 2	 Waterline	Waterline 2	 Waterline 3
Waterline 4	Xsec OLD Drive Desireable	 XSec_CI_Curb_ Inlet_Mnt	 Xsec_Layout_Block	 Xsec_Sheet_Border

ODOT Roadway Design Xsec Cells
Xsec

		
Xsec_Sheet_ Border_2nd Set	Xsec_Sheet_ but 190 offset	Xsec_Sheet_ but 200 offset

Patterning

The following elements should be patterned on ODOT Roadway Design's plans:
See Section 11 Plan Sheets examples

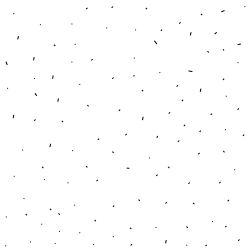
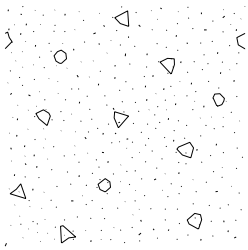
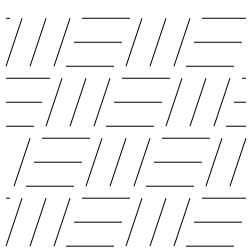
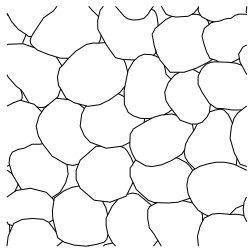
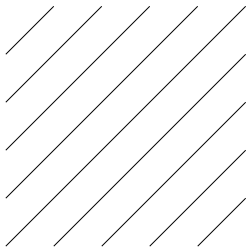
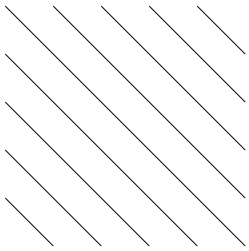
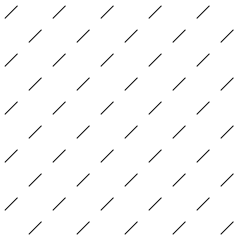
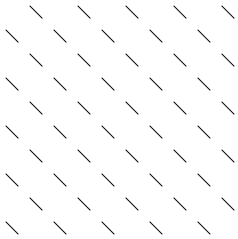
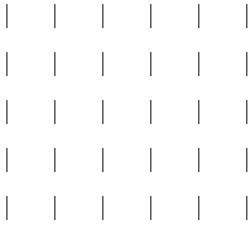
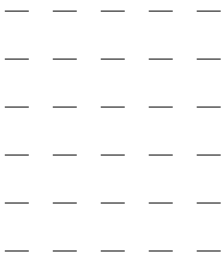
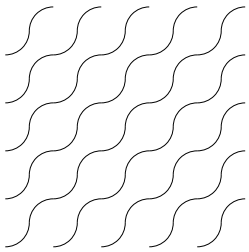
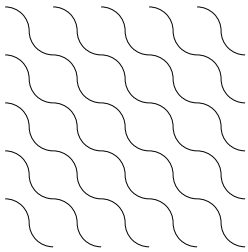
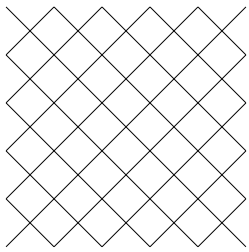
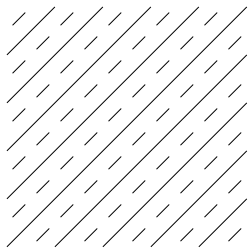
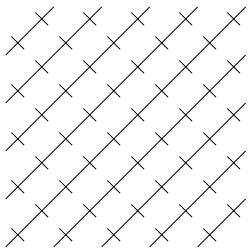
Typical Sheets:	Design Pavement Layers Backfill
Plan and Profile Sheets:	Temporary Drives Traffic Bound Surface Course (TBSC) Drives Paved Ditches
Erosion Control Detail Sheets:	Disturbed Area
CrossSection Sheets:	Phased Earthwork (see How to Pattern Earthwork Phases Section 5)

ODOT Roadway Design Patterning Cells
Patterns

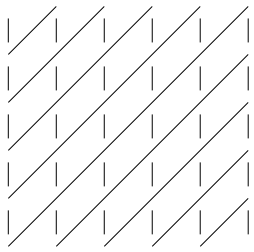
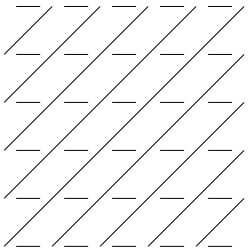
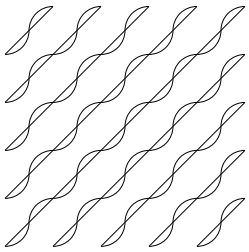
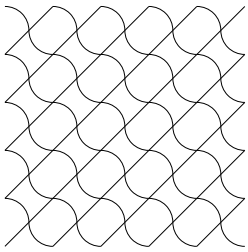
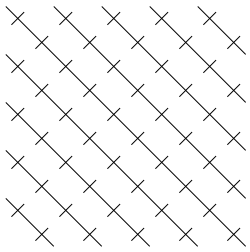
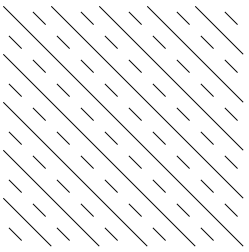
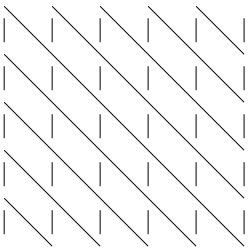
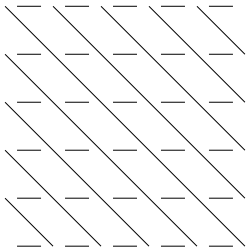
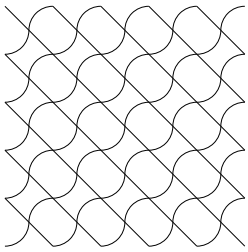
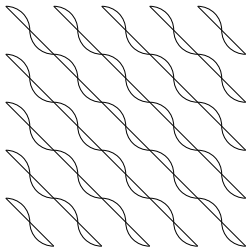
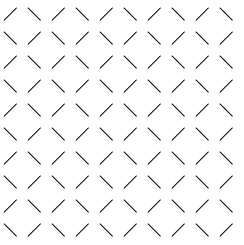
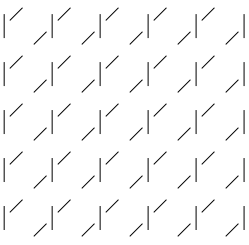
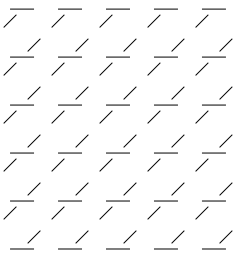
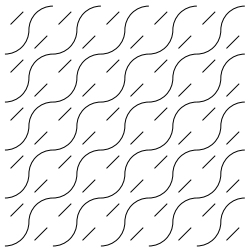
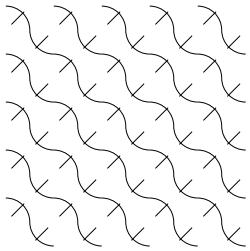
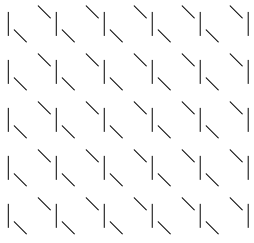
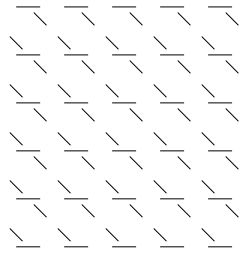
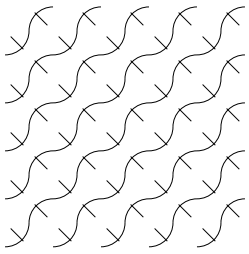
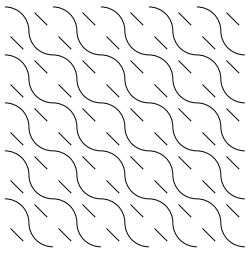
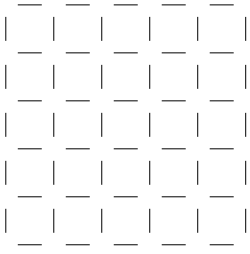
The "Patterns" cell library contains:

4	Primary Material Patterns:	Asphalt (PatA), Concrete(PatC), Dirt/Ground (PatD), and RipRap (PatR)
8	Standard Numbered Patterns:	Pat1 through Pat8 (designed to overlap each other)
154	Number Veriation Patterns:	These patterns were created by combining 2 to 4 of the standard 8 patterns.
8	Miscellaneous Patterns:	Additional requested patterns usually used for special detail sheets.

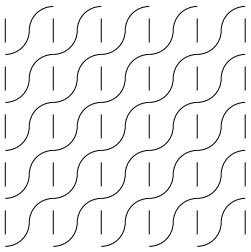
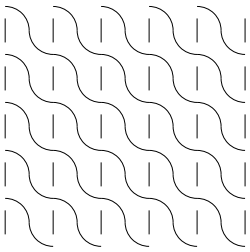
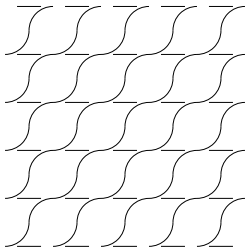
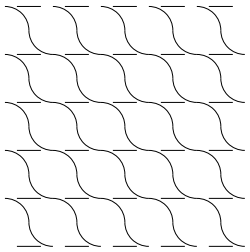
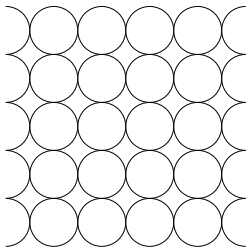
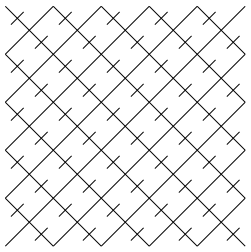
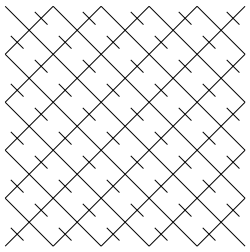
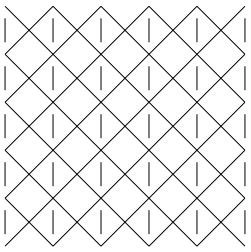
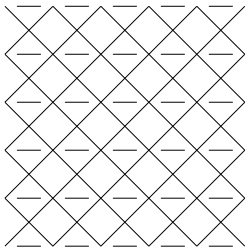
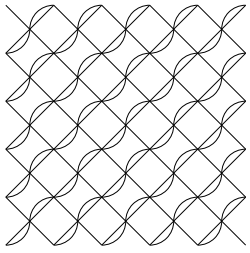
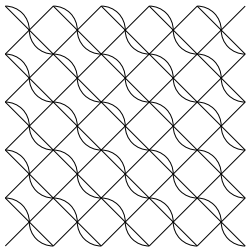
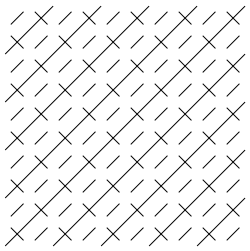
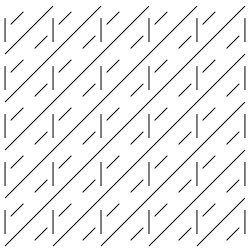
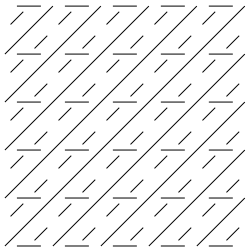
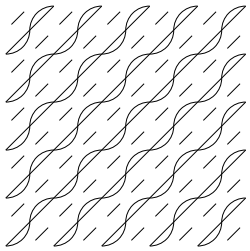
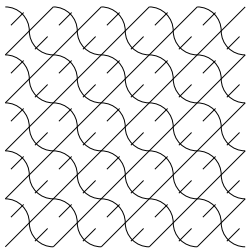
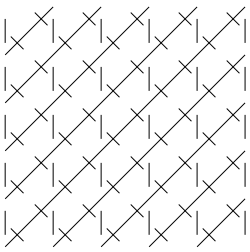
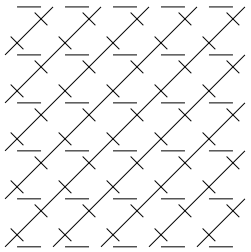
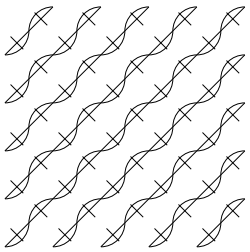
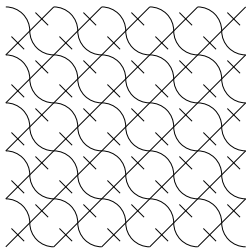
Pattern Display Scales: Typical (match border scale) Plan and Profile (20, 50, or 100) and CrossSection (1)

 PatA Asphalt/Sand	 PatC Concrete	 PatD Dirt/Ground	 PatR RipRap	 Pat1 Hatch Detour
 Pat2 Back Hatch Secondary	 Pat3 Dashed Hatch	 Pat4 Dashed Back Hatch	 Pat5 Vertical Dashed	 Pat6 Horizontal Dash
 Pat7 Waved Hatch	 Pat8 Waved Back Hatch	 Pat12 Cross Hatch Detour & Secondary	 Pat13	 Pat14

ODOT Roadway Design Patterning Cells
Patterns

 Pat15	 Pat16	 Pat17	 Pat18	 Pat23
 Pat24	 Pat25	 Pat26	 Pat27	 Pat28
 Pat34	 Pat35	 Pat36	 Pat37	 Pat38
 Pat45	 Pat46	 Pat47	 Pat48	 Pat56

ODOT Roadway Design Patterning Cells
Patterns

 Pat57	 Pat58	 Pat67	 Pat68	 Pat78
 Pat123	 Pat124	 Pat125	 Pat126	 Pat127
 Pat128	 Pat134	 Pat135	 Pat136	 Pat137
 Pat138	 Pat145	 Pat146	 Pat147	 Pat148

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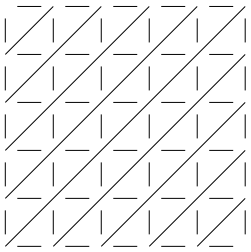
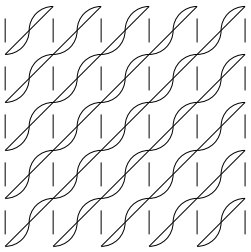
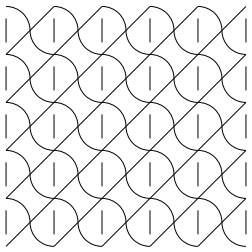
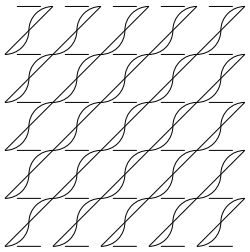
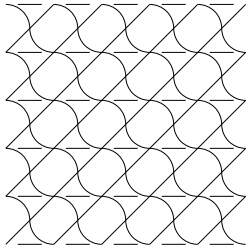
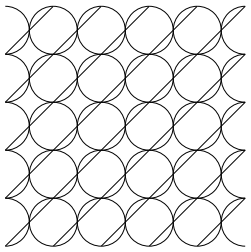
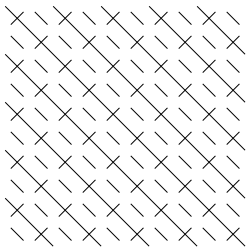
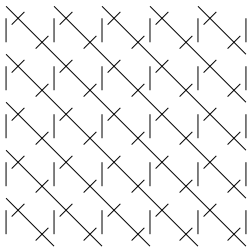
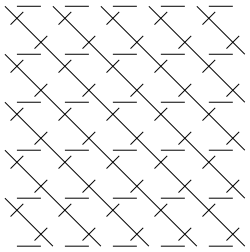
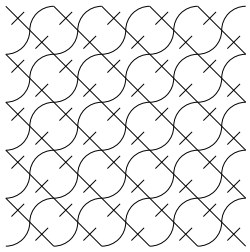
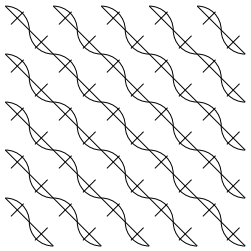
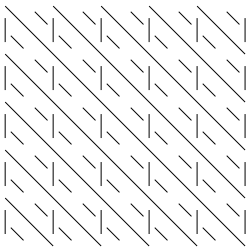
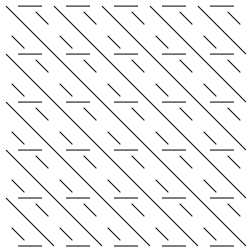
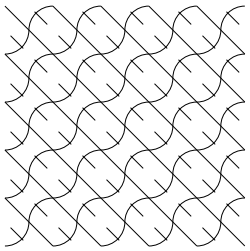
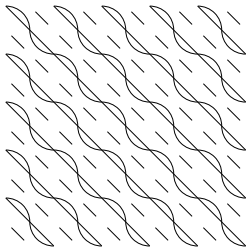
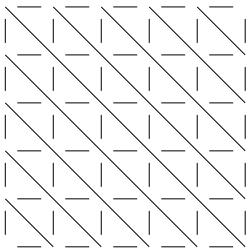
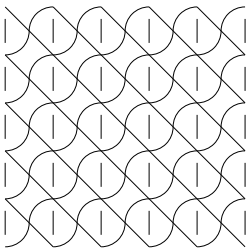
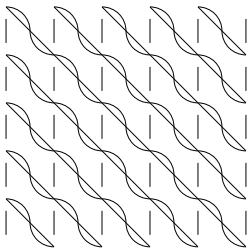
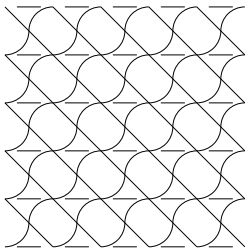
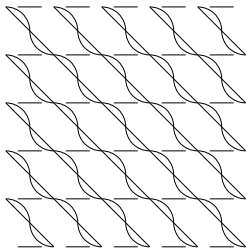
 Pat156	 Pat157	 Pat158	 Pat167	 Pat168
 Pat178	 Pat234	 Pat235	 Pat236	 Pat237
 Pat238	 Pat245	 Pat246	 Pat247	 Pat248
 Pat256	 Pat257	 Pat258	 Pat267	 Pat268

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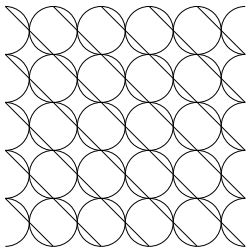
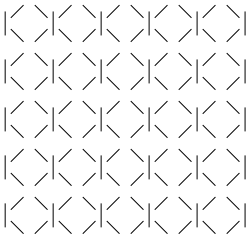
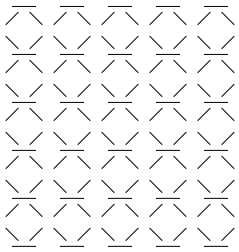
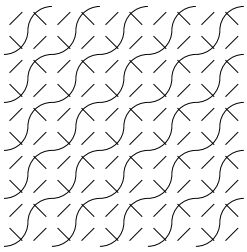
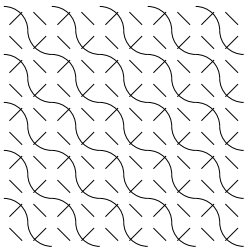
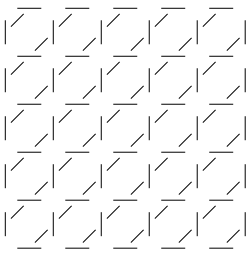
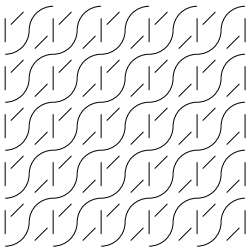
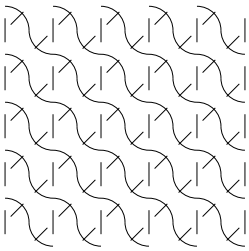
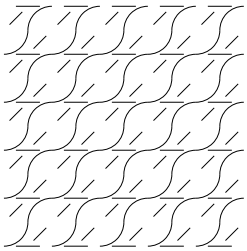
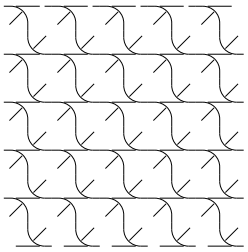
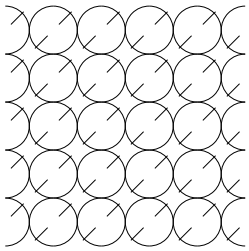
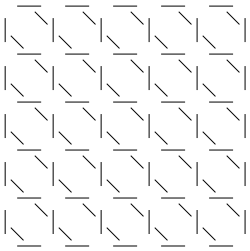
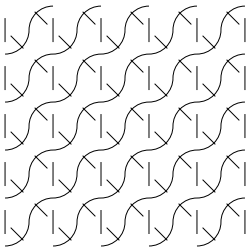
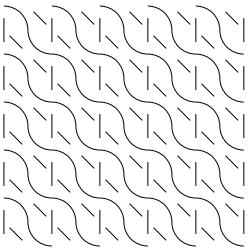
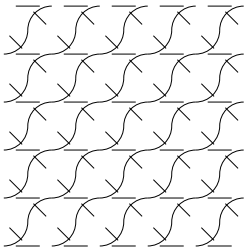
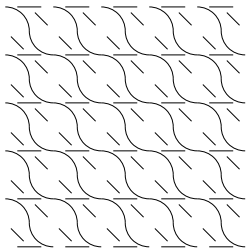
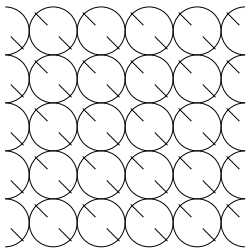
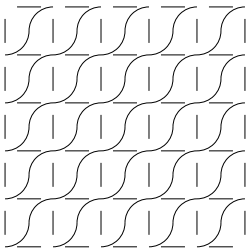
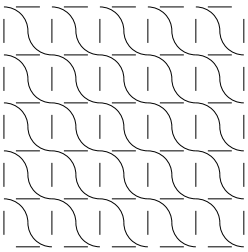
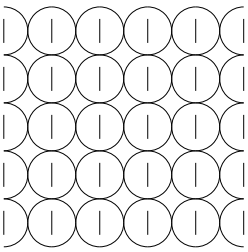
 Pat278	 Pat345	 Pat346	 Pat347	 Pat348
 Pat356	 Pat357	 Pat358	 Pat367	 Pat368
 Pat378	 Pat456	 Pat457	 Pat458	 Pat467
 Pat468	 Pat478	 Pat567	 Pat568	 Pat578

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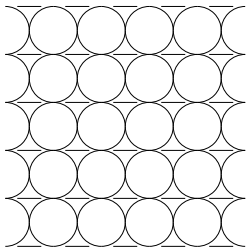
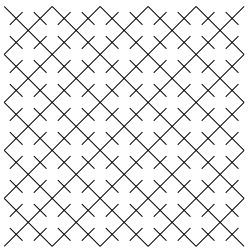
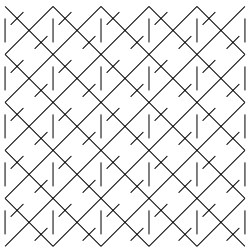
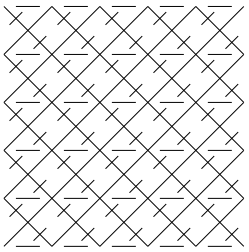
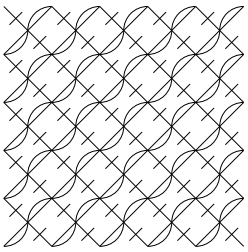
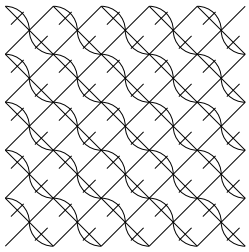
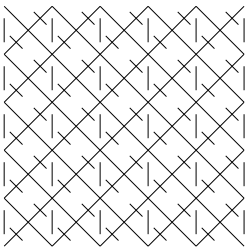
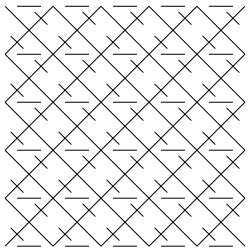
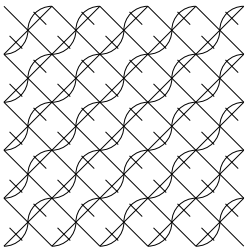
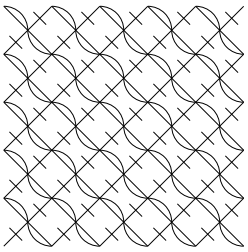
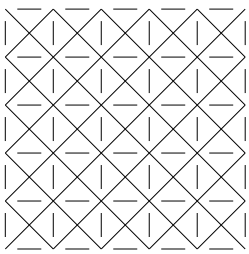
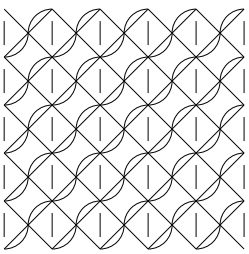
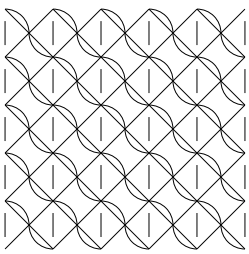
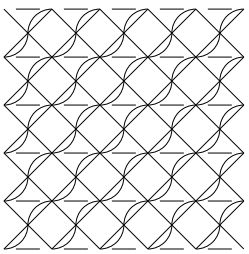
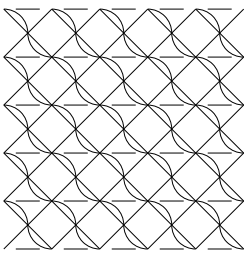
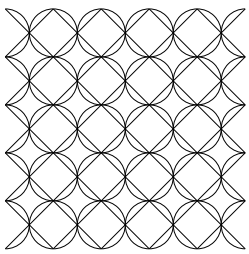
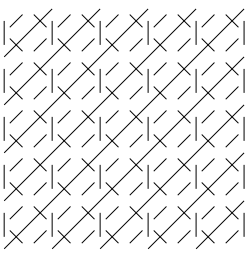
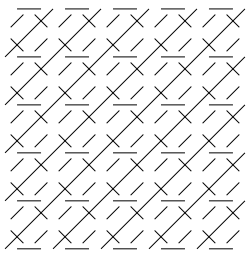
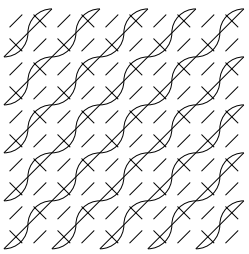
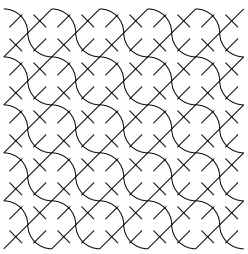
 Pat678	 Pat1234	 Pat1235	 Pat1236	 Pat1237
 Pat1238	 Pat1245	 Pat1246	 Pat1247	 Pat1248
 Pat1256	 Pat1257	 Pat1258	 Pat1267	 Pat1268
 Pat1278	 Pat1345	 Pat1346	 Pat1347	 Pat1348

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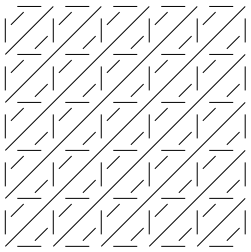
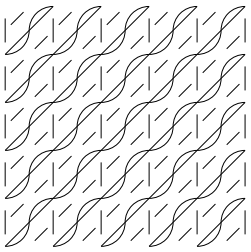
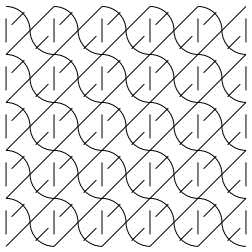
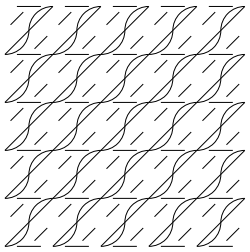
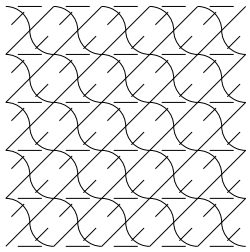
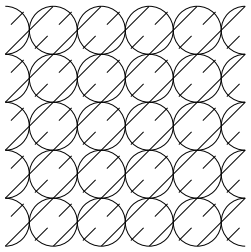
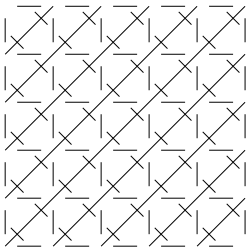
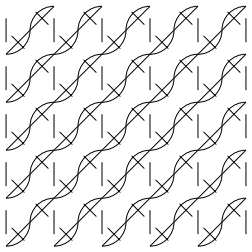
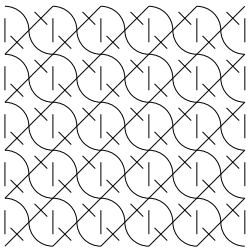
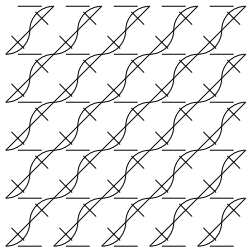
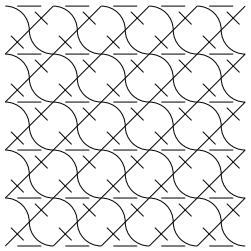
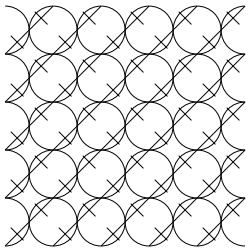
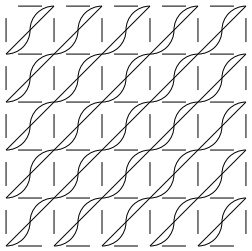
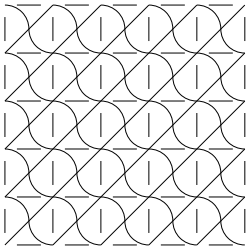
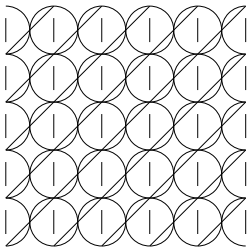
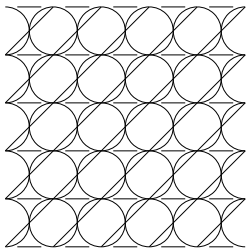
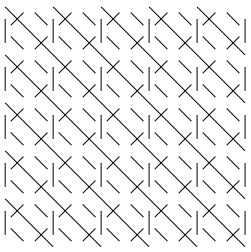
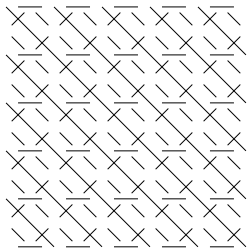
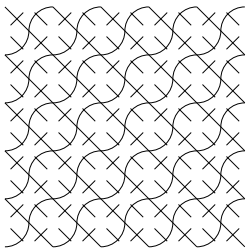
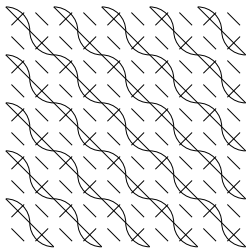
 Pat1356	 Pat1357	 Pat1358	 Pat1367	 Pat1368
 Pat1378	 Pat1456	 Pat1457	 Pat1458	 Pat1467
 Pat1468	 Pat1478	 Pat1567	 Pat1568	 Pat1578
 Pat1678	 Pat2345	 Pat2346	 Pat2347	 Pat2348

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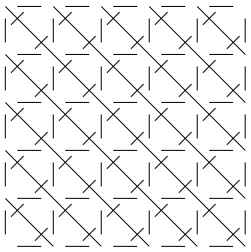
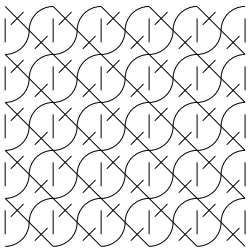
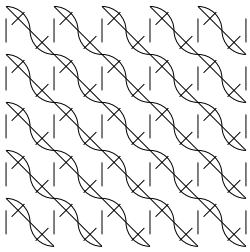
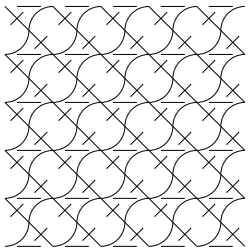
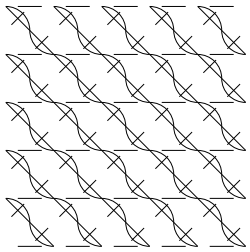
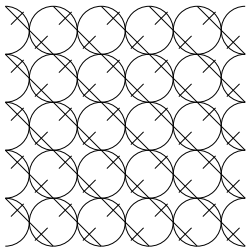
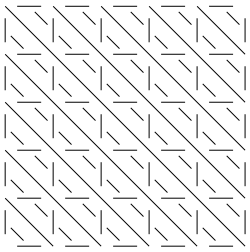
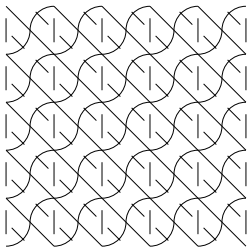
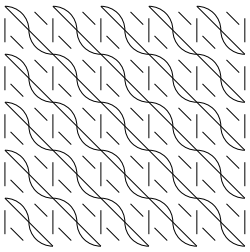
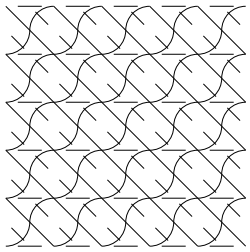
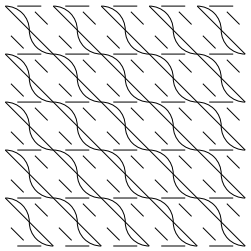
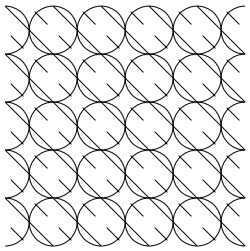
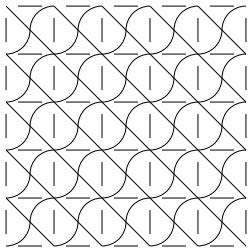
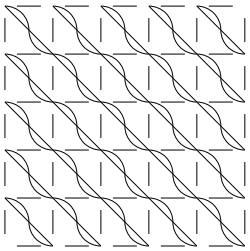
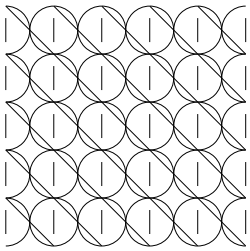
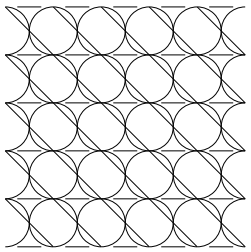
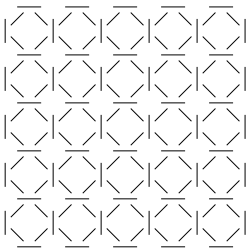
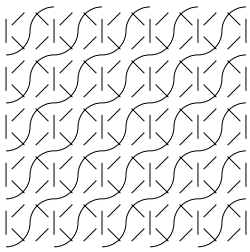
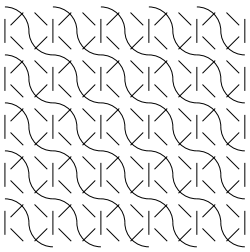
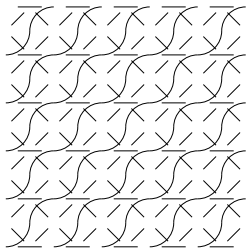
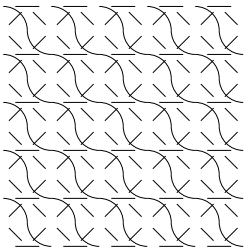
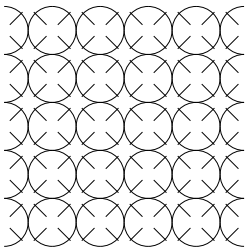
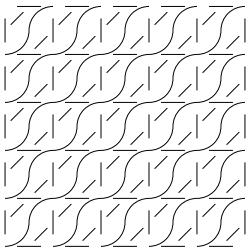
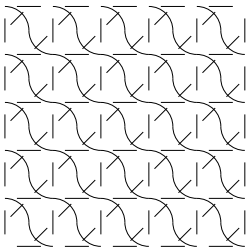
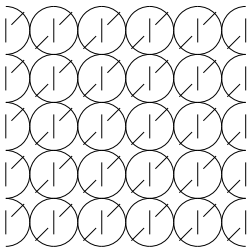
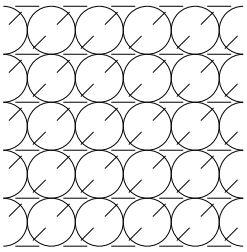
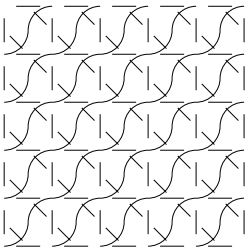
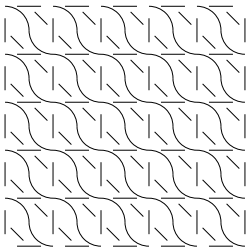
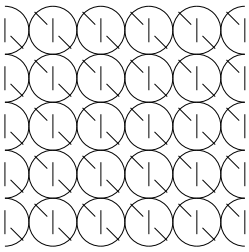
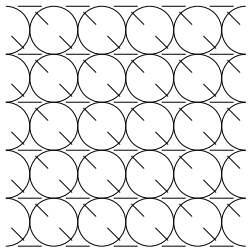
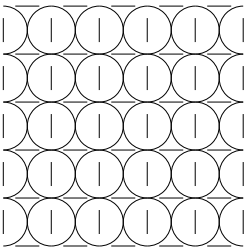
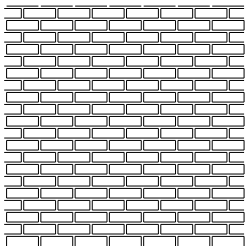
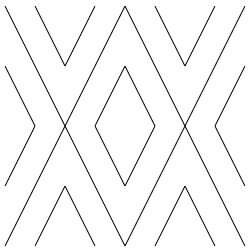
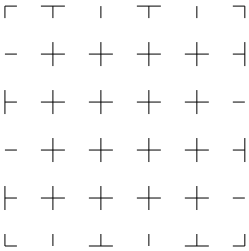
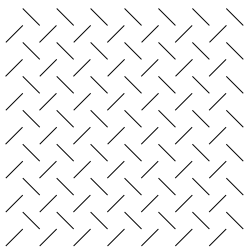
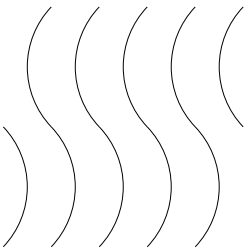
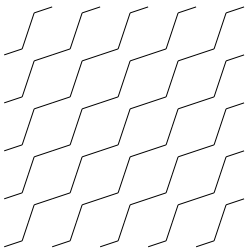
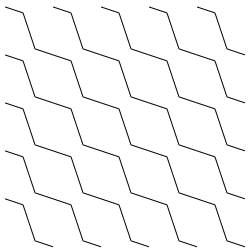
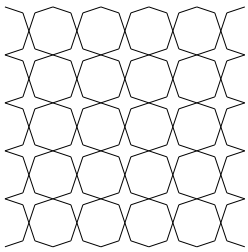
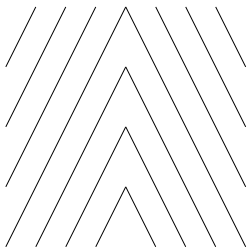
 Pat2356	 Pat2357	 Pat2358	 Pat2367	 Pat2368
 Pat2378	 Pat2456	 Pat2457	 Pat2458	 Pat2467
 Pat2468	 Pat2478	 Pat2567	 Pat2568	 Pat2578
 Pat2678	 Pat3456	 Pat3457	 Pat3458	 Pat3467

ODOT Roadway Design Patterning Cells
Patterns

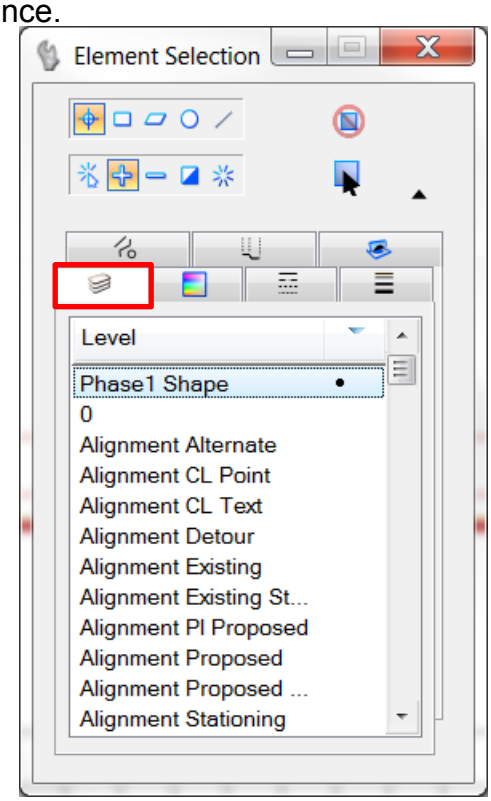
 Pat3468	 Pat3478	 Pat3567	 Pat3568	 Pat3578
 Pat3678	 Pat4567	 Pat4568	 Pat4578	 Pat4678
 Pat5678	 PatB Brick	 PatD2 Large Diamond	 PatP Plus Signs	 PatW Single Weave
 PatW2 Vertical Wave	 PatZ1 Zigzag Hatch	 PatZ2 Zigzag Back Hatch	 PatZ12 Zigzag Cross Hatch	 PatZ3 Large Zigzag

How to Pattern Earthwork Phases

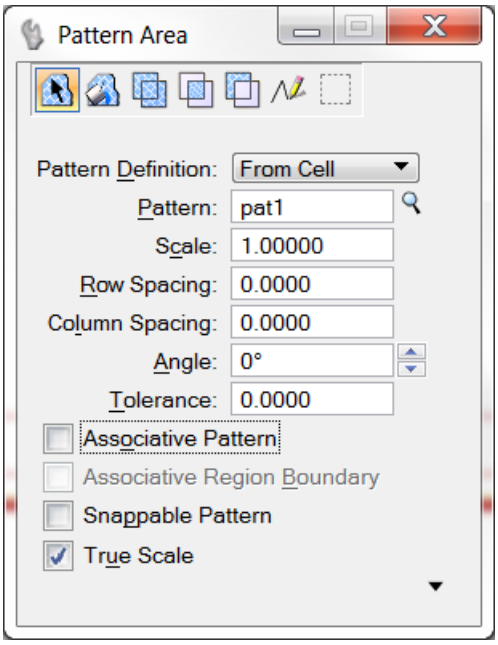
Once end-area volumes have been generated on the Cross Sections and a shapes have been created for each phase the following steps below will help you pattern your Cross Sections.

Using the *Element Selection* command select by attributes.
This allows you to selects multiple things at once based on the level, line style, color etc.
Pick the Level tab and scroll through the list and select the *Phase1 Shape* level.

This will select everything that is on the *Phase1 Shape* level at once.



Go to the *Pattern Area* command and change the settings to match the example below.

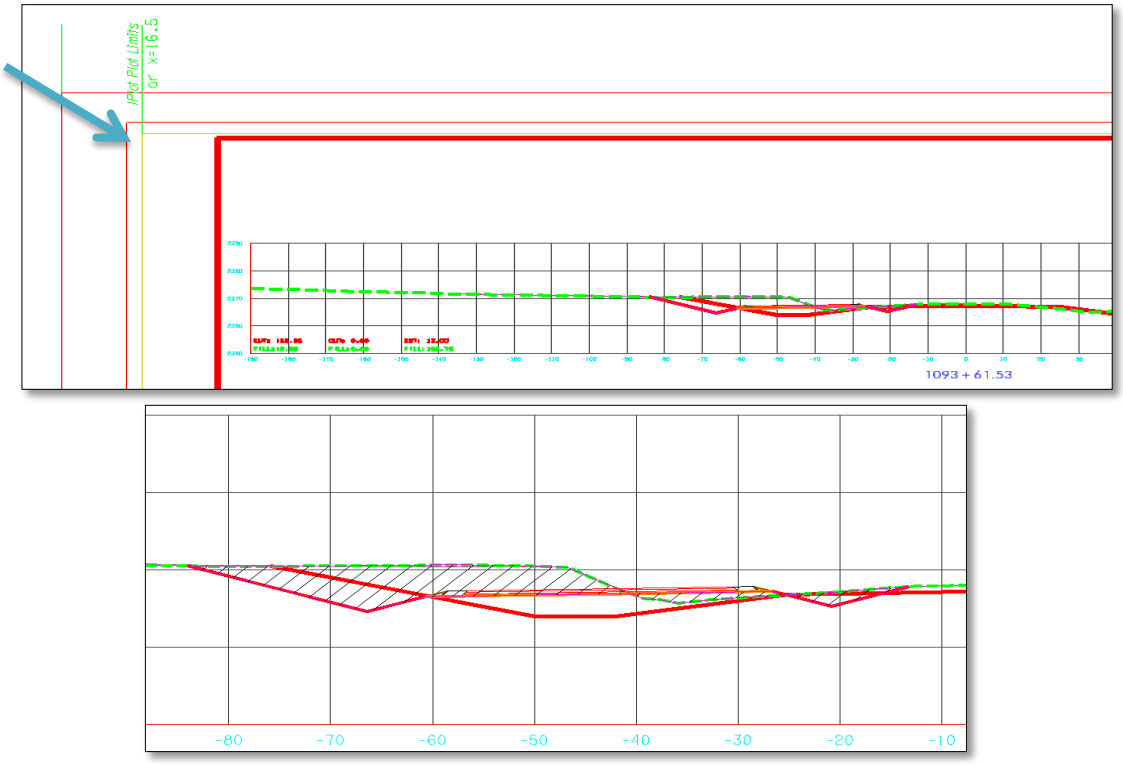


You can either select the pattern from the Cell Library or you can type in pat1 hit the tab key and it will automatically fill in the rest.

The **Xsec.cel** Cell Library contains the standard patterns 1-8 for phasing. The **Patterns.cel** Cell Library contains the standard 1-8 patterns plus combinations of up to 4 different patterns in one (example Pat1,2,3,8). This Cell Library also contains many more patterns like brick, asphalt, concrete etc.

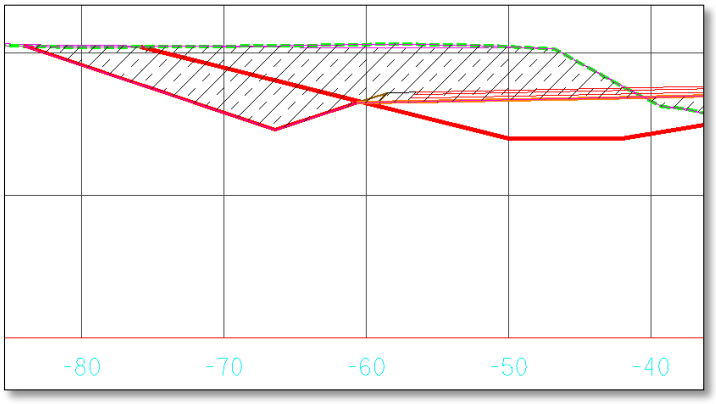
How to Pattern Earthwork Phases

Once the settings are done, tentative click to one general point on the Cross Sections (a corner of the border for example) and accept.

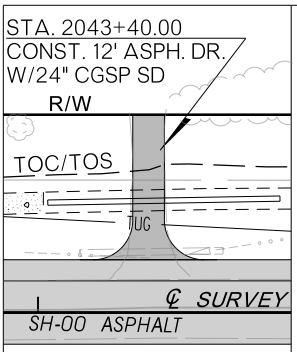


The patterns were designed to be offset from each other so by picking a general point on the Cross Section and then picking that ***same point*** for every phase that you pattern they will be offset from each other and you will be able to see all patterns for every phase.

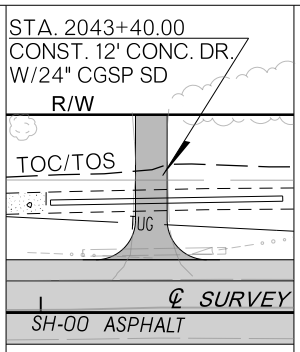
Repeat these steps for the rest of the phases. Remember for every phase tentative to the ***same point*** otherwise the patterns will not be offset and will not create the correct shapes for overlapping phases. Below is an example of offset patterns.



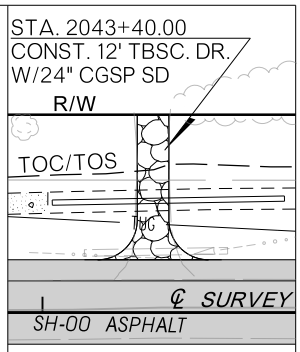
Plan Sheet Shading



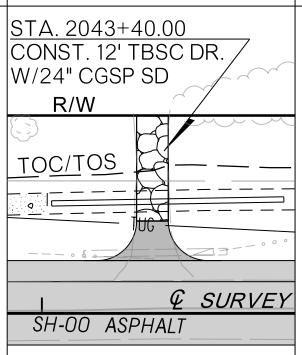
Ashalt Drive



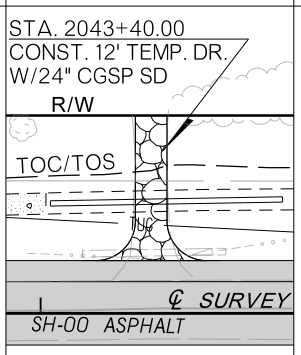
Concrete Drive



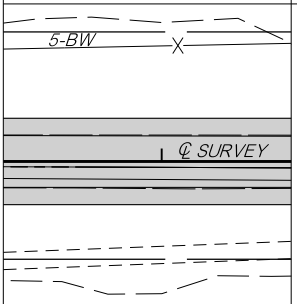
TBSC Drive



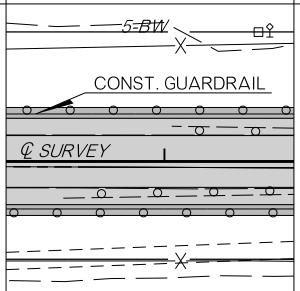
TBSC Drive w/
Asphalt Return



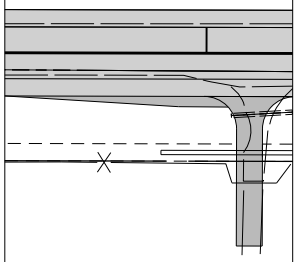
Temporary Drive



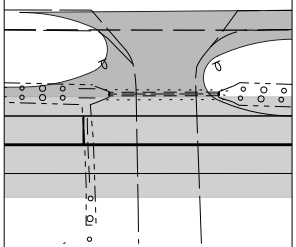
Driving Lane & Shoulder



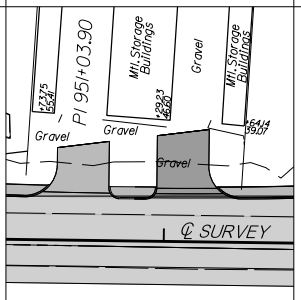
Guardrail Widening



Mailbox Widening



Median Opening



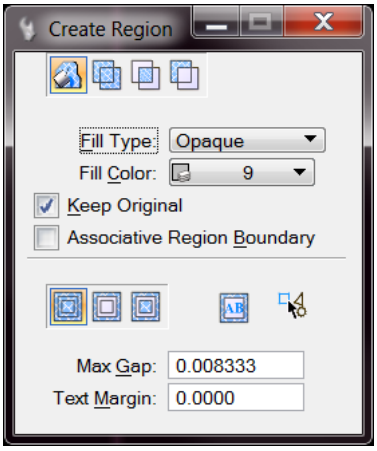
Sidewalk

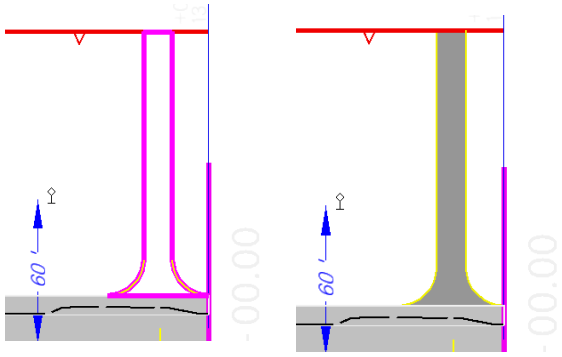
How To Shade

To begin shading select the proper level for the element being shaded, either “Shading Light or Shading Dark”.
If a 2D drawing is being used set the level priority to a negative number in order to make the shading appear beneath the other drawing elements. 

If a 3D drawing is being used, level priority is not available so the shading must be place on an elevation (Z axis) lower than the other drawing elements.

Using the Create Region command 
Set the area selection option to flood, set the fill type to opaque and check on keep original. Left click inside the shape being filled and it will highlight. Then left click again to accept and the shape will fill in.
Note: The area being shaded must be completely enclosed to use the flood option.

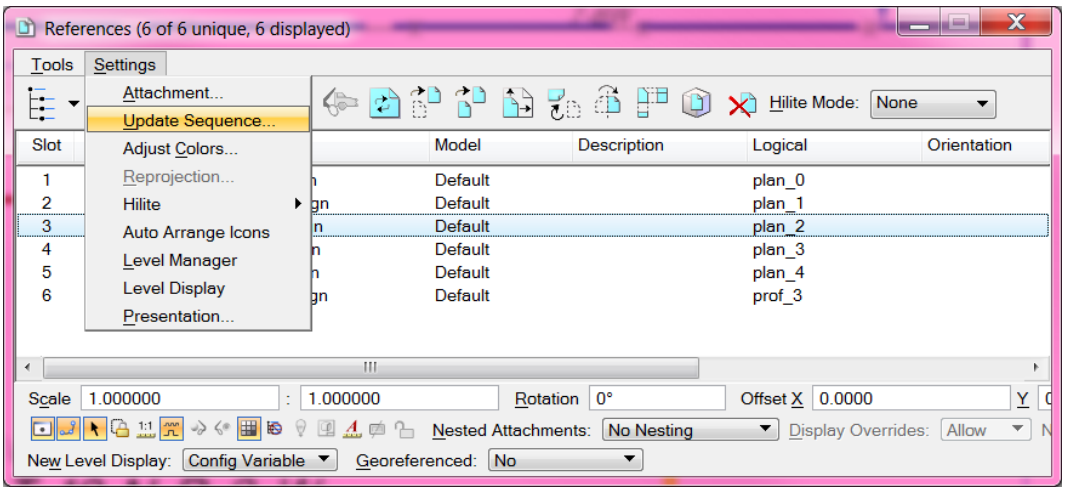


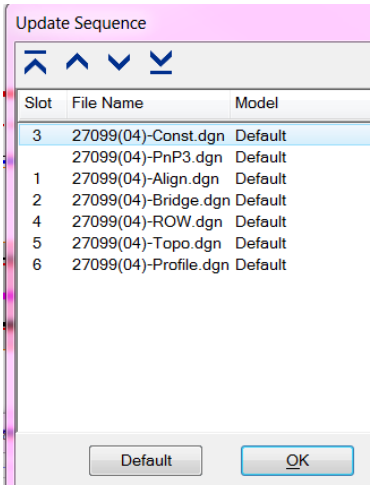


When referencing shading:References are displayed in the order they are attached. When shading is located in a 3D reference the sequence of the references may need to be changed. By placing the 3D drawing first in the sequence list the shading should appear beneath the other references.

To change a references sequence go to: Settings > Update Sequence

In the update sequence window move the 3D reference with the shading to the top of the list and select okay.





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Section 6
InRoads

- **Basic File Types**
- **Retrieving InRoads Base Files**
- **Internal Naming Convention**
- **Alignment Styles and Surface Styles**
- **Alignment Point Abbreviations**
- **Feature Naming Conventions**
- **Project Defaults**
- **Events/Template Drops/CrossSection Cut Locations**
- **Superelevation Tables**
- **Style Sheets**

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InRoads File Types

Below is a list of the primary file types used for InRoads in the road design process.

Surface File *(.dtm)* – Stores point, breakline, boundary, and triangle data defining existing ground and design surfaces. Multiple surface files may be open at the same time.

Geometry File *(.alg)* – Stores geometric data such as horizontal and vertical alignments, COGO points, and superelevation definitions. Multiple geometry files may be open for editing at the same time.

Template Library *(.itl)* – Stores templates made up of components. The components of a template can be open or closed. A simple closed component is used typically to represent a section of pavement. An end condition is a special open-shaped component which define how side slopes are designed. Only one template library may be open for editing at a given time.

Roadway Design File *(.ird)* – Stores information defining which templates are applied at which station along an alignment. Only one roadway design file may be open for editing at a given time.

XML Data *(.xml)* – Stores the bulk data required to build InRoads reports. See the Style Sheet files below for additional information.

Project File (.rwk) – An easy method to load and save a number of InRoads data files in a single operation. No InRoads data is stored in this file, it is just an ASCII file that lists the other InRoads external files used for a project.

Preference (.xin) – Stores the preferences accessible on each dialog box, feature style definitions, and named symbology definitions. Also stores preferences for geometric (point, line, curve, and spiral) elements. These style definitions are used when the geometric elements are displayed in the graphics file. Only one Preference file can be open at a time.

Drafting Notes (.dft) – Stores note definitions created with the various note placement tools found on the Drafting menu.

Style Sheets (.xsl) – A definition file that formats data in an .xml file into a finished report.

Retrieving InRoads Base Files

InRoads Base files are created and maintained by the Performance and Development Branch of Roadway Design. These files simplify InRoads Workflows and aid in CADD Standardization. Below is a list of InRoads Base files.

Template Library *(.itl)*
Preference (.xin)
Drafting Notes (.dft)

InRoads Base files are located at the file path:

R:\CADD_Support\Design\InRoads ***(ODOT Roadway Design use only)***

These files should always be copied from the R: drive and pasted into the Project InRoads folder.

To copy and paste a file follow the following steps.

1. In Windows desktop double click on the Computer Icon.
2. Navigate to the InRoads file folder on the R:\ drive
3. Holding down the control button select the base files that are to be copied.
4. Right-click any of the base files that were selected.
5. Select **Copy** from the menu.
6. Navigate to the InRoads folder of the project files.
7. Right click and select **Paste** from the menu.

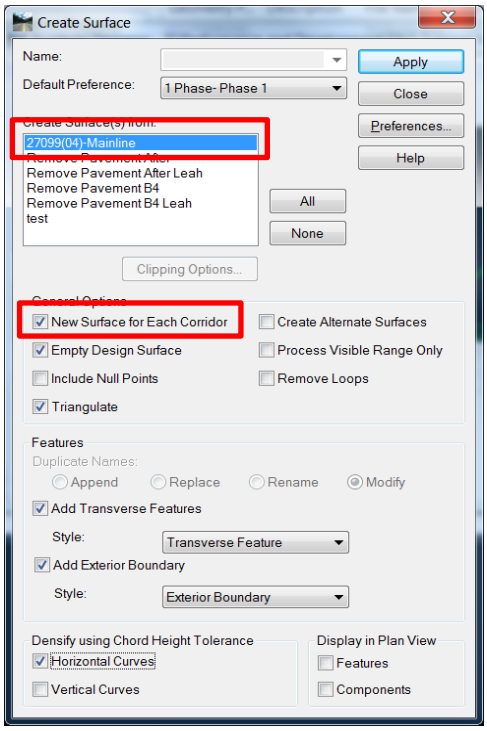
After these files are copied and pasted to the project inroads file they will need to be renamed to follow naming conventions.

Internal Naming Conventions

Naming of Corridors, Surfaces, and Alignments within InRoads should always follow the external naming conventions. See Section 1 of the CADD Standard for external naming convention.

Corridors- When a new corridor is created in InRoads Designer, the corridor name should match the surface that will eventually be created from the corridor. If the corridor was misnamed when originally created simply highlight the corridor in the corridor dialog box and type in a new name and click the Change button.

Surfaces- If the Corridor name already follows naming convention simply turn the checkbox on for the option **New Surface for Each Corridor** when creating the surface to ensure that the surface name matches the Corridor name.



To change the name of the surface after it has been created, use the InRoads **Rename Surface** command *(InRoads>Surface>Rename Surface)* to change the name.

Alignments- Alignments should follow naming conventions of the alignments as shown in Section 1 when creating new alignments. When an alignment is created by survey it is necessary to change the name of the alignment. To do this, use the InRoads **Rename Geometry** Command *(InRoads>Geometry>Rename Geometry).*

Alignment and Surfacing Styles

The styles control how surfaces and alignments look when displayed in MicroStation. Styles are located in the preference file (.xin). If a style is not found make sure the latest version of the preference file is loaded.

Alignments

There are four primary alignment styles and two detour styles.

proposed 50- This style is for showing proposed (CLR) alignments at 50 scale.
proposed 100- This style is for showing proposed (CLR) alignments at 100 scale.

Existing 50- *This style is for showing existing (A001) alignments at 50 scale.
Existing 100- *This style is for showing existing (A001) alignments at 100 scale.

Detour 50- This style is for showing detour alignments at 50 scale.
Detour 100- This style is for showing detour alignments at 100 scale.

* The Existing styles should not be applied to the vertical alignments. A001 and CRL verticals are proposed and will need to be annotated using the proposed styles.

To change an alignment style use InRoads Active Geometry command (InRoads>Geometry>Active Geometry).

Surfaces

There are two primary surface styles.

Design Surface- This style is for showing new surfaces on the Cross Sections and if necessary profiles. Using this style will result in the surface showing up as a thick red line.

Existing- This style is for showing existing surfaces on the Cross Sections and Profiles. Using this style will result in a green dashed line when viewing surfaces.

To change the style of the surface:

1. Right click the surface in InRoads Workspace bar and select Properties from the menu.
2. Click on the Advanced tab and change the symbology setting to the desired style.

Alignment Point Abbreviations

The following list contains point abbreviations used for alignment annotations and commands. (Review Horizontal, Review Vertical, View Stationing, reports, etc…) These abbreviations are stored within the preference file (.xin).

PC - point of curvature
SS - spiral-to-spiral point
PVC - point of vertical curvature
PI - point of intersection
EQN - station equation
PVI - point of vertical intersection
CC - center of curvature
EQNBK - station equation back
PVT - point of vertical tangency
PT - point of tangency
EQNAHD - station equation ahead
PVCC - point of vertical compound curve
TS - tangent-to-spiral point
POB - point of beginning
PVRC - point of reverse vertical curv
SC - spiral-to-curve point
POE - point of ending
POVT - point on vertical tangent
CS - curve-to-spiral point
EVT - event point
POVC - point on vertical curve
ST - spiral-to-tangent point
POT - point on tangent
VEVT - vertical event point
SPI – spiral point of intersection
POC - point on curvature
VLOW - vertical low point
PCC - point of compound curvature
POS - point on spiral
VHIGH - vertical high point
PRC - point of reverse curvature
COGO - cogo point

Feature Naming Conventions

Every Feature in the Template has a name. Having a convention for naming the features is important so that anybody using the template or surface can use the surface. Below is a list of the feature names and what they stand for

CL = Centerline of the pavement. Normally it is the CRL or the CL survey of the corridor
EOD = Edge of Driving Lane.
EOS = Edge of Shoulder
EOP = Edge of Pavement
EOW = Edge of Wedge. This pertains to the edge of the asphalt wedge
TOA = Edge of the top of aggregate Base.
BOA = Edge of the bottom of aggregate Base.
EOB = Edge of Backfill
CLS = Point on the subgrade directly underneath the centerline of pavement.
EODS = Point on the subgrade directly underneath the edge of driving lane.
EOSS = Point on the subgrade directly underneath the edge of shoulder.
EOWS = Point on the subgrade where the wedge of the asphalt ends.
CZ = Clearzone
DB = Outside edge of the typical ditch bottom.
DBSLP = Top of the cut slope where the typical ditch is cut.
Fill 1:6 = End of the fill slope where a 1:6 slope is created.
Fill 1:4 = End of the fill slope where a 1:4 slope is created.
Fill 1:3 = End of the fill slope where a 1:3 slope is created.
SPFS 1:6 = End of the Foreslope of the special ditch.
SPFS 1:4 = End of the Foreslope of the special ditch.
SPFS 1:3 = End of the Foreslope of the special ditch.
SPDB 1:6 = Outside edge of the special ditch bottom.
SPDB 1:4 = Outside edge of the special ditch bottom.
SPDB 1:3 = Outside edge of the special ditch bottom.
SPBSLP 1:6 = Top of the backslope after the special ditch.
SPBSLP 1:4 = Top of the backslope after the special ditch.
SPBSLP 1:3 = Top of the backslope after the special ditch.

Project Defaults

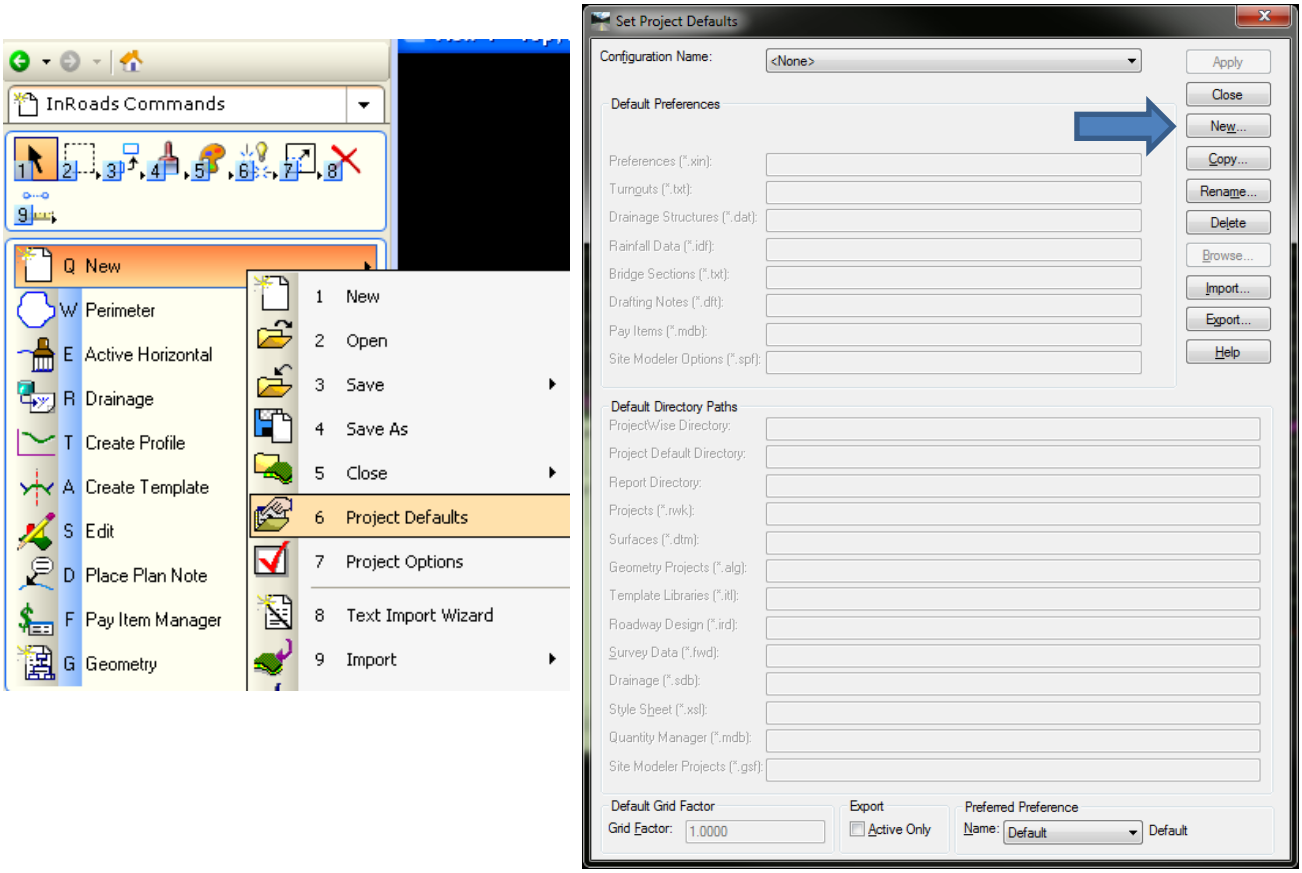
The Project Defaults command sets the default directory locations for opening/saving files and also automatically opens design preference when InRoads is activated.

The top portion of the dialog box “Default Preferences” opens files for: General Preference (.ini), Geometry Style (.ini), Survey Feature Table (.fwf), Survey Preference (.fxp).

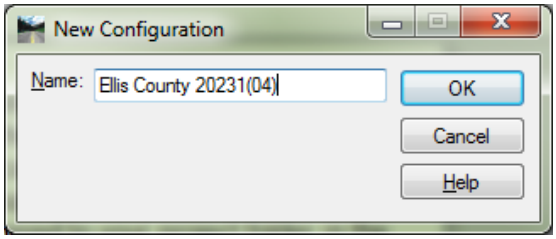
The bottom portion of the dialog box “Default Directories” saves path locations for all file types that can be accessed through the File/Open and File/Save As dialog boxes. These include Project (.rwk), Surface (.dtm), Geometry (.alg), Typical Section Library (.tml), Roadway Library (.rwl), Survey Data (.fwd), Storm and Sanitary (.sdb). All other files, which are opened or saved throughout the program, use the Project Default Directory setting.

The number of project defaults allowed is virtually limitless they can be set for several different type projects. They are user specific and unless exported can only be accessed under the user profile of the original creator.

To set up Project Defaults for a workflow in InRoads select File>Project Defaults (Q>6) Click the new button to create a new Project Default.

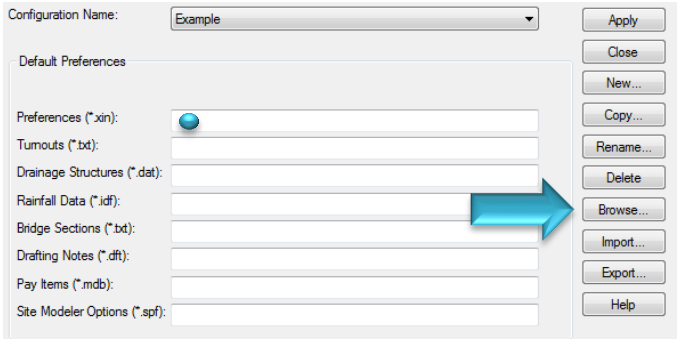


Project Defaults



Key in a name (e.g. project number)
(Make it a name that describes the project)

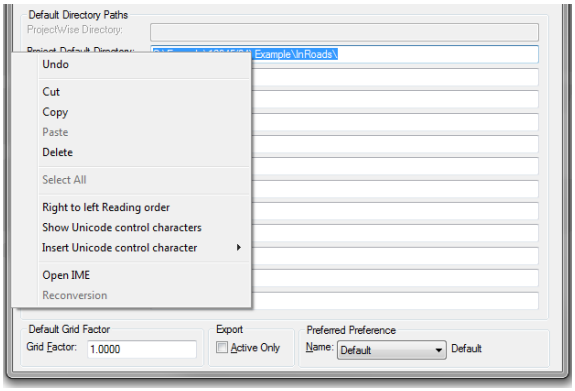
Select the OK button on the New Configuration window.

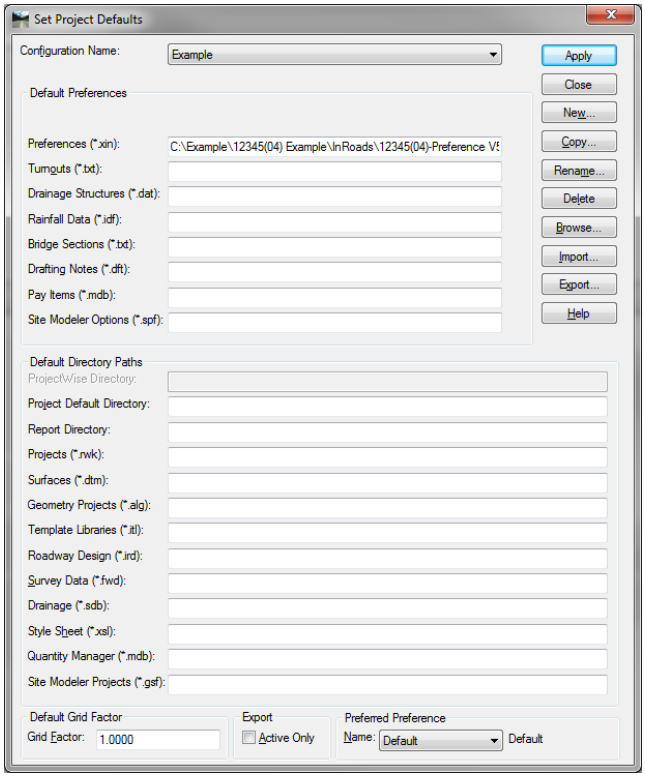


Once an empty project default is created, The Item key-in boxes will become available to fill in. Click into the white box beside the Preferences (*.xin): and select the Browse button. From the Open window, navigate to the correct file and select the Open button. The path and file name will appear in the Default Preferences. Repeat this process for each item to have it load automatically.

<u>Do not set a path for Style Sheet</u> (*.xsl) – Roadway Design uses the default Style Sheets for Reports. Changing the path will cause the reports not to function.

Once all desired lines are filled choose the Apply button and then Close.





Events/Template Drops/CrossSection Cut Locations

The following list contains several locations surfaces commonly change. Horizontal Events and additional CrossSection stations should be added at these locations to ensure the design surface and earthwork are accurate.

Note: Surface Models are commonly generated on 25' intervals but CrossSections are cut at 100' intervals. If a design change happens at a +25, +50, or +75 location a Horizontal Event and CrossSection should be added to represent that change.

Proposed

Begin detour station
End detour station
Begin project station
End project station
Begin CRL station
End CRL station
Change of typical design stations
Begin earthwork exception station
End earthwork exception station
Begin superelevation station
Begin superelevation runoff station
Reverse cross slope station
Begin outside shoulder rotation station
Begin full superelevation station
Begin full shoulder rotation station
End full shoulder rotation station
End full superelevation station
End outside shoulder rotation station
Reverse cross slope station
End superelevation runoff station
End superelevation station
Horizontal curve PC
Horizontal curve PT
Beginning of taper/transition stations (including guardrail widening)
Ending of taper/transition stations (including guardrail widening)
Drive stations
Crossing perpendicular structures stations
Structure wingwall endpoints
Inlet, outlet and center line crossing stations on all skewed structures
Storm sewer inlet/manhole stations

Events/Template Drops/CrossSection Cut Locations

Proposed cont.…
Subgrade intercept stations
Zero stations
Pavement depth change stations
Pavement depth transition begin stations
Pavement depth transition end stations
Locations where the cut and fill conditions have been modified (end condition override stations)
Locations were multiple surfaces separate
Locations were multiple surfaces come together
Slope change locations for special ditches
Special ditch breakpoints

Existing
Crossing Underground Utility Stations
Crossing Low Wire Overhead Utility Stations
Existing Structure Stations

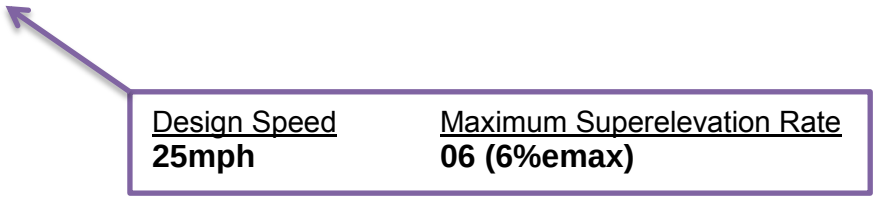
Superelevation Tables

For InRoads SS2, superelevation tables (*.sup) were developed specifically for ODOT's use. Superelevation tables are based on speed and maximum superelevation rate. Superelevation tables are used with the Superelevation Table Wizard found in the Roadway Modeler.

Superelevation tables are located at the following path:
R:\CADD_Support\Design\InRoads\Superelevation

The following is a list of available Superelevation tables:

25mph06.sup
30mph06.sup
30mph08.sup
35mph06.sup
35mph08.sup
40mph06.sup
40mph08.sup
45mph06.sup
45mph08.sup
50mph06.sup
50mph08.sup
55mph06.sup
55mph08.sup
60mph06.sup
60mph08.sup
65mph06.sup
65mph08.sup
70mph06.sup
70mph08.sup
75mph06.sup
75mph08.sup
80mph06.sup



Style Sheets

A **style sheet** (*.xsl) is a report template that format raw data from inroads into a .xml file.

ODOT uses default style sheets that are located on the computers local hard drive under the following path:
C:\Program Files (x86)\Bentley\InRoads Group V8.11\XML Data\en

Below is a chart that shows some of the more commonly used style sheets, their location, and what they are used for.

Style sheet Name	Location in Bentley Civil Report Browser	Use	Command that creates data
EndAreaVolume.xsl	Evaluation	End Area Volume Reports	Evaluation>Cross Section> Cross Sections
TriangleVolumeByStation2.xsl	Evaluation*	2% Comparison for surfaces where station limits need to be set.	Evaluation>Volumes>Triangle Volume by Station
StationOffset.xsl	StationOffset	Text from this Report can be modified and used to create Station Offset Reports for Plans.	Tools>XML Reports>Station Offset
SuperelevatonStations.xsl	SuperElevation	Used to create a superelevation report. Information on this report can be used to create superelevation detail sheet or to check InRoads values against hand calculated values.	Superelevation>Superelevation Report (In Roadway Designer)

* This report was built specifically for ODOT and must be installed manually after Microstation installation.

Section 7
Notes and Annotations

- **Drive**
- **Structure**
- **Fence**
- **Begin/End Project, Crossing Utilities, Existing Ground, Finished Grade, Flow Lines**
- **Guardrail, Mailbox, Present/Proposed/Temporary Right of Way**
- **Special Ditches, Special/Typical Paved Ditches, Superelevation, Top of Cut/Toe of Slope**
- **Numbering Format and Rounding Chart**

“This Page Is Intentionally Left Blank.”

Drive Notes

Permanent Drives:

SUMMARY OF DRIVEWAYS								PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STATION	LT.	RT.	TYPE	LENGTH	WIDTH	RADII				
						LT.	RT.			
__+__.__		X	ASPH. TYPE 1	00.00'	12'	10'	10'	STA. __+__ CONST. __' ASPH. TYPE 1 DR.	N/A	STA. __+__ CONST. __' ASPH. TYPE 1 DR.
__+__.__	X		CONC. TYPE 1	00.00'	12'	10'	10'	STA. __+__ CONST. __' CONC. TYPE 1 DR.	N/A	STA. __+__ CONST. __' CONC. TYPE 1 DR.
__+__.__		X	ASPH. TYPE 2	00.00'	17'	15'	15'	STA. __+__ CONST. __' ASPH. TYPE 2 DR.	N/A	STA. __+__ CONST. __' ASPH. TYPE 2 DR.
__+__.__	X		CONC. TYPE 2	00.00'	18'	15'	15'	STA. __+__ CONST. __' CONC. TYPE 2 DR.	N/A	STA. __+__ CONST. __' CONC. TYPE 2 DR.
__+__.__		X	ASPH. TYPE 2A	00.00'	17'	15'	5'	STA. __+__ CONST. __' ASPH. TYPE 2A DR.	N/A	STA. __+__ CONST. __' ASPH. TYPE 2A DR.
__+__.__	X		CONC. TYPE 2A	00.00'	18'	5'	15'	STA. __+__ CONST. __' CONC. TYPE 2A DR.	N/A	STA. __+__ CONST. __' CONC. TYPE 2A DR.
__+__.__		X	ASPH. STREET RETURN	00.00'	26'	25'	25'	STA. __+__ CONST. __' ASPH. STREET RETURN W/ __" CGSP SD	N/A	STA. __+__ CONST. __' ASPH. SL RETURN W/ __" CGSP SD
__+__.__		X	CONC.STREET RETURN	00.00'	26'	25'	25'	STA. __+__ CONST. __' CONC. STREET RETURN AS DIKE	N/A	STA. __+__ CONST. __' CONC. STREET RETURN AS DIKE
__+__.__		X	ASPH. SL RETURN	00.00'	26'	25'	25'	STA. __+__ CONST. __' ASPH. SL RETURN W/ __" CGSP SD	N/A	STA. __+__ CONST. __' ASPH. STREET RETURN W/ __" CGSP SD
__+__.__		X	CONC.SL RETURN	00.00'	26'	25'	25'	STA. __+__ CONST. __' CONC. SL RETURN AS DIKE	N/A	STA. __+__ CONST. __' CONC. SL RETURN AS DIKE
__+__.__		X	TBSC SL RETURN	00.00'	28'	25'	25'	STA. __+__ CONST. __' TBSC SL RETURN W/ __"X__" CGSPA SD	N/A	STA. __+__ CONST. __' TBSC SL RETURN W/ __"x__" CGSPA SD
__+__.__		X	ASPH. DR.	00.00'	12'	15'	15'	STA. __+__ CONST. __' ASPH. DR. W/ __"X__" CGSPA SD	N/A	STA. __+__ CONST. __' ASPH. DR. W/ __"X__" CGSPA SD
__+__.__		X	CONC. DR.	00.00'	12'	15'	15'	STA. __+__ CONST. __' CONC. DR. W/ __" CGSP SD	N/A	STA. __+__ CONST. __' CONC. DR. W/ __" CGSP SD
__+__.__	X		TBSC DR.	00.00'	15'	15'	15'	STA. __+__ CONST. __' TBSC DR. AS DIKE	N/A	STA. __+__ CONST. __' TBSC DR. AS DIKE

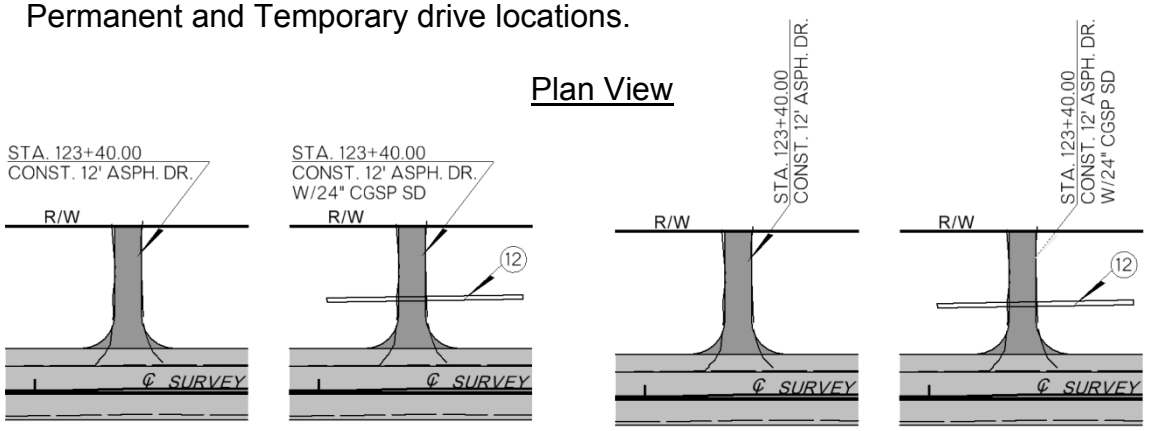
Drive Notes

Temporary Drives:

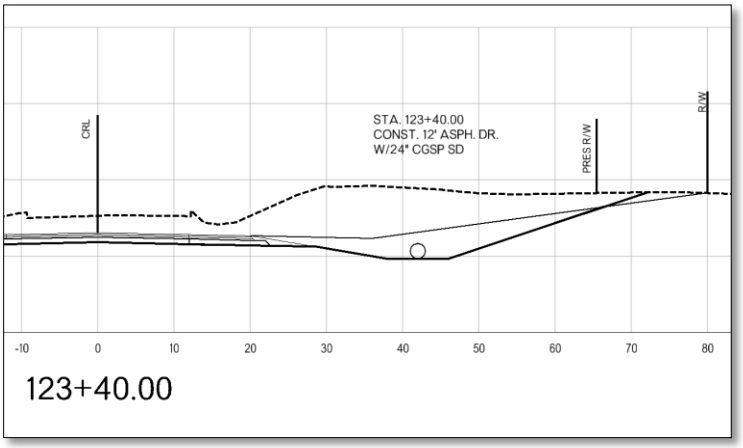
SUMMARY OF DRIVEWAYS								PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STATION	LT.	RT.	TYPE	LENGTH	WIDTH	RADII LT.	RADII RT.			
__+__.__		X	TEMP TBSC DR.	0.00'	12'	15'	15'	STA. __+__ CONST. __'TEMP. TBSC DR.	N/A	STA. __+__ CONST. __' TEMP. TBSC DR.
__+__.__	X		TEMP TBSC DR.	0.00'	12'	15'	15'	STA. __+__ CONST. __' TEMP. TBSC DR. W/ __" CGSP SD	N/A	STA. __+__ CONST. __' TEMP. TBSC DR. W/ __" CGSP SD
__+__.__		X	TEMP TBSC SL RETURN	0.00'	27'	25'	25'	STA. __+__ CONST. __' TEMP. TBSC SL RETURN	N/A	STA. __+__ CONST. __' TEMP. TBSC SL RETURN
__+__.__	X		TEMP TBSC SL TETURN	0.00'	26'	25'	25'	STA. __+__ CONST. __' TEMP. TBSC SL RETURN W/ __" CGSP SD	N/A	STA. __+__ CONST. __' TEMP. TBSC SL RETURN W/ __" CGSP SD

- Permanent and temporary drive notes are usually combined into one summary.
- All stations and measurements will use a 2 decimal numeral rounding.
- Event points should be added to the design surface and CrossSections at all Permanent and Temporary drive locations.

Plan View



CrossSection View



Structure Notes

Permanent Structures:

SUMMARY OF DRAINAGE STRUCTURES				PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STR. NO.	P&P SHT. NO.	STATION	DESCRIPTION			
1		__+__.__	CONST. _' X _' X _._' LG. RCB _._ LG. LT. & _._' LG. RT	1	STR. 1 STA. _+_._ CONST. _' X _' X _._' LG. RCB _._ LG. LT. & _._' LG. RT.	STR. 1 STA. _+_._ CONST. _' X _' X _._' LG. RCB _._ LG. LT. & _._' LG. RT.
2		__+__.__	CONST. _' X _' X _._' LG. RCB SKEW _° RT. FWD. _._' LG. LT. & _._' LG. RT.	2	STR. 2 STA. _+_._ CONST. _' X _' X _._' LG. RCB SKEW _° RT. FWD. _._' LG. LT. & _._' LG. RT.	STR. 2 STA. _+_._ CONST. _' X _' X _._' LG. RCB SKEW _° RT. FWD. _._' LG. LT. & _._' LG. RT.
3		__+__.__	EXT. EXIST. _' X _' X ●_._' RDY. RCB _._ LG. LT. & _._' LG. RT	3	STR. 3 STA. _+_._ EXT. EXIST. _'X_' X ●_._' RDY. RCB _._ LG. LT. & _._' LG. RT.	STR. 3 STA. _+_._ EXT. EXIST. _' X _' X ●_._' RDY. RCB _._ LG. LT. & _._' LG. RT.
4		__+__.__	EXT. EXIST. _' X _' X ●_._' RDY. RCB SKEW _° LT. FWD. _._' LG. LT. & _._' LG. RT.	4	STR. 4 STA. _+_._ EXT. EXIST. _' X _' X ●_._' RDY. RCB SKEW _° LT. FWD. _._' LG. LT. & _._' LG. RT.	STR. 4 STA. _+_._ EXT. EXIST. _' X _' X ●_._' RDY. RCB SKEW _° LT. FWD. _._' LG. LT. & _._' LG. RT.
5		__+__.__	CONST. _" X _' LG. RCP _' LG. LT. & _' LG. RT.	5	STR. 5 STA. _+_._ CONST. _" X _' LG. RCP _' LG. LT. & _' LG. RT.	STR. 5 STA. _+_._ CONST. _" X _' LG. RCP _' LG. LT. & _' LG. RT.
6		__+__.__	CONST. _" X _' LG. RCP SKEW _◦ LT. FWD. _' LG. LT. & _' LG. RT.	6	STR. 6 STA. _+_._ CONST. _" X _' LG. RCP SKEW _◦ LT. FWD. _' LG. LT. & _' LG. RT.	STR. 6 STA. _+_._ CONST. _" X _' LG. RCP SKEW _◦ LT. FWD. _' LG. LT. & _' LG. RT.
7		__+__.__	EXT. EXIST. _" X ●_._' RDY. RCP _' LG. LT. & _' LG. RT.	7	STR. 7 STA. _+_._ EXT. EXIST. _" X ● _._' RDY. RCP _' LG. LT. & _' LG. RT.	STR. 7 STA. _+_._ EXT. EXIST. _" X ●_._' RDY. RCP _' LG. LT. & _' LG. RT.
8		__+__.__	EXT. EXIST. _" X ●_._' RDY. RCP SKEW _◦ LT. FWD. _' LG. LT. & _' LG. RT.	8	STR. 8 STA. _+_._ EXT. EXIST. _" X ●_._' RDY. RCP SKEW _◦ LT. FWD. _' LG. LT. & _' LG. RT.	STR. 8 STA. _+_._ EXT. EXIST. _" X ●_._' RDY. RCP SKEW _◦ LT. FWD. _' LG. LT. & _' LG. RT.
9		__+__.__	CONST. __" X __' CGSP SD W/ CET __.__' LT.	9	N/A (See Drive Note)	N/A (See Drive Note)
10		__+__.__	CONST. __" X __" X __' CGSPA SD W/ PCES __.__' RT.	10	N/A (See Drive Note)	N/A (See Drive Note)
11		__+__.__	CONST. __" X __" X __' CGSP SD W/ SCES __.__' RT.	11	N/A (See Drive Note)	N/A (See Drive Note)

● Denotes the length of the existing structure.

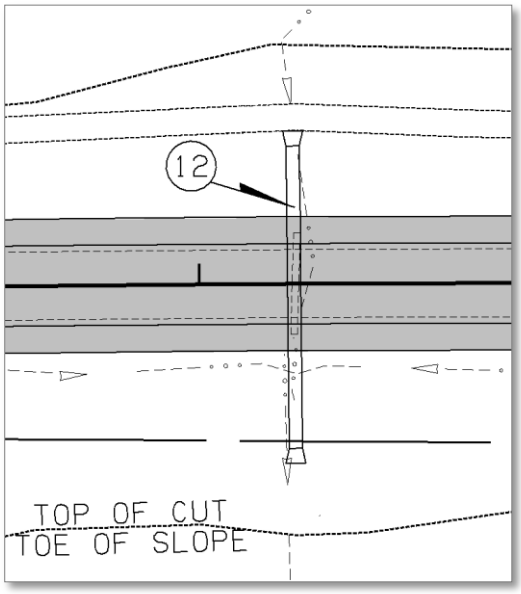
Structure Notes

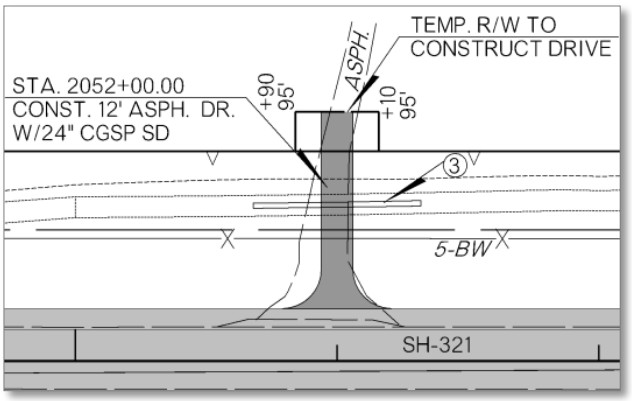
Temporary Structures:

SUMMARY OF DRAINAGE STRUCTURES				PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STR. NO.	P&P SHT. NO.	STATION	DESCRIPTION			
T1		__+__.__	CONST. TEMP. _' X _' X _._' LG. RCB _._ LG. LT. & _._' LG. RT	T1	STR. 1 STA. _+_._ CONST. TEMP. _' X _' X _._' LG. RCB _._ LG. LT. & _._' LG. RT.	STR. 1 STA. _+_._ CONST. TEMP. _' X _' X _._' LG. RCB _._ LG. LT. & _._' LG. RT.
T2		__+__.__	CONST. TEMP. __" X __' CGSP SD W/ CET __.__' LT.	T2	N/A (See Drive Note)	N/A (See Drive Note)

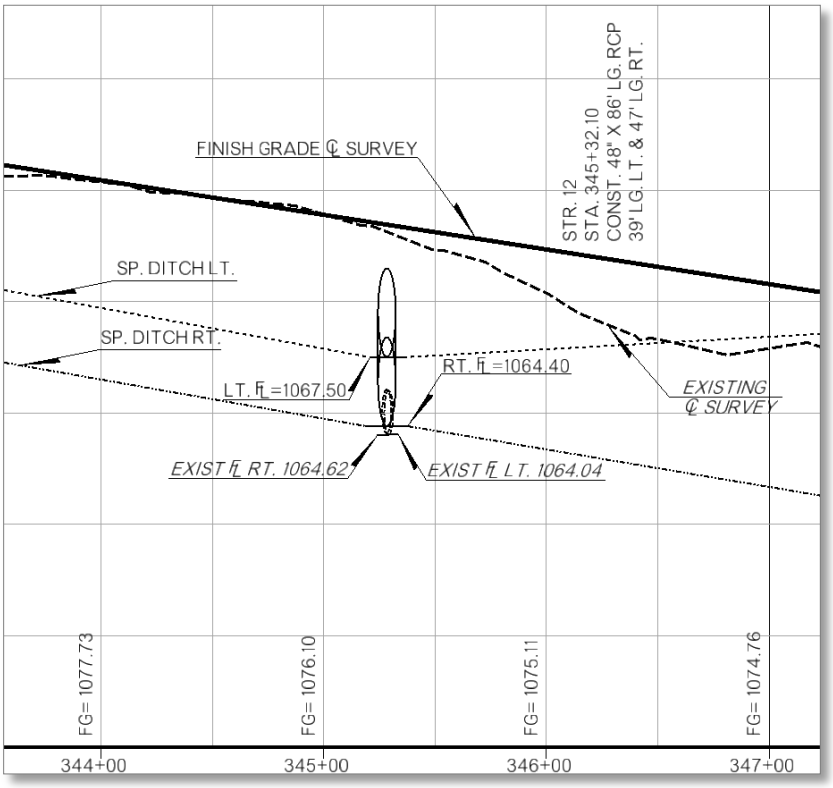
- Permanent and temporary structures are usually combined into one summary.
- All stations and measurements will use a 2 decimal numeral rounding.
- Event points should be added to the design surface and CrossSections at:
  - crossing perpendicular structures locations
  - wingwall endpoints
  - Inlet, outlet and center line crossing locations on all skewed structures
  - storm sewer inlet/manhole locations

Plan View

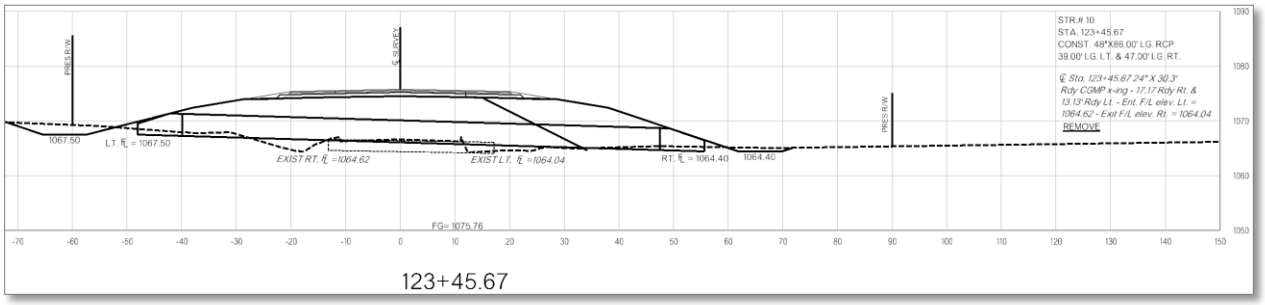




Profile View



CrossSection View

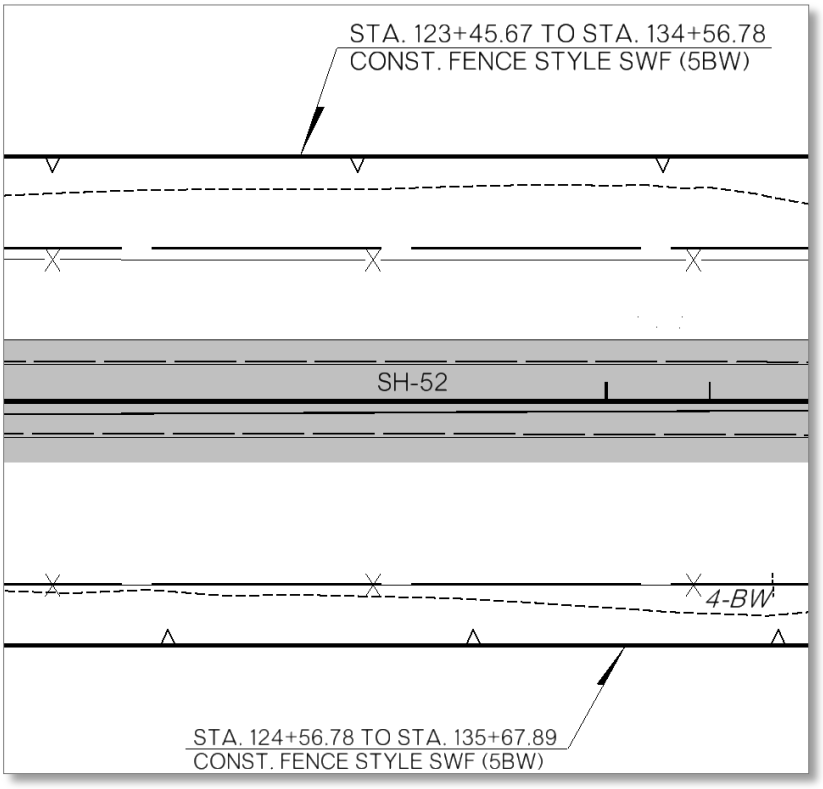


Fence Notes

SUMMARY OF FENCE			PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STATION TO STATION	LT.	RT.			
__+__.__ to __+__.__	X		STA. __+__.__TO STA. __+__.__ CONST. FENCE STYLE SWF (5BW)	N/A	N/A
__+__.__ to __+__.__		X	STA. __+__.__TO STA. __+__.__ CONST. FENCE STYLE CLF (__'HIGH) W/ GATES	N/A	N/A
__+__.__ to __+__.__	X		STA. __+__.__TO STA. __+__.__ CONST. FENCE STYLE WWF W/ GATES	N/A	N/A

- Stations limits are not confined to the P&P sheet.
- Summary should include note: "ALL CLF & WWF EXCLUDE GATE WIDTH."
- All stations and measurements will use a 2 decimal numeral rounding.

Plan View



Summary, Plan, Profile & Cross Section Notes

BEGIN AND END PROJECT

SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A		STA. _+_._ BEGIN INCIDENTAL CONSTRUCTION STA. _+_._ BEGIN PROJECT — STA. _+_._ END INCIDENTAL CONSTRUCTION AND BEGIN PROJECT STA. _+_._ END PROJECT — STA. _+_._ END PROJECT AND BEGIN INCIDENTAL CONSTRUCTION STA. _+_._ END INCIDENTAL CONSTRUCTION	BEGIN INCIDENTAL CONSTRUCTION BEGIN PROJECT — END INCIDENTAL CONSTRUCTION AND BEGIN PROJECT END PROJECT — END PROJECT AND BEGIN INCIDENTAL CONSTRUCTION END INCIDENTAL CONSTRUCTION

CROSSING UTILITIES

SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	*STA. 2080+85.97 2-WIRE POWER O.H. "X"ING ℄ LOW WIRE ELEV.= 1060.18'* EXISTING NOTE SHOULD BE PROVIDED BY SURVEY	N/A	STA. _+_._ WATER LINE CROSSING ELEVATION UNKNOWN

EXISTING GROUND

SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	N/A	*EXISTING ** ** ℄ SURVEY, CRL, DETOUR*	N/A

FINISHED GRADE

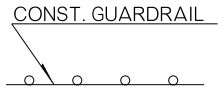
SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	N/A	FINISH GRADE * * ℄ SURVEY, CRL, DETOUR FG= 1234.56	FG= 1234.56

FLOW LINES

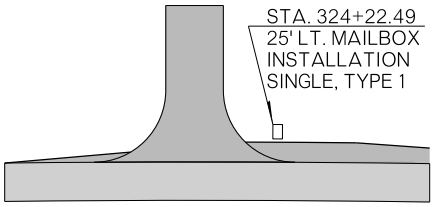
SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	*STA. 2080+79.15 ℄ 24"X81.4' RDY. RCP "X"ING ℄ 26.9' RT. & 30.7' LT. FL ELEV. = 1032.79 RT. & 1032.14 LT.* EXISTING FLOW LINES SHOULD BE PROVIDED BY SURVEY	RT. FL= 123.45 LT. FL= 123.47 *EXIST. RT. FL= 123.45* *EXIST. LT. FL= 123.47*	RT. FL= 123.45 LT. FL= 123.47 *EXIST. RT. FL= 123.45* *EXIST. LT. FL= 123.47*

Summary, Plan, Profile & Cross Section Notes

GUARDRAIL

SUMMARY			PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STATION TO STATION	LT.	RT.		N/A	N/A
_+_._ to _+_._	x				
_+_._ to _+_._		x			

MAILBOX

SUMMARY			PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STATION TO STATION	LT.	RT.		N/A	N/A
324+22.49	x				

PRESENT RIGHT OF WAY

SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	*PRES. R/W*	N/A	PRES R/W

PROPOSED RIGHT OF WAY

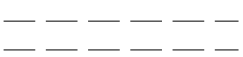
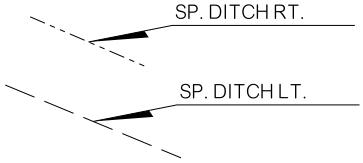
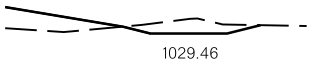
SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	R/W	N/A	R/W

TEMPORARY RIGHT OF WAY

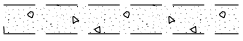
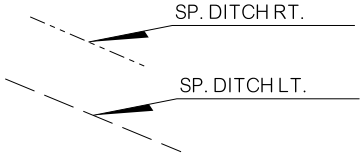
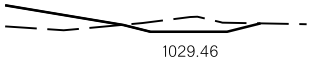
SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	TEMP. R/W TEMP RW TO CONSTRUCT_	N/A	TEMP R/W

Summary, Plan, Profile & Cross Section Notes

SPECIAL DITCHES

SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A			

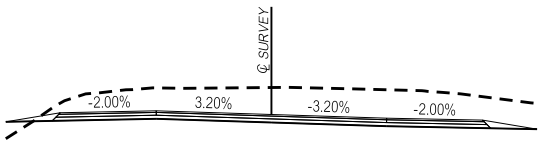
SPECIAL PAVED DITCHES

SUMMARY			PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STATION TO STATION	LT.	RT.			
_+_._ to _+_._	x				
_+_._ to _+_._		x			

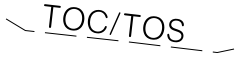
TYPICAL PAVED DITCHES

SUMMARY			PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
STATION TO STATION	LT.	RT.		N/A	N/A
_+_._ to _+_._	x				
_+_._ to _+_._		x			

SUPERELEVATION

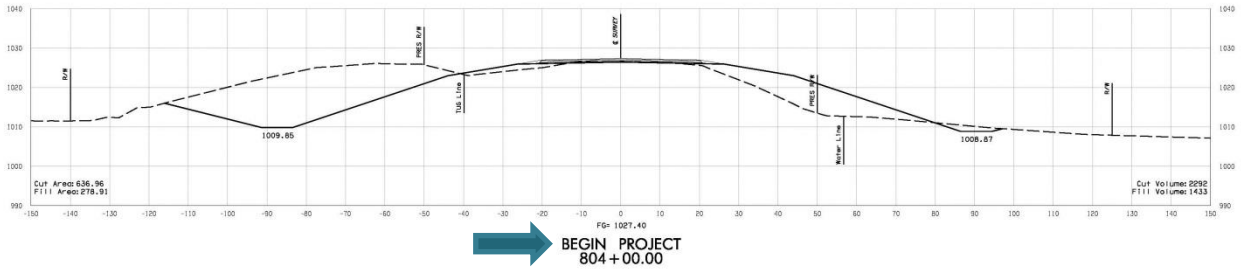
SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A	CURVE #1 PI STA= 821+33.06 X= 2069051.5126 Y= 306772.8740 Δ= 40°08'03.63" LT D= 1°46'01.96" T= 1184.36' L= 2271.06' R= 3242.16' E= 209.55' EMAX= .08 S= .076 V= 70 mph	N/A	 FULL SUPER 407+52.49 DISPLAY SLOPE VALUES AND KEY POINTS

TOP OF CUT/TOE OF SLOPE

SUMMARY	PLAN VIEW	PROFILE VIEW	CROSS SECTION SHEET
N/A		N/A	N/A

Cross Section Labels

The following Labels should be placed on the Cross Section Sheets above the Station.



LABEL ALL CROSS SECTION PROJECT LIMIT LOCATIONS

(*Only if included in limits of Cross Section set.)
*BEGIN INCIDENTAL
*END INCIDENTAL
*END INCIDENTAL & BEGIN PROJECT
*END PROJECT AND BEGIN INCIDENTAL
BEGIN DETOUR
END DETOUR
BEGIN PROJECT
END PROJECT

PROJECTS WITH A BRIDGE OR EARTHWORK EXCEPTION

BEGIN EARTHWORK EXCEPTION
END EARTHWORK EXCEPTION

PROJECTS WITH SUPERELEVATION

BEGIN SUPERELEVEATION
RUNOFF BEGINS STATION
REVERSE CROSS SLOPE STATION
BEGIN OUTSIDE SHOULDER ROTATION
BEGIN FULL SUPERELEVATION
BEGIN FULL SHOULDER ROTATION STATION
END FULL SHOULDER ROTATION STATION
END FULL SUPERELEVATION
END OUTSIDE SHOULDER ROTATION
REVERSE CROSS SLOPE STATION
RUNOFF ENDS STATION

Number Formatting/Rounding Chart

Description	Example	Formatting						Rounding Guideline							
		Feet & Inches	Zero Decimal Places	2 Decimal Places	3 Decimal Places	5 Decimal Places	Decimal Places Not Limited	Normal Rounding Practices	Not Rounded	Do Not Round, Store in Calculator	Rounded up to the next whole value	Rounded to the closest half inch	Rounded to the closest inch	Round up the closest half foot	Round up to the next value divisible by 2
Project Length Feet (Br. & Roadway)	6,515.52'			X					X						
Project Length Miles (Br. & Roadway)	1.234 mi				X				X						
Stations	123+45.67			X				X							
DHV	123		X								X				
Flex ESALs (Final Answer in Millions)	1.23M			X				X							
Control Sub-Section Number	12.34			X				X							
Depth Below Finish Grade	0.83'			X				X							
Back Fill Width	12'-3"	X	X										X		
Ditch Depth	1'-2"	X	X										X		
Asphalt Thinning (i.e. pinch down)	12"		X									X			
Quantity Calculations	123.45648					X		X							
Final Quantities	123.45			X				X							
"K" Rate Superelevation Load Sheet	0.1234567 …						X			X					
Superelevation Rate Calculations on Super Load Sheet	0.12345					X		X							
Pipe and Box Load Sheets	1,234.56			X				X							
Final Pipe Length	1,234'		X												X
Final Box Length	123'		X											X	
Summary Sheets	123.45			X				X							
Pay Quantity Sheet	123			X							X				
Mass Diagram Sheets	1234		X					X							

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Section 8
Printing Information

- **Print Boundaries**
- **Print Styles**
- **Print/Print Organizer and PDF**

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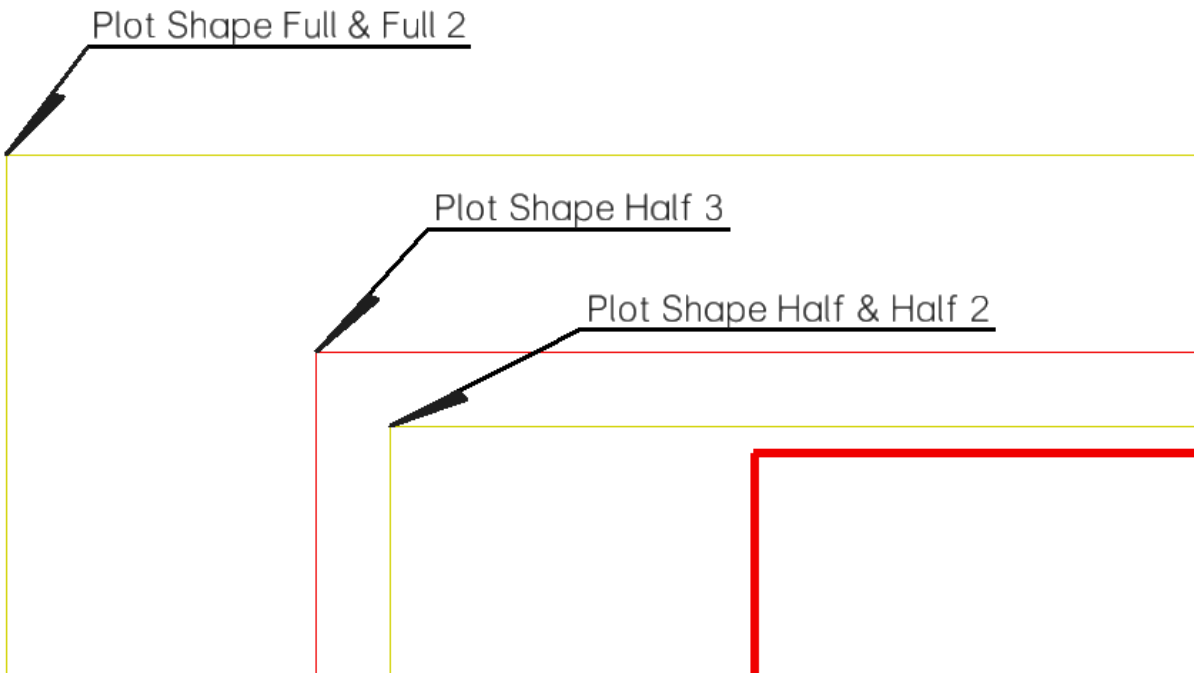
Print Boundaries

Roadways Print Styles are currently set up to seek a shape set to a certain level. There are five levels reserved for printing. Below is a list of the levels and their purpose.

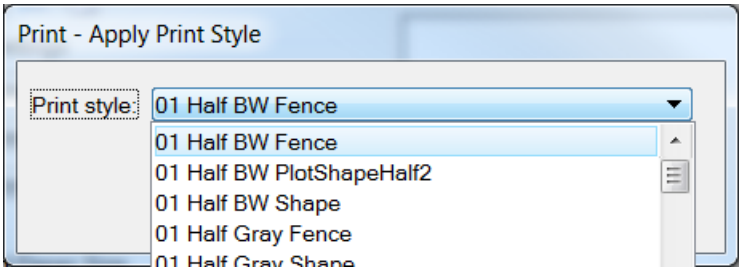
Plot Shape Half - Used for general printing of half size sheets. Uses printable area of sheet.
Plot Shape Half 2 - Used for printing of second set of Cross Sections in half size. Uses printable area of sheet
Plot Shape Half 3 - Used for printing of half size sheets. Uses actual size of sheet.
Plot Shape Full - Used for general printing full size sheets. Uses actual size of sheet.
Plot Shape Full 2 - Used for printing of second set of Cross Sections in full size. Uses actual size of sheet.



Print Styles

For ODOT Roadway Design use only

Print Styles are used so that the print and print organizer command can be quickly utilized. Generally, when prints need to be made a lot of setup is needed to ensure that the correct scale, sheet size, and printer is used. The user can now set up the print command by simply selecting one of the premade printstyles.



Print Styles are formatted as follows:

[Printer Name] [Paper Size] [Black/White, Grayscale, Color] [Fence or Shape] [Extra Info if needed]

For example, a print style with the name “PLT02 Full Gray Shape” will be printed on the PLT02 printer in full size and in grayscale using a shape to define the print boundaries.

There are a few exceptions to the rule….

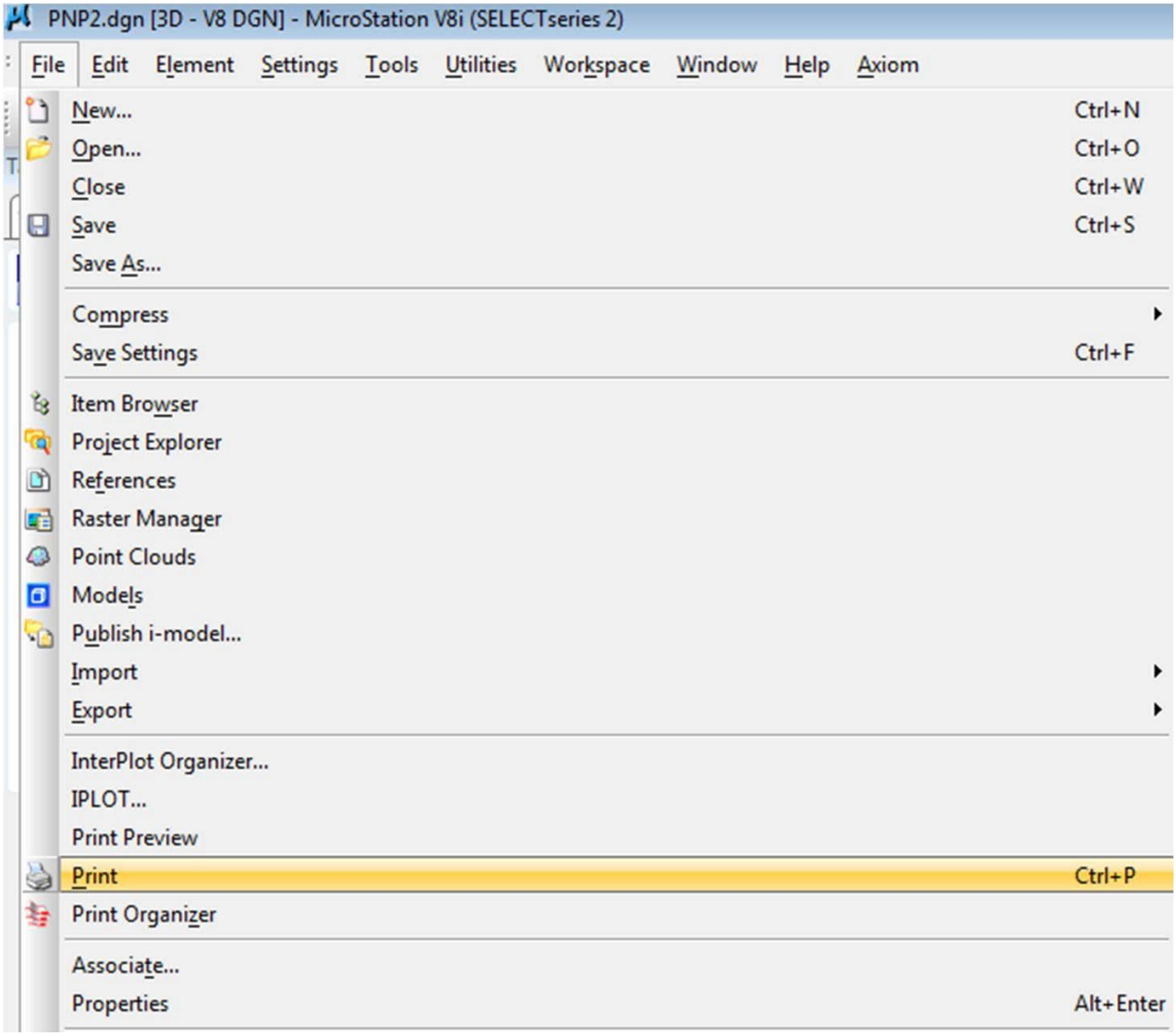
-When printers RDYMFD01, RDYMFD02, or RDYMFD03 are used, only the printer number is used. This is done to keep the most commonly used printers at the top of the list.

-If there is a printer driver created for a specific purpose, that printer driver may be listed in place of printer color.

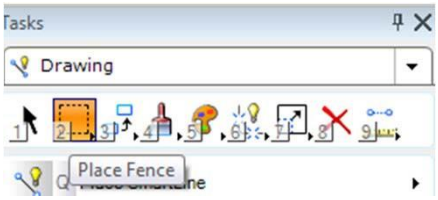
-If a level other than Plot Shape Half or Plot Shape Full is used to define the print boundaries then that level will be listed in place of “Shape”.

Print

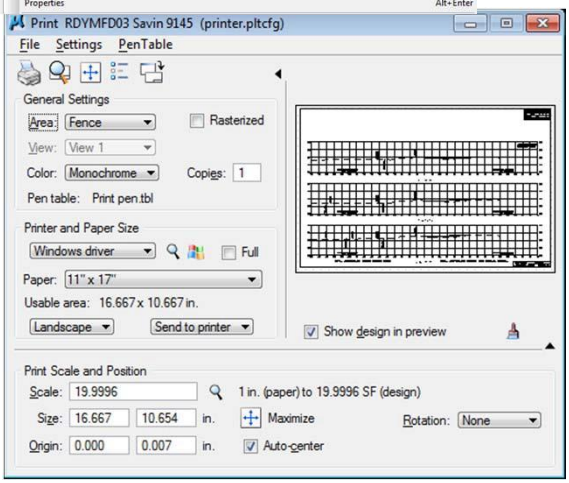
To use the print command, select Microstation File> Print



Print

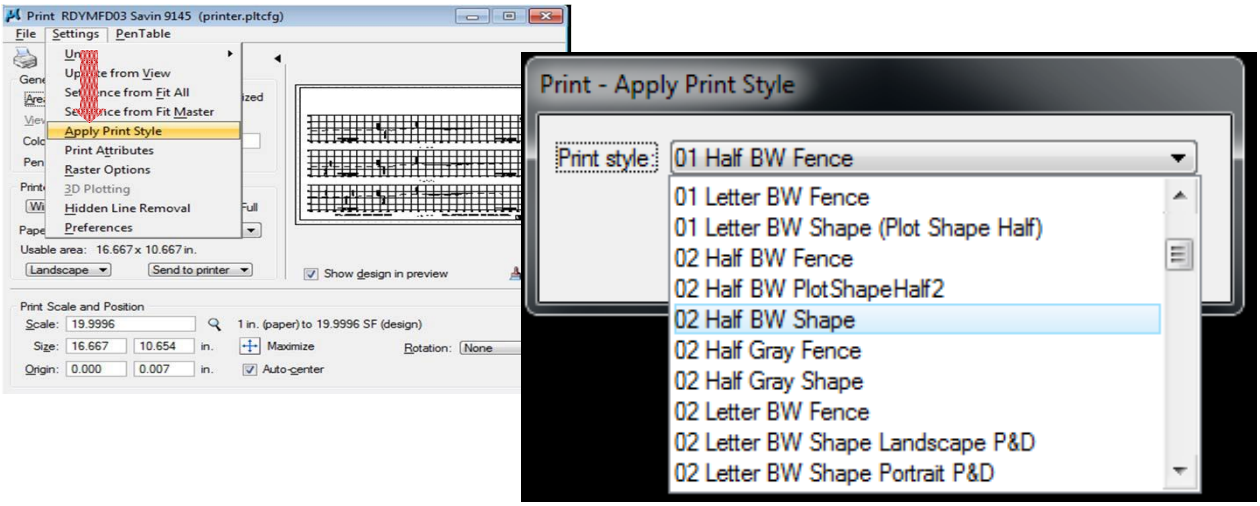


To use the fence boundary instead of the shape, select the fence command in Microstation and place the fence where needed. Select File > Print.

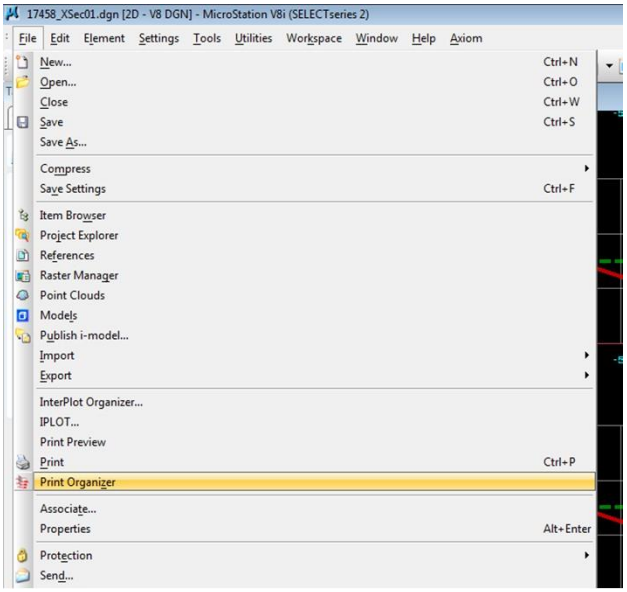


The default printer will be the printer with the green check mark in Devices and Printers. Make sure the print looks good in the preview window and select print OR…….

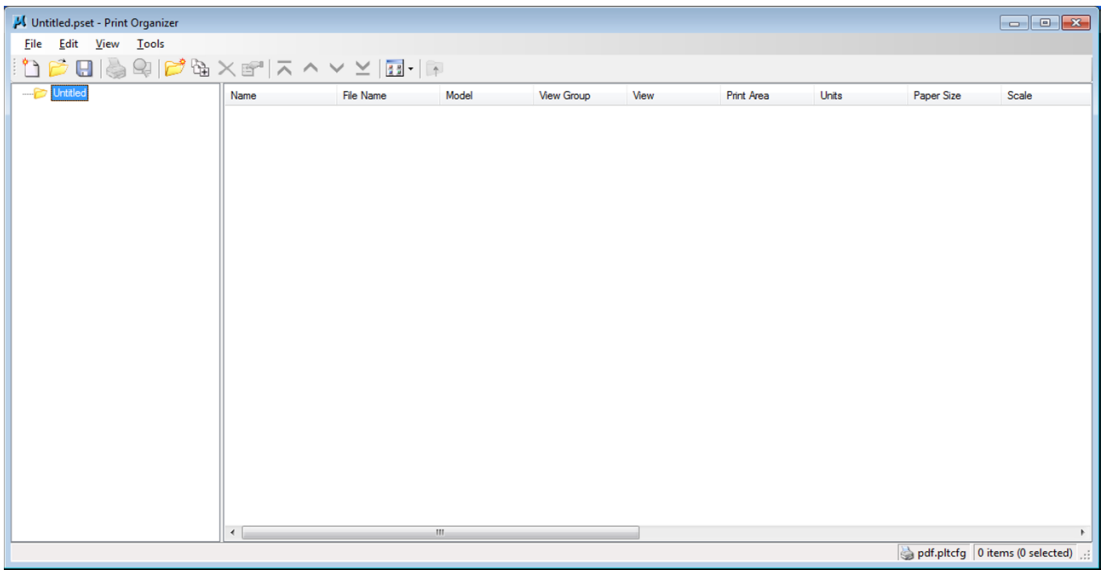
If desired, to change to a different printer, select Settings> Apply Print Style. Choose one of the styles from the list for the Printer to print to. To print to PDF simply select one of the PDF print styles.



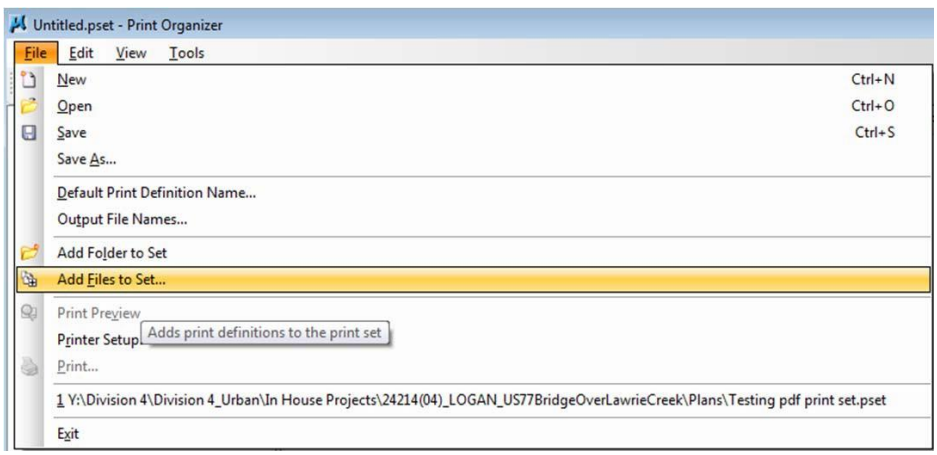
Print Organizer



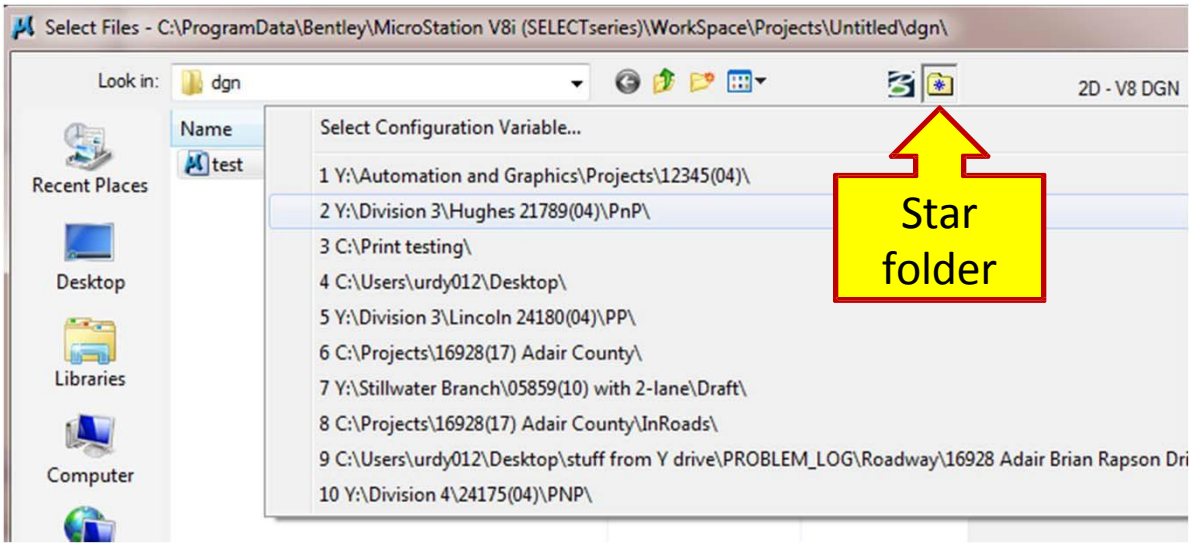
Microstation File > Print Organizer



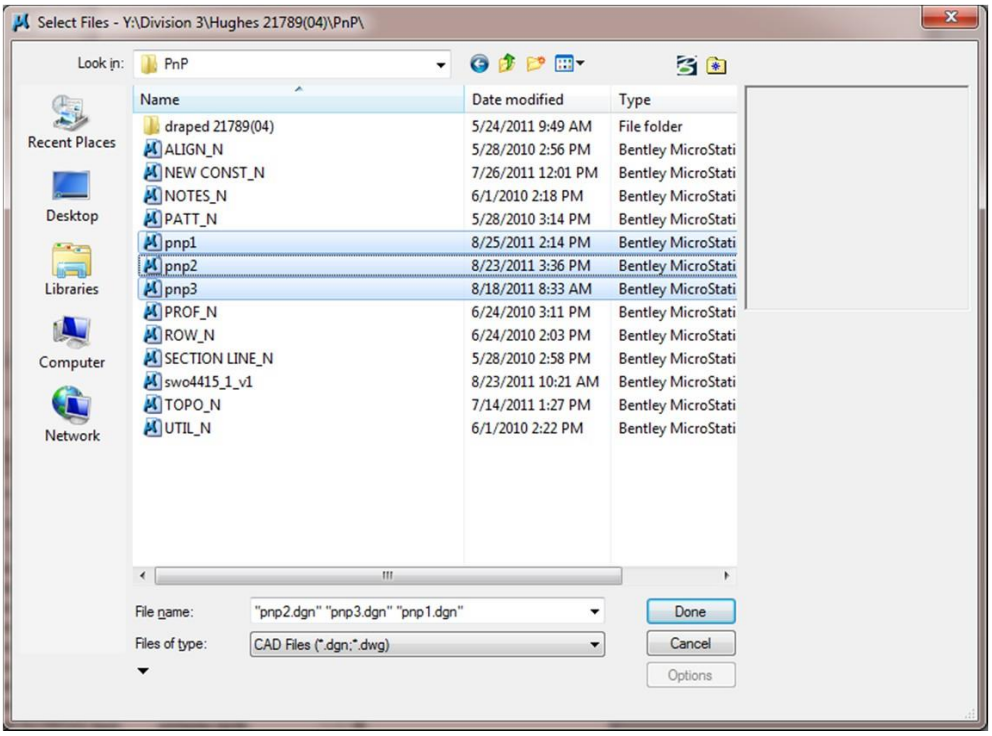
On the Print Organizer window, select File> Add Files to Set



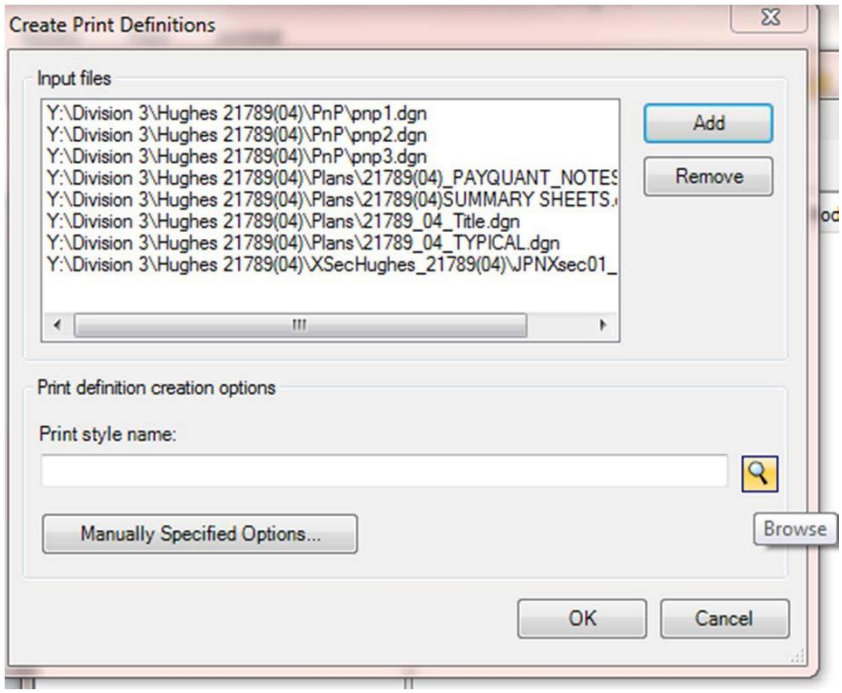
Print Organizer



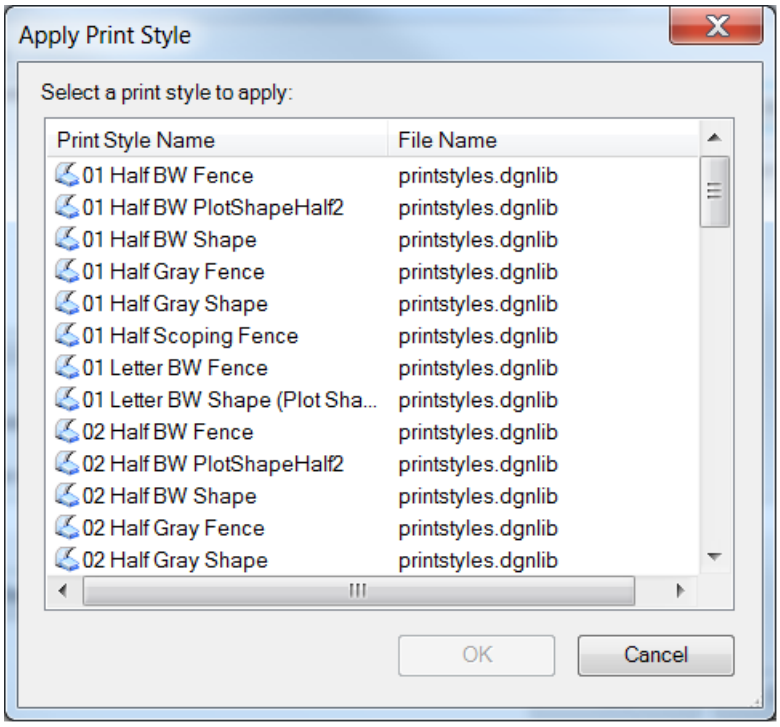
Select the Star folder to navigate to the most recent folders and select all the files to add holding down the control key. When selecting multiple files, they must be in the same folder. Select the Done button. To select more files from another folder, go back to add files to set.



Print Organizer

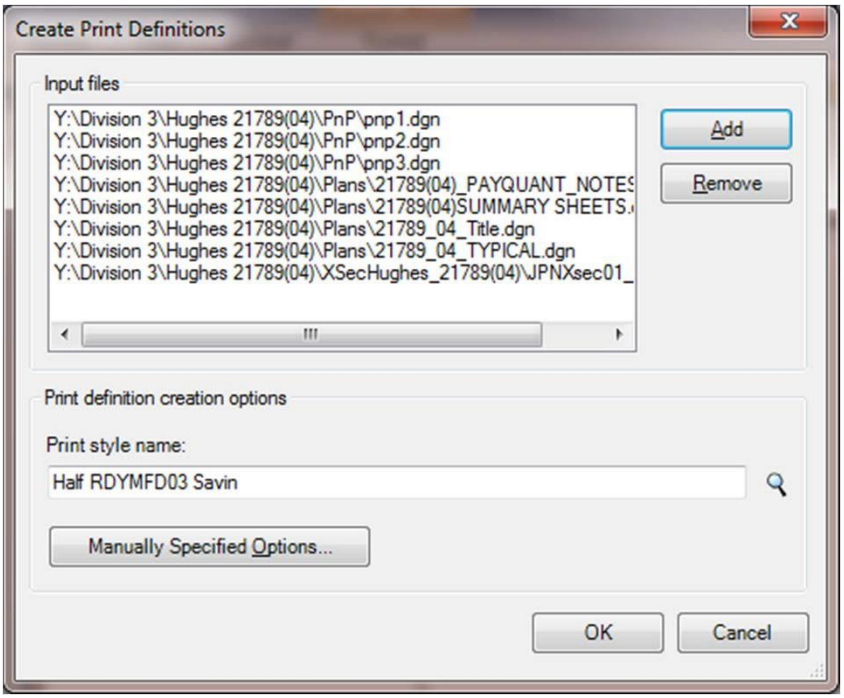


Once all of the files are added, select the magnifying glass to browse for a Print style name.



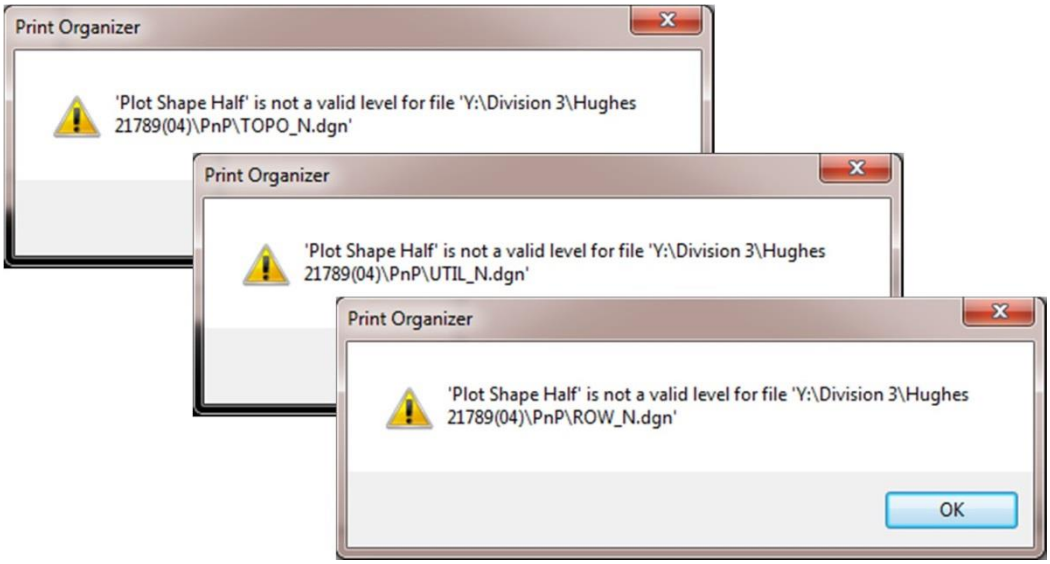
Choose a print style for the printer to print to. The ones listed for Fence Boundary only apply to the Print command and not Print organizer. The ones listed without the name Fence Boundary will automatically locate the Plot Shape Half or Full.

Print Organizer



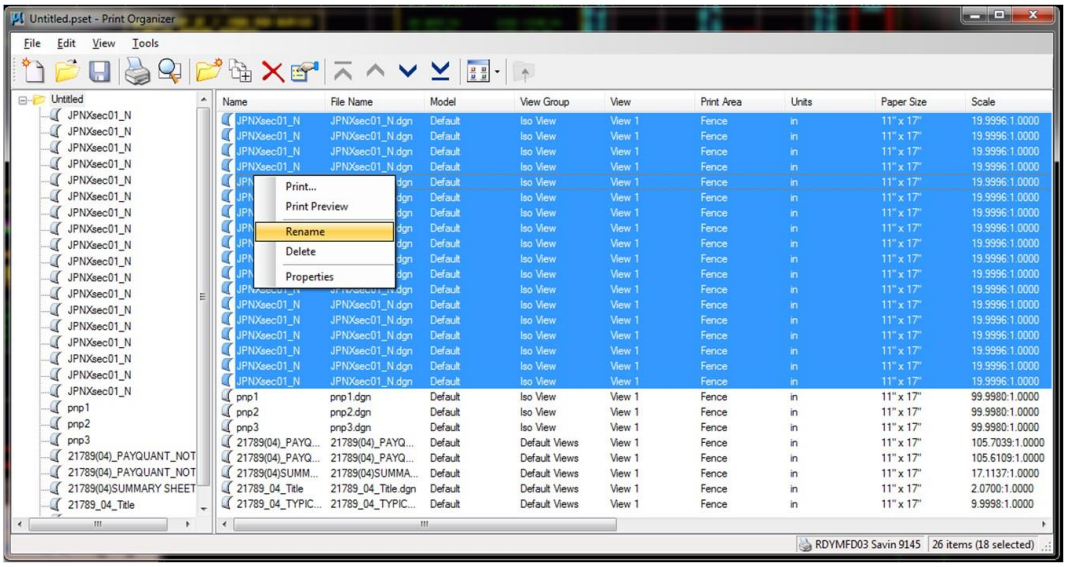
Select the OK button.

Upon creation of the prints, the organizer will look for the shape in all of the files. If the shape cannot be located in a file or a reference attached to the file a message will display letting the user know the shape could not be located and the name of the file it could not find a shape in. To dismiss the message select the ok button. If necessary add the border in the file(s) missing the shape and then open the pset and add the files again.

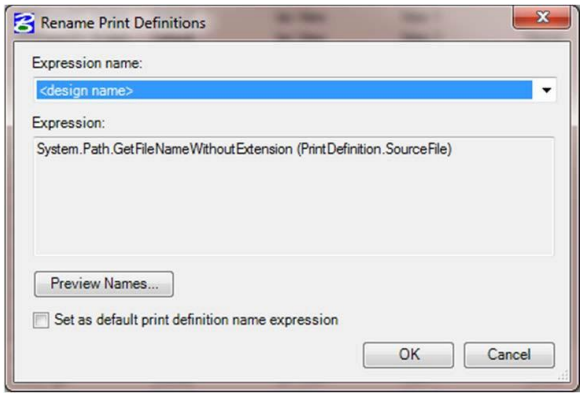


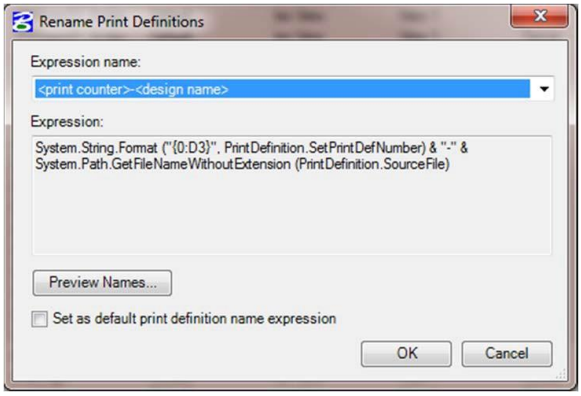
Print Organizer

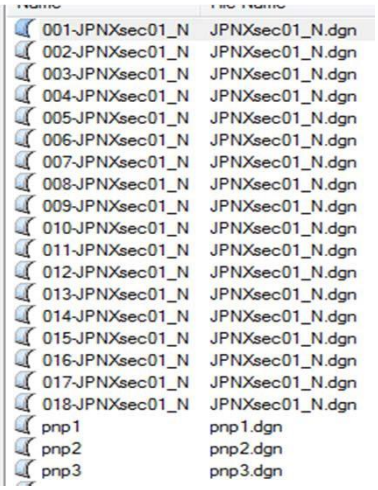
To number sheets in the set, select from the window on the right the sheets to number. Right click and select Rename.



Change the pull down from <design name> to <print counter> <design name> and select the OK button.

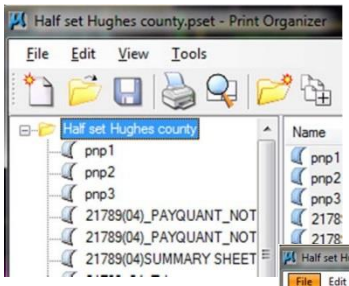






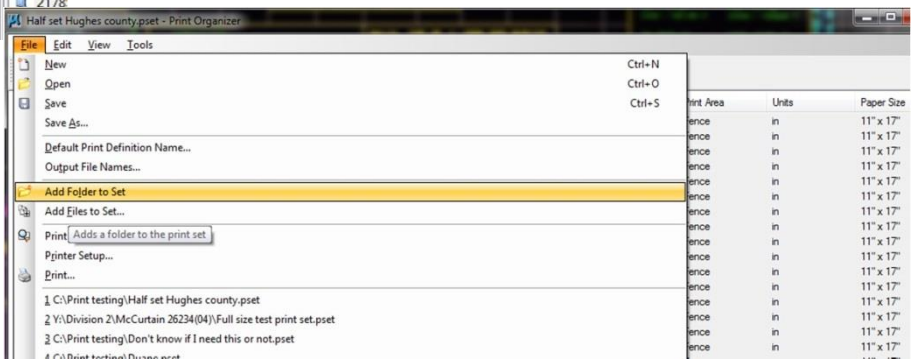
The sheets are numbered in the order the files are displayed in the window. The sheets were created within the print set in the order the files were selected. The sheets are built in the order the shape was made within the file.
Separate folders may be made to divide up the files or change the order they display in the organizer.

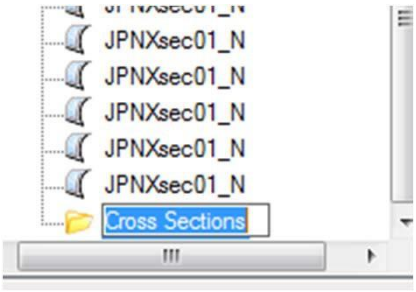
Print Organizer



To make a separate folder to change the order the sheets display in the organizer, make the main folder for the print set active (left click on the folder).

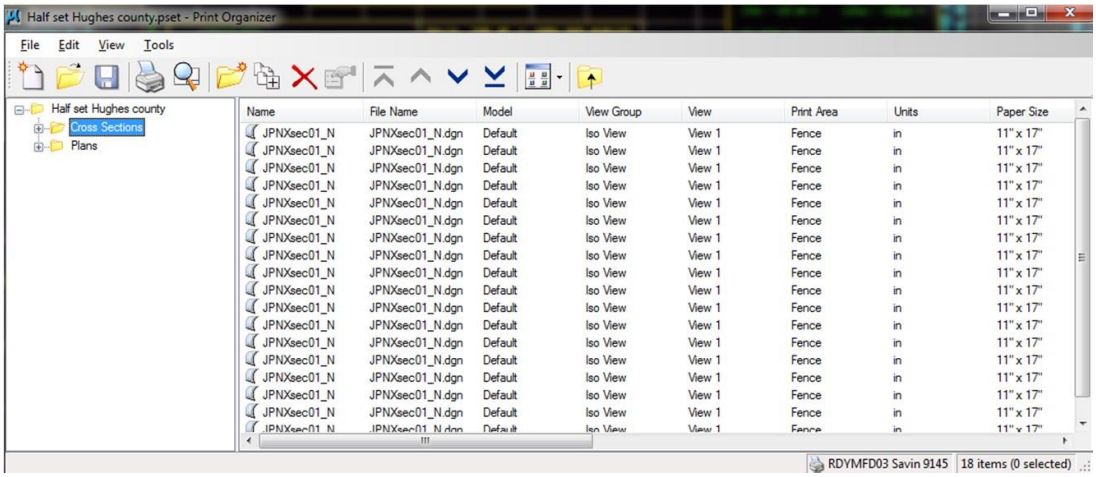
Select File>
Add Folder
To Set





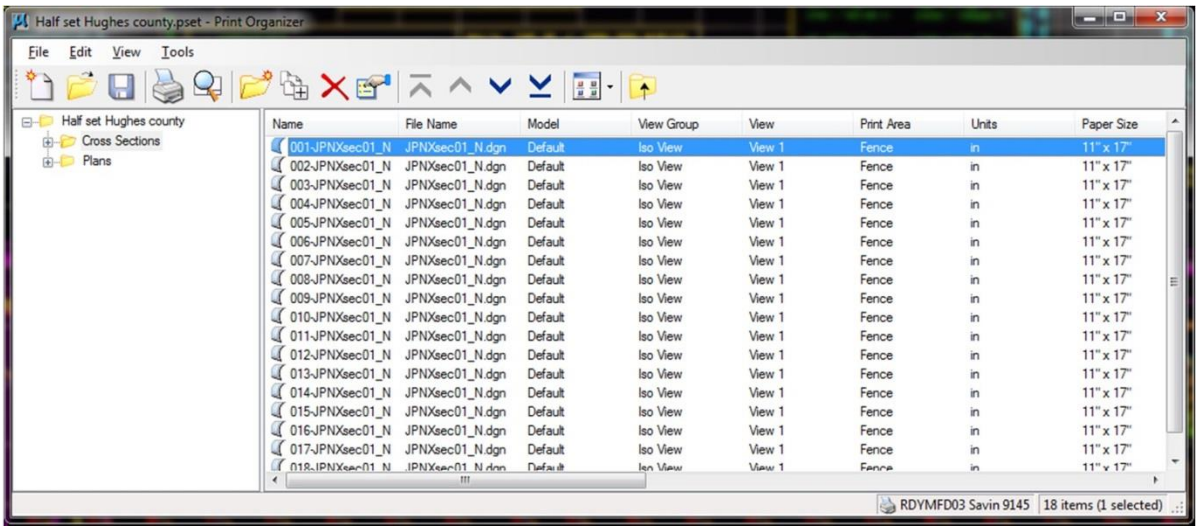
Name the new folder. If the cross sections are to be first, build that folder first then make another new folder and name it Plans and put the rest of the files in that folder. Do this so that the cross sections will number 1 thru however many there are.

To move the xsec sheets to the new cross section folder, make active the main folder and select all of the cross sections from the main window (on the right side) by selecting the first xsec sheet and holding down the shift button and pick the last xsec sheet.

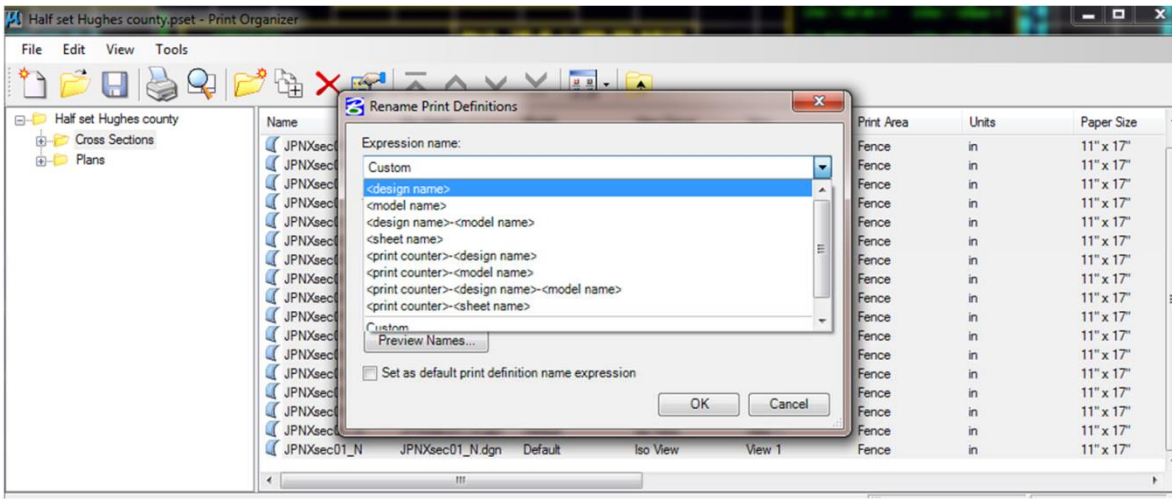


Print Organizer

Now when the name is changed on the cross sections, even though they were not originally the first sheets in the set, they come in beginning with 001.

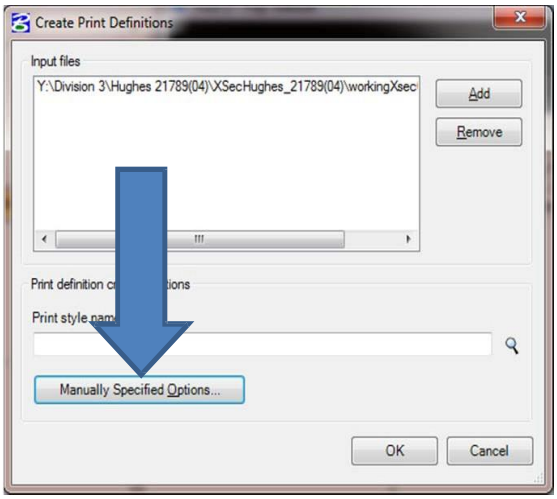


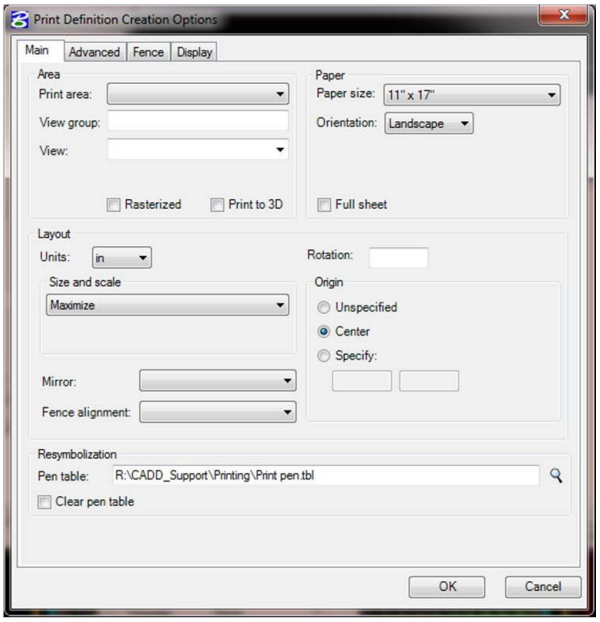
To take the numbers off, highlight the numbered sheets and right click. Select rename and change back to <design name>.



Print Organizer

Print definitions can be made using the Manually Specified Options button.

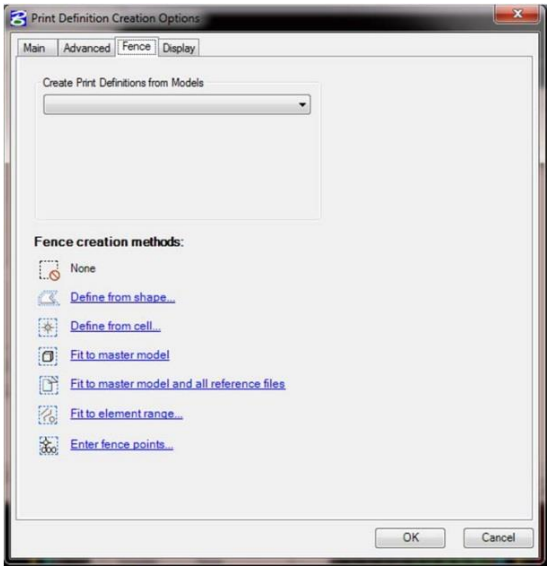


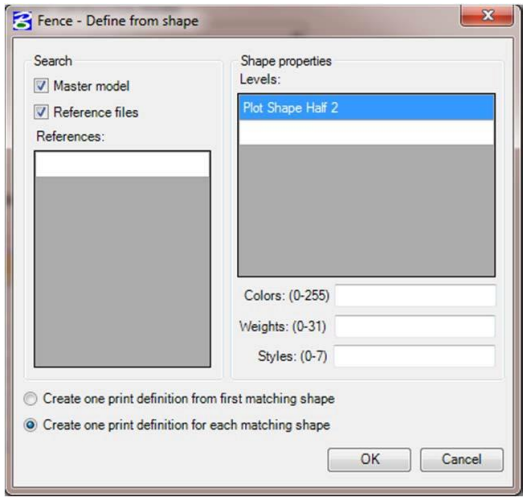


From the Print Definition Creation Options window, for the Main tab, turn off the check boxes for Rasterized , Print to 3D, and Full Sheet. Set the Units to “in” and the Size and scale to Maximize. Set the Paper size to your desired paper size and the Orientation to Landscape.
Origin: select the radial to Center.

Print Organizer

Next choose the Fence tab from the Print Definition Creation Options. Select the Define from Shape from the Fence creation methods. On the Fence window, key in the desired level (must match exactly) and select Create one print definition for each matching shape.





Select the Ok button from the Print Definition Creation Options window. The prints should be ready to print. These prints will go to your default printer.

Print Organizer

For additional information about print organizer, here is a good website.

http://communities.bentley.com/products/microstation/w/microstationwiki/microstation-v8i-print-organizer-getting-started-guide.aspx

Section 9
Survey File Information

- **Retrieving Archive Files & Saving**
- **Editing**

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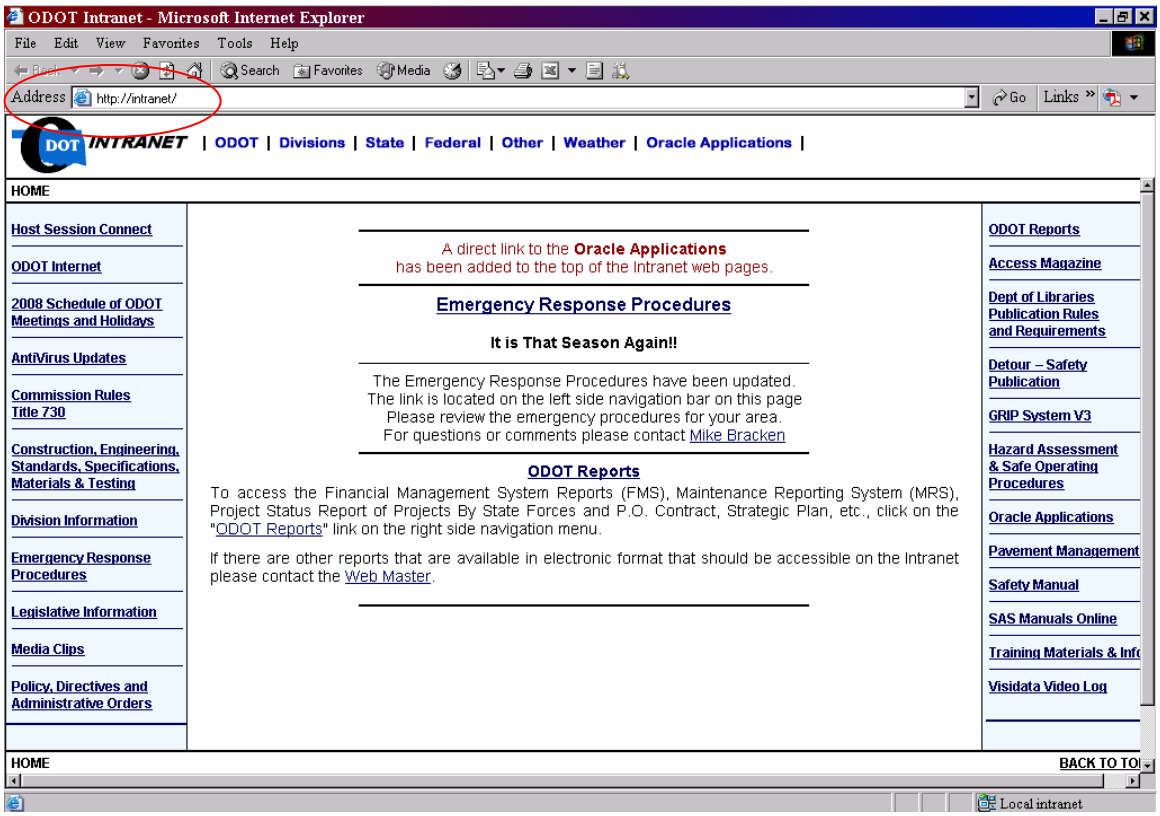
Archived Survey File Retrieval

This document will illustrate the process of retrieving archived survey files. This process requires a computer with intranet access, internet explorer, and either the JP number or the SWO number for the desired project. Please keep in mind that the graphics shown may not match exactly as software is updated on occasion and therefore the look may change.

Open Internet Explorer by double clicking on the Internet Explorer icon.

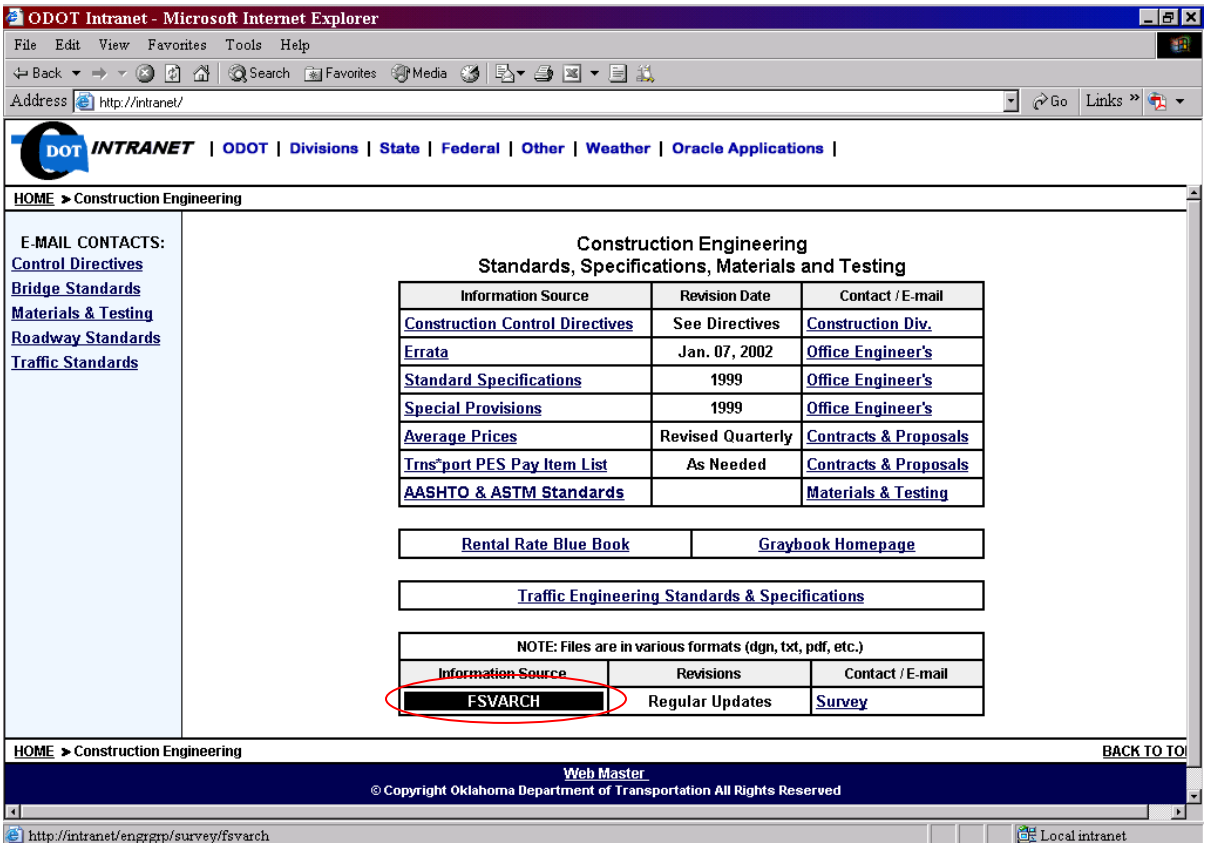
The screen should look similar to the illustration below. If it does not state ODOT Intranet, type in http://intranet/ in the address box.

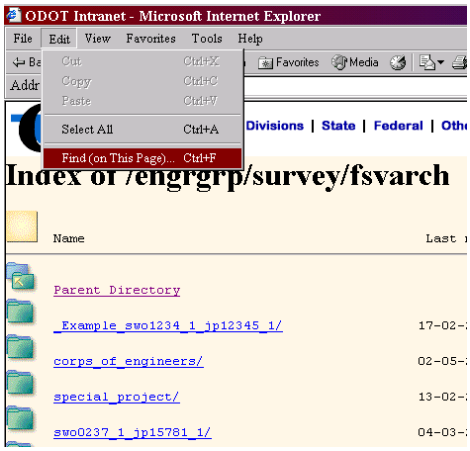


On the left side of the ODOT website,
Select: Construction, Engineering, Standards, Specifications, Materials & Testing

Archived Survey File Retrieval

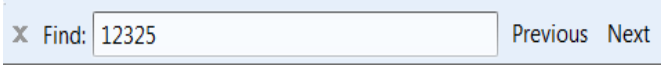
Near the bottom of the screen S**elect: FSVARCH**





Using the pull down menus,
Select Edit>/Find (on This Page)…Ctrl+F

In the find dialog box, **enter the JP number** (without the extension) **or the SWO number** and then **press the Find Next button.**

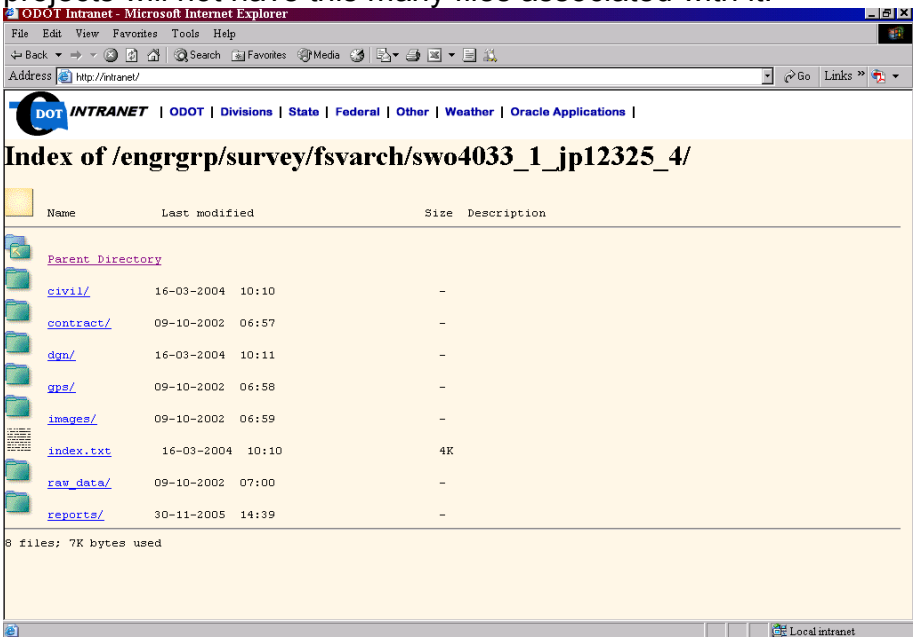


Archived Survey File Retrieval

The archived survey files will be searched for a match to the data entered in the find dialog box. The search will highlight the data that was entered and display the selection on the screen. If no file is found, check the data and check for typing errors. A survey file may not be available if the data entered is correct and there is still no match to the criteria.

Click on the highlighted link.

This page will display all the survey links associated with that project. All projects will not contain the same amount of files. Furthermore, Roadway will only access and use some of the files provided. The example below shows a lot of directories and files. Many projects will not have this many files associated with it.



The links described:

- The parent directory will revert back to the previous screen.
- The civil directory contains Inroads files. (Such as alg, dtm, and cogo points.)
- The contract directory contains Non-ODOT sources (consultant files)
- The dgn directory contains MicroStation files. (Such as topo, survey data Sheets, & drainage files.)

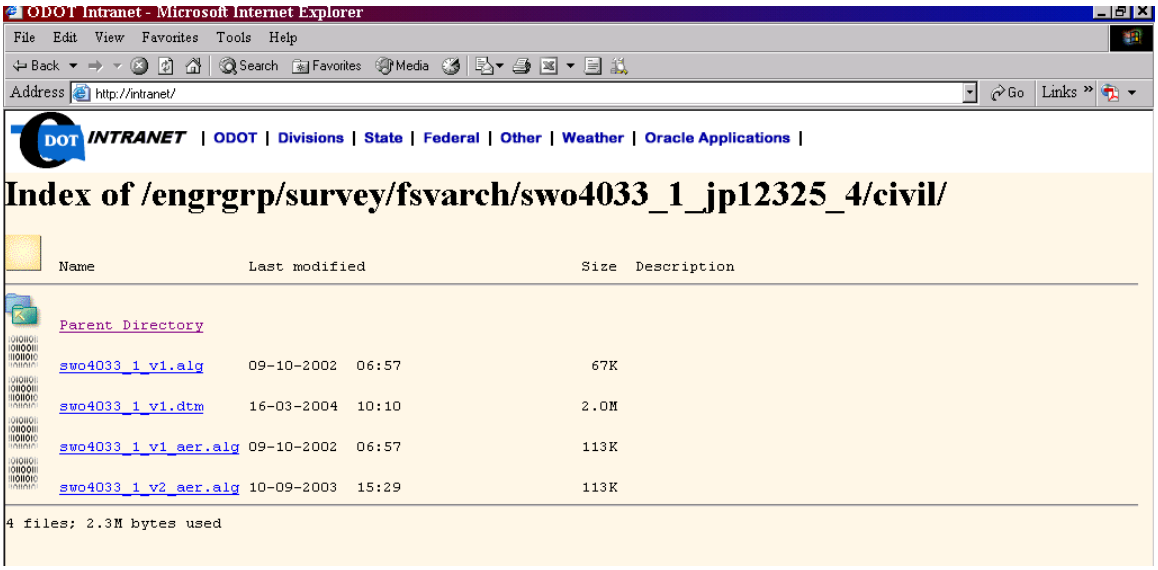
Archived Survey File Retrieval

Archived Survey File Retrieval

The links continued:

- The GPS directory contains raw field measurements.The images directory contains quadmaps & aerial photos.
- The index directory contains a text file that states project information and dates. (*This file states the survey location, completion dates, revision dates, survey controls, units, project alignments, file names and descriptions.)*
- The raw directory contains field measurements.
- The reports directory contains historical letters and memos.

Place the cursor over the Civil directory and select it. That directory will open and display survey files that will be used with Inroads.

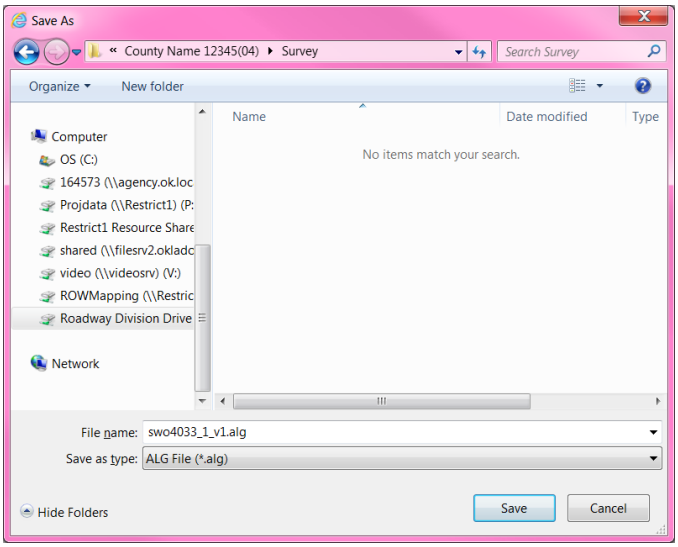


Any file that has “aer" in the file name is for survey division’s use only.

Select the file with the .alg extension.

This should open a file download dialog box. **Pick the down arrow by the save button and Select the Save As button** to save the file.

Archived Survey File Retrieval

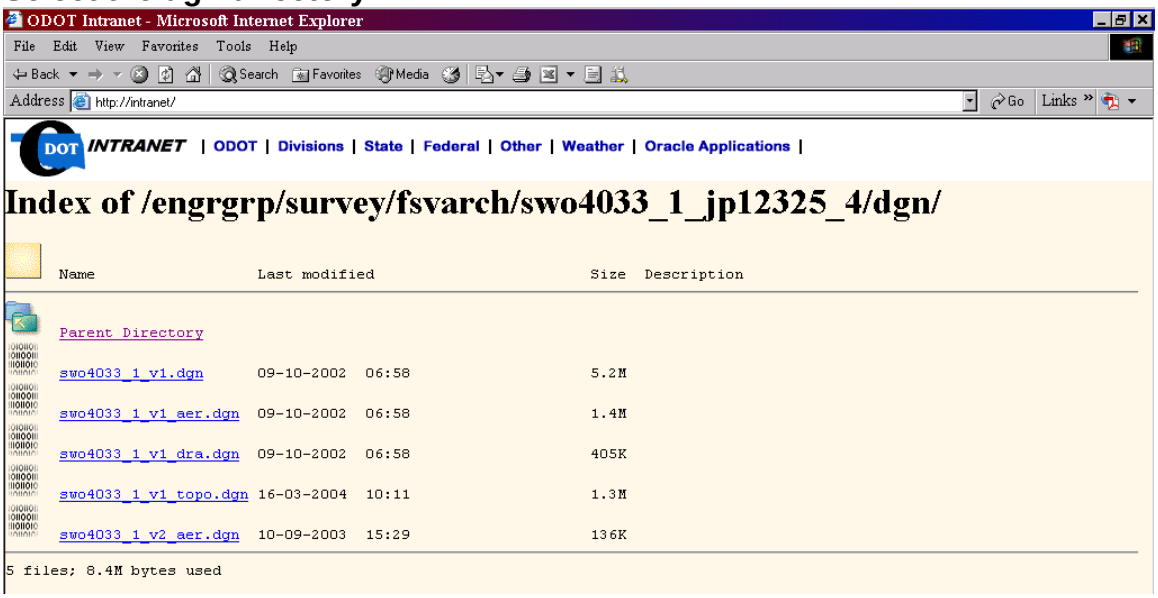


Set the path to the projects Survey folder and select the save button.

Once the download is complete, return to the civil directory and **download the file with the .dtm extension**.

Select the parent directory to exit the civil directory and return to the projects directory.

Select the dgn directory.



Download all of the files without the "aer" in the name. In this example, the files included will be a file with survey data, topography, and a drainage map.

Select the Parent Directory to exit the dgn directory and return to the projects directory.

Archived Survey File Retrieval

Some squads will want the **index.txt** file downloaded and/or printed and placed in the projects folder. Selecting this link will open the text index.txt file instead of opening a directory. The file can be saved or printed once it is opened.

Close Internet Explorer when all necessary files have been downloaded.

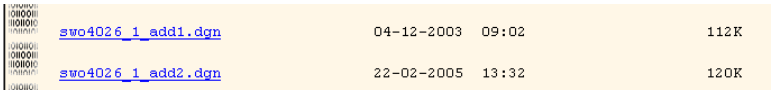
NOTE: The original files should be placed in the Survey folder. A renamed copy of the .alg and .dtm should be placed in the project InRoads folder, a renamed copy of the survey data sheets should be placed in the Plan Sheets folder, and any files that will be attached as references should be renamed and copied to the Ref Files folder (see Standard Folder Format for file location and see Standard File Naming Convention for file names).

Additional Notes:

Files that have a “v1” in the name are the original file (version one). Each revision will add a consecutive number to the file. (i.e. v2, v3, v4, etc…) The file with the highest value is the one that should be used. Occasionally, a survey revision may occur midway through a project and the CADD Specialist will have to update the survey files.

Parent Directory			
swo3919_1_v1.dgn	26-02-2003	15:24	1.4M
swo3919_1_v1_dgn.zip	26-02-2003	15:24	113K
swo3919_1_v1_drain.dgn	26-02-2003	15:24	102K
swo3919_1_v1_topoid_aer.dgn	26-02-2003	15:25	404K
swo3919_1_v2.dgn	26-02-2003	15:25	1.1M
swo3919_1_v3.dgn	26-02-2003	15:25	1.1M

Files that have “add2” (additional information) in the name will be the first revision on the original file. It will contain *only* the new items that have been added. For example, an “add” file would be added when additional survey is requested. “add” files will also increase by consecutive numbers with each revision. “add” files will need to be referenced into the latest SWO file.



swo4026_1_add1.dgn	04-12-2003	09:02	112K
swo4026_1_add2.dgn	22-02-2005	13:32	120K

Editing Survey Files

This document will outline the most common changes needed when editing topo files for use for Roadway PNP sheets. Before editing the Topo file a copy of the original survey file should be made and put in the reference folder. The original topo file should not be edited and should be used only to locate discrepancies in the edited topo file.

- **Scale Line Styles:**
  Topo Files are drawn in 100 scale. If your Pnps are in any other scale other than 100 scale you will need to scale all of your linestyles. See Section 4.4 on how to scale line styles.

- **Scale Text:**
  As mentioned above all text will originally be in 100. You can scale all of the text by power selecting all text and using the MicroStation scale command. Be aware that when scaled text often moves away from the elements in which they are associated. It may be necessary to also move the text back to its intended location after scaling.

- **R/W dimensioning:**
  Some R/W will come from Survey with incomplete dimensions. It may be necessary to add more dimensions so that each PNP sheet will have appropriate dimensions.

- **Change Text Font:**
  Verify that all the notes in the topo are in OkDOT Italics font. You can utilize MicroStation's power selector to select the text and the change text attributes to change the text style.

- **Move/Rotate Notes:**
  Survey does not have to print their topo files so often not much attention is placed on placement of text. Often text will need to be moved and rotated to improve readability. Sometimes notes will need to be exploded so that the text can be rotated. If your text is rotating with the view change the text to view dependant by using the Change Text Attributes command.

- **Verify Line Styles:**
  Sometimes Survey will contract survey jobs to consultants who use AutoCAD to do the drawings and convert everything to MicroStation. When this is done, Incorrect Linestyles may be used. The CADD specialist needs to check and verify that the correct linestyles are being used and fix any accordingly.

Editing Survey Files

- **Change Direction of Elements:**
  Some line styles have letters imbedded in them. The letters in these linestyles need to be readable when viewing the plans. When the lines are first created the direction that they were placed affects whether the letters are right side up or upside down. If they are upside down, using the Change Curve Direction command or using the keyin box type “change direction” in MicroStation will allow the CADD Specialist to make changes to the line direction. Be careful not to change the direction of flow lines. Flow lines are used by Roadway engineers to drain the project and must be left alone as Survey drew them.

- **Scale Cells:**
  Some things in the topo file are represented using cells such as utility poles and R/W markers. These will need to be scaled to match the scale of the PNP sheets.

Section 10
Plan Sheet Information

- **Sheet Block Information**
- **Sheet Order and Example Index of Sheets**
- **Sheet Stamps**

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Sheet Blocks

Cross Section

COUNTY		HIGHWAY		STATE JOB NO.		SHEET NO.	

Erosion Control Detail

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			EROSION CONTROL DETAIL
APPROVED			
SQUAD			
COUNTY XXXXXXXXXXX	HIGHWAY US-XXX	STATE JOB NO. JPXXXXX(XX)	SHEET NO. XXX

Geometric Detail

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			GEOMETRIC DETAIL
APPROVED			
SQUAD			
COUNTY XXXXXXXXXXX	HIGHWAY US-XXX	STATE JOB NO. JPXXXXX(XX)	SHEET NO. XXX

Standard PP Sheet

COUNTY		HIGHWAY US-XXX	STATE JOB NO.		SHEET NO.	

Standard Sheet

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			XXX
APPROVED			
SQUAD			
COUNTY XXXXXXXXXXX	HIGHWAY US-XXX	STATE JOB NO. JPXXXXX(XX)	SHEET NO. XXX

Sheet Blocks

Summary Sheet

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			SUMMARY SHEET
APPROVED			
SQUAD			

COUNTY XXXXXXXXXXXX HIGHWAY US-XX STATE JOB NO. JPXXXXX(XX) SHEET NO. XXX

Summary of Pay Quantities (Roadway)

PREPARED BY:
OKLAHOMA DEPARTMENT OF TRANSPORTATION
DESIGN DIVISION

A. ENGINEER , P.E.
OKLA. REG. NO. XXXXX

DATE

REGISTERED PROFESSIONAL ENGINEER
A. ENGINEER
XXXXX
OKLAHOMA

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			SUMMARY OF PAY QUANTITIES (ROADWAY)
APPROVED			
SQUAD			

COUNTY XXXXXXXXXXXX HIGHWAY US-XXX STATE JOB NO. JPXXXXX(XX) SHEET NO. XXX

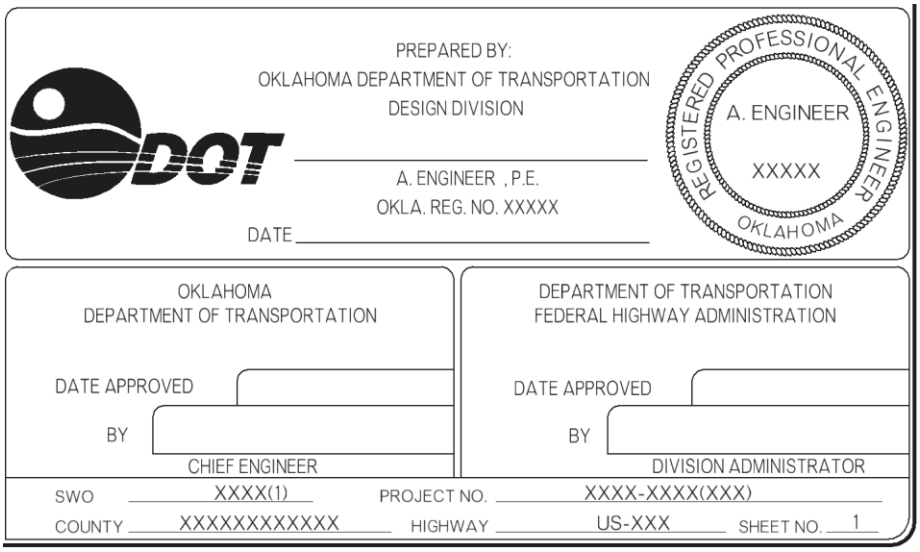
Storm Water Management Plan

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			STORM WATER MANAGEMENT PLAN
APPROVED			
SQUAD			

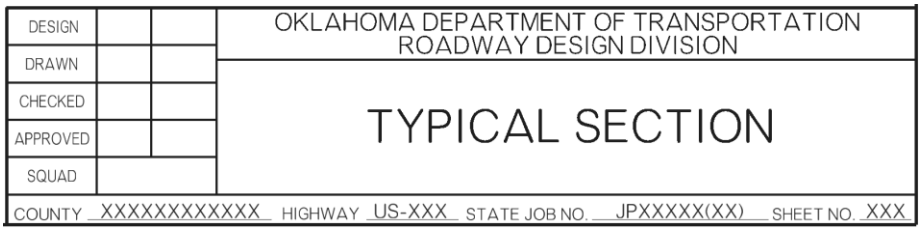
COUNTY XXXXXXXXXXXX HIGHWAY US-XXX STATE JOB NO. JPXXXXX(XX) SHEET NO. XXX

Sheet Blocks

Title Sheet



Typical Section



Plan Sheet Order

TITLE
TYPICALS
SUMMARY OF PAY QUANTITIES (ROADWAY, BRIDGE, TRAFFIC, OR OTHER)
ROADWAY SUMMARIES- EROSION CONTROL
SURFACING
EARTHWORK
DRIVES
GUARDRAIL
FENCE
DRAINAGE STRUCTURES
SPECIAL DETAILS OF DRAINAGE STRUCTURES
DRAINAGE AREA MAP
STORMWATER MANAGEMENT PLAN
ROADWAY DETAIL SHEETS- TRANSITION DETAILS
GEOMETRIC DETAILS
INTERSECTION DETAILS
EROSION CONTROL DETAILS
MASS DIAGRAM SHEET
PLAN AND PROFILE SHEETS
TRAFFIC SUMMARY SHEETS
TRAFFIC DETAIL SHEETS
GENERAL PLAN AND ELEVATION BR. “#” AND SUMMARY OF QUANTITIES
SUBSTRUCTURE LAYOUT
DETAILS OF ABUTMENTS
ABUTMENT EXCAVATION AND UNDERDRAIN INSTALLATION
DETAILS OF PIERS
DETAILS OF SUPERSTRUCTURE
MISCELLANEOUS SUPERSTRUCTURE DETAILS
BEAM AND DECK LAYOUT
DETAILS OF DIAPHRAGMS
DETAILS OF BEARING ASSEMBLY
DETAILS OF BEAMS
DETAILS OF APPROACH SLABS
SURVEY DATA SHEETS
CROSS SECTIONS

Example Index of Sheets

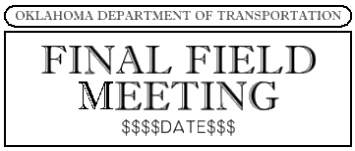
1	TITLE SHEET
2	TYPICAL SECTION
3	SUMMARY OF PAY QUANTITIES (ROADWAY)
4	PAY QUANTITIES NOTES (ROADWAY)
5	PAY QUANTITIES (TRAFFIC CONTROL)
6-10	SUMMARY SHEET
11	SUMMARY OF DRAINAGE STRUCTURE
12	DRAINAGE DESIGN RECORD & MAP
13	STORMWATER MANAGEMENT PLAN
14-17	DRIVE & EROSION CONTROL DETAIL SHEET
18	MEDIAN OPENING DETAIL
19	MASS DIAGRAM SHEET
20-24	PLAN AND PROFILE SHEETS
25	SIGN SUMMARY SHEET
26	TRAFFIC CONTROL DETAILS (CROSSOVER TYPICAL)
S1-S16	SURVEY DATA SHEETS
X1-X51	CROSS SECTIONS

Stamps

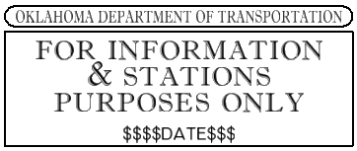
Change in Plans

	Used when sending plans to field for revision after final submission

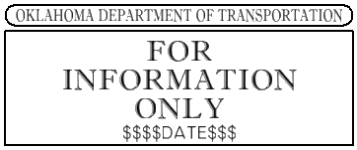
Final Field Meeting

	Used to note the final field meeting

For Information and Stations Purposes Only

	Used for plans that no survey was available

For Information Only

	Used for any plans sent outside of Roadway not including milestone meetings

P.E. Stamp

	Used to show an Engineer's name and P.E. number

Stamps

Preliminary Field Review and Utility Meeting

OKLAHOMA DEPARTMENT OF TRANSPORTATION PRELIM FIELD REVIEW & R/W UTILITY MEETING $$$$DATE$$$	Used for preliminary field review and R/W Utility joint meeting

Preliminary Disclaimer

OKLAHOMA DEPARTMENT OF TRANSPORTATION THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT. $$$$DATE$$$	Used for plans that are sent outside of Roadway before final submission

Preliminary Plans

OKLAHOMA DEPARTMENT OF TRANSPORTATION PRELIMINARY PLANS $$$$DATE$$$	Used for preliminary field review where utilities and R/W will not be discussed

Proposed RW

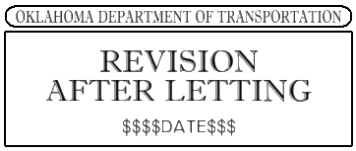
OKLAHOMA DEPARTMENT OF TRANSPORTATION PROPOSED R/W $$$$DATE$$$	Used for R/W submittal

Revised Proposed R/W

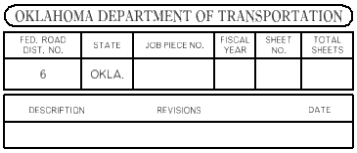
OKLAHOMA DEPARTMENT OF TRANSPORTATION REVISED PROPOSED R/W $$$$DATE$$$	Used for R/W revisions

Stamps

Revision After Letting Stamp

	Used when sending plans to field for revision after final submission

Revision Block

	Used to denote revisions for final project submissions

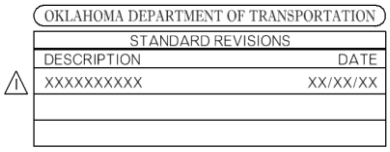
RW Utility Meeting

	Used for R/W utility meeting

Send Comments

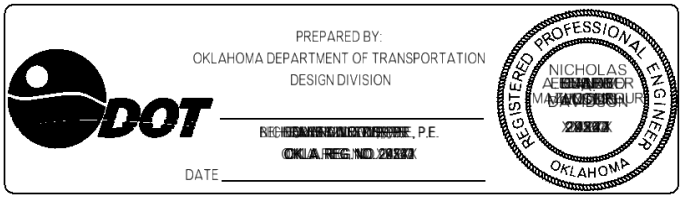
	Used in conjunction with Information Only stamp for plans sent outside of Roadway not including milestone meetings

Standard Drawing Revision 2015

	Used only on Standard sheets to denote revisions in the Standard

Stamps

State Signature Box



Used for Engineers signatures on Title and Pay Qauntity sheets for final submission

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Section 11
Example Plan Sheet

- **Title**
  - **Layout Map Scales**
- **Typical**
- **Plan and Profile**
- **CrossSection**
- **Mass Diagram**
- **Erosion Control Detail**
- **Summary**
- **Summary of Pay Quantity/Pay Quantities & Notes**

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TRAFFIC DESIGN
PROJECT ENGINEER : A. ENGINEER
SQUAD SUPERVISOR : A. TECHNICIAN

BRIDGE DESIGN
PROJECT ENGINEER : A. ENGINEER
SQUAD SUPERVISOR : A. TECHNICIAN

ROADWAY DESIGN
ENGINEERING MANAGER:A. ENGINEER, PE SQUAD SUPERVISOR:A. TECHNICIAN
ENGINEER : A. ENGINEER, PE SQUAD MEMBERS:A. TECHNICIAN,
ENGINEER : A. ENGINEER, PE A. TECHNICIAN:A. TECHNICIAN

P.E. NO. : 12320(01)

THE TITLE SHEET SEED FILE LOCATION:
R:\CADD_Support\MicroStation\Seed Files\Roadway
North Zone (or) South Zone\JPNTitle N.dgn

THE TITLE SHEET CELL LIBRARY LOCATION:
R:\CADD-Support\MicroStation\Cells\Roadway\Title_Sheet.cel

COUNTY MAP LOCATION:
R:\CADD_Support\MicroStation\County Maps\County Maps\pontotoc.dgn

FOR SURVEY CONTROL DATA,
SEE SURVEY DATA SHEETS

INTERSTATE SHIELD
U.S. HIGHWAY SHIELD
STATE HIGHWAY

CELL = BRIDGE LOCATION
SCALE OF 1

BEGIN STA. 2248+93.92
LENGTH = 172'-2"
END STA. 2250+66.09
BRIDGE "A"

DESIGN DATA

ADT 2015	= 425
ADT 2035	= 650
DVH (2-WAY)	= 71.5
K (DHV/ADT)	= 11%
D	= 55%
T (% DHV)	= 14%
T (% ADT)	= 15%
T[3](% ADT)	= 5%
V	= 55MPH

20YR FLEX ESALS = 0.2M

LEVEL = SECTION NUMBER
TX = 0.14
FT = OkDOT

LEVEL = NOTE TEXT
TX = 0.14
FT = OkDOT

SCALES 1"
PLAN 1" = 100'
PROFILE HOR. *1" = 100'*
VER. 1" = 10'
LAYOUT MAP 1" = 2,640'

ADJUST THIS TO MATCH THE SCALE OF YOUR PLAN AND PROFILE SHEETS

IF THE LOCATION MAP IS SCALED THE KEY NEEDS TO BE ADJUSTED TO MATCH.

CONVENTIONAL SYMBOLS
- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
- TELEPHONE & TELEGRAPH
- POWER LINES
- BUILDINGS
- OILWELL
- DRAINAGE STRUCTURES - IN PLACE
- DRAINAGE STRUCTURES - NEW
- PRES.R/W — RIGHT-OF-WAY LINES - EXISTING
- R/W — RIGHT-OF-WAY LINES - NEW
- CONTROLLED ACCESS
- R/W — RIGHT-OF-WAY FENCE

2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION GOVERN, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 4, 2010.

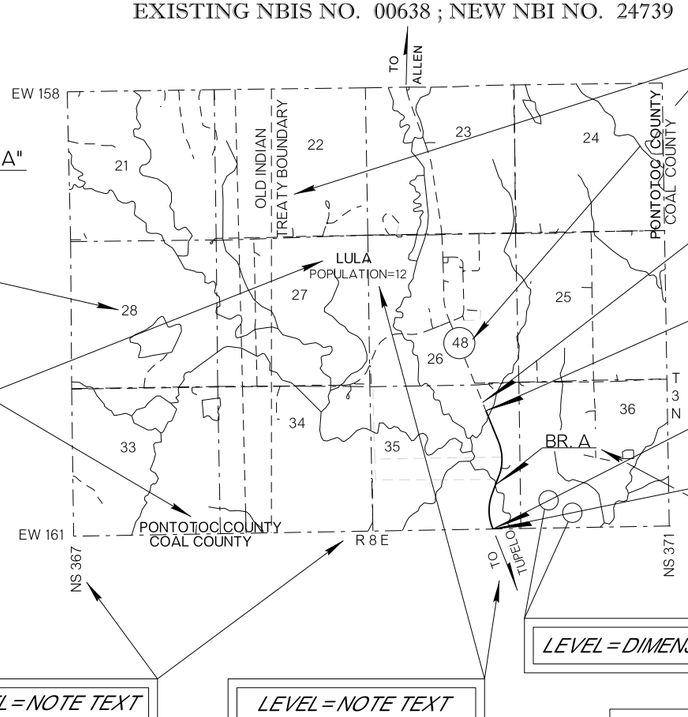
STATE OF OKLAHOMA
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED
STATE HIGHWAY

FEDERAL AID PROJECT NO. BRO-62(210)
GRADING, DRAINAGE, SURFACING, & BRIDGE PLANS
STATE HIGHWAY 48

PONTOTOC COUNTY

CONTROL SECTION NO. 48-62-20
STATE JOB NO. 12320(04)
BRIDGE "A" LOCATION NO. 6220-0126
EXISTING NBIS NO. 00638 ; NEW NBI NO. 24739



LEVEL = INDEX OF SHEETS
TX = 0.14
FT = OkDOT

LEVEL = NOTE TEXT
TX = 0.14
FT = OkDOT

STA. 2267+00.00
END INCIDENTAL CONSTRUCTION

STA. 2266+00.00
END PROJECT & BEGIN INCIDENTAL CONSTRUCTION

STA. 2232+00.00
BEGIN PROJECT

CONTROL SUB-SECTION NO. 0.00

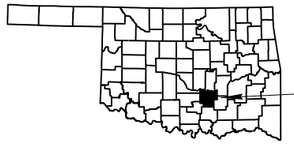
LEVEL = PROJECT LAYOUT
◆ *MAP TEXT*
TX = 0.175
FT = OkDOT

LEVEL = DIMENSION LINE

LEVEL = NOTE TEXT
TX = 0.14
FT = OkDOT WT = 1

LEVEL = NOTE TEXT
TX = 0.12
FT = OkDOT WT = 1

LEVEL = STATE MAP
Use The Command:
"Creat Region"



LOCATION MAP

NOTE: PROJECT LENGTH BASED ON CRL STATIONING.

ROADWAY LENGTH	3,247.92 FT.	0.615 MI.
BRIDGE LENGTH	172.17 FT.	0.032 MI.
PROJECT LENGTH		0.647 MI.

EQUATIONS : STA. 2235+25.26 BK= STA. 2235+27.36 FWD.
EXCEPTION : STA. 2260+92.89 TO STA. 2260+24.07

THIS MUST MATCH THE "WORK TYPE" LISTED WITHIN ORACLE

LAYOUT MAP

Item	*Level*	*Line Style*	*Weight*
The Project Location:	*Project Line*	*ByLevel*	*ByLevel*
Sections Lines:		*4*	*0*
Creeks:		*0*	*0*
All Additional Roads:		*2*	*0*
Rail Roads:		*Railroad Custom City*	*0*

OKLAHOMA DEPARTMENT OF TRANSPORTATION

DESCRIPTION	REVISIONS	DATE

INDEX OF SHEETS

THE FOLLOWING STANDARD DRAWINGS WILL BE NEEDED:

ROADWAY	TRAFFIC	BRIDGE
PUD-3-0	TCS20-1-02	RCB-C1-3&4&5(2-20)-00E
ECM2-3-0	TCS23-1-00	
TSC2-3-0	THRI-1-01	
PCES-4-0	WSD2-1-00	
RDI-3-0		
FHTMP-5-0		

LEVEL = PROJECT LAYOUT
◆ *MAP TEXT*
TX = 0.20
FT = OkDOT

◆ *ARROW HEAD SCALES*
CELL = HALF ARROW
DEFAULT LEVEL = NOTE LEADER MISC

BEGIN NOTE ARROW = SCALE OF 1
END NOTE ARROW = SCALE OF 1
CONTROL SUB-SECTION NOTE ARROW = SCALE OF 1
TO TOWN NOTE ARROW = SCALE OF .75

◆ *NOTE: IF YOU ARE USING THE PLACE NOTE TEXT TOOL SET YOUR LEVEL TO: DIMENSION LINE*

DIMENSION STYLES (#OF LINES, SIZE, WEIGHT)	*TEXT STYLES* (SIZE AND FONT ASSIGNED)
Title (2)Note1Line	*# SZ=0.20*
Title (.175)Note1Line	*# SZ=0.175*
Title (.12)Note1Line	*# SZ=0.12*
Title (2)Note2Line	*# SZ=0.20*
Title (.175)Note2Line	*# SZ=0.175*
Title (.12)Note2Line	*# SZ=0.12*
Title (2)Note3Line	*# SZ=0.20*
Title (2)Note4Line	*# SZ=0.20*

PREPARED BY:
OKLAHOMA DEPARTMENT OF TRANSPORTATION
DESIGN DIVISION

A. ENGINEER , P.E.
OKLA. REG. NO. 12345

DATE

REGISTERED PROFESSIONAL ENGINEER
A. ENGINEER
12345
OKLAHOMA

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY	BY
CHIEF ENGINEER	DIVISION ADMINISTRATOR

SWO 2261(1) PROJECT NO. BRO-62(210)
COUNTY PONTOTOC HIGHWAY SH-48 SHEET NO. 1

Title Sheet Scales

The following are the recommended scales for the layout map based on the number of rows and columns needed to depict the project.

For example:
If the project encompasses 5 sections horizontally and 4 sections vertically the layout map should be brought in at 1" = ½ Mile or 1" = 2640 Feet.

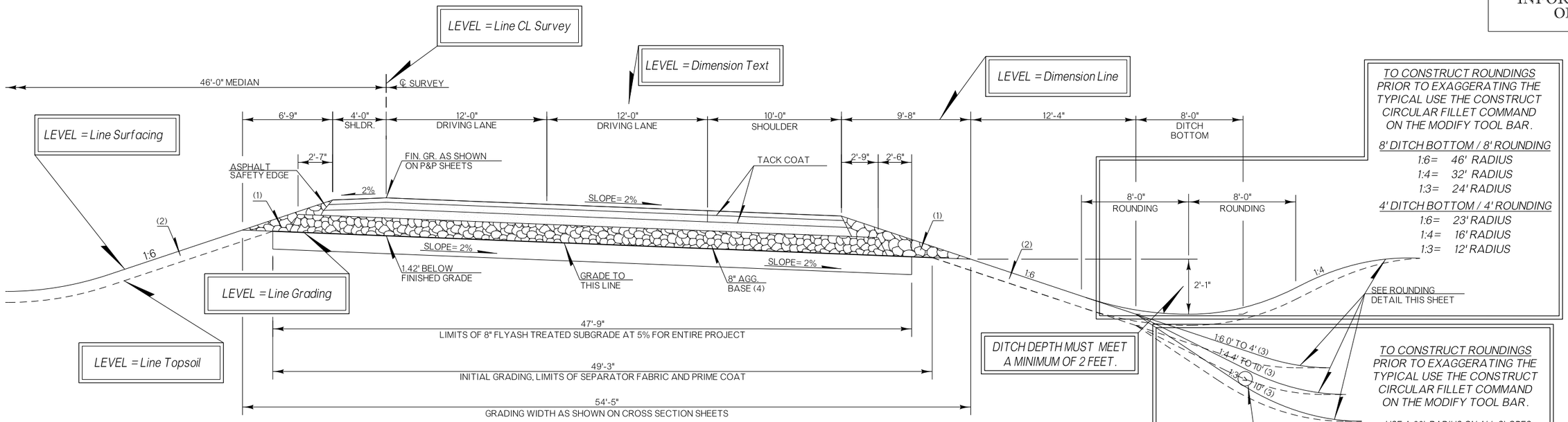
		Horizontal									
		1	2	3	4	5	6	7	8	9	10
Vertical	1	1/4	1/4	1/4	1/3	1/3	1/2	1/2	1/2	2/3	2/3
	2	1/4	1/3	1/3	1/3	1/3	1/2	1/2	1/2	2/3	2/3
	3	1/3	1/3	1/3	1/2	1/2	1/2	1/2	1/2	2/3	2/3
	4	1/2	1/2	1/2	1/2	1/2	1/2	1/2	2/3	2/3	2/3
	5	1/2	1/2	1/2	1/2	1/2	2/3	2/3	2/3	2/3	2/3
	6	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	1	1
	7	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	1	1
	8	1	1	1	1	1	1	1	1	1	1
	9	1	1	1	1	1	1	1	1	1	
	10	1	1	1	1	1	1	1	1	1	1

1 Inch =	Scale
1/4 Mile	1=1320
1/3 Mile	1=1760
1/2 Mile	1=2640
2/3 Mile	1=3520
1 Mile	1=5280

“This Page Is Intentionally Left Blank.”

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY



PAVEMENT REQUIREMENT			
9" PAVT. STRUCTURE	12'-0" DRIVING LANES	4'-0" PAVED INSIDE SHOULDER	10'-0" PAVED OUTSIDE SHOULDER
SURFACE COURSE	2" SUPERPAVE TYPE S4 (PG 70-28 OK)	2" SUPERPAVE TYPE S4 (PG 70-28 OK)	2" SUPERPAVE TYPE S4 (PG 64-22 OK)
BASE COURSE	3" SUPERPAVE TYPE S3 (PG 70-28 OK)	3" TO 2.5" SUPERPAVE TYPE S3 (PG 70-28 OK)	3" SUPERPAVE TYPE S3 (PG 64-22 OK)
	4" SUPERPAVE TYPE S3 (PG 64-22 OK)	4" TO 2.5" SUPERPAVE TYPE S3 (PG 64-22 OK)	4" SUPERPAVE TYPE S3 (PG 64-22 OK)

THIS PAVEMENT CHART HAS BEEN CREATED FOR YOU IT IS LOCATED IN THE TYPICAL CELL LIBRARY.

LEVEL = Text Station Extents

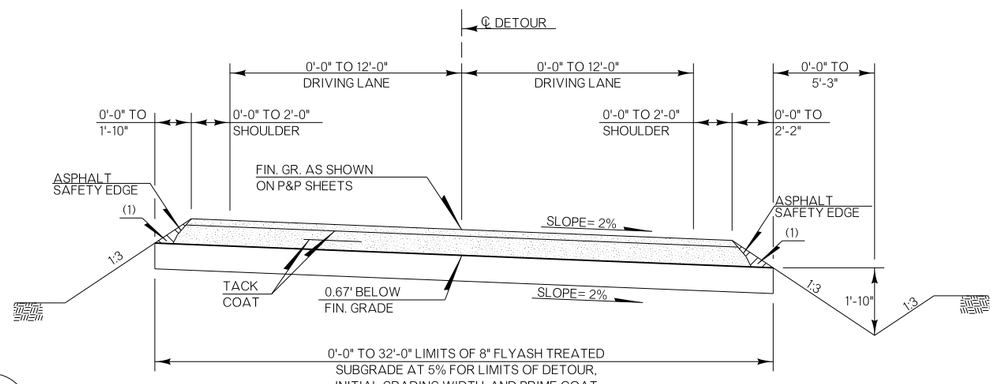
Text Size = 0.18 x Border Scale

TYPICAL NO. 1

STA. 23+00.00 TO STA. 44+00.00

LEVEL = Text Station Extents

Text Size = 0.16 x Border Scale



PAVEMENT REQUIREMENT		
8" PAVT. STRUCTURE	0'-0" TO 12'-0" DRIVING LANES	0'-0" TO 2'-0" PAVED SHOULDER
SURFACE COURSE	2" SUPERPAVE TYPE S4 (PG 64-22 OK)	2" SUPERPAVE TYPE S4 (PG 64-22 OK)
BASE COURSE	6" SUPERPAVE TYPE S3 (PG 64-22 OK)	6" SUPERPAVE TYPE S3 (PG 64-22 OK)

DETOUR TYPICAL

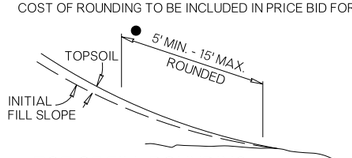
STA. 22+00.00 TO STA. 45+00.00

DETOUR DESIGN BASED ON 55 MPH

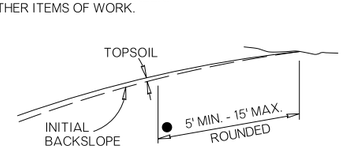
IF TYPICAL IS DESIGNED USING A DIFFERENT SPEED THAN TITLE SHEET A NOTE SHOULD BE ADDED TO SHOW THE DESIGNED SPEED

ROUNDING DETAIL

- INTERSECTION OF CUT AND/OR FILL SLOPES WITH GROUND LINE TO BE ROUNDED AS PART OF FINISHING OPERATIONS. ROUNDING SHALL BE 5' MINIMUM FOR SMALLER CUTS AND FILLS TO 15' MAXIMUM FOR LARGER CUTS AND FILLS OR AS DESIGNATED BY THE ENGINEER. COST OF ROUNDING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.



TOE OF FILL ROUNDING



TOP OF CUT ROUNDING

(1) BACKFILL NOTE:
TO BE BACKFILLED AND COMPACTED AS PART OF THE FINISHING OPERATIONS. QUANTITY IS MEASURED IN UNCLASSIFIED BORROW.

(1) BACKFILL NOTE:
TO BE BACKFILLED AS PART OF THE FINISHING OPERATIONS. QUANTITY IS MEASURED IN T.B.S.C. TYPE E.

(1) BACKFILL NOTE:
TO BE BACKFILLED AS PART OF THE FINISHING OPERATIONS. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

(2) TOPSOIL NOTE:
THE CONTRACTOR SHALL STRIP ALL OF THE AVAILABLE TOPSOIL, STOCKPILE IT, AND PLACE IT BACK ON THE SECTION IN ACCORDANCE WITH SECTION 205 OF THE STANDARD SPECIFICATIONS. RESERVED TOPSOIL SHALL BE SPREAD FIRST ON THE COMPLETED SLOPES OF THE CUT SECTIONS AND THE REMAINDER ON COMPLETED FILL SLOPES OR OTHER PRIORITY AREAS LOCATED BY THE ENGINEER. ALL ADDITIONAL COSTS ASSOCIATED WITH OPERATIONS SHALL BE INCLUDED IN THE PAY ITEM FOR SALVAGED TOPSOIL, LUMP SUM.

THE GRADING LINE AS SHOWN ON THE TYPICAL AND CROSS SECTIONS IS TO THE TOP OF THE TOPSOIL. EARTHWORK QUANTITIES WERE NOT ADJUSTED FOR SALVAGE AND THE TOPSOIL QUANTITY IS INCLUDED IN THE MASS LINE BALANCE.

(3) DISTANCE MEASURED VERTICALLY FROM EDGE OF FINISHED GRADE SHOULDER.

(4) PRIME COAT ON TOP OF AGGREGATE BASE.

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			TYPICAL SECTION
APPROVED			
SQUAD			

COUNTY EXAMPLE HIGHWAY US-21 STATE JOB NO. 12345(04) SHEET NO. 2

THE TYPICAL SHEET SEED FILE LOCATION:
R:\CADD_Support\MicroStation\Seed Files\Roadway\North Zone (or) South Zone\JPNTypical01.dgn

THE TYPICAL SHEET CELL LIBRARY LOCATION:
R:\CADD_Support\MicroStation\Cells\Roadway\Typical.cel

PREBUILT TYPICAL LOCATION:
Y:\#Support Documentation\Prebuilt Models\Prebuilt Typicals.dgn
Y:\#Support Documentation\Prebuilt Models\Prebuilt Instructions.pdf

STAMPS LEVELS

Stamp Send Comments	Stamp Prelim Field Review and RW Util
Stamp RW Utility Meeting	Stamp Prelim Disclaimer
Stamp Revision Block	Stamp Information Only
Stamp Revised Proposed ROW	Stamp Final Field Meeting
Stamp Preliminary Plans	Stamp Change in plans
Stamp Revision After Letting	

TURN ON AND OFF STAMPS LEVELS TO REPLACE STAMPS.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CHANGE IN PLANS | FINAL FIELD MEETING | FOR INFORMATION & STATIONS PURPOSES ONLY | FOR INFORMATION ONLY | PRELIM FIELD REVIEW & R/W UTILITY MEETING
THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT. | PRELIMINARY PLANS | PROPOSED R/W | REVISION AFTER LETTING | REVISED PROPOSED R/W | R/W UTILITY MEETING | SEND COMMENTS

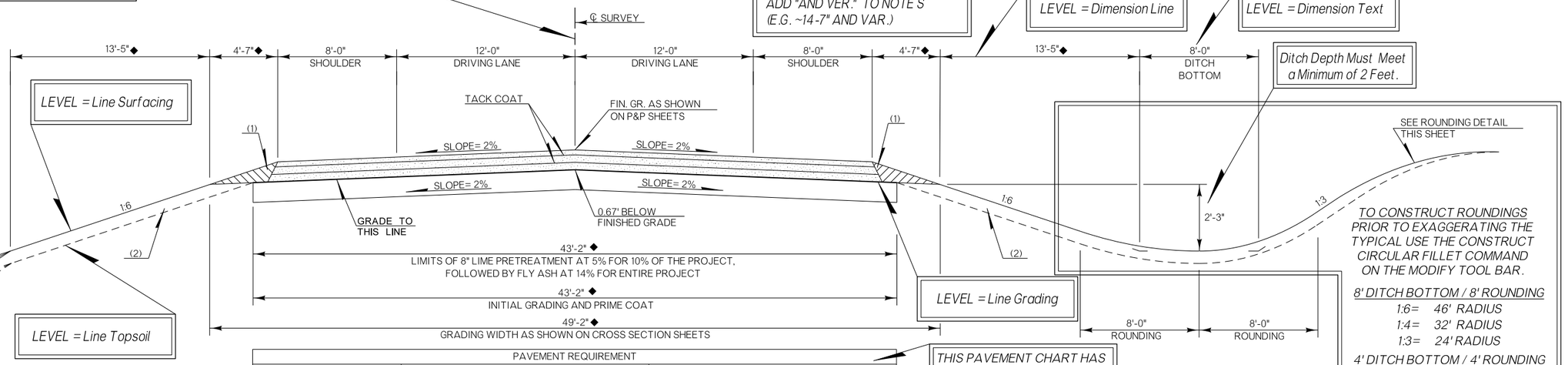
LEVEL = Line CL Survey

◆WHEN ROAD IS SUPERELAVATED THESE WIDTHS ARE VARIABLE ADD "AND VER." TO NOTE S (E.G. ~14-7" AND VAR.)

LEVEL = Dimension Line

LEVEL = Dimension Text

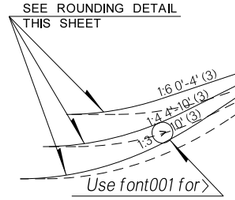
Ditch Depth Must Meet a Minimum of 2 Feet.



TO CONSTRUCT ROUNDINGS PRIOR TO EXAGGERATING THE TYPICAL USE THE CONSTRUCT CIRCULAR FILLET COMMAND ON THE MODIFY TOOL BAR.

Use A 30' Radius On All Slopes

SEE ROUNDING DETAIL THIS SHEET



LEVEL = Line Surfacing

LEVEL = Line Topsoil

LEVEL = Line Grading

TO CONSTRUCT ROUNDINGS PRIOR TO EXAGGERATING THE TYPICAL USE THE CONSTRUCT CIRCULAR FILLET COMMAND ON THE MODIFY TOOL BAR.

8' DITCH BOTTOM / 8' ROUNDING
1:6= 46' RADIUS
1:4= 32' RADIUS
1:3= 24' RADIUS

4' DITCH BOTTOM / 4' ROUNDING
1:6= 23' RADIUS
1:4= 16' RADIUS
1:3= 12' RADIUS

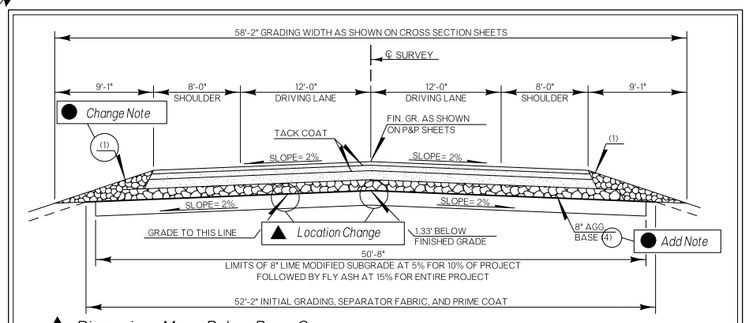
PAVEMENT REQUIREMENT		
8" PAVT. STRUCTURE	12'-0" DRIVING LANES	8'-0" PAVED SHOULDERS
SURFACE COURSE	2" SUPERPAVE TYPE S4 PG (64-22 OK)	2" SUPERPAVE TYPE S4 PG (64-22 OK)
BASE COURSE	3" SUPERPAVE TYPE S3 PG (64-22 OK)	3" SUPERPAVE TYPE S3 PG (64-22 OK)
	3" SUPERPAVE TYPE S3 PG (64-22 OK)	3" SUPERPAVE TYPE S3 PG (64-22 OK)

THIS PAVEMENT CHART HAS BEEN CREATED FOR YOU IT IS LOCATED IN THE TYPICAL CELL LIBRARY.

TYPICAL NO. 1
STA. 12+00.00 TO STA. 34+00.00

LEVEL = Text Station Extents
Text Size = 0.18 x Border Scale

LEVEL = Text Station Extents
Text Size = 0.16 x Border Scale



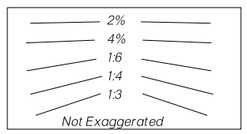
▲ Dimensions Move Below Base Course

● Turn Off Sheet Notes Dirt Back Fill Level and turn on Sheet Notes TBSC Back Fill Level

◆ Turn Off Sheet Notes Dirt Back Fill Level and turn on Sheet Notes Other Items Back Fill Level

ARROW HEADS
Half Arrow=
Half Arrow-2=
Arrow=
Arrow Curved=

SLOPE DIMENSION CELLS
2% Slope Rt.= SLOPE = 2%
2% Slope Lt.= SLOPE = 2%



THESE SLOPES HAVE BEEN CREATED FOR YOU. THEY ARE LOCATED ABOVE THE INSTRUCTIONS. YOU MAY COPY THEM OR DRAW YOUR OWN.

PATTERN CELLS
Pattern Aggregate=
Pattern Asphalt=
Pattern Backfill=
Pattern Concrete=
Pattern Dirt=

(1) BACKFILL NOTE:
TO BE BACKFILLED AND COMPACTED AS PART OF THE FINISHING OPERATIONS. QUANTITY IS MEASURED IN UNCLASSIFIED BORROW.

● (1) BACKFILL NOTE:
TO BE BACKFILLED AS PART OF THE FINISHING OPERATIONS. QUANTITY IS MEASURED IN T.B.S.C. TYPE E.

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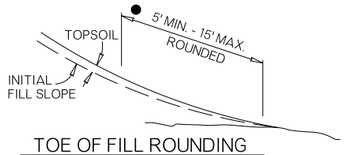
THE GRADING LINE AS SHOWN ON THE TYPICAL AND CROSS SECTIONS IS TO THE TOP OF THE TOPSOIL. EARTHWORK QUANTITIES WERE NOT ADJUSTED FOR SALVAGE AND THE TOPSOIL QUANTITY IS INCLUDED IN THE MASS LINE BALANCE.

(3) DISTANCE MEASURED VERTICALLY FROM EDGE OF FINISHED GRADE SHOULDER.

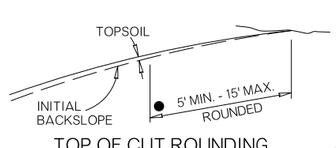
● (4) PRIME COAT ON TOP OF AGGREGATE BASE.

ROUNDING DETAIL

● INTERSECTION OF CUT AND/OR FILL SLOPES WITH GROUND LINE TO BE ROUNDED AS PART OF FINISHING OPERATIONS. ROUNDING SHALL BE 5' MINIMUM FOR SMALLER CUTS AND FILLS TO 15' MAXIMUM FOR LARGER CUTS AND FILLS OR AS DESIGNATED BY THE ENGINEER. COST OF ROUNDING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.



TOE OF FILL ROUNDING



TOP OF CUT ROUNDING

INSTRUCTIONS
Step 1: Draw Your Typical At X = 1, Y= 1.
Step 2: Exaggerate (Scale) the Drawing to an X= 1, Y= 2.
Step 3: Bring In The Cell "Standard Typical Border" Set The Scale On The Cell To Fit Your Drawing
Step 4: Dimension: Scale Cells To The Same Increment As The Border and use a Text Size of 0.12 x Border Scale.

Example: If The Border is Scaled To 4 Times Its Original Size All Cells Should Be Placed At A Scale of 4 And All Text Should Be Placed At A Height of 0.48 (Scale 4 x 0.12).

DO NOT REDUCE THE SIZE OF THE TYPICAL! Scale The Cell (Standard Typical Border) Up To Fit The Drawing.

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			TYPICAL SECTION
APPROVED			
SQUAD			

COUNTY EXAMPLE HIGHWAY US-21 STATE JOB NO. 12345(04) SHEET NO. 2

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

SEC. 18
T-19-N, R-2-W

SEC. 19
T-19-N, R-2-W

2049+00.00 | 2050+00 | 2055+00 | 2060+00 | 2064+00.00

1 Level= Structure Design
2 Level= Rw Proposed Temporary
3 Level= Note RW Tx= 6.0 Ft= OkDOT
4 Level= Note Drainage Tx= 6.0 Ft= OkDOT
5 Level= Alignment Proposed ▲
6 Level= Note Const Tx= 6.0 Ft= OkDOT
7 Level= Fence Post
8 Level= Pattern Solid Pattern= Concrete
9 Level= Alignment Stationing ▲
10 Level= Note Drive Tx= 6.0 Ft= OkDOT
11 Level= Drive
12 Level= Shading Dark
13 Level= Note RW Tx= 6.0 Ft= OkDOT
14 Level= Pattern Solid Pattern= Concrete
15 Level= Structure Design
16 Level= Shading Light
17 Level= Ditch Special ▲
18 Level=North Arrow Cell= North_Arrow_1 Scale= .5
19 Level= Note Const Tx= 6.0 Ft= OkDOT
20 Level= Toes
21 Level= Rw Proposed
22 Level= Fence
23 Level= Rw Proposed Fence
24 Level= Guardrail
25 Level= Note Const Tx= 6.0 Ft= OkDOT

METAL BUILDING
+22.08 145.22'
TEMP. R/W TO CONSTRUCT DRIVE
STA. 2052+00.00 CONST. 12' ASPH. DR. W/24" CGSP SD
STA. 2052+34.05 @ 60°X24"X58.2' RDY. RCB 'X'ING @ 26.4°RT. & 24.2'LT. fl. ELEV.= 994.11 RT. & 994.62 LT.
REMOVE
STA. 2043+55.84 TO STA. 2057+16.63 CONST. FENCE STYLE SWF (5BW)
NS-311.5
Sta. 2054+19.53 2-Wire Power O.H. 'X'ing @ Low Wire Elev.= ±1060.18'
STA. 2057+16.63 PSC BRIDGE BRIDGE FLOOR ELEV. @ ℄ = 998.03'
STA. 2058+25.10 @ 27.8° X 209.58' CONC. BRIDGE W/ASPHALT OVERLAY 14-63" & 7-80" I-BEAM TRESTLES (SAMPLE CREEK)
STA. 2059+26.21 END BRIDGE BRIDGE FLOOR ELEV. @ ℄ = 997.83'
STA. 2059+26.21 TO STA. 2080+47.93 CONST. FENCE STYLE SWF (5BW)
STA. 2063+80.00 CONST. 12' ASPH. DR. AS DIKE
STA. 2043+53.41 TO STA. 2057+16.63 CONST. FENCE STYLE SWF (5BW)
STA. 2059+26.21 TO STA. 2080+46.66 CONST. FENCE STYLE SWF (5BW)

S 89°51'36.81" E | SH-52 | EW-062 | ℄ SURVEY | R/W | TOC/TOS | TUC | TUG | ASPH. | 5-BW | 4-BW | 6-BW | 7-BW | PRES. R/W | CONST. GUARDRAIL | DIRT ROAD | 2.5" PVC WATER LINE

BM #2 STA. 2049+93.93
3/4" IRON BAR PK NAIL W/SHINER
170.82' L

BM #3 STA. 2054+36.36
3/4" IRON BAR PK NAIL W/SHINER
177.81' L

BM #4 STA. 2059+97.06
3/4" IRON BAR PK NAIL W/SHINER
198.90' L

26 Level= Note Tx= 6.0 Ft= OkDOT "Italic"
27 Level= Structure Existing
28 Level= Structure Design
29 Level= Shading Dark
30 Level= Note Drainage Tx= 6.0 Ft= OkDOT
31 Level= Annotation ▲
32 Level= Note
33 Level= Alignment Notes ▲
34 Level= Alignment Notes ▲
35 Level= Ditch Special Lt ▲
36 Level= Ditch Special Rt ▲
37 Level= Note
38 Level= Note ▲
39 Level= Alignment Proposed ▲
40 Level= Existing Ground ▲
41 Level= Note Tx= 6.0 Ft= OkDOT "Italic"
41 Level= Note Tx= 6.0 Ft= OkDOT

SP. DITCH RT. | SP. DITCH LT. | EXISTING ℄ SURVEY | FINISH GRADE ℄ SURVEY

PVI 2051+50.00 Elev= 1002.19
LT. fl = 995.40
RT. fl = 995.03
EXIST. RT. fl =994.11
EXIST. LT. fl = 994.62
PVT 2055+00.00 Elev= 1001.04
L= 700.00' K= 349.84
STR. 2 STA. 2052+34.05 CONST. 52' x 20' 108.27' LG. RCB SKEW 30° RT. FWD 55.39' LG. LT. & 52.88' LG. RT.
BEGIN BR. STA. 2057+16.63
209.58'
END BR. STA. 2059+26.21
-0.30%
PVC 2061+75.00 Elev= 998.99
L= 650.00' K= 153.07

HYDRAULIC DATA- SAMPLE CREEK

Q2	= 240 CFS	Q25	= 1754 CFS	Q500	= 5822 CFS
V2	= 2.16 FPS	V25	= 3.58 FPS	V500	= 7.14 FPS
CHW2	= 2309.01'	CHW25	= 2306.21'	CHW500	= 2323.91'
Q5	= 637 CFS	Q50	= 2447 CFS		
V5	= 2.95 FPS	V50	= 4.08 FPS		
CHW5	= 2312.03'	CHW50	= 2317.84'		
Q10	= 1042 CFS	Q100	= 3267 CFS		
V10	= 2.95 FPS	V100	= 4.58 FPS		
CHW10	= 2313.99'	CHW100	= 2319.39'		

▲ Generated by InRoads

THE PnP SHEET SEED FILE LOCATION:
R:\CADD Support\MicroStation\Seed Files\Roadway\
North Zone (or) South Zone\SeedHostFile 2D or SeedHostFile.dgn

THE PnP SHEET CELL LIBRARY LOCATION:
R:\CADD-Support\MicroStation\Cells\Roadway\roadway_ v8.cel

Note: All Elements Should Be Placed Using Bylevel Atributes.
New Const. Font= OkDOT Existing Const. Font= OkDOT "Italic"
50 Scale Font Size= 6 100 Scale Font Size =12

Note: Add shading using the Create Region command. Shading should be created in a 2D file with Priorities set for Grayscale to work correctly.

When Placing Notes Set The Following:

Dimension Styles	Text Styles
20 Scale Dim	20 Scale
20 Scale Note* Line	20 Scale Exist.
50 Scale Dim	50 Scale
50 Scale Note* Line	50 Scale Exist.
100 Scale Dim	100 Scale
100 Scale Note* Line	100 Scale Exist.

#	Description
1	Sidedrain
2	Temp R/W
3	Temp R/W, Station & Offset Note
4	Structure Numbers
5 ▲	Alignment
6	Remove & TOC/TOS Note
7	Fence Post
8	Typical Paved Ditch
9 ▲	Alignment Stationing
10	Drive Note
11	Drive
12	Guardrail & Drive Shading
13	R/W, Station & Offset Note
14	Paved Special Ditch Pattern
15	Crossing Structure
16	Driving Lane & Shoulder Shading
17 ▲	Special Ditch
18	North Arrow
19	Guardrail Note
20	TOC/TOS
21	Proposed R/W

#	Description
22	Proposed Fence
23	R/W Proposed Fence
24	Guardrail
25	Fence Note
26	Profile Benchmark Note
27	Profile Existing Crossing Structure
28	Profile Crossing Structure
29	Profile Crossing Structure Shading
30	Profile Special Ditch, fl, Text & Structure Note
31 ▲	Profile Dimension Line
32	Profile Elevations
33 ▲	Profile Annotation Text
34 ▲	Profile % of Grade Note
35 ▲	Profile Special Ditch Lt
36 ▲	Profile Special Ditch Rt
37	Profile Stations
38 ▲	Profile Finish Grades
39 ▲	Profile Alignment
40 ▲	Profile Existing Ground
41	Profile ℄ Survey
42	Finish Grade Note

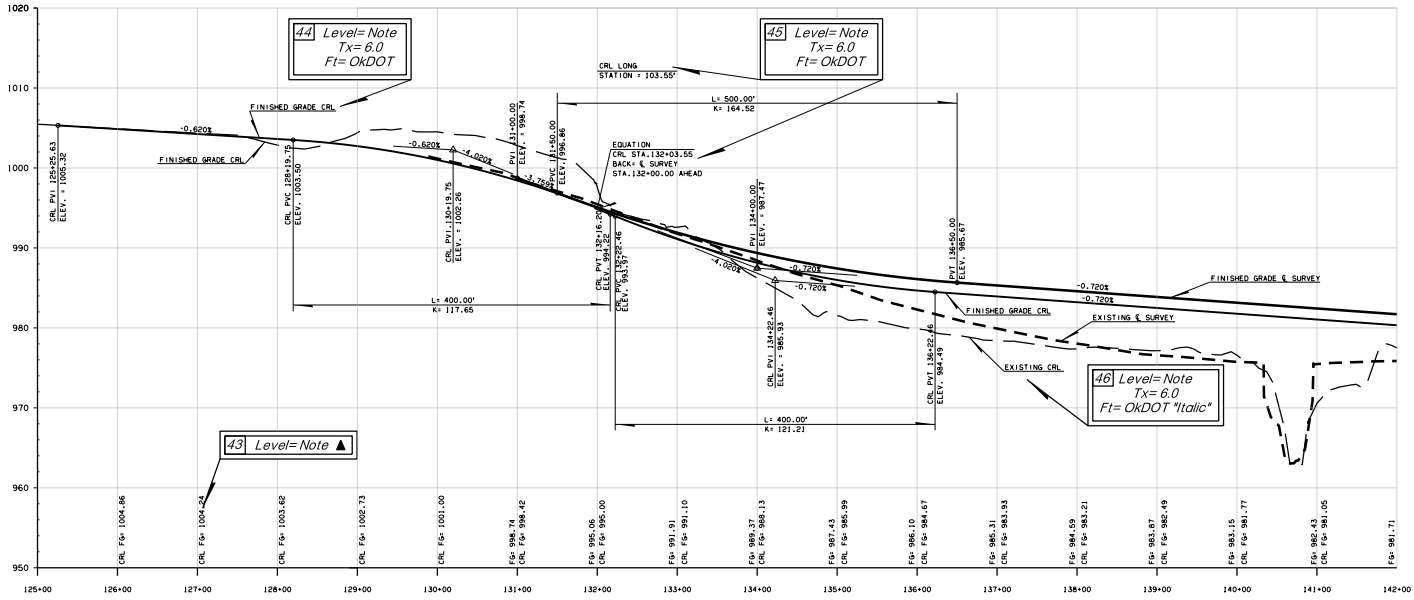
FG= 1008.00 | 1006.13 | 1004.54 | 1003.23 | 1002.22 | 1001.48 | 1001.04 | 1000.73 | 1000.43 | 1000.13 | 999.82 | 999.52 | 999.21 | 998.93 | 999.12 | 999.96

1005 | 1000 | 995 | 990 | 985 | 980 | 975 | 970 | 965 | 960

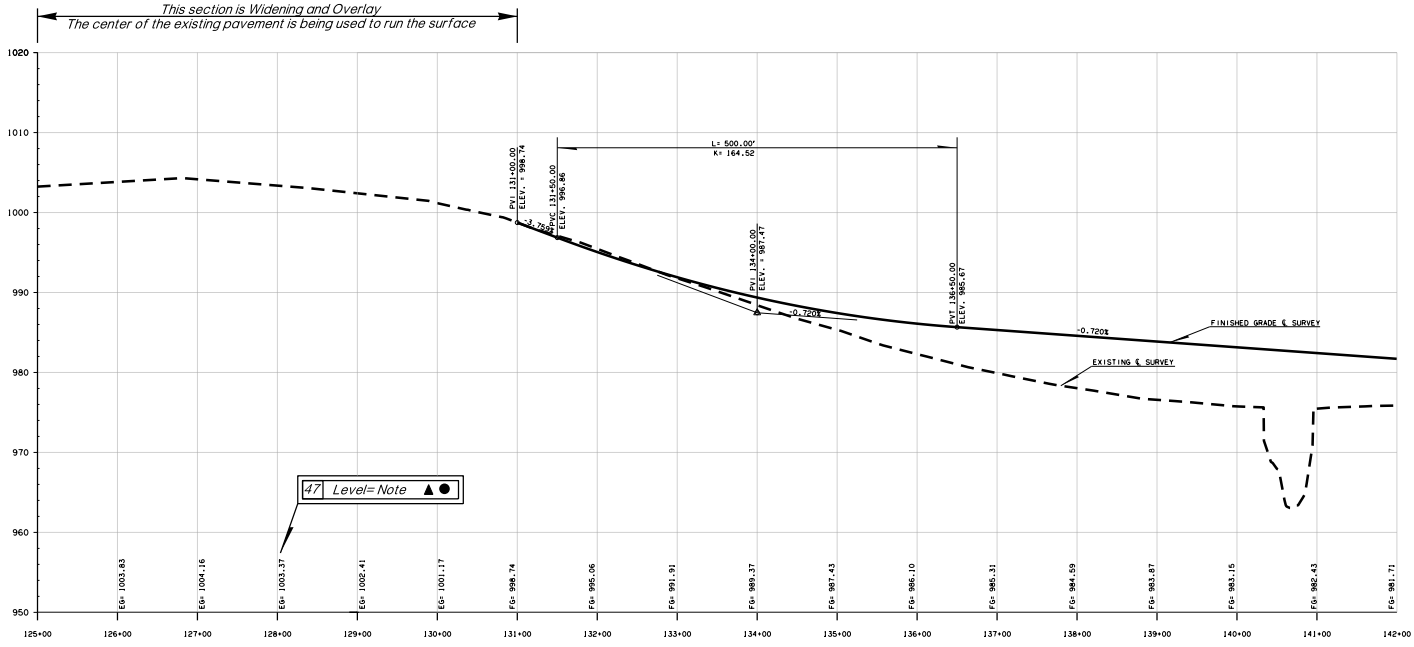
2049+00 | 2050+00 | 2051+00 | 2052+00 | 2053+00 | 2054+00 | 2055+00 | 2056+00 | 2057+00 | 2058+00 | 2059+00 | 2060+00 | 2061+00 | 2062+00 | 2063+00 | 2064+00

COUNTY SAMPLE HIGHWAY SH-52 STATE JOB NO. 23456(04) SHEET NO. 22

CRL & CL Survey Combined Profile Example



Overlay and Full Depth Replacement Profile Example



▲ *Generated by InRoads*

● *Existing Ground elevations should only be annotated in widening and/or overlay areas when the new design surface is being generated using the center of existing pavement.*

#	Description
43▲	Profile CRL Finish Grades
44	Profile CRL Alignment
45	Profile Equation Notes
46	Profile CRL Existing Ground
47▲	Profile Existing Ground Elevations

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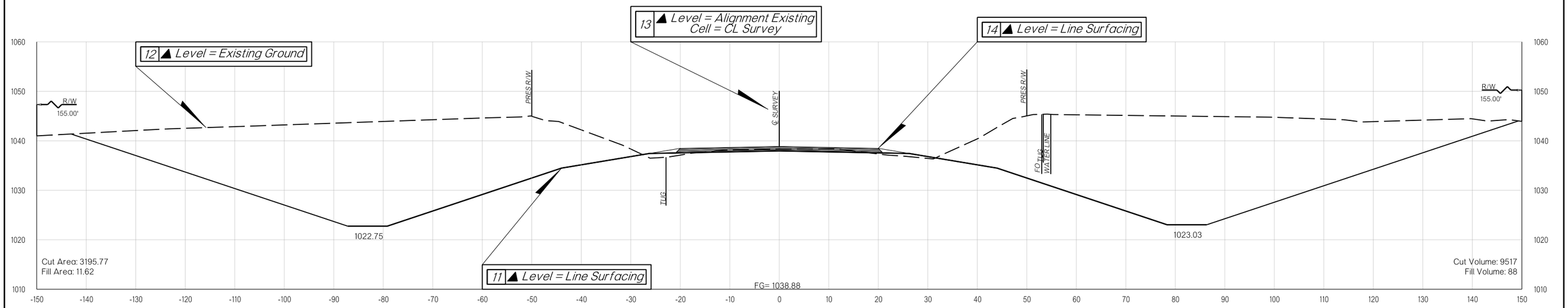
OKLAHOMA DEPARTMENT OF TRANSPORTATION
FOR INFORMATION ONLY

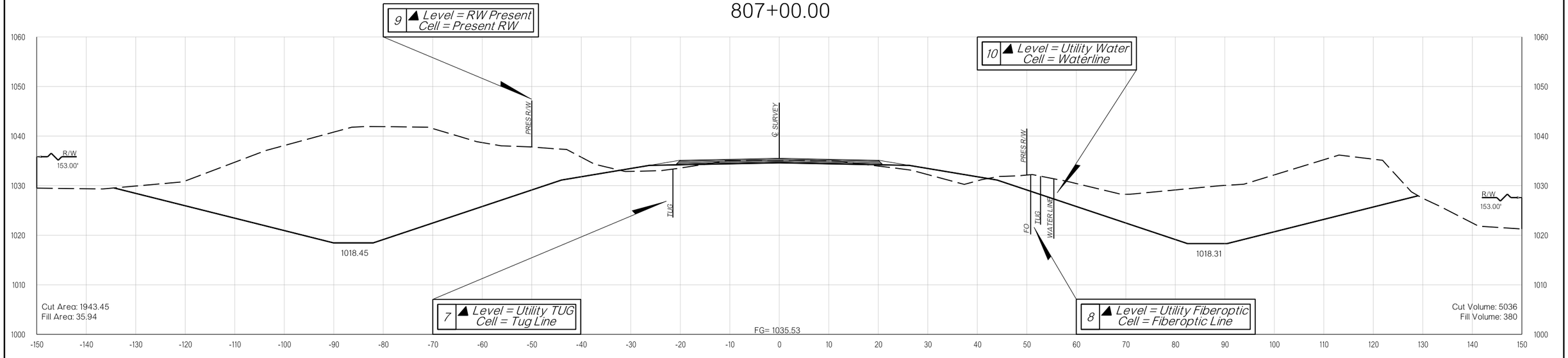
Cross Section Examples

END AREAS (SF)
PHASE 1

VOLUMES (CY)
PHASE 1



807+00.00



806+00.00

COUNTY SAMPLE HIGHWAY US-777 STATE JOB NO. 98765(04) SHEET NO. X2

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

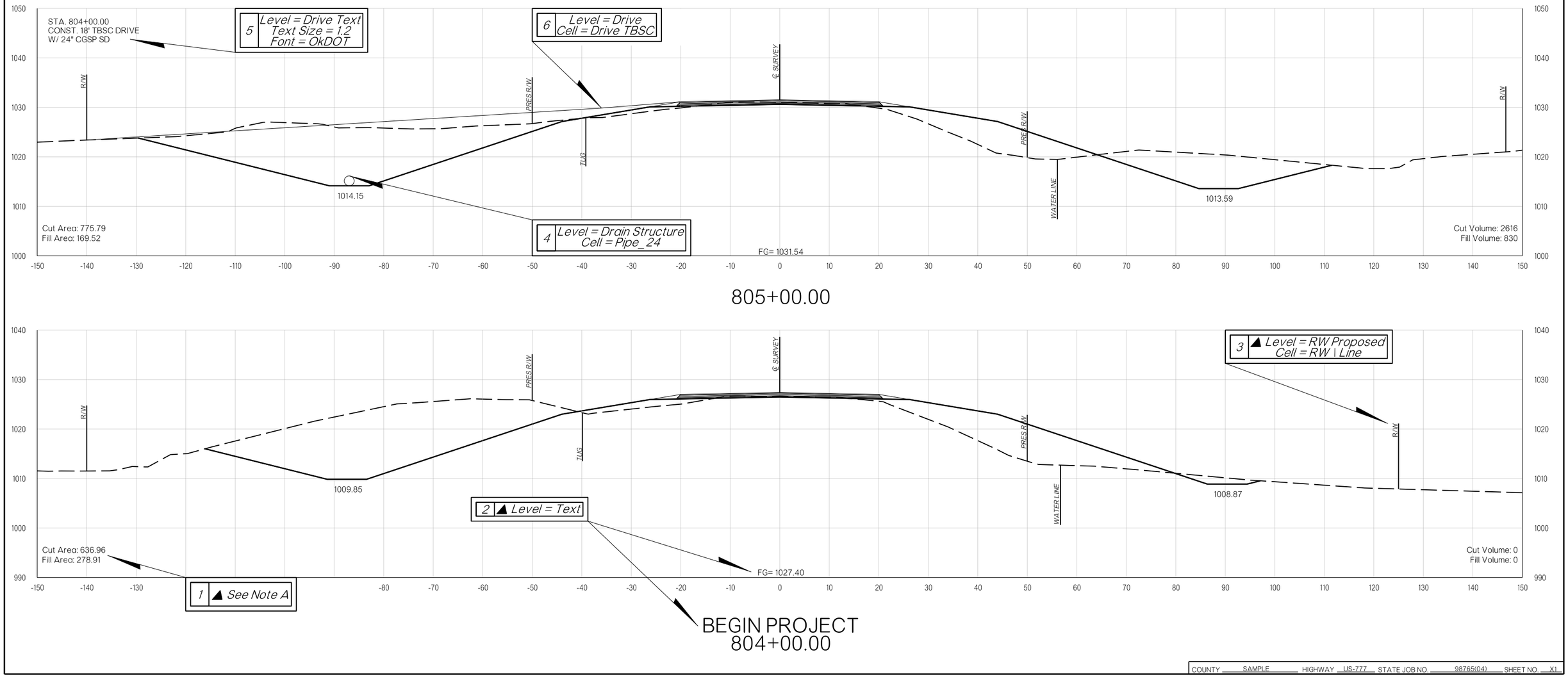
Cross Section Examples

END AREAS (SF)

PHASE 1

VOLUMES (CY)

PHASE 1



COUNTY SAMPLE HIGHWAY US-777 STATE JOB NO. 98765(04) SHEET NO. X1

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

Cross Section Examples

END AREAS (SF)

PHASE 1

VOLUMES (CY)

PHASE 1

Note: All Elements Should Be Placed Using Bylevel Atributes.
Standard Design Font= OkDOT
Standard Existing Font= OkDOT "Italic"

Cross Section Cell Library Location:
R:\CADD-Support\Microstation\Cells\Roadway\Xsec.Cel

Cross Section Sheet Seed File Location:
R:\CADD_Support\MicroStation\Seed Files\Roadway
North Zone (or) South Zone\12345(04)-Xsec.dgn

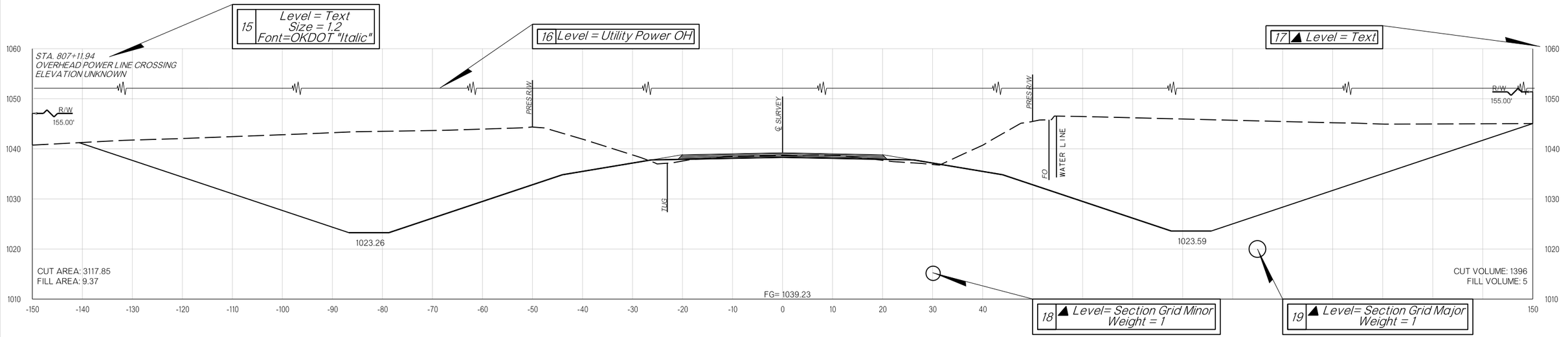
A	*Volume text level varies from "Phase 1 Volume Text" through "Phase 5 Volume Text" depending on the preference chosen when generating the End Ara Volumes*

B	*Only special ditch finished grades need to be annotated*

◢ *Generated Using Inroads*

Design elements that do not match the Typical design must have changes annotated. E.g. Spacial Ditches, Superelevated Slopes, Foreslope Adjustments...

#	Description
1	End Areas and Volumes Text
2◢	Finish Grade and Xsec Notes
3◢	Proposed RW
4	Sidedrain
5	Drive/Sidedrain Note
6	Drive
7◢	Tug Line
8◢	Fiberoptic Line
9◢	Present RW
10◢	Water Line
11◢	Design Surface
12◢	Existing Ground
13◢	CL Survey
14◢	Components
15	Crossing Utility Note
16	Overhead Powerline Crossing
17	Elevations
18◢	Vertical Gridline
19◢	Horizontal Gridline



807+11.94

COUNTY SAMPLE HIGHWAY US-77 STATE JOB NO. 98765(04) SHEET NO. X3

OKLAHOMA DEPARTMENT OF TRANSPORTATION
FOR INFORMATION ONLY

Cross Section with Typical Ditches and Superelevation

END AREAS (SF)
PHASE 1

VOLUMES (CY)
PHASE 1

Note: All Elements Should Be Placed Using Bylevel Atributes.
Standard Design Font= OkDOT
Standard Existing Font= OkDOT "Italic"

Design elements that do not match the Typical design must have changes annotated. E.g. Spacial Ditches, Superelevated Slopes, Foreslope Adjustments...

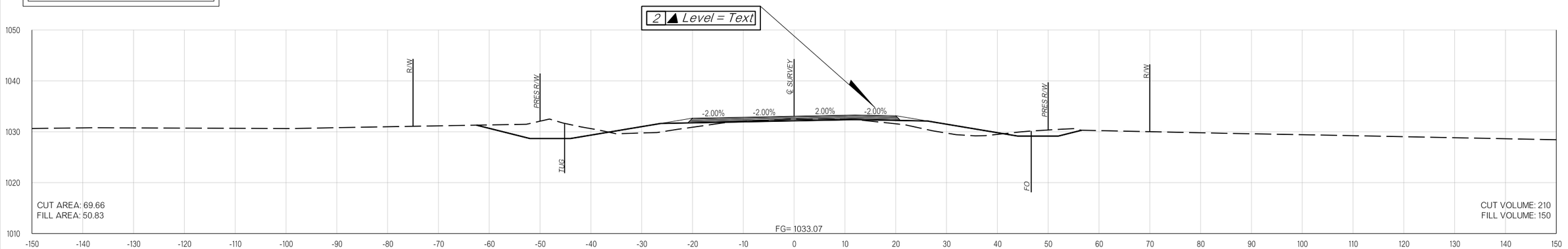
#	Description
1◢	Special Ditch Elevations
2◢	Superelevation Slopes

Cross Section Cell Library Location:
R:\CADD-Support\Microstation\Cells\Roadway\Xsec.Cel

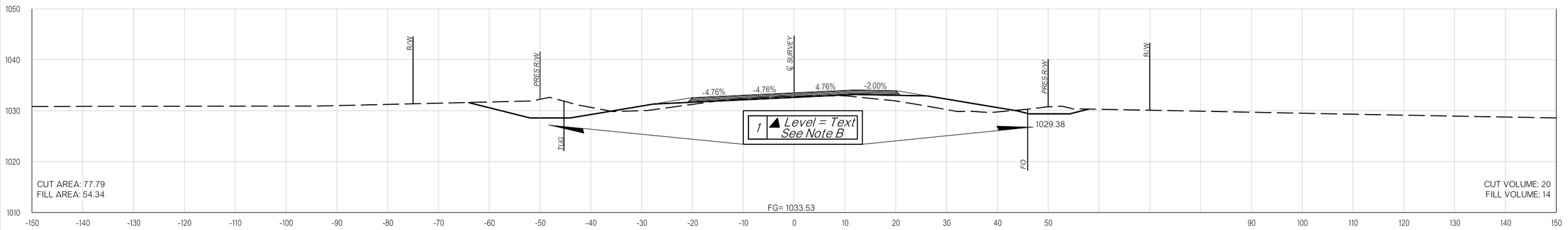
Cross Section Sheet Seed File Location:
R:\CADD_Support\MicroStation\Seed Files\Roadway
North Zone (or) South Zone\12345(04)-Xsec.dgn

A	*Volume text level varies from "Phase 1 Volume Text" through "Phase 5 Volume Text" depending on the preference chosen when generating the End Ara Volumes*
B	*Only special ditch finished grades need to be annotated*

◢ *Generated Using Inroads*



REVERSE SUPERELEVATION CROSS SLOPE
832+77.08



832+00.00

COUNTY SAMPLE HIGHWAY US-77 STATE JOB NO. 98765(04) SHEET NO. X4

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

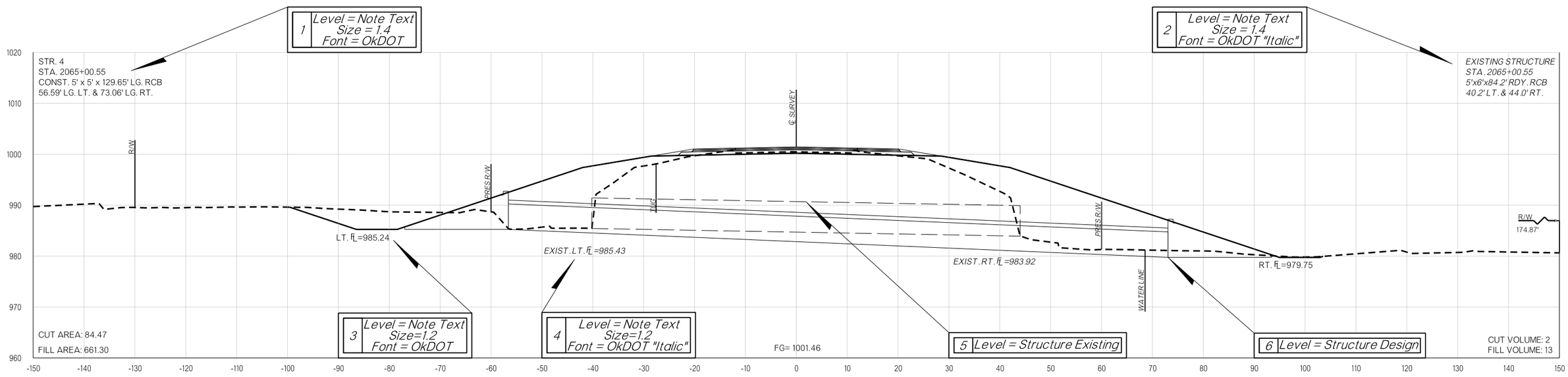
END AREAS (SF)

PHASE 1

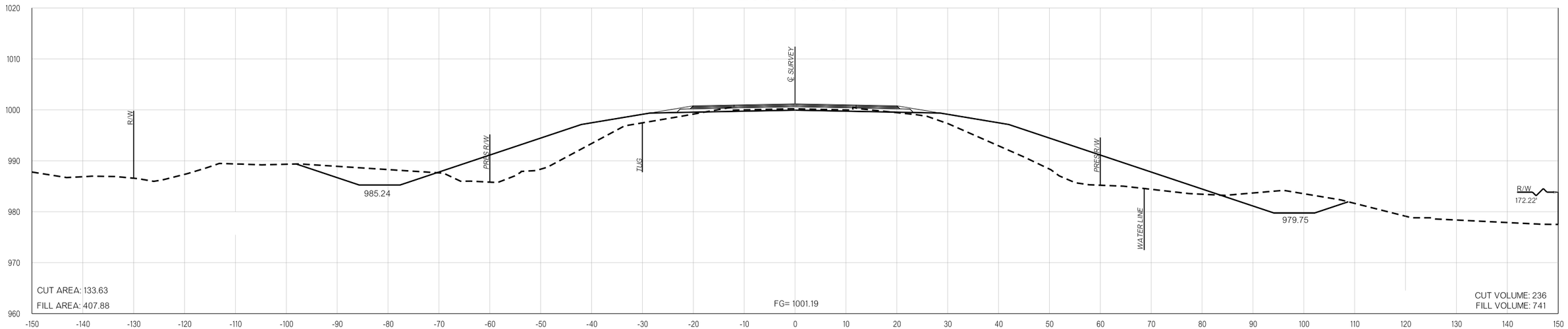
VOLUMES (CY)

PHASE 1

Cross Section with Structure



2065+50.00



2065+35.00

COUNTY SAMPLE HIGHWAY US-77 STATE JOB NO. 98765(04) SHEET NO. X5

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

END AREAS (SF)

PHASE 1

VOLUMES (CY)

PHASE 1

Cross Section with Structure

Note: All Elements Should Be Placed Using Bylevel Atributes.
Standard Design Font= OkDOT
Standard Existing Font= OkDOT "Italic"

Design elements that do not match the Typical design must have changes annotated. E.g. Spacial Ditches, Superelevated Slopes, Foreslope Adjustments...

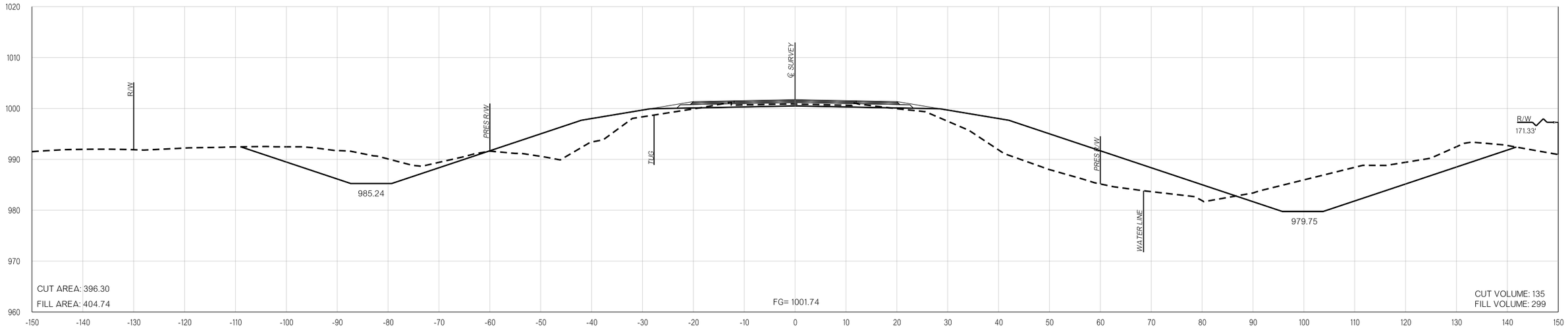
#	Description
1	Proposed Structure Note
2	Existing Structure Note
3	Proposed Structure Flowline
4	Existing Structure Flowline
5	Existing Structure
6	Proposed Structure

Cross section Cell Library Location:
R:\CADD-Support\Microstation\Cells\Roadway\Xsec.Cel

Cross Section Sheet Seed File Location:
R:\CADD_Support\MicroStation\Seed Files\Roadway
North Zone (or) South Zone\12345(04)-Xsec.dgn

A	*Volume text level varies from "Phase 1 Volume Text" through "Phase 5 Volume Text" depending on the preference chosen when generating the End Ara Volumes*
B	*Only special ditch finished grades need to be annotated*

◢ *Generated Using Inroads*

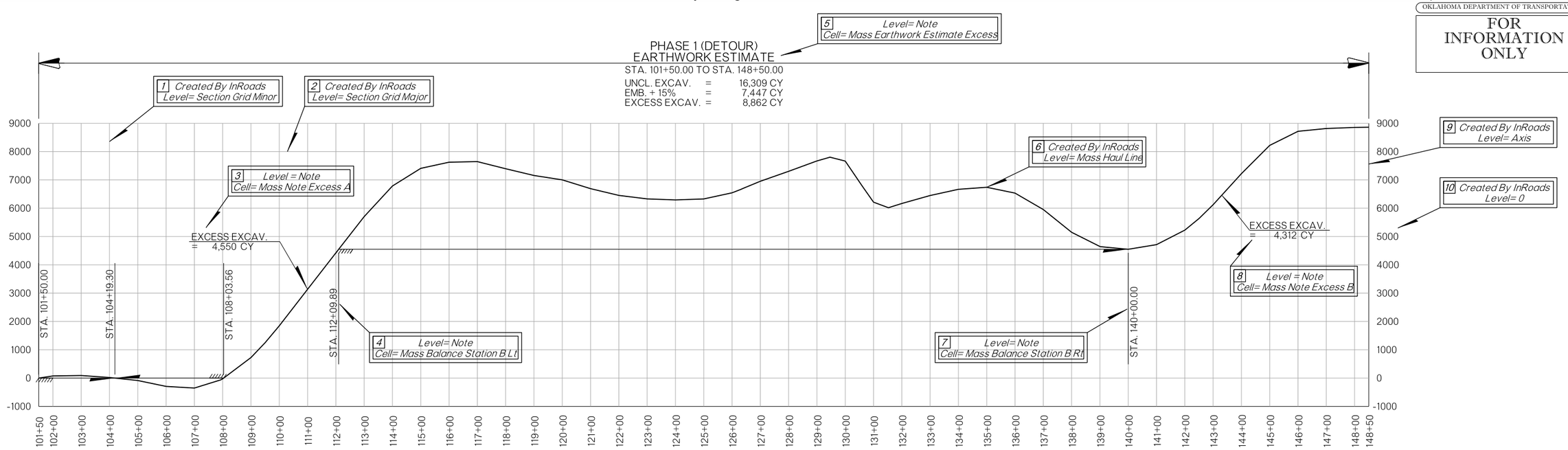


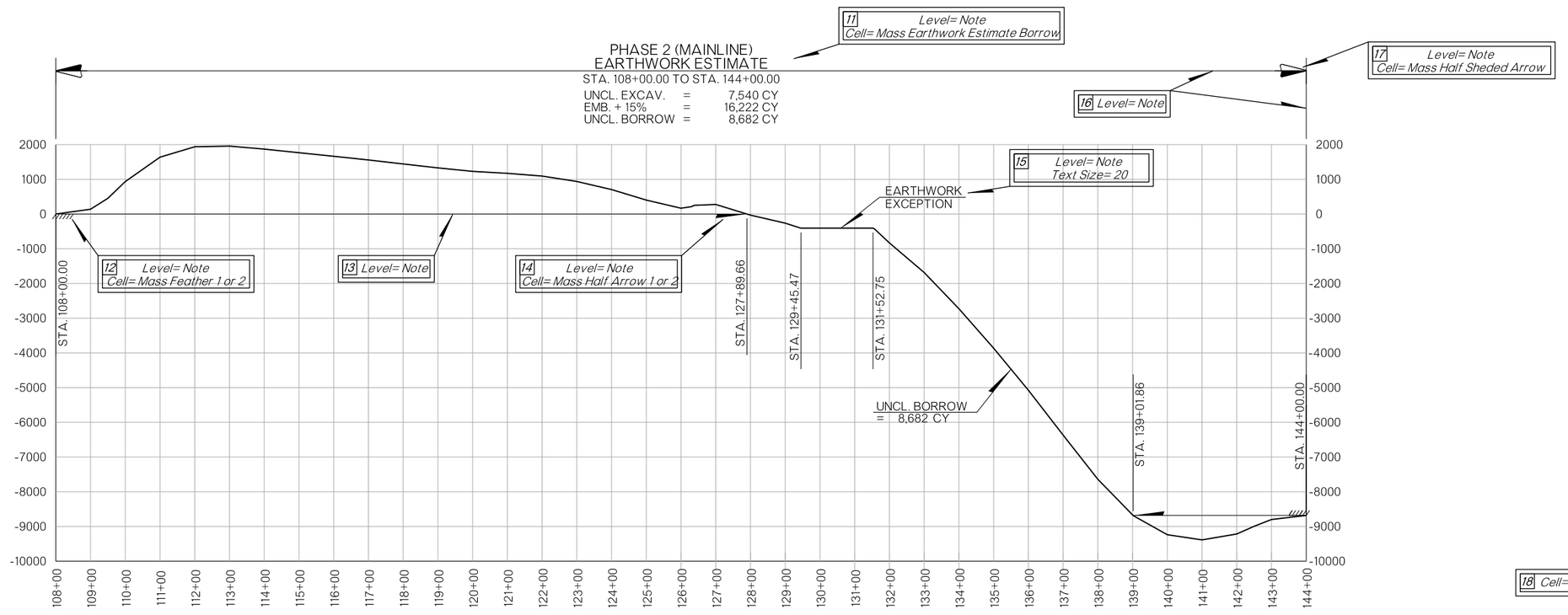
2065+65.00

COUNTY SAMPLE HIGHWAY US-77 STATE JOB NO. 98765(04) SHEET NO. X6

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY





MASS DIAGRAM PROVIDED FOR BIDDING PURPOSES ONLY. ACTUAL BALANCE POINTS TO BE DETERMINED BY CONTRACTOR AND VOLUME OF MATERIAL ENCOUNTERED DURING GRADING OPERATIONS. WHENEVER POSSIBLE, THE CONTRACTOR SHALL SEQUENCE EARTHWORK OPERATIONS IN ORDER TO OBTAIN THE MATERIAL FROM THE CUT SECTION FOR USE AS FILL RATHER THAN OBTAINING UNCLASSIFIED BORROW. MATERIAL DEPICTED AS WASTE SHALL ONLY BE CONSIDERED WASTE ONCE ALL EARTHWORK OPERATIONS HAVE BEEN COMPLETED. THIS MATERIAL SHALL BE USED TO REDUCE THE NEED FOR UNCLASSIFIED BORROW AT ANY LOCATION AND TIME THROUGH THE DURATION OF THE PROJECT.

MASS LINE DIRECTION

EXCAVATION CUT

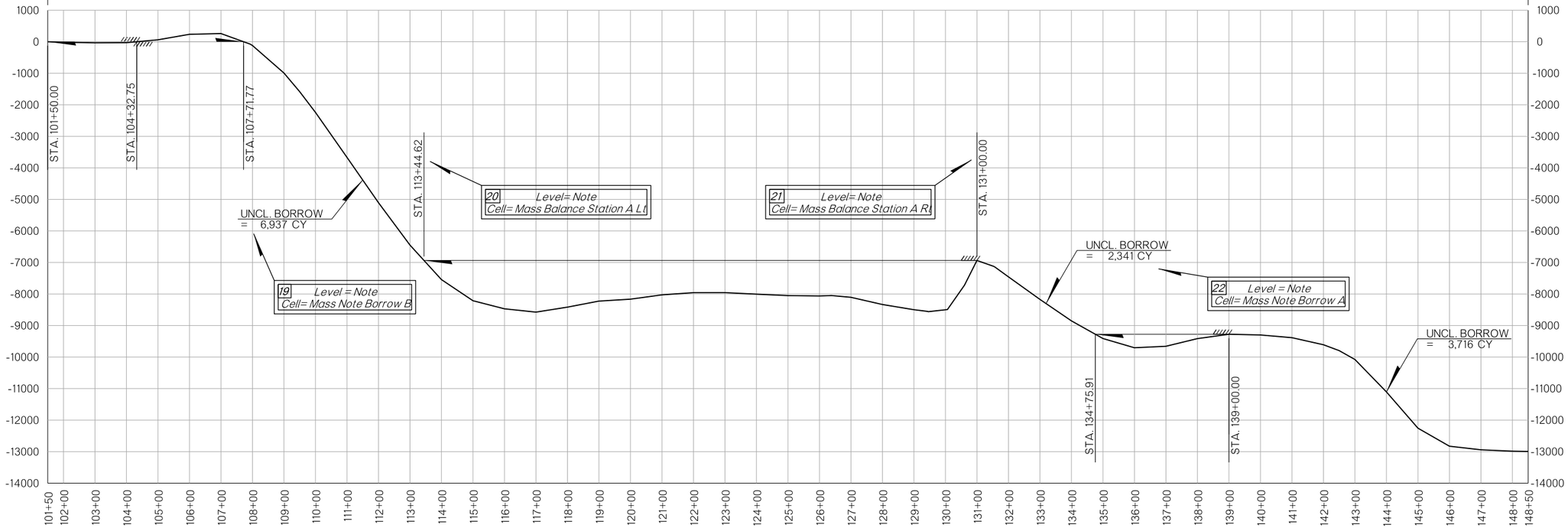
EMBANKMENT FILL

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			MASS DIAGRAM
APPROVED			
SQUAD			
COUNTY SAMPLE	HIGHWAY US-777	STATE JOB NO. 98765(04)	SHEET NO. 1

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

PHASE 3 (SECONDARY)
EARTHWORK ESTIMATE
STA. 101+50.00 TO STA. 148+50.00
UNCL. EXCAV. = 8,919 CY
EMB. + 15% = 21,913 CY
UNCL. BORROW = 12,994 CY



All Elements Should have Bylevel Atributes.
Standard Font= OkDOT
Standard Font Size= 20

For Place Note Command Set The Following Items.
Level= Note
Text Style= # Mass (20)
Dimension Style= Mass Note 1Line

#	Description
1	Vertical Grid Lines
2	Horizontal Grid Lines
3	Excess Excavation Note Above Haul Line
4	Balance Station Below Haul Line "Left"
5	Earthwork Estimate With Excess
6	Mass Haul Line
7	Balanced Station Below Haul Line "Right"
8	Excess Excavation Note Below Haul Line
9	Mass Diagram Graph Border Line
10	Mass Diagram Graph Text
11	Earthwork Estimate With Borrow
12	Feather For Balance Line
13	Balance Line
14	Arrow For Balance Line
15	Bridge Note
16	Earthwork Estimate Dimension Lines
17	Earthwork Estimate Dimension Arrow
18	Mass Sheet Border
19	Unclassified Borrow Note Below Haul Line
20	Balance Station Above Haul Line "Lt"
21	Balance Station Above Haul Line "Rt"
22	Unclassified Borrow Note Above Haul Line
23	Summary Of Earthwork
24	Summary Notes
25	Summary Symbols

SUMMARY OF EARTHWORK

STATION TO STATION	UNCLASSIFIED EXCAVATION 202(A)	EMBANKMENT +15%	EXCESS EXCAVATION	UNCLASSIFIED BORROW 202(D)
	CY	CY	CY	CY
EARTHWORK PHASE 1				
STA. 101+50.00 TO STA. 148+50.00	16,309	7,447	■● 0	-
EARTHWORK PHASE 2				
STA. 108+00.00 TO STA. 144+00.00	7,540	16,222	-	■ 0
EARTHWORK PHASE 3				
STA. 101+50.00 TO STA. 148+50.00	8,919	21,913	-	● 12,814
TOTALS	32,768	45,582	0	12,814

23 Level= Note Cell= Mass Summary Box

24 Level= Note Text Size= 20

■ EXCESS EXCAVATION REDUCED 8,682 CY TO BE USED TO REDUCE UNCLASSIFIED BORROW BETWEEN STA. 108+00.00 TO STA. 144+00.00.

● EXCESS EXCAVATION REDUCED 180 CY TO BE USED TO REDUCE UNCLASSIFIED BORROW BETWEEN STA. 101+50.00 TO STA. 148+50.00

25 Level= Note

Note: All Elements Should Be Placed Using Bylevel Atributes.
Standard Font= OkDOT
Standard Font Size= 20

Mass Diagrams Can Only Be Generated From Cross Sections. The Design Cross Section File Can Be "Save As" Or A New Set Of Cross Sections Can Be Generated Specifically For Mass Diagram.

Mass Diagram Sheet Seed File Location:
R:\CADD_Support\MicroStation\Seed Files\Roadway\North Zone (or) South Zone\12345(04)-Mass Diagram.dgn

Mass Diagram Cell Library Location:
R:\Cadd-Support\Microstation\Cells\Roadway\Xsec.Cel

Additional Cells Available:

Mass Half Shaded Arrow Double	Mass Equation Note A	Mass Equation Note B	Mass Earthwork Estimate Both
	STA. XXX+XX.XX BACK= STA. XXX+XX.XX AHEAD	STA. XXX+XX.XX BACK= STA. XXX+XX.XX AHEAD	PHASE 1 (TYPE) EARTHWORK ESTIMATE STA. XXX+XX.XX TO STA. XXX+XX.XX UNCL. EXCAV. = XX,XXX CY EMB. + 15% = XX,XXX CY EXCESS EXCAV. = XX,XXX CY UNCL. BORROW = XX,XXX CY

MASS DIAGRAM PROVIDED FOR BIDDING PURPOSES ONLY. ACTUAL BALANCE POINTS TO BE DETERMINED BY CONTRACTOR AND VOLUME OF MATERIAL ENCOUNTERED DURING GRADING OPERATIONS. WHENEVER POSSIBLE, THE CONTRACTOR SHALL SEQUENCE EARTHWORK OPERATIONS IN ORDER TO OBTAIN THE MATERIAL FROM THE CUT SECTION FOR USE AS FILL RATHER THAN OBTAINING UNCLASSIFIED BORROW. MATERIAL DEPICTED AS WASTE SHALL ONLY BE CONSIDERED WASTE ONCE ALL EARTHWORK OPERATIONS HAVE BEEN COMPLETED. THIS MATERIAL SHALL BE USED TO REDUCE THE NEED FOR UNCLASSIFIED BORROW AT ANY LOCATION AND TIME THROUGH THE DURATION OF THE PROJECT.

MASS LINE DIRECTION

EXCAVATION CUT / EMBANKMENT FILL

DESIGN			OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION
DRAWN			
CHECKED			MASS DIAGRAM
APPROVED			
SQUAD			

COUNTY SAMPLE HIGHWAY US-777 STATE JOB NO. 98765(04) SHEET NO. 2

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

KEY
- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKE
- TEMPORARY SEDIMENT FILTER
- RFD # ROCK FILTER DAM
- DISTURBED DRAINAGE AREA

Level="Varies" Cell=Key

E1/2SW1/4, SEC. 18
T-19-N, R-2-W

POB STA. 2039+51.20
BOP STA. 2039+51.20
MAG NAIL W/SHINER(OLS 1149) ON ℄

2039+51
2040+00
2045+00

S 00°06'45.47"E

GOVERNMENT LOT LINE CROSSING ℄ AT STA. 2041+23.97
9.20' SOUTH TO SE COR. LOT 4
1312.60' NORTH TO NE COR. LOT 4

BM #1 - STA. 2042+68.74 160.71L
3/4" IRON BAR
ELEV = 1016.77'

STA. 2044+28.22 18"X24.1' RDY. RCP
S.D. ℄ 28.6' RT.
℄ ELEV. = 1015.16 E. & 1015.72 W.

STA. 2047+82.40 18"X57.04' CGMP
S.D. ℄ 27.2' RT.
℄ ELEV. = 1007.26 E. & 1008.73 W.

2034+00.00

1-BW 36" HOG WIRE

TUG
PIONEER
50'-0"
60'-0"
4-BW
W
2.5" PVC WATER LINE
PI 2039+51.20
N 00°29'19.65" W

PRES. R/W
+50 50'
R/W
5-BW
+00 80'

Level= Silt Dike Cell= Silt Dike

GRASS
D1
EW-620
FIELD ENTRANCE
5-BW GATE
BRIDGE ICES
STA. 2047+80.00
CONST. 12' TBSC DR. W/24" CGSP SD

GATE OPEN
5-BW

E1/2NW1/4, SEC. 19
T-19-N, R-2-W

GRASS
CULTIVATED

E1/2SW1/4, SEC. 18
T-19-N, R-2-W

BM #2 - STA. 2049+93.93 170.82L
3/4" IRON BAR
ELEV = 996.66'

2050+00
POT STA. 2052+00
MAG NAIL W/SHINER(OLS 1149)

POT STA. 2052+00
MAG NAIL W/SHINER(OLS 1149)

STA. 2052+34.05
℄ 60"X24"X58.2' RDY. RCB
"X"ING ℄ 26.4' RT. & 24.2' LT.
℄ ELEV. = 994.11 RT. & 994.62 LT.

POT STA. 2052+00
MAG NAIL W/SHINER(OLS 1149)

WATER

STA. 2054+30.00
CONST. 12' TBSC DR. W/24" CGSP SD

S 00°04'21.80"E

2055+00

1/4 SEC. LINE NS-3115
CROSSING ℄ AT STA. 2054+41.99
2.10' SOUTH TO 1/4 COR.
2646.07' NORTH TO CEN. SEC.

STA. 2055+42.87 18"X40.6' CGMP
S.D. ℄ 63.48' LT.
℄ ELEV. = 991.16 E. & 992.97 W.
REMOVE

STA. 2057+16.63 BEG. BRIDGE
BRIDGE FLOOR ELEV. @ ℄ = 998.03'

STA. 2057+06.64 12"X28.8' CGMP
S.D. ℄ 28.1' LT.
℄ ELEV. =
FILLED W/ASPHALT N. & 990.79 S.

STA. 2058+25.10 ℄ 27.8' X 209.58' CONC. BRIDGE W/ASPHALT OVERLAY
14-65' & 7-80' I-BEAM TRESTLES
(WEST BEAVER CREEK)

STA. 2059+26.21 END BRIDGE
BRIDGE FLOOR ELEV. @ ℄ = 997.83'

2060+00
BM #4 - STA. 2059+97.06 198.90L
3/4" IRON BAR
ELEV = 998.29'

POT STA. 2064+00
MAG NAIL W/SHINER(OLS 1149)

2049+00.00

D1
D2

6-BW
5-BW
7-BW
4-BW
TREES
LOT 1
S 89°51'36.81"E
+42 60'
+75 60'
+02.92 60
+39.92 60'
+00 80'
+00 110'
R/W
2.5" PVC WATER LINE
METAL GATE (2)
N 00°37'56.19" W
BEG. 4" CASING FOR WATER LINE
GRASS
DIRT ROAD

Level= Note
STA. 2063+77.00
CONST. 12' TBSC DR. AS DIKE

Level= Silt Fence Cell= Silt Fence

Level= Erosion Control Cell= Fiber Log

ALL R.P.'s 1/2" I.B.s

Cell= Standard Erosion Border

E1/2NW1/4, SEC. 19
T-19-N, R-2-W

DESIGN		
DRAWN		
CHECKED		
APPROVED		
SQUAD		

OKLAHOMA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION

EROSION CONTROL DETAIL

COUNTY EXAMPLE HIGHWAY US-67 STATE JOB NO. 12345(04) SHEET NO. 13

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

Level= Note
Tx=14.0
Ft= OkDOT

Level= Summary Grid Border

SUMMARY OF SURFACING

STATION TO STATION	AGGREGATE BASE TYPE A 303(A)	FLY ASH 307(A)	MODIFIED SUBGRADE 307(J)	SEPARATOR FABRIC 325	TRAFFIC BOUND SURFACE COURSE TYPE E 402(E)	TACK COAT 407(B)	PRIME COAT 408	SUPERPAVE TYPE S3 (PG 64 -22 OK) 411(B)	SUPERPAVE TYPE S3 (PG 70 -28 OK) 411(B)	SUPERPAVE TYPE S4 (PG 64 -22 OK) 411(C)	SUPERPAVE TYPE S4 (PG 70 -28 OK) 411(C)
	CY	TON	SY	SY	TON	GAL.	GAL.	TON	TON	TON	TON
2045+00.00 TO 2049+00.00	452.81	72.24	2,229.63	2,266.67	153.79	270.35	1,295.18	357.98	149.34	80.50	119.47
2049+00.00 TO 2064+00.00	1,392.86	222.21	6,858.45	6,972.38	473.07	831.62	3,984.05	1,101.18	459.38	247.61	367.50
2064+00.00 TO 2079+00.00	1,698.03	270.90	8,361.11	8,500.01	576.72	1,013.82	4,856.94	1,342.44	560.03	301.86	448.02
2079+00.00 TO 2085+00.00	679.21	108.36	3,344.44	3,400.00	230.69	405.53	1,942.78	536.98	224.01	120.74	179.21
WIDENING FOR GUARDRAIL											
2053+69.10 TO 2056+86.63 RT.	0.00	0.00	0.00	0.00	0.00	11.77	54.94	21.98	0.00	13.19	0.00
2053+94.10 TO 2056+86.63 LT.	0.00	0.00	0.00	0.00	0.00	10.73	50.07	20.03	0.00	12.02	0.00
2059+56.21 TO 2062+48.74 RT.	0.00	0.00	0.00	0.00	0.00	10.73	50.07	20.03	0.00	12.02	0.00
2059+56.21 TO 2062+73.74 LT.	0.00	0.00	0.00	0.00	0.00	11.77	54.94	21.98	0.00	13.19	0.00
TOTALS=	4,222.91	673.71	20,793.62	21,139.06	1,434.27	2,566.32	12,288.97	3,422.59	1,392.75	801.12	1,114.20

Level= Summary Grids

SUMMARY OF DITCH TREATMENT

LOCATION			LENGTH	CONCRETE LINER				DITCH LINER PROTECTION 229
STATION TO STATION	LT.	RT.		BOTTOM WIDTH	CURTAIN WALLS	CLASS C CONCRETE 509(D)	DESIGN NO.	
			LF	FT.	EA.	CY		LF
2048+00.00 TO 2050+00.00	X		200'	8'	3	36.04	2A	200'
2050+00.00 TO 2051+00.00		X	100'	8'	2	18.14	2A	100'
2052+72.09 TO 2053+00.00		X	27.91'	8'	2	5.39	2A	27.91'
2065+75.00 TO 2066+25.00	X		50'	8'	2	9.30	2A	50'
2065+75.00 TO 2073+75.00		X	800'	8'	9	143.49	2A	800'
2067+75.00 TO 2073+00.00	X		525'	8'	7	94.42	2A	525'
TOTALS=						306.78		1,702.91

SUMMARY OF GUARDRAIL

LOCATION			BEAM GUARDRAIL W-BEAM SINGLE 623(A)	GUARDRAIL END TREATMENT (GET) 623(G)	GUARDRAIL BRIDGE CONNECTION TYPE A 623(I)	TOTAL PANEL LENGTH INCLUDING ANCHOR UNITS
STATION TO STATION	LANE LT.	LANE RT.				
			LF	EA.	EA.	LF
2053+69.10 TO 2056+86.63		X	162.50	1	1	227.53
2053+94.10 TO 2056+86.63	X		137.50	1	1	202.53
2059+56.21 TO 2062.48.74		X	137.50	1	1	202.53
2059+56.21 TO 2062+73.74	X		162.50	1	1	227.53
TOTALS=			600.00	4	4	

SUMMARY OF DRIVEWAYS

LOCATION			TYPE	LENGTH	WIDTH	RADII		TACK COAT 407(A)	PRIME COAT 408	SUPERPAVE TYPE S3 (PG 64 -22 OK) 411(B)	SUPERPAVE TYPE S4 (PG 64 -22 OK) 411(C)	TRAFFIC BOUND SURFACE COURSE TYPE E 402(E)
STATION	LT.	RT.				LT.	RT.					
								GAL.	TON	TON	TON	TON
2047+78.00		X	DRIVE	60'	12'	15'	15'	0.00	0.00	0.00	0.00	12.43
2054+30.00	X		DRIVE	57.44'	12'	15'	15'	0.00	0.00	0.00	0.00	11.96
2063+80.00	X	X	DRIVE	110'	12'	15'	15'	0.00	0.00	0.00	0.00	21.61
2070+20.00		X	DRIVE	85'	12'	15'	15'	0.00	0.00	0.00	0.00	17.02
2080+76.00	X		$_L$ RETURN	75'	30'	25'	25'	17.33	41.36	32.59	12.75	22.69
2080+78.00		X	$_L$ RETURN	75'	26'	25'	25'	15.66	37.47	29.48	11.51	19.69
TOTALS=								32.99	78.83	62.07	24.26	105.40

SUMMARY OF FENCE

LOCATION			FENCE-STYLE SWF (5 BARBED WIRE) 624(C)
STATION TO STATION	LT.	RT.	
			LF
2043+55.84 TO 2056+86.63	X		1,350.48
2043+53.41 TO 2056+86.63		X	1,352.14
2059+56.21 TO 2080+47.93	X		2,130.37
2059+56.21 TO 2080+46.66		X	2,136.66
2081+07.15 TO 2086+37.29	X		536.53
2081+09.62 TO 2086+46.56		X	542.06
TOTALS=			8,048.24

SUMMARY OF DRAINAGE STRUCTURES

STR. NO.	P&P SHT. NO.	STATION	DESCRIPTION	DESIGN	STRUCTURAL INSTALLATION UNCL. EXCAV. 202(A)	STRUCTURAL INSTALLATION STRUCT. EXCAV. 501(A)	CLASS AA CONC. 509(A)	REINF. STEEL 511(A)	CGSP 613(B) 24" ROUND	CET 613(M) NON-GRATED 24"	REM. OF HDWL. 619(B)
					CY	CY	CY	LBS.	LF	EA.	EA.
1	1	2047+78.00	CONST. 24" X 60' CGSP SD W/ CET 46' RT.	SPI-4; CET6S-2	0.00	0.00	0.00	0.00	60	2	0
2	2	2052+34.05	CONST.5'x2'x84.19' LG.RCB SKEW 30° RT.FWD. 42.36' LG.LT.&41.83' LG.RT.	RCB-C1-3&4&5; RCB-E1-H2-30-1,2,3;SBI-4; RCB-CW1-D4-30	391.70	20.69	58.16	8,330.45	0	0	2
3	2	2054+30.00	CONST. 24" X 52' CGSP SD W/ CET 53' LT.	SPI-4; CET6S-2	0.00	0.00	0.00	0.00	52	2	0
4	3	2065+00.55	CONST.5'x5'x129.65' LG. RCB 56.59' LG. LT. & 73.06' LG. RT.	RCB-C1-3&4&5; RCB-E1-H5-0-1,2; SBI-4; RCB-CW1-D4-0	3,301.47	33.88	127.38	19,149.02	0	0	2
5	3	2070+20.00	CONST. 24" X 66' CGSP SD W/ CET 46' RT.	SPI-4; CET6S-2	0.00	0.00	0.00	0.00	66	2	0
6	4	2080+76.00	CONST. 24" X 72' CGSP SD W/ CET 65.33' LT.	SPI-4; CET6S-2	0.00	0.00	0.00	0.00	72	2	2
7	4	2080+78.00	CONST. 24" X 74' CGSP SD W/ CET 56.92' RT.	SPI-4; CET6S-2	0.00	0.00	0.00	0.00	74	2	0
				TOTALS=	3,693.17	54.57	185.54	27,479.47	324	10	6

LIST OF ALL SUMMARIES

DRAINAGE STRUCTURE DESIGN RECORD
SUMMARY OF DITCH TREATMENT
SUMMARY OF DRAINAGE STRUCTURES
SUMMARY OF DRIVEWAYS
SUMMARY OF EARTHWORK
SUMMARY OF EROSION CONTROL
SUMMARY OF FENCE
SUMMARY OF GUARDRAIL
SUMMARY OF MAILBOX INSTALLATION
SUMMARY OF STORM SEWERS AND DRAINAGE STRUCTURES
SUMMARY OF SURFACING
SUMMARY OF TEMPORARY DRAINAGE STRUCTURES
SUMMARY OF TEMPORARY SEDIMENT CONTROLS

Cell= Standard Summary Sheet

DESIGN		
DRAWN		
CHECKED		
APPROVED		
SQUAD		

OKLAHOMA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION

SUMMARY SHEET

COUNTY SAMPLE HIGHWAY US-55 STATE JOB NO. 12345(04) SHEET NO. 4

OKLAHOMA DEPARTMENT OF TRANSPORTATION

FOR INFORMATION ONLY

Pay Item Notes Location:
Y:\Standards\2009 Roadway Notes

GENERAL CONSTRUCTION NOTES

Level= Sheet Text
Tx= 12.0
Ft= OkDOT

FOR PROJECTS THAT INCLUDE WIDENING AND/OR RESURFACING, THE CONTRACTOR SHALL SCHEDULE OPERATIONS TO MINIMIZE POTENTIAL DROP-OFF HAZARDS AND SHALL SUBMIT A SEQUENCE OF CONSTRUCTION OPERATIONS TO THE RESIDENT ENGINEER FOR APPROVAL BEFORE OPERATIONS BEGIN. ANY PORTION OF THE CONSTRUCTION OPERATIONS, SUCH AS SUPERPAVE LAYING OPERATIONS, EXCAVATION FOR PAVEMENT WIDENING, OR EXTENSION OF ROADWAY STRUCTURES, SHALL BE LIMITED TO ONE SIDE AT A TIME, AND THE PROCEDURES OUTLINED IN THE PAVEMENT DROP-OFF TREATMENT STANDARD PDT-1 (LATEST REVISION) SHALL BE IMPLEMENTED. ONLY THAT AMOUNT OF OPEN TRENCH WILL BE ALLOWED THAT CAN BE SURFACED IN 1 (ONE) DAY'S TIME WITHOUT APPROVAL BY THE ENGINEER. LIGHTS, SIGNS AND BARRICADES SHALL BE MOVED AS WORK PROGRESSES.

ALL TREES, BRUSH, AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER SHALL BE CLEANED OUT TO THE RIGHT-OF-WAY LINE, AT EACH STRUCTURE AND BRIDGE, IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY RIGHT-OF-WAY FENCE AS REQUIRED. WHEN THE PORTION OF THE PROJECT THAT REQUIRED THIS FENCE IS COMPLETED, THE TEMPORARY FENCE SHALL BE REMOVED, AND PERMANENT RIGHT-OF-WAY FENCING SHALL BE RESTORED OR INSTALLED IN A MANNER APPROVED BY THE ENGINEER. ALL COST OF TEMPORARY FENCING SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

ALL FLOWLINES THAT ARE TO BE FILLED SHALL BE THOROUGHLY TAMPED BEFORE CONSTRUCTION OR EXTENSION OF DRAINAGE STRUCTURES. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

IN ORDER TO ALLEVIATE DUST CONDITIONS DURING GRADING OPERATIONS AND BEFORE PAVEMENT WORK IS COMPLETED, THE CONTRACTOR SHALL SPRINKLE GRADING AT INTERVALS APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL NOT WASTE ANY EXCESS EXCAVATION UNTIL ALL PLANNED EMBANKMENTS AND BACKFILLS ARE COMPLETED. EXCESS UNCLASSIFIED EXCAVATION MATERIAL DETERMINED BY THE ENGINEER TO BE SUITABLE FOR BACKFILL SHALL BE USED TO REDUCE ANY UNCLASSIFIED BORROW NEEDED. COST OF SECOND HANDLING SHALL BE INCLUDED IN OTHER ITEMS OF WORK. ANY REMAINING EXCESS EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

PRIME COAT SHALL BE APPLIED TO THE SUBGRADE IMMEDIATELY AFTER FINAL COMPACTION AND SHAPING TO RETAIN MOISTURE FOR PROPER CHEMICAL REACTION OF THE SOIL ADDITIVE.

THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

VEGETATIVE MULCHING: THE VEGETATIVE MULCH SHALL BE ANCHORED IN ACCORDANCE WITH THE "ADHESIVE SPRAY METHOD", AS SPECIFIED IN 233.04B(1) OF THE STANDARD SPECIFICATIONS.

AREAS ON WHICH SALVAGED TOPSOIL IS TO BE REPLACED SHALL HAVE 18-46-0 FERTILIZER APPLIED, AT THE RATE OF 150 POUNDS PER ACRE, JUST PRIOR TO THE REPLACEMENT OF SALVAGED TOPSOIL.

PIPE UNDERDRAIN QUANTITIES ESTIMATED ONLY. LOCATION, IF AND WHERE REQUIRED, TO BE DETERMINED BY THE ENGINEER.

T.B.S.C. SURFACES SHALL BE SPRINKLED WITH WATER AND ROLLED WITH A PNEUMATIC ROLLER IN A MANNER APPROVED BY THE ENGINEER.

THE USE OF A MTV (MATERIAL TRANSFER VEHICLE) WILL NOT BE REQUIRED FOR THIS PROJECT.

IN ACCORDANCE WITH THE OKLAHOMA UNDERGROUND FACILITIES DAMAGE PREVENTION ACT THE CONTRACTOR SHALL NOTIFY THE OKLAHOMA ONE-CALL SYSTEM, INC. 48 HOURS PRIOR TO BEGINNING EXCAVATION. OKLAHOMA ONE-CALL SYSTEM, INC. "CALL OKIE" 1-800-522-6543 OR 811.

SEQUENCE OF CONSTRUCTION

1. DETOUR TRAFFIC SOUTH ONTO BROADWAY THEN EAST ONTO E0630 RD THEN NORTH ONTO N3140 RD.
2. CLOSE HIGHWAY.
3. REMOVE EXISTING BRIDGE.
4. CONSTRUCT NEW GRADE OVER BRIDGE.
5. CONSTRUCT NEW PAVEMENT & STRIPE.
6. REOPEN HIGHWAY.

AN ALTERNATIVE SEQUENCE OF CONSTRUCTION MAY BE DEVELOPED AT THE DISCRETION OF THE ENGINEER.

PAY ITEM NOTES

(R-4) INCLUDES 100 CU. YDS. FOR DRIVEWAYS, RETURNS, DIKES, AND MISCELLANEOUS EARTHWORK.

(R-5) AN ESTIMATED QUANTITY OF 4,677 C.Y. TOPSOIL TO BE RESERVED FOR REPLACEMENT OF APPROXIMATELY 5" ON COMPLETED FORESLOPES, DITCHES, AND BACKSLOPES. THIS QUANTITY IS INCLUDED IN THE EARTHWORK BALANCE. ANY ADDITIONAL EXCAVATION REQUIRED IN CUT SECTIONS TO ALLOW FOR PLACEMENT OF TOPSOIL TO FINAL GRADE, SHALL BE INCLUDED IN THE PRICE BID.

(R-7) FOR TYPE A-SALVAGED TOPSOIL PRICE BID TO INCLUDE COST OF 18-46-0 FERTILIZER, ESTIMATED AT 150 POUNDS PER ACRE.

(R-8) FOR SOLID SLAB SODDING PRICE BID TO INCLUDE COST OF WATERING, ESTIMATED AT 40 GALLONS PER SY.

(R-11) THE QUANTITIES ESTIMATED FOR TEMPORARY EROSION AND SEDIMENT CONTROL IS 7.03 ACRES.

(R-13) ESTIMATED AT 200 POUNDS OF 10-20-10 FERTILIZER PER 1,000 SQ. YDS. OF SODDING AND/OR SPRIGGING.

(R-16) QUANTITY BASED ON TWO APPLICATIONS.

(R-20) ESTIMATED AT 64.80 LBS. PER SQ. YD. (SOIL EST. AT 120 LBS. PER CU. FT.).

(R-25) ESTIMATED AT 120 LBS. PER CU. FT.

(R-28) PRIME COAT SHALL BE APPLIED AT AN ESTIMATED RATE OF 0.35 GAL. PER SQ. YD. WHEN APPLIED TO SUBGRADE, AND 0.25 GAL. PER SQ. YD. WHEN APPLIED TO AGGREGATE BASE. THE ACTUAL CUTBACK PRIME COAT REQUIRED FOR PLACEMENT OPERATIONS WILL BE DETERMINED BY THE CONTRACTOR, AND SHALL CONSIDER THE RESIDUE FROM DISTILLATION PERCENTAGE SHOWN IN SECTION 708.03 OF THE STANDARD SPECIFICATIONS.

(R-32) ESTIMATED AT 112 LBS. PER SQ. YD. PER 1" THICK.

(R-48) INCLUDES REMOVAL OF ALL EXISTING ROADWAY DRAINAGE STRUCTURES, HEADWALLS (UNLESS OTHERWISE SPECIFIED), INLETS, FENCES, AND OTHER STRUCTURES WITHIN THE RIGHT OF WAY.

(R-49) TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.

(R-50) MATERIALS REMOVED SHALL NOT BE MEASURED FOR PAYMENT UNDER SECTION 202.06 UNCLASSIFIED EXCAVATION.

(R-52) INCLUDES 2% FOR GROUND MEASUREMENT.

(R-53) ALL GATES AND GATE END POSTS FOR STRANDED WIRE FENCE (SWF) SHALL BE CONSTRUCTED AT THE SAME WIDTH AS THE EXISTING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

Cell= Summary of PQ Chart
Level= Pay_Quantitiy_Data
Tx= 12.0
Ft= OkDOT

PAY QUANTITIES

ROADWAY 0100

ITEM		DESCRIPTION		UNITS	QUANTITY
201(A)	0102	CLEARING AND GRUBBING		LSUM	1.00
202(A)	0183	UNCLASSIFIED EXCAVATION		CY	28,588.00
205(A)	4229	TYPE A-SALVAGED TOPSOIL	(R-5)(R-7)	LSUM	1.00
221(C)	2801	TEMPORARY SILT FENCE		LF	1,025.00
221(F)	0100	TEMPORARY SILT DIKE		LF	126.00
229	4318	DITCH LINER PROTECTION		LF	1,703.00
230(A)	2806	SOLID SLAB SODDING	(R-8)	SY	34,043.00
233(A)	2817	VEGETATIVE MULCHING	(R-11)	AC	7.03
234(A)	2824	FERTILIZING (10-20-10)	(R-13)	TON	3.40
241	2832	MOWING	(R-16)	AC	26.72
303(A)	2100	AGGREGATE BASE TYPE A		CY	4,223.00
307(A)	4200	FLY ASH	(R-20)	TON	674.00
307(J)	4290	MODIFIED SUBGRADE		SY	20,794.00
325	5271	SEPARATOR FABRIC		SY	21,140.00
402(E)	0225	TRAFFIC BOUND SURFACE COURSE TYPE E	(R-25)	TON	1,665.00
407(B)	0250	TACK COAT		GAL	2,600.00
408	5774	PRIME COAT	(R-28)	GAL	12,368.00
411(B)	5940	SUPERPAVE, TYPE S3(PG 70-28 OK)	(R-32)	TON	1,393.00
411(B)	5945	SUPERPAVE, TYPE S3(PG 64-22 OK)	(R-32)	TON	3,401.00
411(C)	5955	SUPERPAVE, TYPE S4(PG 70-28 OK)	(R-32)	TON	1,115.00
411(C)	5960	SUPERPAVE, TYPE S4(PG 64-22 OK)	R-32)	TON	910.00
501(A)	0313	STRUCTURAL EXCAVATION UNCLASSIFIED		CY	55.00
509(B)	0321	CLASS AA CONCRETE		CY	186.00
509(D)	0325	CLASS C CONCRETE		CY	186.00
511(A)	0332	REINFORCING STEEL		LB	27,550.00
613(B)	0690	24" CORR. GALV. STEEL PIPE		LF	308.00
613(M)	7179	TYPE B6 CULVERT END TREATMENT		EA	8.00
619(A)	0920	REMOVAL OF STRUCTURES & OBSTRUCTIONS	(R-48) (R-49)	LSUM	1.00
619(B)	0291	REMOVAL OF HEADWALL	(R-49)	EA	4.00
619(B)	4728	REMOVAL OF ASPHALT PAVEMENT	(R-49) (R-50)	SY	10,246.00
619(B)	4780	REMOVAL OF GUARDRAIL	(R-49)	LF	554.00
619(C)	0924	SAWING PAVEMENT		LF	48.00
623(A)	0932	BEAM GUARD RAIL W-BEAM SINGLE		LF	600.00
623(G)	8571	GUARDRAIL END TREATMENT (GET)		EA	4.00
623(I)	8675	GUARDRAIL BRIDGE CONNECTION-TYPE A		EA	4.00
624(C)	4459	FENCE-STYLE SWF (5 BARBED WIRE)	(R-49) (R-52) (R-53)	LF	8,022.00

Cell= State Signature Box

PREPARED BY:
OKLAHOMA DEPARTMENT OF TRANSPORTATION
DESIGN DIVISION

A. ENGINEER , P.E.
OKLA. REG. NO. 12345

DATE

REGISTERED PROFESSIONAL ENGINEER
A. ENGINEER
12345
OKLAHOMA

DESIGN		
DRAWN		
CHECKED		
APPROVED		
SQUAD		

OKLAHOMA DEPARTMENT OF TRANSPORTATION
ROADWAY DESIGN DIVISION

SUMMARY OF PAY QUANTITIES (ROADWAY)

COUNTY EXAMPLE HIGHWAY US-72 STATE JOB NO. 12345(04) SHEET NO. 3

Section 12
Plan Production "How To" Examples

- **Requests:**
  - **Additional Survey**
  - **As-Built Plans**
  - **Signed Survey Data Sheets**
  - **Soils Report**
  - **Preliminary Pavement Design**
  - **Final Pavement Design**
  - **Traffic Design Data**
  - **Updated Traffic Data**
  - **Collision Data**
  - **Traffic Sheets**
  - **Calendar Days**
  - **OWRB Permit**
  - **Construction Plan Review**
  - **Submitted Plans Copy**
- **Revisions:**
  - **Change in Plans**
  - **Revision After Submission (Before Letting)**
  - **RW Plan Non-Compliance**
  - **RW Revision Request**
  - **Submissions:**
  - **Final Submission**
  - **RW Submission**
  - **Submitting To Bridge Division**

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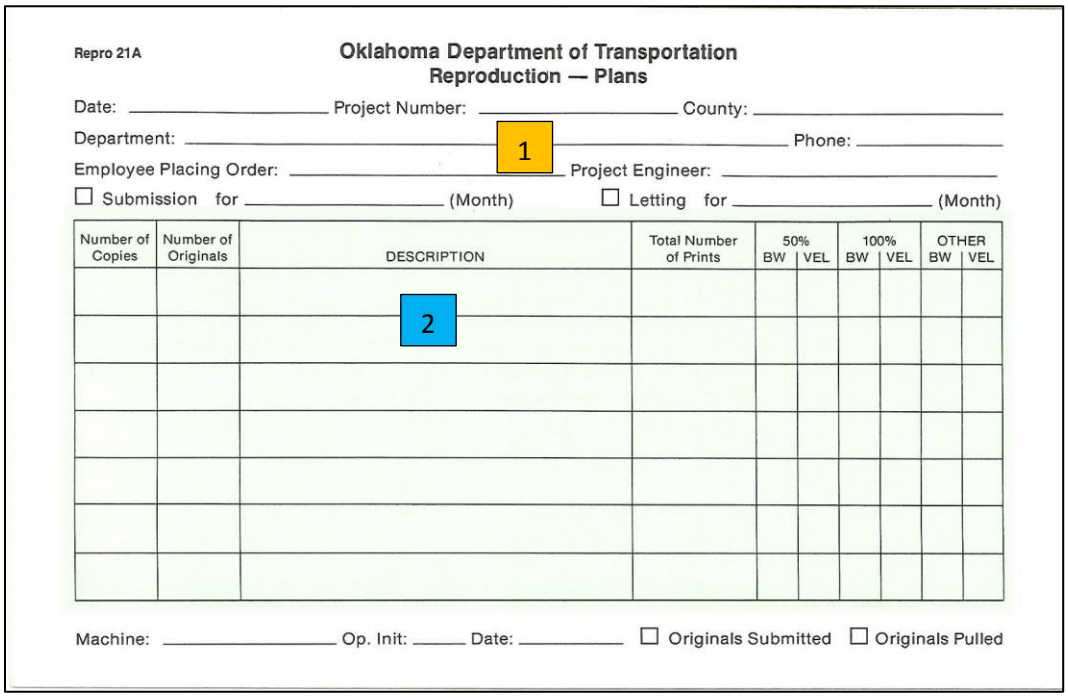
As-Built Plans

When You Should Request As-Builts

As-built plans should be obtained as soon as the project is initiated. Often a set of as-built plans will contain information that is not readily available from other sources. On occasion certain simple projects (overlays, the addition median openings, etc.) may use only edited as-built sheets instead of fully developed P&P sheets.

Procedure: Fill out a Print Shop Request form (pictured below).



Repro 21A

Oklahoma Department of Transportation
Reproduction — Plans

Date: _____ Project Number: _____ County: _____

Department: _____ Phone: _____

Employee Placing Order: _____ Project Engineer: _____

☐ Submission for _____ (Month) ☐ Letting for _____ (Month)

Number of Copies	Number of Originals	DESCRIPTION	Total Number of Prints	50% BW	50% VEL	100% BW	100% VEL	OTHER BW	OTHER VEL

Machine: _____ Op. Init: _____ Date: _____ ☐ Originals Submitted ☐ Originals Pulled

1 The information at the top should be for the current project, not the older as-built project needed. It is very important to include the name and office phone number so that reproduction can contact the employee placing the order with questions.

2 In the Description area put the Township, Range and Section for the location. Include any intersections that may cross the path of the needed area. Put in any additional information which may help them locate the as-built. If the project numbers of older projects that may contain the information needed is known mention it here.

Reproduction branch has several completed project books. These are county map books that have project numbers depicted for existing highways. There are also large wall maps of the Oklahoma City and Tulsa area with completed projects listed. These resources may enable you to list as-built projects by number in the description area of your request.

As-Built Plans

Once the form is complete place it on the clip board in the Print Shop, the clip board is kept on the wooden shelves at the back of the lobby area.

It can take as long as a week before reproduction can track down the requested as-builts. Keep this in mind when placing the order. Once located, copies of the as-built plans will be placed on the wooden shelves in the print shop to be picked up.

Additional Survey

Step 1 – Determine Needs

Determine what additional Survey information you need. When making a request keep in mind any future needs and be sure you request enough. It is better to request a little more than needed than to send multiple requests.

Step 2 – Prepare Request Letter

Prepare a Request Letter. The Engineering Manager's signature will be required.

In the letter, describe the location(s) needing additional information. Use the stationing that was included with the original survey files. Attach a map or aerial photo with the letter. The map/aerial photo should include the following:

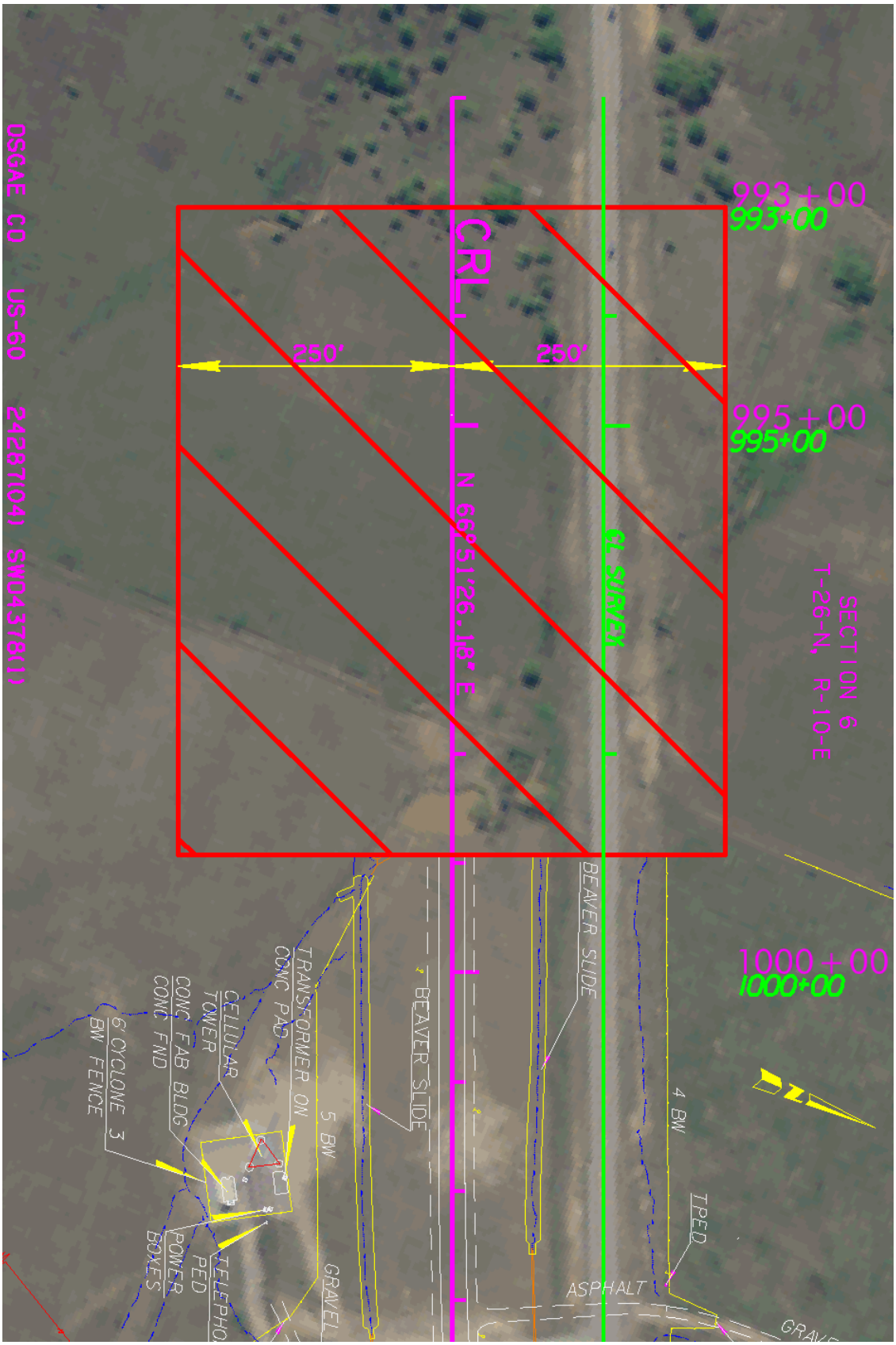
- All alignments with stationing (CL Survey and any CRLs)
- Each alignment should be clearly labeled and bearings should be shown
- A north arrow
- Clearly mark the area for which additional survey is needed and dimension it
- County name
- Highway name
- J/P number
- Original SWO number for the survey

Include any additional information that will be relevant to the survey data needed. It is better to provide more information than is needed than it is to provide too little. On the following page is an example of an aerial photo used to request additional survey.

Step 3 – Deliver Request

Deliver the completed letter and map/photo to the Survey Division.

Additional Survey



Soils Report

(Page Reserved for Soils Report File Structure Information)

Traffic Design Data

As soon as a preliminary Title sheet has been prepared it is time to request Design Traffic Data for the project. It is recommended that you request traffic data based on when the project is scheduled for letting, otherwise updated traffic data may have to be requested if the information becomes dated. Approving data several years in advance of the current year is acceptable to Planning Division.

Items Needed:

- A PDF color copy of the project location with the project extents highlighted or clearly marked. (This can be taken from the Control Section Maps book or the Needs Study and Design Sufficiency Report.)

- Prepare the Request Traffic Data Letter. A copy of this letter should be saved to the Project Documents folder under the Traffic sub-folder before you start making changes.

- Email these PDF documents to the Squad Supervisor, and CC a copy to the Project Engineer, and Engineering Manager. Also, a copy of all these PDFs should be placed in the Documents directory for the project.

Preliminary Pavement Design

As soon as Design Traffic Data has been obtained and a Title Sheet drawn the Preliminary Pavement Design can be requested.

Items Needed:

- A PDF of the Title Sheet
- A PDF of the Design Traffic Data received from Traffic Division.
- A PDF Location Map clearly showing the extents of the project (the location map on the Title Sheet may be sufficient but a larger, clearer copy should be included for the Pavement Design Branch's use).
- A PDF of the preliminary Typical Section. This can be *very preliminary*. It only needs to show lane distribution. The thickness of pavement is irrelevant since there won't be verifiable data available yet.

Email these PDF documents to the Squad Supervisor, and CC a copy to the Project Engineer, and Engineering Manager. Also, Place a copy of all these PDFs in the Documents directory for the project.

NOTE: Occasionally there may be a need to request pavement design for only part of a project, for instance a detour is added at a later date and a pavement design is needed for it. In this case be sure Squad Supervisor is aware the scope of what is needed.

Collision Data

Collision data is requested on jobs in an effort to identify potential trouble areas on a project. A higher than expected incident of accidents can be an indicator of poor sight distance, existing design flaws or other problems. Troubled areas that might be otherwise overlooked may be revealed by an examination of the collision data. This information can help engineers to incorporate corrective design elements into a project and thus make the roads safer for us all.

When to Request:

Collision Data should be requested very early in the design process, usually just after the preliminary title has been prepared.

Items Needed:

- A PDF color copy of the project location with the project extents highlighted or clearly marked. (This can be taken from the Control Section Maps book or the Needs Study and Design Sufficiency Report.)
- Prepare Collision Data Request Letter. A copy of this letter should be saved to the Project Documents folder under the Traffic sub-folder before you start making changes.

Email these PDF documents to the Squad Supervisor, and CC a copy to the Project Engineer, and Engineering Manager. Also, a copy of all these PDFs should be placed in the Documents directory for the project.

Oklahoma Water Resources Board (OWRB) Permit

If bridges or crossing structures are located within the project limits, an OWRB permit may be required. This permit should be sought as soon as the Right of Way cross sections have been finalized.

If an OWRB Permit is required, a request should be made to Roadway Hydraulics Engineer. The Roadway Hydraulics Engineer will then obtain the OWRB permit and send it to the requesting design team.

Items Needed:

- One half-sized (50%) copy of the Title, Typical(s), Plan & Profile and CrossSection Sheets.
- A letter to the Roadway Hydraulics Engineer. A Prepared OWRB Permit Request Letter. A copy of this letter should be saved to the Project Documents folder under the Misc sub-folder before you start making changes.

The Squad Supervisor should sign the letter and PDF copies should be placed in the Documents directory for the project.

Once all sheets are prepared, printed and the request letter signed, they should be hand deliver to the office of the Roadway Hydraulics Engineer.

Updated Traffic Design Data

Often the design process will be lengthy enough that the initial traffic data will become outdated. Before a project is submit the dates listed for current and projected traffic data (on the title sheet) need to be up-to-date.

Often it is acceptable to change the dates without modifying the data. However you will need to notify Daryl Johnson from the Planning and Research Division for approval.

Email djohnson@odot.org and include the following information:

- Identify the project; include State or Federal Aid Job Number, Project Number, Highway Number and County. Attach a PDF of the title sheet (including traffic data) to the email.
- Explain that the current dates of the Traffic Data needs to be updated. (List the current date and projected date needed). Ask him if he needs any additional information.

The Subject Line of the email should read “J/P {number}, County and Highway number”.

Mr. Johnson may request additional information in which case you should send him whatever he needs. Otherwise He may okay the changing of the dates, if he does make sure you keep a hard copy of his email consent for the job folder and any other correspondence exchanged.

Traffic Sheets

When to Request:

Traffic sheets should be requested as soon as the Suggested Sequence of Construction has been finalized. If the sequence is changed after this form is submitted Traffic Division will need to be informed immediately.

Items Needed:

- Title Sheet
- Typical Sections
- Plan and Profile Sheets
- Finalized Sequence of Construction
- A filled-out Traffic Related Project Request form

If Traffic Division needs any additional information they will contact the squad.

Copying Your Electronic Files

Place a copy of Title, Typical and Plan & Profile sheets (along with all reference files) in: "U:\Traffic\Slipin Project\Roadway\Division #\JP#####(##) County"

A copy of the Sequence of Construction should also be placed in this folder, It can be on a regular plan sheet or simply typed up in a Word document.

Open the Traffic Related Project Request form with the latest date found at U:\Traffic\FormsTE-PR1 08-24-12.pdf. An example of the form is shown below

Save a copy of the form to your project folder.

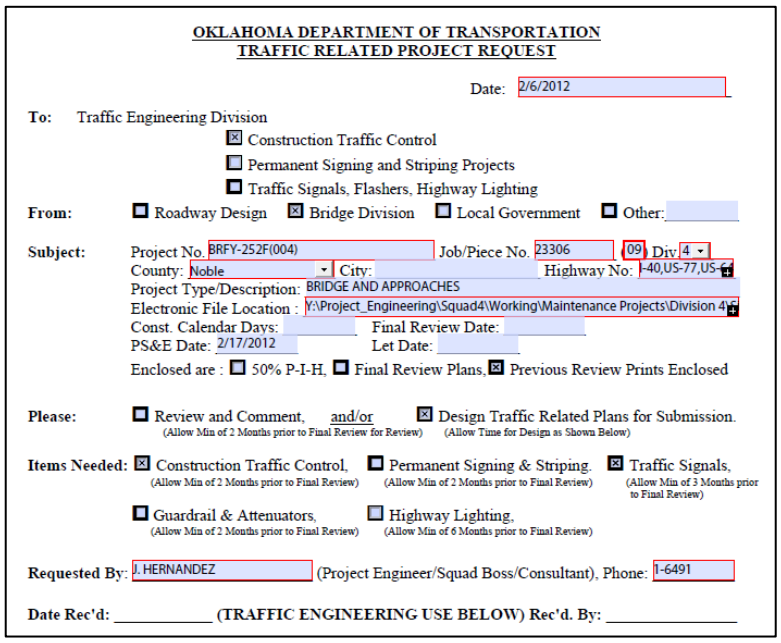
Filling Out the Form

The areas in blue are fillable and the only things you need to concern yourself with.

Date: Today's date

Traffic Engineering Division: Check Construction Traffic Control only

From: Check Roadway Design



OKLAHOMA DEPARTMENT OF TRANSPORTATION
TRAFFIC RELATED PROJECT REQUEST

Date: 2/6/2012

To: Traffic Engineering Division
- ☒ Construction Traffic Control
- ☐ Permanent Signing and Striping Projects
- ☐ Traffic Signals, Flashers, Highway Lighting

From: ☐ Roadway Design ☒ Bridge Division ☐ Local Government ☐ Other:

Subject: Project No. BRFY-252F(004) Job/Piece No. 23306 (09) Div 4
County: Noble City: Highway No: I-40,US-77,US-
Project Type/Description: BRIDGE AND APPROACHES
Electronic File Location : Y:\Project_Engineering\Squad4\Working\Maintenance Projects\Division 4\
Const. Calendar Days: Final Review Date:
PS&E Date: 2/17/2012 Let Date:
Enclosed are : ☐ 50% P-I-H, ☐ Final Review Plans, ☒ Previous Review Prints Enclosed

Please: ☐ Review and Comment, and/or ☒ Design Traffic Related Plans for Submission.
(Allow Min of 2 Months prior to Final Review for Review) (Allow Time for Design as Shown Below)

Items Needed: ☒ Construction Traffic Control, (Allow Min of 2 Months prior to Final Review) ☐ Permanent Signing & Striping. (Allow Min of 2 Months prior to Final Review) ☒ Traffic Signals, (Allow Min of 3 Months prior to Final Review)
☐ Guardrail & Attenuators, (Allow Min of 2 Months prior to Final Review) ☐ Highway Lighting, (Allow Min of 6 Months prior to Final Review)

Requested By: J. HERNANDEZ (Project Engineer/Squad Boss/Consultant), Phone: 1-6491

Date Rec'd: _____ **(TRAFFIC ENGINEERING USE BELOW) Rec'd. By:** _____

Traffic Sheets

Subject: You should complete the boxes for Project No., Job/Piece No., Div. and County. If the project is not within a town or city the City box may be left empty. Highway No, Project Type/Description and Electronic

File Location should all be filled-in. For the next four entries (Const. Calendar Days, Final Review Date, PS&E Date and Final Review Date) fill-in the information if you have it, otherwise those boxes can be left blank. In the "Enclosed are" section you should check whichever of the three boxes best describes the current state of your plan sheets, if you do not know which applies check the "Previous Review Prints Enclosed box".

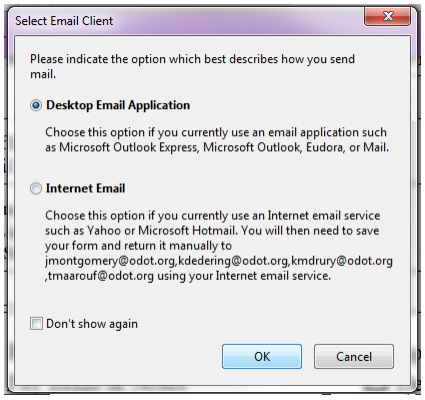
Please: In this case you need Traffic Sheets so you would only check the second box, "Design Traffic Related Plans for Submission".

Items Needed: "Construction Traffic Control" should always be checked. What other items are checked depends on what will be needed for this project. This can usually be discerned by reviewing the project to see what is evident. If in doubt, consult with your co-workers, Design Supervisor or Engineers.

Requested By: In almost all cases this should be your Design Supervisor and their phone number

Submitting the Form

After you have filled out the form and placed the electronic copies of the required files on the U drive you are ready to submit the form. On the lower right side of the form (not pictured above) is a grey colored button labeled "Submit Form". When you click on this it will open the menu shown at right. Select Desktop Email Application and click OK.



This will create an email for you with the form already attached and it will already be addressed to the relevant Traffic Division personnel. Cc a copy of this email to your Engineering Manager, Project Engineer and Design Supervisor.

Now send the email, print a copy of it and the form for your project binder and you are done.

Signed Survey Data Sheets

Signed Survey Data Sheets should be requested at least two months before final Submission. They may be requested earlier but the signed originals must be kept.

Before having the title sheets signed, confirm that no additional survey is needed otherwise the updated sheets, when available will have to be signed.

What is needed to request Signed Survey Data:

- A single half-sized and a single full-sized copy of the Survey Data Title Sheet
- A Survey Data Title Sheet Signature Request Letter

The Survey Data Title Sheet will require the signature of the Surveyor whose name appears in the signature block (lower right hand corner of the sheet). It is very rare that any Survey Data Sheet other than the Title Sheet requires a signature, however all the sheets should be checked to insure that no additional sheets have been signed.

Prepare the Survey Data Title Sheet Signature Request Letter. A copy of this letter should be saved to the Project Documents folder under Survey before you start making changes.

The completed request letter and the copies of the Survey Data Title Sheet should be hand delivered to the Survey Division office. This is located just west across the atrium from the Roadway Design Drafting Room.

Once Survey has the request it may take up to two weeks to get the sheets signed. The field surveyors visit the central office irregularly and it won't get signed until the surveyor is available.

Final Pavement Design

Investigation Request

Once the Horizontal and Vertical alignments have been finalized and agreed upon the Pavement Design Engineer will need information to make a determination of what investigations must be undertaken. This may involve soil investigations, embankment reports or other processes. These will be determined by the Pavement Design Engineer and the information provided will allow them to do what it needed.

Items Need

- A PDF of your Title Sheet, Typical Sections, Plan and Profile Sheets, Cross Sections and any Special Details that will involve earthwork.

NOTE: Be sure that the scope of the project is finalized before the Investigation Request is prepared.

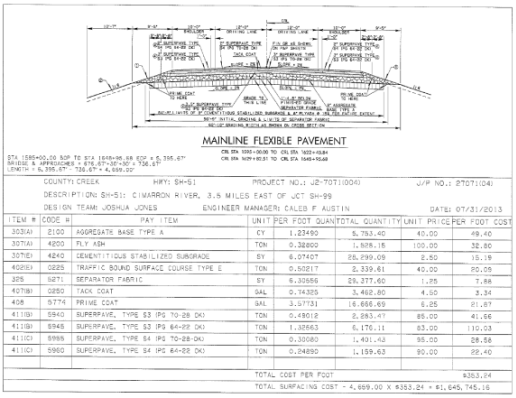
Email these PDF documents to the Squad Supervisor, and CC a copy to the Project Engineer, and Engineering Manager. Also, Place a copy of all these PDFs in the Documents directory for the project**.**

Pavement Estimate

After any needed investigations are completed the Pavement Design Engineer will send us an Unapproved Final Pavement Design. At this point the Pavement Design Engineer will need estimates to include in the Final Pavement Design Packet.

Items Needed

- A PDF of the Unapproved Final Pavement Design.
- PDFs of the current Typical Sections, done on the 8½”x11” Pavement Estimate Sheets. An example of which can be seen here.



MAINLINE FLEXIBLE PAVEMENT

COUNTY: CREEK HWY: SH-51 PROJECT NO.: JP-7071(004) O/P NO.: 27071(04)

DESCRIPTION: SH-51: CIMARRON RIVER, 3.5 MILES EAST OF JCT SH-99

DESIGN TEAM: JOSHUA JONES ENGINEER MANAGER: CALEB F. AUSTIN DATE: 07/31/2013

ITEM #	CODE #	PAY ITEM	UNIT	PER FOOT QUANT	TOTAL QUANTITY	UNIT PRICE	PER FOOT COST
303(A)	2100	AGGREGATE BASE TYPE A	CY	1.23490	5,793.40	40.00	49.40
307(A)	4200	FLY ASH	TON	0.38800	1,528.15	100.00	38.80
307(E)	4240	CEMENTITIOUS STABILIZED SUBGRADE	SY	6.97407	25,299.09	2.50	18.19
403(E)	0225	TRAFFIC BOUND SURFACE COURSE TYPE E	TON	0.50217	2,339.61	40.00	20.09
325	5271	SEPARATOR FABRIC	SY	6.30556	29,277.60	1.25	7.88
407(B)	0250	TACK COAT	GAL	0.74385	3,462.80	4.50	3.34
408	5774	PRIME COAT	GAL	3.57731	16,666.69	6.25	21.87
411(B)	5940	SUPERPAVE, TYPE S3 (PG 70-28 OK)	TON	0.49012	2,283.47	85.00	41.66
411(B)	5945	SUPERPAVE, TYPE S3 (PG 64-22 OK)	TON	1.32663	6,176.11	83.00	110.03
411(C)	5985	SUPERPAVE, TYPE S4 (PG 70-28 OK)	TON	0.30080	1,401.43	95.00	28.58
411(C)	5960	SUPERPAVE, TYPE S4 (PG 64-22 OK)	TON	0.24890	1,159.63	90.00	22.40
				TOTAL COST PER FOOT			4353.24
				TOTAL SURFACING COST = 4,689.00 X 4353.24 = $1,645,745.16			

Email these PDF documents to the Squad Supervisor, and CC a copy to the Project Engineer, and Engineering Manager. Also, Place a copy of all these PDFs in the Documents directory for the project.

Approved Final Pavement Design

Once the Pavement Estimate is turned in a final review made by all of the Engineers involved (i.e. Field Division, Design, etc.). A packet will be received of information that constitutes the Approved Final Pavement Design. Scan this copy to PDF and save it in the Documents directory then place the original in the project folder.

Review the Approved Final Pavement Design Packet for any changes or notes that differ from the Unapproved Final Pavement Design. Bring any differences to the attention of the Project Engineer.

Calendar Days

When to Request:

Calendar Days should be requested one to two weeks prior to requesting Traffic Plans. It is important to wait until it is reasonably certain that no major changes will be made to the plans since changes may alter the Calendar days.

What Will Be Needed:

- A half-sized Title, Typical, Plan & Profile sheets
- Suggested Sequence of Construction
- Cross Sections (if requested)

Prepare the Request for Calendar Days Letter. A copy of this letter should be saved to the Project Documents folder under the Misc sub-folder before you start making changes. Print out all needed sheets and this letter.

Deliver to: Phil Loafman, Office of the Chief Engineer

This package can be hand-delivered to the Office of the Chief Engineer or route slipped.

In most cases the Calendar Days will be received within one or two days.

Construction Plan Review

The Construction plans should be sent for Plan Review prior to submission. It is preferable to send the plans for review at least two weeks before final submission so if any errors are found they can be corrected, thus avoiding the need of a revision.

Items Needed:

- A PDF copy of the plans
- A PDF copy of the Pavement Design and any relevant documents. Prepare the Construction Plan Review Letter. A copy of this letter should be saved to the Project Documents folder under the Misc sub-folder before you start making changes

Email these PDF documents to the Squad Supervisor for distribution.

Be Sure to Check the Following

When you send a set of plans for Plan Review be sure that they are complete. Some of the most common problems, and ones which will cause the plans to be rejected, are:

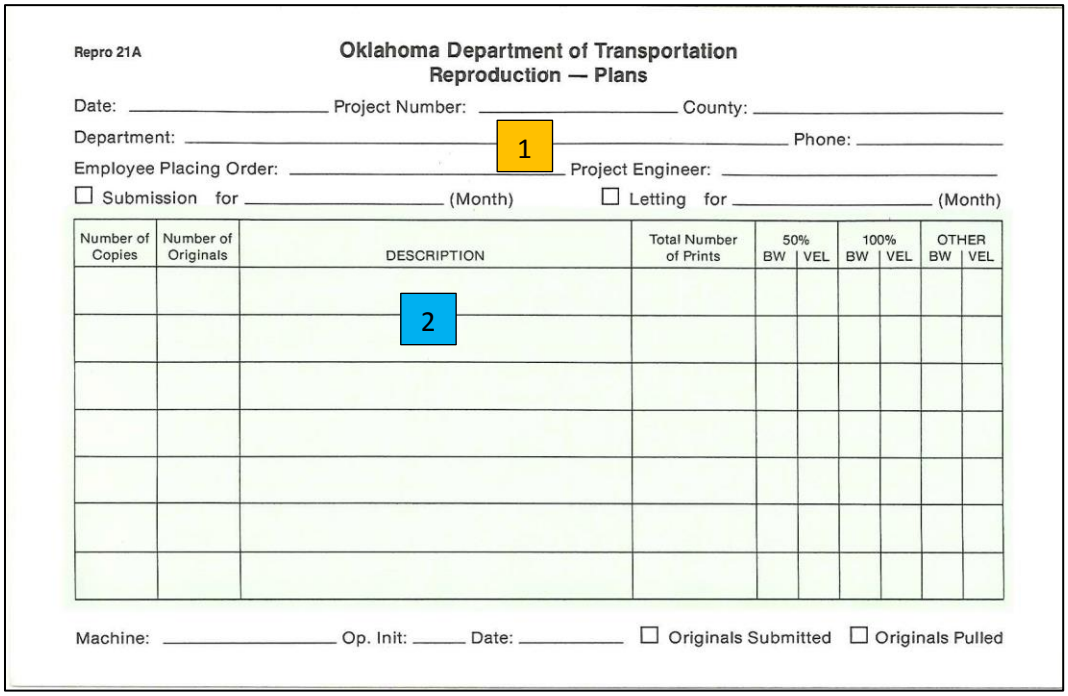
- The Plans are missing the Sequence of Construction
- The Plans are too incomplete (missing P&Ps, Xsec, etc.)
- Blank or missing Summaries
- Blank or missing Pay Quantities or Notes

The Plan Review Squad may make exceptions for projects on an accelerated schedule but it is best to provide them as complete a set of plans as possible.

Submitted Plans Copy

It may be necessary to acquire a copy of a set of plans that has already been submitted. Reproduction keeps Half-sized copies of submitted plans. Copies can often be acquired by simply talking to reproduction personnel. However, sometimes a formal request may be required in which case the process should be followed.

Procedure: Fill out a Print Shop Request form (pictured below).



Repro 21A

Oklahoma Department of Transportation
Reproduction — Plans

Date: _____ Project Number: _____ County: _____

Department: _____ Phone: _____

Employee Placing Order: _____ Project Engineer: _____

☐ Submission for _____ (Month) ☐ Letting for _____ (Month)

Number of Copies	Number of Originals	DESCRIPTION	Total Number of Prints	50% BW	50% VEL	100% BW	100% VEL	OTHER BW	OTHER VEL

Machine: _____ Op. Init: _____ Date: _____ ☐ Originals Submitted ☐ Originals Pulled

1 Fill in the section at the top. Be sure to fill in the *project number (not JP Number).* It is also very important to include the name and office phone number so that reproduction can contact the employee placing the order with questions. The areas for submission and letting should be left blank.

2 In the Description area state “Complete set of submitted plans”.

Once the form is completed place it on the clip board in the Print Shop, the clip board is kept on the wooden shelves that are at the back of the lobby area.

If there are preprinted copies available of the plans requested they should be available quickly (a few hours or less). If reproduction is out of printed copies (usually after the letting date has passed) then they will need to print a set and the request will be processed in the order it was received with other print jobs. Once printed the copy of the plans will be placed on the wooden shelves in the print shop to be picked up.

Right of Way Revision Request

For ODOT use only

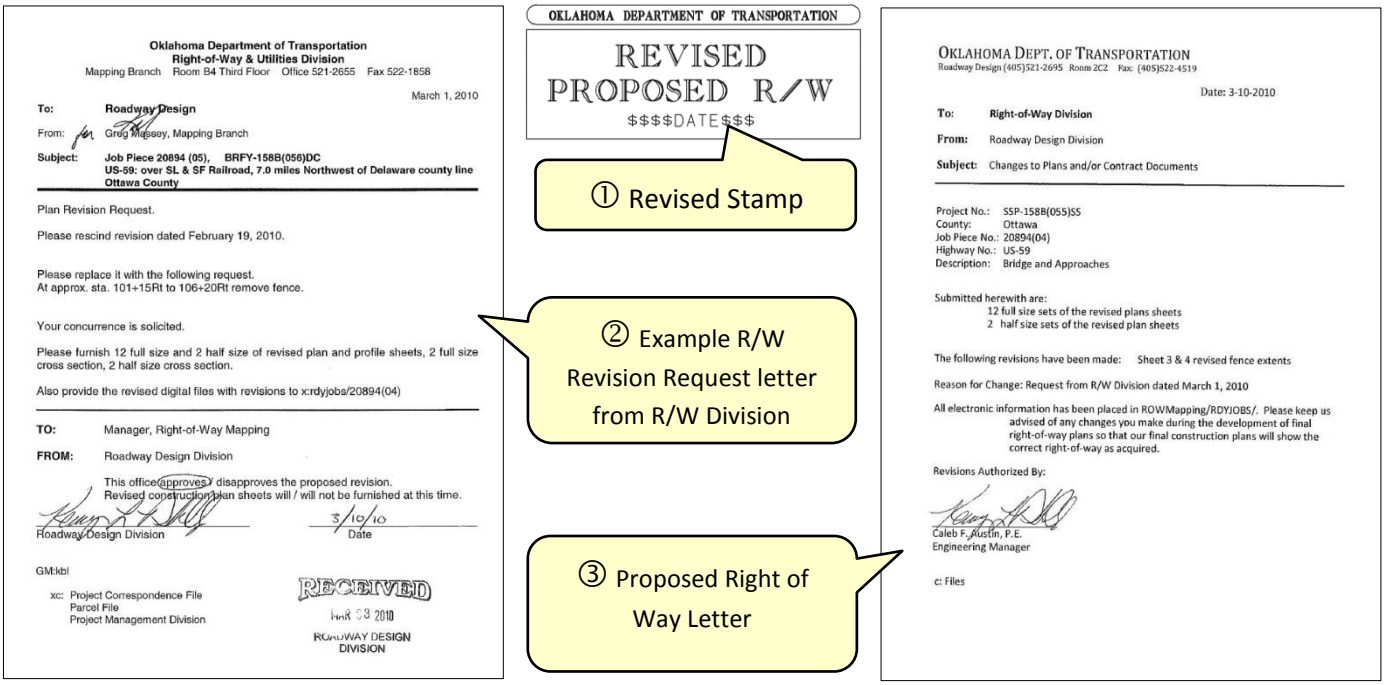
You will need to submit hard copies and electronic Revised Proposed Right of Way plans simultaneously.

Before you begin, ensure you have the following:

All revised sheets must have the Revised Proposed R/W stamp in the upper right corner. ①

You may have a R/W Revision Request Letter *(example ② below)*, merely a Transmittal letter or no letter at all if the revision originated within the squad. A R/W Revision Request Letter will require the Engineering Manager's signature. Whichever letter you have must be returned with any attachments as part of the revision.

If you have only a Transmittal letter or no letter, then Right of Way Division requires a Proposed Right of Way Letter *(example ③ below)* signed by either the Design Supervisor or the Engineering Manager.



Oklahoma Department of Transportation
Right-of-Way & Utilities Division
Mapping Branch Room B4 Third Floor Office 521-2655 Fax 522-1858

March 1, 2010

To: Roadway Design
From: Greg Massey, Mapping Branch
Subject: Job Piece 20894 (05), BRFY-158B(056)DC
US-59: over SL & SF Railroad, 7.0 miles Northwest of Delaware county line
Ottawa County

Plan Revision Request.

Please rescind revision dated February 19, 2010.

Please replace it with the following request.
At approx. sta. 101+15Rt to 106+20Rt remove fence.

Your concurrence is solicited.

Please furnish 12 full size and 2 half size of revised plan and profile sheets, 2 full size cross section, 2 half size cross section.

Also provide the revised digital files with revisions to x:rdyjobs/20894(04)

TO: Manager, Right-of-Way Mapping
FROM: Roadway Design Division

This office approves / disapproves the proposed revision.
Revised construction plan sheets will / will not be furnished at this time.

Roadway Design Division — 3/10/10 Date

GM:kbl

xc: Project Correspondence File
Parcel File
Project Management Division

RECEIVED
MAR 09 2010
ROADWAY DESIGN DIVISION

OKLAHOMA DEPARTMENT OF TRANSPORTATION
REVISED
PROPOSED R/W
$$$$DATE$$$$

① Revised Stamp

② Example R/W Revision Request letter from R/W Division

③ Proposed Right of Way Letter

OKLAHOMA DEPT. OF TRANSPORTATION
Roadway Design (405)521-2695 Room 2C2 Fax: (405)522-4519

Date: 3-10-2010

To: Right-of-Way Division
From: Roadway Design Division
Subject: Changes to Plans and/or Contract Documents

Project No.: SSP-158B(055)SS
County: Ottawa
Job Piece No.: 20894(04)
Highway No.: US-59
Description: Bridge and Approaches

Submitted herewith are:
12 full size sets of the revised plans sheets
2 half size sets of the revised plan sheets

The following revisions have been made: Sheet 3 & 4 revised fence extents

Reason for Change: Request from R/W Division dated March 1, 2010

All electronic information has been placed in ROW/Mapping/RDYJOBS/. Please keep us advised of any changes you make during the development of final right-of-way plans so that our final construction plans will show the correct right-of-way as acquired.

Revisions Authorized By:

Caleb F. Austin, P.E.
Engineering Manager

c: Files

Step 1 – Copy the Letter

Make a PDF Copy of the Plan Revision Request Letter (or Transmittal Letter) and all of their attachments. Store these copies in the Documents subdirectory of the project on the Y Drive. If there is no Project directory, create one. If there is no Documents subdirectory, create one.

Step 2 – Make Copies & CD ROMs

You will need to make the following copies and CD ROMs

1 Half sized of the revised plans sheet or cross section sheets
2 CD ROMs containing DGN & PDF copies of all revised sheets

Blank CDs are kept on the shelves in the printer room.

Right of Way Revision Request (In House)

For ODOT use only

Step 3 – Electronic Copies

Make a PDF Copy of all the revised sheets. Place this and a copy of the revised electronic files to "X:\RDYJOBS\Your JP\Subdirectory": Create a subdirectory using the following format:

Rev RW [J/P #] date

The date should be the date on which we are creating the directory. For instance a revision is done for J/P 12345(04) and the X drive subdirectory is created on June 2nd, 2014 would look like this.

Rev RW 12345(04) 06-02-14

Place a copy of the files in the PDF Submissions\RW subdirectory of the project. See the example below.

Y:\Division 8\County 12345(04)\PDF Submissions\RW

Step 4 – Review

At this point the Squad Supervisor or the designated CADD Specialist V will need to review the paperwork and revision package to ensure that it is complete. Do not proceed until you have approval.

Step 5 – Deliver Revision to R/W Division

The half-sized copy of the revised sheets, the Plan Non-Compliance Letter (any attachments) and the two CD ROMs should be delivered to the Project Management Manager in Right of Way & Utilities room 3B4 or one of the manager's subordinates. It is recommended that you have the Plan Non-Compliance Letter stamped and bring back a copy of it.

Step 6 – Scan the Stamped Letter

Make a PDF copy (scan it using the copier) of the **stamped** Plan Non-Compliance Letter. Place a copy on the Y and X drive where you previously placed the contents of the CD.

FINAL NOTE: There are a lot of steps in this document. Once you are done it is a good idea to review and be sure you have not left anything out.

Right of Way Revision Request (Consultant)

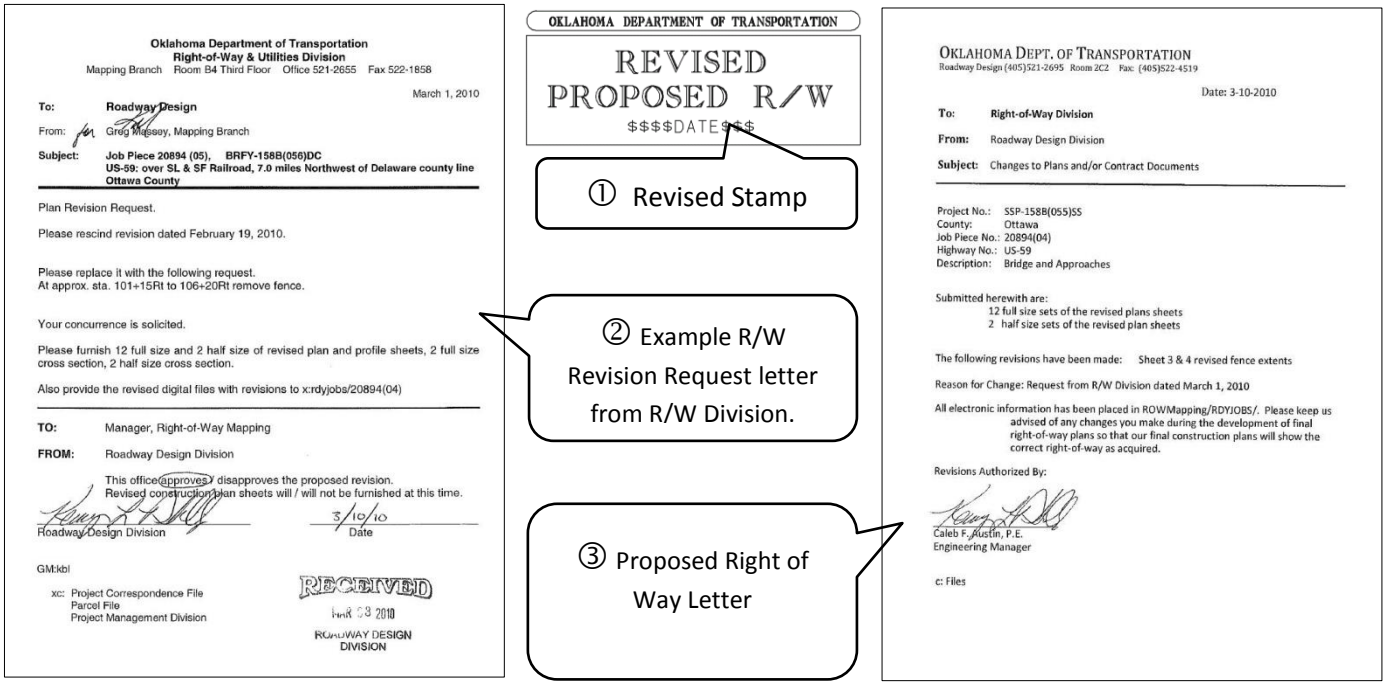
You will need to submit hard copies and electronic Revised Proposed Right of Way plans simultaneously.

Before you begin, ensure you have the following:

All revised sheets must have a R/W revision stamp on them. The appearance of this stamp varies by consultant. The stamp should be as close to the upper right corner of the sheet as practical. The stamp *may* look similar to the example given below. ①

You may have a R/W Revision Request Letter *(example ② below)* or merely a Transmittal letter. A R/W Revision Request Letter will require the Project Engineer's signature. Whichever letter you have must be returned with any attachments as part of the revision.

If you have only a Transmittal letter, then Right of Way Division requires a Proposed Right of Way Letter *(example ③ below)* signed by the Project Engineer.



Oklahoma Department of Transportation
Right-of-Way & Utilities Division
Mapping Branch Room B4 Third Floor Office 521-2655 Fax 522-1858

March 1, 2010

To: Roadway Design
From: for Greg Massey, Mapping Branch
Subject: Job Piece 20894 (05), BRFY-158B(056)DC
US-59: over SL & SF Railroad, 7.0 miles Northwest of Delaware county line
Ottawa County

Plan Revision Request.

Please rescind revision dated February 19, 2010.

Please replace it with the following request.
At approx. sta. 101+15Rt to 106+20Rt remove fence.

Your concurrence is solicited.

Please furnish 12 full size and 2 half size of revised plan and profile sheets, 2 full size cross section, 2 half size cross section.

Also provide the revised digital files with revisions to x:rdyjobs/20894(04)

TO: Manager, Right-of-Way Mapping
FROM: Roadway Design Division

This office approves / disapproves the proposed revision.
Revised construction plan sheets will / will not be furnished at this time.

Roadway Design Division — 3/10/10 Date

GM:kbl

xc: Project Correspondence File
Parcel File
Project Management Division

RECEIVED
MAR 09 2010
ROADWAY DESIGN
DIVISION

OKLAHOMA DEPARTMENT OF TRANSPORTATION
REVISED
PROPOSED R/W
$$$$DATE$$$$

① Revised Stamp

② Example R/W Revision Request letter from R/W Division.

③ Proposed Right of Way Letter

OKLAHOMA DEPT. OF TRANSPORTATION
Roadway Design (405)521-2695 Room 2C2 Fax: (405)522-4519

Date: 3-10-2010

To: Right-of-Way Division
From: Roadway Design Division
Subject: Changes to Plans and/or Contract Documents

Project No.: SSP-158B(055)SS
County: Ottawa
Job Piece No.: 20894(04)
Highway No.: US-59
Description: Bridge and Approaches

Submitted herewith are:
12 full size sets of the revised plans sheets
2 half size sets of the revised plan sheets

The following revisions have been made: Sheet 3 & 4 revised fence extents

Reason for Change: Request from R/W Division dated March 1, 2010

All electronic information has been placed in ROWMapping/RDYJOBS/. Please keep us advised of any changes you make during the development of final right-of-way plans so that our final construction plans will show the correct right-of-way as acquired.

Revisions Authorized By:

Caleb F. Austin, P.E.
Engineering Manager

c: Files

Step 1 – Scan the Letter

Make a PDF Copy of the Plan Revision Request Letter (or Transmittal Letter) and all of their attachments. Store these copies in the RW Rev subdirectory of the project on the Y Drive. If there is no Project directory, create one. If there is no Rev RW subdirectory, create one (the date of the revision should be included in the name of the subdirectory).

Right of Way Revision Request (Consultant)

Step 2 – Check the Copies

You should have one half sized copy of each revised plan or cross section sheet. You should have 2 CD ROMs containing DGN and PDF copies of all revised sheets. If you only have one disc you may need to burn a copy, consult the Project Engineer. If you have no CD ROMs consult the Project Engineer.

Check that all plan and cross section sheets are stamped “Revised Proposed R/W” and dated accordingly.

Step 3 – The Revisions CD

You will have a CD from the consultant. Examine the CD to be sure that all relevant files are actually on the disc. This should include MicroStation copies of all revised sheets and any required reference files. PDF files of all the revised sheets should also be present. There may be other files as well.

Go to Y:\Division #\~CONSULTANT PROJECTS and find the project. Create a subdirectory for the revision using the date of the revision. For example a revision done on February 30th, 2016 would be “Rev RW 2-30-16”. Place a copy of the entire contents of the disc into this directory.

Go to X:\RDYJOBS\ and find the project. Create a subdirectory for the revision just like you did for the Y drive. Place a copy of the entire contents of the disc into this directory.

Step 4 – Review

At this point the Level 5 and the Squad Supervisor will need to review the paperwork and revision package to ensure that it is complete. Do not proceed until they have looked things over and approved.

Step 5 – Deliver Revision to R/W Division

The half-sized copy of the revised sheets, the Plan Non-Compliance Letter (any attachments) and the two CD ROMs should be delivered to Christa Sawyer in Right of Way Division. Have the Plan Non-Compliance Letter stamped by Christa Sawyer or one of her subordinates and bring back a copy of it.

Step 6 – Scan the Stamped Letter

Make a PDF copy (scan it using the copier) of the **stamped** Plan Non-Compliance Letter. Place a copy on the Y and X drive where you previously placed the contents of the CD.

FINAL NOTE: There are a lot of steps in this document. Once you are done it is a good idea to review and be sure you have not left anything out.

Plan Non-Compliance Revision Process

For ODOT use only

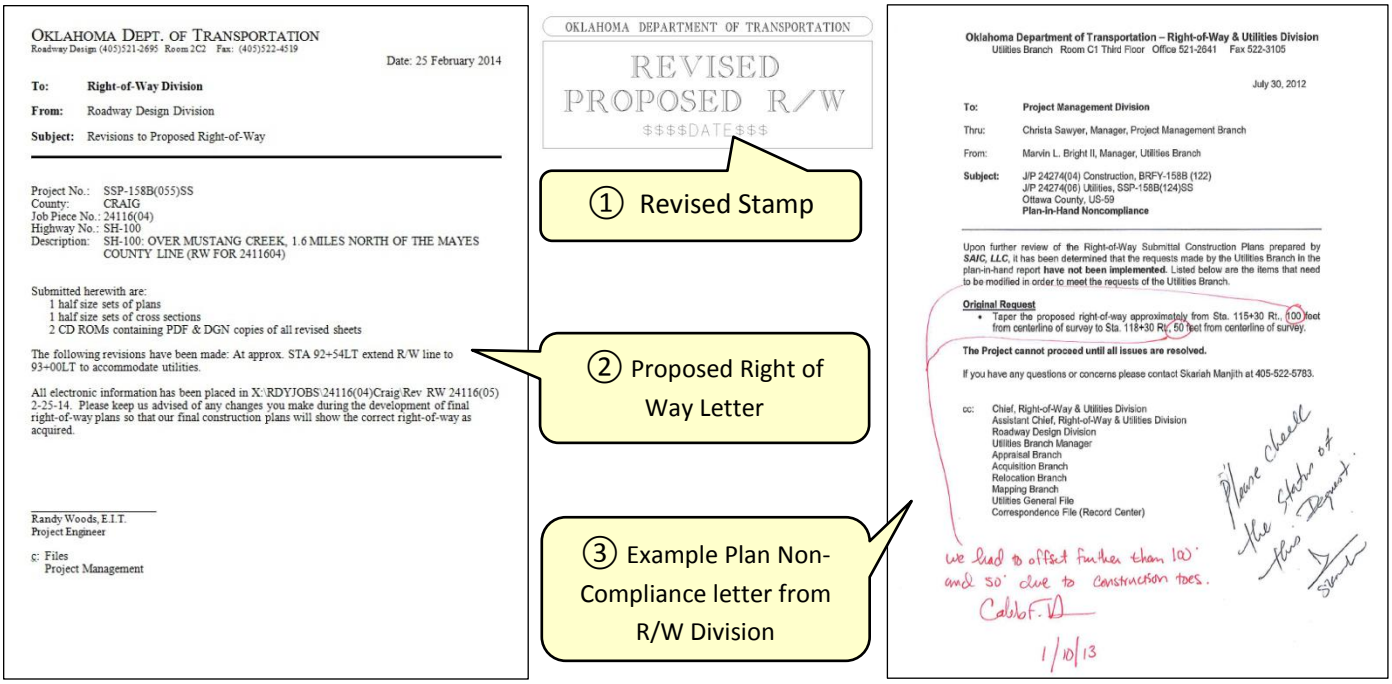
You will need to submit paper copies and electronic Revised Proposed Right of Way plans simultaneously.

Before you begin check to see you have the following:

All revised sheets must have the Revised Proposed R/W stamp in the upper right corner. ①

Right of Way Division requires a Proposed Right of Way Letter (*example ② below*) signed by the Design Supervisor.

You will have a Plan Non-Compliance Letter (*example ③ below*), which was sent by R/W Division. This letter and any attachments must be returned as part of the revision.



OKLAHOMA DEPT. OF TRANSPORTATION
Roadway Design (405)521-2695 Room 2C2 Fax: (405)522-4519

Date: 25 February 2014

To: **Right-of-Way Division**

From: Roadway Design Division

Subject: Revisions to Proposed Right-of-Way

Project No.: SSP-158B(055)SS
County: CRAIG
Job Piece No.: 24116(04)
Highway No.: SH-100
Description: SH-100: OVER MUSTANG CREEK, 1.6 MILES NORTH OF THE MAYES COUNTY LINE (RW FOR 2411604)

Submitted herewith are:
1 half size sets of plans
1 half size sets of cross sections
2 CD ROMs containing PDF & DGN copies of all revised sheets

The following revisions have been made: At approx. STA 92+54LT extend R/W line to 93+00LT to accommodate utilities.

All electronic information has been placed in X:\RDYJOBS\24116(04)Craig\Rev RW 24116(05) 2-25-14. Please keep us advised of any changes you make during the development of final right-of-way plans so that our final construction plans will show the correct right-of-way as acquired.

Randy Woods, E.I.T.
Project Engineer

c: Files
Project Management

OKLAHOMA DEPARTMENT OF TRANSPORTATION
REVISED
PROPOSED R/W
$$$$DATE$$$

① Revised Stamp

② Proposed Right of Way Letter

③ Example Plan Non-Compliance letter from R/W Division

Oklahoma Department of Transportation – Right-of-Way & Utilities Division
Utilities Branch Room C1 Third Floor Office 521-2641 Fax 522-3105

July 30, 2012

To: **Project Management Division**

Thru: Christa Sawyer, Manager, Project Management Branch

From: Marvin L. Bright II, Manager, Utilities Branch

Subject: J/P 24274(04) Construction, BRFY-158B (122)
J/P 24274(06) Utilities, SSP-158B(124)SS
Ottawa County, US-59
Plan-in-Hand Noncompliance

Upon further review of the Right-of-Way Submittal Construction Plans prepared by ***SAIC, LLC***, it has been determined that the requests made by the Utilities Branch in the plan-in-hand report **have not been implemented.** Listed below are the items that need to be modified in order to meet the requests of the Utilities Branch.

Original Request

- Taper the proposed right-of-way approximately from Sta. 115+30 Rt., 100 feet from centerline of survey to Sta. 118+30 Rt., 50 feet from centerline of survey.

The Project cannot proceed until all issues are resolved.

If you have any questions or concerns please contact Skariah Manjith at 405-522-5783.

cc: Chief, Right-of-Way & Utilities Division
Assistant Chief, Right-of-Way & Utilities Division
Roadway Design Division
Utilities Branch Manager
Appraisal Branch
Acquisition Branch
Relocation Branch
Mapping Branch
Utilities General File
Correspondence File (Record Center)

Please check the status of Depart plan

we had to offset further than 100' and 50' due to construction toes.
Caleb F. D
1/10/13

Step 1 – Scan the Letter

Make a PDF copy of the Plan Non-Compliance Letter and any attachments. Place these copies in the Documents subdirectory of the project. If there is not a folder for the project, create one. If there is not a Documents subdirectory, create one.

Step 2 – Make Copies & CD ROMs

You will need to make the following copies and CD ROMs

1 Half sized copy of the revised plan sheets and cross sections
2 CD ROMs containing DGN & PDF copies of all revised sheets

Blank CD ROMs are on the shelves in the printer room.

Plan Non-Compliance Revision Process (In House)

For ODOT use only

Step 3 – Electronic Copies

Make a PDF copy of all the revised sheets, place this and all of the revised electronic files to "X:\RDYJOBS\Your JP\Subdirectory": Create a subdirectory using the following format:

Rev RW [J/P #] date

The date should be the date on which we are creating the directory. For instance a revision is done for J/P 12345(04) and the X drive subdirectory is created on June 2nd, 2014 would look like this.

Rev RW 12345(04) 06-02-14

Place a copy of the files in the PDF Submissions\RW subdirectory of the project. See the example below.

Y:\Division 8\County 12345(04)\PDF Submissions\RW

Step 4 – Review

At this point the Squad Supervisor or the designated CADD Specialist V will need to review the paperwork and revision package to ensure that it is complete. Do not proceed until you have approval.

Step 5 – Deliver Revision to R/W Division

The half-sized copy of the revised sheets, the Plan Non-Compliance Letter (any attachments) and the two discs should be delivered to Project Management Manager in Right of Way & Utilities room 3B4 or one of the manager's subordinates. It is recommended that you have the Plan Non-Compliance Letter stamped and bring back a copy of it.

Step 6 – Scan the Stamped Letter

Make a PDF copy (scan it using the copier) of the **stamped** Plan Non-Compliance Letter. Place a copy on the Y and X drive where you previously placed the contents of the CD.

FINAL NOTE: There are a lot of steps in this document. Once you are done it is a good idea to review and be sure you have not left anything out.

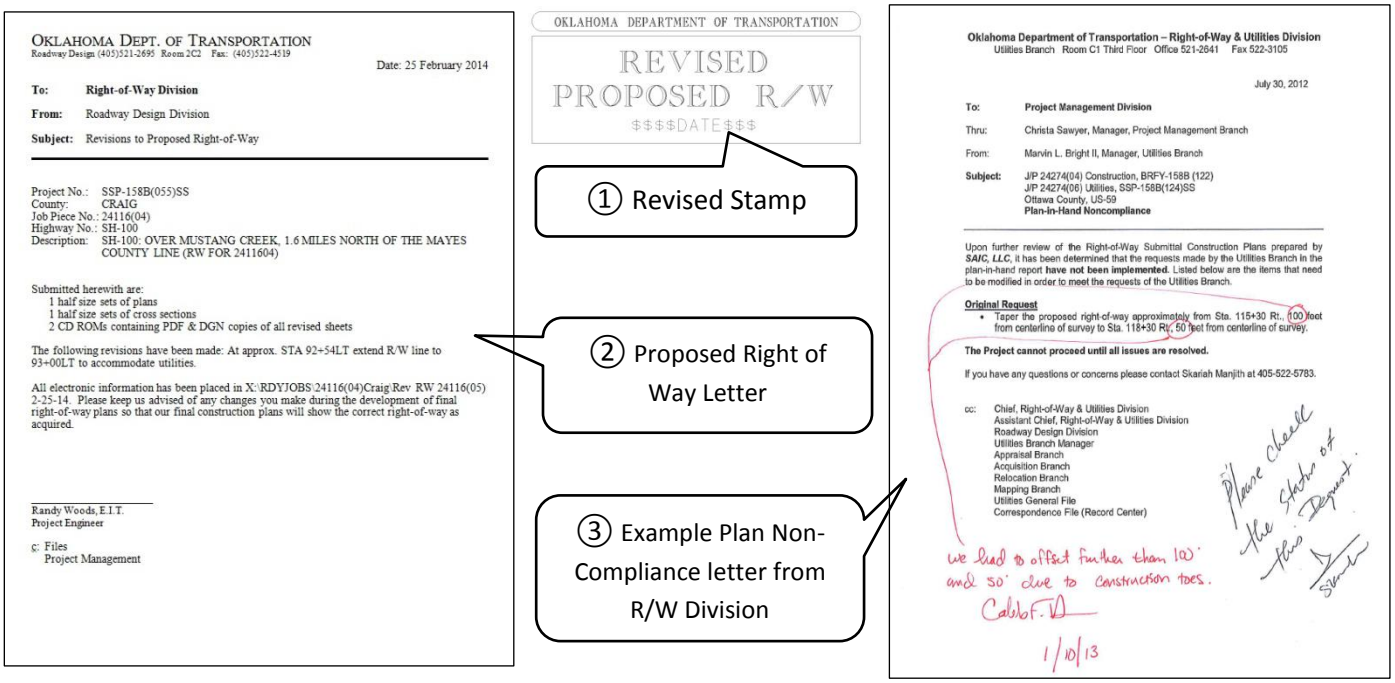
Plan Non-Compliance Revision (Consultant)

Consultants should submit hard copies and electronic Revised Proposed Right of Way plans simultaneously.

Revised sheets should have the Revised Proposed R/W stamp in the upper right corner. ①

Right of Way Division requires a Proposed Right of Way Letter *(example ② below)* signed by the Project Engineer.

There should be a Plan Non-Compliance Letter *(example ③ below)*, which was sent by R/W Division. This letter and any attachments must be returned as part of the revision.



OKLAHOMA DEPT. OF TRANSPORTATION
Roadway Design (405)521-2695 Room 2C2 Fax: (405)522-4519

Date: 25 February 2014

To: **Right-of-Way Division**

From: Roadway Design Division

Subject: Revisions to Proposed Right-of-Way

Project No.: SSP-158B(055)SS
County: CRAIG
Job Piece No.: 24116(04)
Highway No.: SH-100
Description: SH-100: OVER MUSTANG CREEK, 1.6 MILES NORTH OF THE MAYES COUNTY LINE (RW FOR 2411604)

Submitted herewith are:
1 half size sets of plans
1 half size sets of cross sections
2 CD ROMs containing PDF & DGN copies of all revised sheets

The following revisions have been made: At approx. STA 92+54LT extend R/W line to 93+00LT to accommodate utilities.

All electronic information has been placed in X:\RDY\JOBS\24116(04)Craig\Rev RW 24116(05) 2-25-14. Please keep us advised of any changes you make during the development of final right-of-way plans so that our final construction plans will show the correct right-of-way as acquired.

Randy Woods, E.I.T.
Project Engineer

c: Files
Project Management

OKLAHOMA DEPARTMENT OF TRANSPORTATION
REVISED
PROPOSED R/W
$$$$DATE$$$

① Revised Stamp

② Proposed Right of Way Letter

③ Example Plan Non-Compliance letter from R/W Division

Oklahoma Department of Transportation – Right-of-Way & Utilities Division
Utilities Branch Room C1 Third Floor Office 521-2641 Fax 522-3105

July 30, 2012

To: **Project Management Division**

Thru: Christa Sawyer, Manager, Project Management Branch

From: Marvin L. Bright II, Manager, Utilities Branch

Subject: J/P 24274(04) Construction, BRFY-158B (122)
J/P 24274(06) Utilities, SSP-158B(124)SS
Ottawa County, US-59
Plan-in-Hand Noncompliance

Upon further review of the Right-of-Way Submittal Construction Plans prepared by ***SAIC, LLC***, it has been determined that the requests made by the Utilities Branch in the plan-in-hand report **have not been implemented.** Listed below are the items that need to be modified in order to meet the requests of the Utilities Branch.

Original Request

- Taper the proposed right-of-way approximately from Sta. 115+30 Rt., 100 feet from centerline of survey to Sta. 118+30 Rt., 50 feet from centerline of survey.

The Project cannot proceed until all issues are resolved.

If you have any questions or concerns please contact Skariah Manjith at 405-522-5783.

cc: Chief, Right-of-Way & Utilities Division
Assistant Chief, Right-of-Way & Utilities Division
Roadway Design Division
Utilities Branch Manager
Appraisal Branch
Acquisition Branch
Relocation Branch
Mapping Branch
Utilities General File
Correspondence File (Record Center)

Please check the status of this request.

we had to offset further than 100' and so due to construction toes.

1/10/13

Step 1 – Scan the Non-Compliance Letter

Make a PDF Copy of the Plan Non-Compliance Letter and any attachments. Store these copies in the Documents subdirectory of the project on the Y drive. If there is not a folder for the project, create one. If there is not a Documents subdirectory, create one.

Step 2 – Check the Copies

If the Plan Non-Compliance Letter specifies a number and size of copies it takes precedence, otherwise the requirements are as follows.

There should be one half sized copy of each revised plan or cross section sheet and, 2 CD ROMs containing DGN and PDF copies of all revised sheets. If only one disc is supplied by the consultant then you may need to burn a copy. Blank CD ROMs are located on the shelves in the printer room.

Check that all plan and cross section sheets are stamped “Revised Proposed R/W” and dated accordingly.

Plan Non-Compliance Revision (Consultant)

Step 3 – The CDs & Electronic Copies

You should have two CDs from the consultant. Examine them to be sure that all relevant files are on the discs. This should include MicroStation copies of all revised sheets and any required reference files as well as PDF files of all the revised sheets. There may be other files as well.

Go to Y:\Division #\~CONSULTANT PROJECTS and find the project. Create a subdirectory for the revision using the date of the revision. For example a revision done on February 30th, 2015 would be "Rev RW 2-30-15". Place a copy of the entire contents of the disc into this directory.

Go to X:\RDYJOBS\ and find the project. Create a subdirectory for the revision just like you did for the Y drive. Place a copy of the entire contents of the disc into this directory.

Step 4 – Review

At this point the Squad Supervisor or the designated CADD Specialist V will need to review the paperwork and revision package to ensure that it is complete. Do not proceed until you have approval.

Step 5 – Deliver Revision to R/W Division

The half-sized copy of the revised sheets, the Plan Non-Compliance Letter (any attachments) and the two discs should be delivered to the Project Management Manager in Right of Way & Utilities room 3B4 or one of the manager's subordinates. If is recommended that you have the Plan Non-Compliance Letter stamped and bring back a copy of it.

Step 6 – Scan the Stamped Letter

Make a PDF copy (scan it using the copier) of the **stamped** Plan Non-Compliance Letter. Place a copy on the Y and X drive where you previously placed the contents of the CD.

FINAL NOTE: There are a lot of steps in this document. Once you are done it is a good idea to review and be sure you have not left anything out.

Submitting to bridge division

When Bridge division is the lead on a project they will need the most up to date alignments, typicals, and other information relevant to the job. When the time comes to submit the project, bridge division will need a packet of materials from us.

Step 1 – List of Required Standards
If you have not already submitted a complete list of required standards, you must do so now. If you are supplying bridge division with up to date title sheet with the correct list of required standards that will satisfy this requirement.

Step 2 – Print the Plans
Print one full-sized and one half-sized copy of all of our sheets. Be sure that you have the engineering manager's signature on the pay quantities (roadway) sheet. Be sure that the survey data title sheets (see the requesting signed survey data sheet document) have been signed by the surveyor.

Step 3 – PES
Be sure that your PES is up to date; check the quantities and the estimated prices. The pay quantity sheet and PES must match exactly. You need only be concerned with roadway items and prices. Once you are sure it is ready, printout a PES estimate.

Step 4 – Special Provisions
A filled out special provisions list. This can be found by going to the intranet (the ODOT homepage). On the left side of the homepage, about midway down, click on the link named "construction, engineering, standards, specifications, materials & testing". On this page, in approximately the center of the page, click on the link to open up the current special provisions. On this page, at the top center, click on the link titled "splist" to open up a pdf copy of the special provision list; print this list out.

Step 5 – NOI form
A completed NOI form (DEQ form 606-002a) will be required if the disturbed area of the project is one acre or more. The latest copy of this form can be found at the website listed below. http://www.deq.state.ok.us/eclsnew/sitestrm.htm

Submitting to bridge division

Step 6 – Submission Letter
You will need a letter of submission to bridge division. A copy of this letter should go in your job folder.

Step 7 – Handoff to Supervisor
This completed packet of material should be given to the squad supervisor to deliver to the bridge division squad that is assigned to the project.

Note: if you are unfamiliar with or experiencing difficulties with any of the steps above you should seek the assistance of your squad supervisor.

R/W Submission Procedure

For ODOT use only

Step 1 – Make Copies & CD ROMs

The copies shown below should be sent to R/W Division along with the R/W submission letter. Save this as a copy before you start working on it. Note that this is the minimum amount. R/W Division prefers their copies to be unstapled.

Copies Needed for R/W Submission

7	Half Sized sets of Plans including Cross Sections
2	CDs with PDF *and* DGN of all sheets

Use a Sharpie® or similar marker to label each of the CD ROMs with the J/P number, County and Highway number.

Step 2 – Delivery

Hand-deliver 5 sets of the plans to Project Management Manager in Right of Way & Utilities room 3B4 or one of the manager's subordinates. It is recommended that you have the R/W submission letter stamped and bring back a photocopy of it for our records. The R/W copier is just outside the manager's office.

Additional copies of the Plans and/or Letter should also be sent to:

- Email a copy of the PDF letter to the Squad Supervisor. They will ensure that Project Management and Environmental Programs are informed of the submission.
- Hand deliver 2 sets of the plans along with a copy of the letter and 404 Permit (if applicable) to the Environmental Programs manager for the appropriate division.
- A copy of the letter goes into the Project Folder.
- If this is a Bridge Project send them a copy of the letter along with a half sized copy of the Title, Typical and P&P sheets. This is done as a courtesy.

Place both a DGN and a PDF copy of the job files in X:/RDYJOBS/. Create a subdirectory using the State Job Number and place all files within it. If revisions are later submitted then you should create a subdirectory using the following naming format.

Rev[J/P #] date

For instance a revision for J/P 12345(04) which was submitted on June 2nd, 2011 would look like this.

Rev12345(04) 06-02-11

Place a copy of the PDF files in the Job directory on the Y drive. See the example below.

Y:\Division 8\County 12345(04)\PDF Submissions\RW

R/W Submission Procedure (Consultant)

Step 1 – Check the Number of Copies

The copies shown below should be sent to R/W Division along with the R/W submission letter. Note that this is the minimum amount. R/W Division prefers their copies to be unstapled, but if you received stapled copies send them anyway.

Copies Needed for R/W Submission

5	Half Sized sets of Plans including Cross Sections
2	CDs with PDF *and* DGN of all sheets

If the discs you receive are not already clearly labeled, use a Sharpie® or similar marker to label each with the J/P number, County and Highway number.

Consultants may provide more, or less, copies than this amount. In the case of too many copies send the extras with the submittal. In the case of too few copies you will need to consult with your Engineering Manager to see how he wants to handle the short fall.

Step 2 – Delivery

Hand-deliver the plans to the Project Management Manager in Right of Way & Utilities Division in room 3B4 or one of the manager's subordinates. It is recommended that you have the letter stamped received and bring back a photocopy of it for our records. The R/W copier is just outside the manager's office.

Additional copies of the Plans and/or Letter should also be sent to:

- Email a copy of the PDF letter to the Squad Supervisor. They will ensure that Project Management and Environmental Programs are informed of the submission.
- Hand deliver 2 sets of the plans along with a copy of the letter and 404 Permit (if applicable) to the Environmental Programs manager for the appropriate division.
- A copy of the letter goes into the Project Folder.
- If this is a Bridge Project send them a copy of the letter along with a half sized copy of the Title, Typical and P&P sheets. This is done as a courtesy.

Place both a DGN and a PDF copy of the job files in X:/RDYJOBS/. Create a subdirectory using the State Job Number and place all files within it. If revisions are later submitted then you should create a subdirectory using the following naming format.

Rev[J/P #] date

For instance a revision for J/P 12345(04) which was submitted on June 2nd, 2011 would look like this.

Rev12345(04) 06-02-11

There should be a directory for the project in Y:\Division #\~CONSULTANT PROJECTS. If there is not, make one. The files for this revision should be in a subdirectory identical to that listed above for the X drive.

You are making duplicate entries during this step, one in the X drive and one in the Y drive, this is intentional.

Final Submission

For ODOT use only

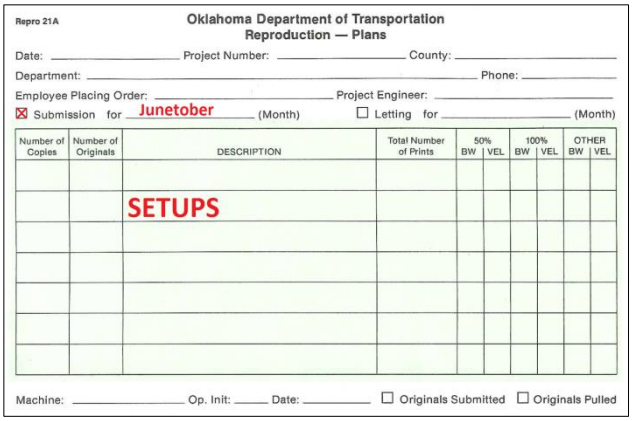
Important: Two weeks prior to final submission you should seek any signatures that are needed from other divisions. The Survey Title Sheet and any Pay Quantity Sheets from Bridge or Traffic Division will all require signatures. If Roadway is the lead on the project then your Engineering Manager will need to sign the Title Sheet. If Bridge Division is the lead on the project then your Engineering Manager will need to sign the Pay Quantities (Roadway) Sheet before we pass it off to them. You will need a full and half sized copy of all signature sheets. You should also seek to obtain the Calendar Days for the project.

You Will Need

One complete Full Sized set and one complete Half Sized set of plans including Cross Sections and all other sheets; this is Final Submission so it must include everything.

Step 1 - SETUPS

Fill out a Work Order Form (pictured right). Your squad may keep a supply of these or you can also get one from Reproduction, they are kept by their In/Out box.



Repro 21A

Oklahoma Department of Transportation
Reproduction — Plans

Date: _____ Project Number: _____ County: _____

Department: _____ Phone: _____

Employee Placing Order: _____ Project Engineer: _____

☒ Submission for Junetober (Month) ☐ Letting for _____ (Month)

Number of Copies	Number of Originals	DESCRIPTION	Total Number of Prints	50% BW	50% VEL	100% BW	100% VEL	OTHER BW	OTHER VEL
		SETUPS							

Machine: _____ Op. Init: ____ Date: _____ ☐ Originals Submitted ☐ Originals Pulled

Check the box labeled “Submission” and fill in the month. Under description simply write the word SETUPS. You will not need to fill out the Number of Copies, Total Number of Prints or other Information.

Take the full sets of Half Sized and Full Sized plans to Reproduction along with your completed Work Order Form. You will leave the plans on the reception desk next to the binder containing the Revision and Submission Sign in Sheet. You must fill out a line on this sheet for your plans. Reproduction will review the plans to be sure that all Standards, Sheet Numbers, County Names, Job Numbers, Indexes, etc. are correct. Once they are satisfied that everything is in order they will run the setups. They will make numerous half sized copies, one of which is labeled with pricing. You will need these for the next steps in the process.

Final Submission

For ODOT use only

Step 2 – Submittal Package

Prepare the following:

- Prepare a Project Submission Letter. Save a copy to your local directory before making any changes. Note that Right-of-Way Certification Type is supplied by the Project Management personnel in Right of Way Utilities branch. This information will not be available until 4 to 6 weeks prior to Letting. If you must prepare a Submission prior to this certification then list it as Not Applicable.
- Include the Calendar Days information (obtained from the Preconstruction Program Manager of the Chief Engineer's Office).
- Include the list of Special Provisions. This can be found by going to the intranet (the ODOT homepage). On the left side of the homepage, about midway down, click on the link named "Construction, Engineering, Standards, Specifications, Materials & Testing". On this page, in approximately the center of the page, click on the link to open up the 2009 Special Provisions. On this page, at the top center, click on the link titled "SPList" to open up a PDF copy of the Special Provision list which you can print. Print out this list and fill it out.
- If your project will disturb 1 Acre or more of ground you will need a DEQ NOI Form (Department of Environmental Quality, Notice of Intent).
- If you have a pay item that requires it, you will need a QCQA Form (Quality Control, Quality Assurance). If you need one it is obtained from the Office Engineer..
- You will need a PES printout. Be certain that all of the pay items in PES and the Pay Quantity sheet(s) match each other, be sure that estimated prices are entered and up-to-date; you will hear from Office Engineer if there are discrepancies.
- 404 Permit if required. If this is needed for the project the application should have been turned in to Environmental Programs Division at the same time R/W was submitted. By this time you should have the 404 Permit if the project requires one.
- Soils Report only if specifically requested by Office Engineer. You will rarely need one. Usually this is all handled by Pavement Design electronically.
- Two of the half sized sets of plans which you got from Reproduction in Step 1. Make a PDF scan of the priced title sheet. If the original is lost, by anyone, this will save the time and effort that would be needed to otherwise replace it.
- When preparing the submittal packet the accompanying documents should be placed in order as follows: Submission letter on top followed by, PES, Environmental documents (NOI, 404 permits, etc.) and lastly Special Provisions.

Final Submission

For ODOT use only

Step 3 – Distribution

Distribute the Half Sized Copies according to the following table:

COPY DISTRIBUTION		
To Where	**# of Copies**	**Delivery**
Office Engineer	2	The priced copy and a regular copy, hand-deliver along with the Submittal Package.
FHWA	1	Only on Federal Oversight Projects
Engineering Manager	1	
Traffic Division	1	Routing Slip
Bridge Division	1	Routing Slip, only if there is a Bridge on the project

Step 4 – Full Sized Storage

Soon after Submission (time varies) Reproduction will place a complete set of full sized plans in the In/Out Box. This copy is retrieved by the Design Team for storage until the return date shown on the attached Plan Return Form. Once that date arrives return the plans to Reproduction. This set must be kept current so if Revisions are done you will need to replace original sheets with revised ones. The set you return to Reproduction should be current as of the date it is returned.

Final Submission (Consultant)

Consultant Will Provide

One complete Full Sized set and one complete Half Sized set of plans including Cross Sections and all other sheets. They should also provide the entire submittal package.

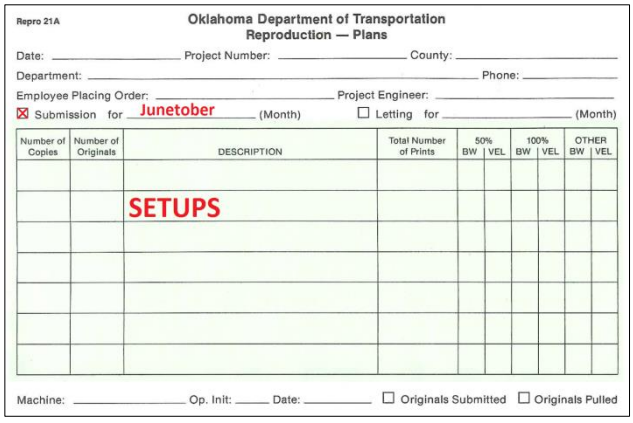
Step 1 – Checking the Plans

- Check to be sure there are no missing pages from either set (full or half).
- Be sure each page has the J/P number, County and Highway number listed in the lower right hand corner.
- Check the list of Standards to be sure that all of them are up to date.
- Be sure that no signatures are missing from the sheets that require them.
- You will likely receive a disc containing the PES for the project this will need to be imported into our PES system. This is not always easy and you may have to take the disc to the Trns*prt Branch and seek the assistance. <u>This must only ever be done once.</u> If you later receive updated or revised discs any PES changes must be made manually. Loading two discs for the same project cause numerous duplication errors that will take much effort to fix.
- Confirm that all of the Pay Quantities and the PES match each other and be sure that valid price estimates are included.

Step 2 - Setups

Fill out a Work Order Form (pictured right). Your squad may keep a supply of these or you can also get one from Reproduction, they are kept by their In/Out box.

Check the box labeled “Submission” and fill in the month in the space provided. Under description simply write the word SETUPS. You will not need to fill out the Number of Copies, Total Number of Prints or other Information.



Repro 21A

Oklahoma Department of Transportation
Reproduction — Plans

Date: _____ Project Number: _____ County: _____

Department: _____ Phone: _____

Employee Placing Order: _____ Project Engineer: _____

☒ Submission for Junetober (Month) ☐ Letting for _____ (Month)

Number of Copies	Number of Originals	DESCRIPTION	Total Number of Prints	50% BW	50% VEL	100% BW	100% VEL	OTHER BW	OTHER VEL
		SETUPS							

Machine: _____ Op. Init: ____ Date: _____ ☐ Originals Submitted ☐ Originals Pulled

Take the full sets of Half Sized and Full Sized plans to Reproduction along with your completed Work Order Form. You will leave the plans on the reception desk next to the binder containing the Revision and Submission Sign in Sheet. You must fill out a line on this sheet for your plans. Reproduction will review the plans to be sure that all Standards, Sheet Numbers, County Names, Job Numbers, Indexes, etc. are correct. Once they are satisfied that everything is in order they will run the setups. They will make numerous half sized copies, one of which is priced. You will need these for the next steps in the process. You should scan a copy of the priced title sheet once you get it, there have been times in the past when this sheet has been misplaced and it saves a lot of time and trouble if you can print a new copy if needed.

Final Submission (Consultant)

Step 3 – Submittal Package

Confirm that you have the following

- A Submission Letter (the PDF form), if one has not been provided, one will need to be filled out.
- A document listing Calendar Days
- A list of Special Provisions.
- If the project disturbs 1 Acre or more you should have a DEQ NOI Form. This is a Department of Environmental Quality, Notice of Intent form.
- You may have a QCQA Form, if you have a pay item that requires it. (Quality Control, Quality Assurance).
- You will need to make a PES printout.
- Should the job have a 404 Permit? If so do you have it?
- Two of the half sized sets of plans which you got from Reproduction in Step 2. One copy must be the priced set. Make a photocopy or scanned copy of the priced title sheet. If the original is lost, by anyone, this will save the time and effort that would be needed to otherwise replace it.
- When preparing the submittal packet the accompanying documents should be placed in order as follows: Submission letter on top followed by, PES, Environmental documents (NOI, 404 permits, etc.) and lastly Special Provisions.

Step 4 – Distribution

Distribute the remaining Half Sized Copies according to the following table:

COPY DISTRIBUTION		
To Where	**# of Copies**	**Delivery**
Office Engineer	2	The priced copy and a regular copy, hand-deliver along with the Submittal Package.
FHWA	1	Only on Federal Oversight Projects
Engineering Manager	1	
Traffic Division	1	Routing Slip
Bridge Division	1	Routing Slip, only if there is a Bridge on the project

Step 5 – Full Sized Storage

Soon after Submission (time varies) Reproduction will place a complete set of full sized plans in the In/Out Box. This copy is retrieved by the Design Team for storage until the return date shown on the attached Plan Return Form. Once that date arrives return the plans to Reproduction. This set must be kept current so if Revisions are done you will need to replace original sheets with revised ones. The set you return to Reproduction should be current as of the date it is returned.

NOTE: The Office Engineer branch does not care if a project is In-House or Consultant; therefore the quality and requirements for submission are the same regardless of the source.

Revision After Submission But Before Letting

For ODOT use only

NOTE: This is not the same as a R/W Revision. Almost all R/W Revisions take place prior to Final Submission. Be sure what type of a revision you are doing.

Step 1 – Determine What Sheets Need Revision

If you revise Pay Quantities, it may also require revision to certain Summaries and vice versa. If you add pages you will need to revise your Index of Sheets and the sheet it is located on. Changes made to a P&P Sheet may require similar changes to a Special Detail sheet and vice versa. Any revision made to one sheet may require changes to be made on other sheets. Take a minute and think about the changes you have made and what other sheets may be impacted by those changes. Once you are sure you know *every* sheet that will need to be revised you are ready for step 2.

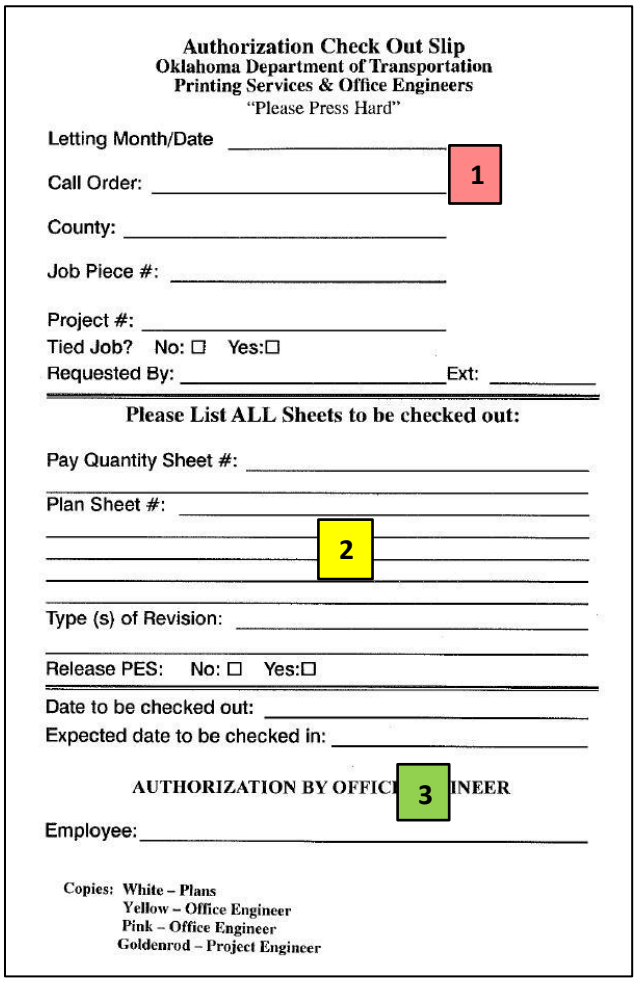
Step 2 – Checking out Sheets from Office Engineer

Review the Authorization Check Out slip pictured below to see what information will be needed before heading down to Office Engineer. Having this information ahead of time will speed the process. Use a ball point pen and bear down when filling out this form; you are making multiple carbon copies.

Completing an Authorization Check Out Slip

1 Letting Month/Date, County, Job Piece and Project can be found in the Project Folder. The Call Order is found in the Letting Binder at Office Engineer. Tied Job is asking if this project is tied to another one, this information is also shown in the Letting Binder. Requested By is the name of the person who has assembled the plans and Submittal package and delivered it to Office Engineer (you), Put your office phone number in the Ext space. Write "Roadway" above your phone number.

2 Pay Quantity Sheet is the sheet number(s) of any sheets that contain any Pay Quantities, Summaries are not Pay Quantities. Plan Sheets are the sheet number(s) of any other sheet. Type(s) of Revision is used to briefly describe what you are intending to revise. Release PES, check yes if you will be changing any Pay Quantity values.



Authorization Check Out Slip
Oklahoma Department of Transportation
Printing Services & Office Engineers
"Please Press Hard"

Letting Month/Date _____
Call Order: _____ 1
County: _____
Job Piece #: _____
Project #: _____
Tied Job? No: ☐ Yes:☐
Requested By: _____ Ext: _____

Please List ALL Sheets to be checked out:

Pay Quantity Sheet #: _____
Plan Sheet #: _____ 2
Type (s) of Revision: _____
Release PES: No: ☐ Yes:☐

Date to be checked out: _____
Expected date to be checked in: _____

AUTHORIZATION BY OFFICE ENGINEER 3

Employee: _____

Copies: White – Plans
Yellow – Office Engineer
Pink – Office Engineer
Goldenrod – Project Engineer

Revision After Submission But Before Letting

For ODOT use only

Step 6 – Distribution

Reproduction will make copies of the half-sized sheets and they will return the full-sized. All of this will be left in their In/Out box. Usually the half-sized copies will show up before the full-sized sheets. This is good because you need the half-sized sheets to handle the rest of distribution. The full-sized sheets are handled in Step 7. Refer to the table below to see where to send all of these sets of half-sized sheets.

Send To:	**# of Plans**	**Each Entity listed receives a Letter *plus X* number of Plans**
Design Team	≥1[1]	These copies are retained for team use.
Director of Engineering	0	Route Slip or Hand delivered. Copy of letter only and only if price has changed.
FHWA	2	Only if Project involves Federal funds, is a Federal Oversight project, required a 404 Permit or otherwise involves the Feds. Place in Out Box of the Roadway Office or hand deliver it to the mail room. Be sure to specify the names of who is sending the packet (usually your engineer) and who is the recipient at FHWA is (this is due to FHWA incoming mail policy). If you don't specify a specific sender and specific recipient it will not get delivered.
Field Division	1	
Field Division Construction Engineer	1	This is in addition to the copy sent to the Field Division.
Office Engineer	2	Hand delivered.
Residency	1	

In addition to the above copies, as a courtesy, you should always pass along a half-sized copy of any revised sheets to any other office divisions (ex. Traffic or Bridge) that are involved in the project.

Step 7 – The Full Sized Sheets

The Design Team should be keeping a full sized copy of the plans. In this case the full sized sheets that are returned from Reproduction are used to replace the old sheets in our copy. Sometimes Bridge Division is the lead on a project, if this is the case the full sized copies need to be returned to them.

[1] We staple one copy over the sheet it is replacing in the half-sized set of the plans we are keeping for our records. The Design Supervisor or Engineering Manager may want additional copies for other purposes so you should check with them.

Revision After Submission but Before Letting (Consultant Projects)

NOTE: This is not the same as a R/W Revision. Almost all R/W Revisions take place prior to Final Submission. Be sure what type of a revision you are doing.

Step 1 – Determine What Needs Revision

For a consultant job this should be easy since they have sent you the revised sheets. Check what you have been sent, does it make sense? Sometimes revising one sheet means that another has to be revised as well, be sure that you have everything you are logically supposed to have. Now you are ready for step 2.

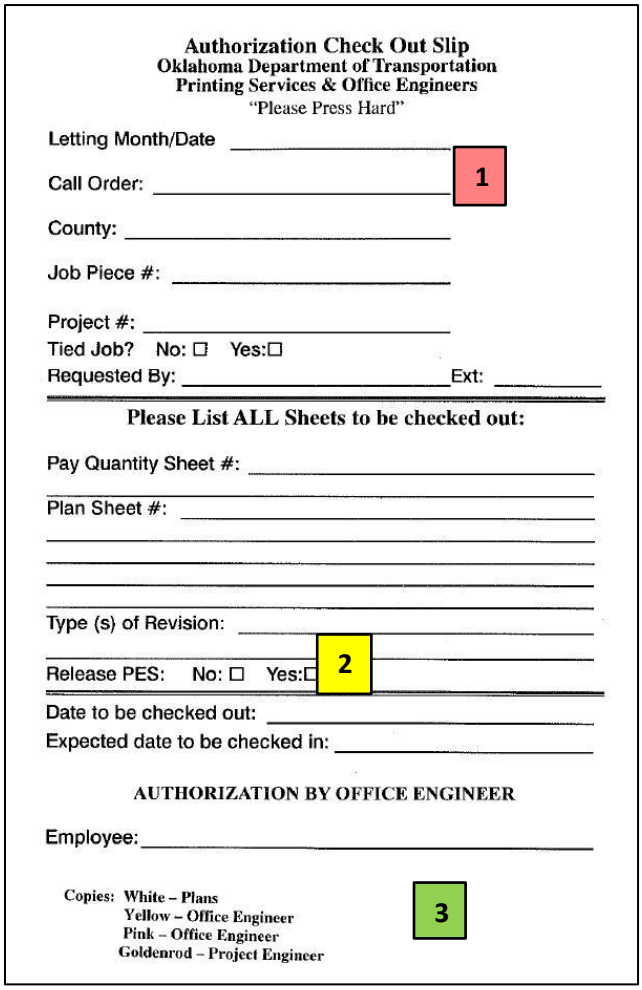
Step 2 – Checking out Sheets from Office Engineer

Review the Authorization Check Out slip pictured below to see what information will be needed before heading down to Office Engineer. Having this information ahead of time will speed the process. Use a ball point pen and bear down hard when filling out the form you are making numerous carbon copies.

Completing an Authorization Check Out Slip

1 Letting Month/Date, County, Job Piece and Project can be found in the Project Folder. Call Order is found in the Letting Binder at Office Engineer. Tied Job is asking if this project is tied to another one, this information is also shown in the Letting Binder. Requested By is the name of the person who has assembled the plans and Submittal package and delivered it to Office Engineer (probably you); Put your office phone number in the Ext space. Write "Roadway" above the phone number.

2 Pay Quantity Sheet is the sheet number(s) of any sheets that contain any Pay Quantities, Summaries are not Pay Quantities. Plan Sheets are the sheet number(s) of any other sheet. Type(s) of Revision is used to briefly describe what you are intending to revise. Release PES, check yes if you will be changing any Pay Quantity values.



Authorization Check Out Slip
Oklahoma Department of Transportation
Printing Services & Office Engineers
"Please Press Hard"

Letting Month/Date _____
Call Order: _____ 1
County: _____
Job Piece #: _____
Project #: _____
Tied Job? No: ☐ Yes:☐
Requested By: _____ Ext: _____

Please List ALL Sheets to be checked out:

Pay Quantity Sheet #: _____
Plan Sheet #: _____
Type (s) of Revision: _____
Release PES: No: ☐ Yes:☐ 2
Date to be checked out: _____
Expected date to be checked in: _____

AUTHORIZATION BY OFFICE ENGINEER

Employee: _____

Copies: White – Plans
Yellow – Office Engineer
Pink – Office Engineer
Goldenrod – Project Engineer

3

Revision After Submission but Before Letting (Consultant Projects)

3 Date to be checked out should match the date the revisions were made (the date shown in the revision block of the revised sheets). Expected date to be checked in is just that; unless deadlines are an issue it never hurts to pad this a little just in case. There is no penalty for early return but if you are late you may get a phone call. Get one of the Office Engineer personnel to sign the slip.

Once you complete the form you will hand it off to one of the Office Engineer personnel. They will sign it, provided it is completed correctly, and give you the White original copy and a Goldenrod carbon copy. It is a good idea to check and make sure that the information transferred clearly to the Goldenrod copy. Do not lose these, you will need them later.

The Office Engineer personnel are all pretty nice people and will usually be happy to help you with any questions that you may have. They know this is an often complex procedure so don't feel embarrassed to ask for assistance.

Step 3 – Checking the Sheets

Since this is a consultant project you should already have all the revised sheets in hand. Ideally you will have one full size and three half size copies of each page that was revised but as long as you have one of each it will be fine. It is up to us to check over these sheets and be sure that the revisions have actually been done and that no new errors have been introduced. For instance, consultants commonly change around Pay Quantity numbers without warning.

Here is what you need to check:

- Each revised sheet must have a revision block in the upper right hand corner. Depending on the type of revision it may feature a symbol (square, circle, triangle, etc.) or a shape with a number to indicate the locations of changes on the sheet.
- Each sheet's revision block must have the same date shown.
- Each sheet must have the County Name and Highway Number shown on the lower right hand corner of the sheet.
- If any Summaries were changed be sure that the new values made it to the Pay Quantity sheets.
- Be sure that the values on the Pay Quantity Sheets match those shown in PES. Do this even if there is no indication that the Pay Quantities have been changed. If there is a difference in any of these numbers you will be hearing from the Office Engineer. **NOTE:** If you receive a disc with revised PES or Estimator data **DO NOT USE IT**. Any changes needed to PES must be done manually. If you load a second disc for a previously existing project there will be many duplication errors which will take a lot of work to fix.
- If the List of Standards has been changed be sure that the Standards are the correct.

Revision After Submission but Before Letting (Consultant Projects)

- Be sure that each set of plans are not missing any pages and that all pages that require signatures have been signed.
- Look for any other obvious errors like incorrect J/P numbers, incorrect dimensions on typical sections, transposed numbers or letters, etc.

Step 4 – Taking Revisions to Reproduction

Once the revised sheets are ready to go take one set of full sized and one set of half sized set to Reproduction along with the White and Goldenrod Copies of the Authorization Check Out Slip that you got in Step 2. These sheets can be rolled together in a single bundle as long as there are not so many sheets that it is impractical.

At the front desk in Reproduction is a folder in which you "sign-in" revisions. You can look at previous entries to see how it is done. All the information you will need is on the title sheet of the project so even if you are not revising that sheet it doesn't hurt to take a half size copy with you for reference purposes.

Reproduction will replace their existing sheets with the revised sheets and make copies for distribution (these will be placed in the In/Out box). *It is advisable to check that Reproduction has pulled and replaced sheets before plans go on sale*.

Step 5 – Submitting Revision to the Office Engineer

Prepare a Revised Final Submission Letter. Have the Engineering Manager sign it. If the revision required changes to the PES, print a new estimate. Make ten copies of the Letter and one copy of PES. Remember the PES and Pay Quantities must be in agreement with each other.

To the Office Engineer you must return two half sized copies of the revised sheets, the Revised Final Submission Letter and the new PES (if any). Make sure that you get one of the Office Engineer personnel to accept the revised sheets as they must sign-off that they have been returned. Retain one copy of the letter and the copy of the PES and give these to the Engineering Manager.

Step 6 – Distribution

Reproduction will make copies of the Half Sized sheets and they will return the Full Sized. All of this will be left in their In/Out box. Usually the Half Sized copies will show up before the full sized sheets. This is good because you need the half sized sheets to handle the rest of distribution. The Full Sized sheets are handled in Step 7. Refer to the table below to see where to send all of these sets of half sized sheets.

Revision After Submission but Before Letting (Consultant Projects)

Send To:	# of Plans	Each Entity listed receives a Letter *plus X* number of Plans
Design Team	≥1[1]	These copies are retained for team use.
Director of Engineering	0	Route Slip or Hand delivered. Copy of letter only and only if price has changed.
FHWA	2	Only if Project involves Federal funds, is a Federal Oversight project, required a 404 Permit or otherwise involves the Feds. Place in Out Box of the Roadway Office or hand deliver it to the mail room. Be sure to specify the names of who is sending the packet (usually your engineer) and who is the recipient at FHWA is (this is due to FHWA incoming mail policy). If you don't specify a specific sender and specific recipient it will not get delivered.
Field Division	1	
Field Division Construction Engineer	1	This is in addition to the copy sent to the Field Division.
Office Engineer	2	Hand delivered; these are the copies mentioned in Step 5.
Residency	1	

In addition to the above copies, as a courtesy, you should always pass along a half-sized copy of any revised sheets to any other office divisions (e.g. Traffic or Bridge) that are involved in the project.

Step 7 – The Full Sized Sheets

The Design Team may be keeping a full sized copy of the plans. In this case the full sized sheets that are returned from Reproduction are used to replace the old sheets in our copy. In most cases this full sized copy should be turned over to the Engineering Manager. Sometimes Bridge Division is the lead on a project, if this is the case the full sized copies need to be returned to them.

[1] We staple one copy over the sheet it is replacing in the half-sized set of plans we are retaining for our records. The Engineering Manager may need additional copies for other purposes, check to see if that is the case.

Change-In-Plan (In-House)

For ODOT use only

If revisions are required after the Project is Let and the contract is Awarded, the point of contact becomes the Residency, instead of the Office Engineer.

Step 1 – Determine What Sheets Need Revision

If you revise Pay Quantities, it may also require revision to certain Summaries and vice versa. If you add pages you will need to revise your table of contents and the sheet it is located on. Changes made to a P&P Sheet may require similar changes to a Special Detail sheet and vice versa. Any revision made to one sheet may require changes to be made on other sheets. Take a minute and think about the changes you have made and what other sheets may be impacted by those changes. Once you are sure you know every sheet that will need to be revised you are ready for step 2.

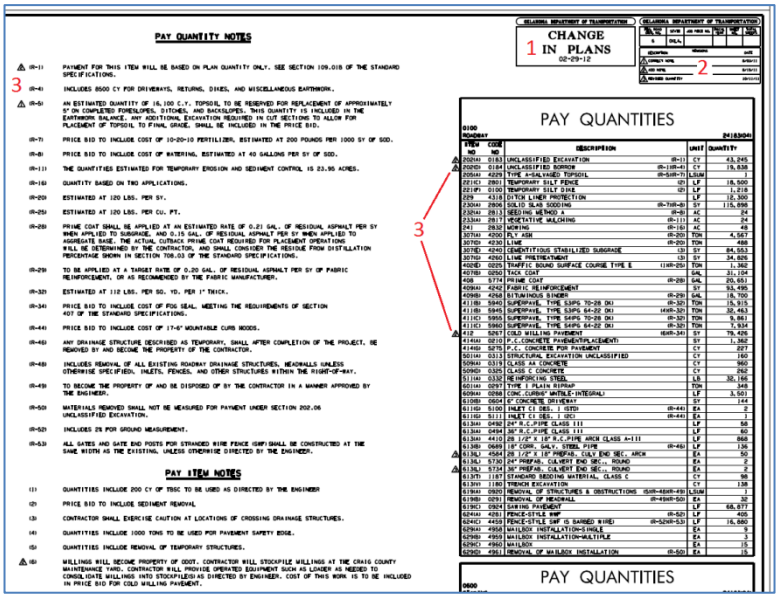
Step 2 – Revise the Sheets

To the right is an example of a sheet that has been revised for a Change In Plan.

1 - All pages must have the Change In Plans stamp. Place this as close to the right upper corner of the sheet as practical.

2 - Changes to the sheet require a revision block that is identical to the one used in normal revisions after submission.

3 – Each changed area must have a revision symbol. This is identical to the sort used for normal revisions after submission.



Step 3 – Prepare a Change In Plan Letter

To prepare this letter you must:

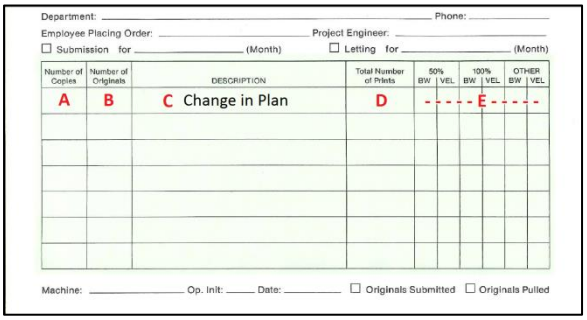
- Know which Residency is now in charge of the project
- Know the date (month and year) the project was let
- Be able to briefly explain the Type of Change(s) made
- Know the reason for the change(s) (a request from the field, in-house design review, etc.)
- You will need to get the signature of your Engineering Manager

Save a copy of the completed letter in your project directory.

Change-In-Plan (In-House)

For ODOT use only

Step 4 – Take the Revised Sheets to Reproduction


Department: _____ Phone: _____
Employee Placing Order: _____ Project Engineer: _____
☐ Submission for _____ (Month) ☐ Letting for _____ (Month)

Number of Copies	Number of Originals	DESCRIPTION	Total Number of Prints	50% BW	50% VEL	100% BW	100% VEL	OTHER BW	OTHER VEL
A	B	C Change in Plan	D	- - - - -		E		- - - - -	

Machine: _____ Op. Init: ____ Date: _____ ☐ Originals Submitted ☐ Originals Pulled

You will need to take one half-sized and one full-sized set of the revised sheets to reproduction. Make sure any sheets that require signatures are signed. You will need to fill out a Work Order Form (pictured right). The top portion of the form is filled out as normal but the table portion of the form is filled out as follows:

- **A** Leave this blank. Reproduction will make 9 full-sized and 35 half-sized copies of any sheets designated as part of a Change in Plans.
- **B** This is optional you can fill in the number of originals that you have but it is not necessary.
- **C** Under the Description column write “Change in Plan” clearly.
- **D** Leave this blank, reproduction already knows how many prints are required.
- **E** Leave all of this blank, reproduction already know how many and what size to print.

NOTE: *It is advisable to verify that Reproduction has pulled and replaced sheets from their own set of the plans*.

Change-In-Plan (In-House)

Step 5 – Distribute the Revised Copies

Once you get your copies back and have the Change In Plan letter distribute copies.

Send To:	Size	#	Delivery	Remarks
Residency	Full Half	4 12	With the Original Letter	In *rushed* situations the Engineering Manager may have you send this in an expedited manner
Contractor	Full Half	4 12	With copy of Letter	Often sent in care of the Residency
FHWA	Half	2	With copy of Letter	Only if Project is a Federal Oversight Project.[1]
Field Division	Half Full	1 1	With copy of Letter	
Construction	Half	1	With copy of Letter[2]	
Design Team	Half	1	Keep	Insert into Squad's Copy[3]
Engineering Manager	Half	1	Keep	Insert into EM's Copy[3]
Project Management	Half	1	Routing Slip[2]	
Bridge, Traffic, Right of Way, etc.	Half	1+	Routing Slip[2]	Reproduction can provide additional copies beyond those listed in the distribution table, upon request, for distribution to other involved entities.

If you end up with extra sets of plans after distribution is done; stash the extras in a safe place for approximately one week. There is always the chance that additional copies will be requested by involved entities.

[1] This can usually be easily determined by checking the Project Status in Oracle.
[2] Optionally these can be hand-delivered to divisions located within the central office.
[3] Staple or otherwise attach the new sheet on top of the old one. Do not remove the old sheets.

Change-In-Plan (Consultant)

In the rare event that revisions are required after the Project is Let and the contract is Awarded, the point of contact becomes the Residency, instead of the Office Engineer.

Step 1 – Check to Determine If All Required Revisions Have Been Made

If Pay Quantities have been revised, this may also require revision to certain Summaries and vice versa. If pages have been added the table of contents, and the sheet it is located on, will also require revision. Changes made to P&P Sheets may require similar changes to Special Detail sheets and vice versa. Any revision made to one sheet may require changes on other sheets. Check the plans thoroughly to ensure that no required changes have been overlooked by the consultant.

Every sheet that is revised should have a stamp reading “Change In Plan” which is clearly visible. This stamp should be as close to the upper right corner of the sheet as is feasible.

Every revised sheet should have a revision block on it and any area of the sheet that has been changed should have a note symbol indicating this.

Previous revisions to a sheet should still be present. In fact everything that was on the sheet when it was originally submitted should still be present though the Change in Plan may result in some items being struck through and noted. Information can be added to a sheet with a Change in Plan but it should not remove anything unless its removal has been made absolutely clear (for instance a deleted sheet could be replaced with a blank sheet that says “Deleted Sheet”.

Page numbering cannot be changed by a Change in Plan, any sheets added to the project will need a letter designation added to them (for example adding a sheet 12A and 12B just after the original sheet 12).

Once you are sure that all revisions have been made you are ready for step 2.

NOTE: If you receive a disc with revised or updated PES or Estimator data **DO NOT USE IT**. Any PES changes must be made manually. Loading a disc into an already existent PES project will cause numerous duplications errors which will take a lot of work to fix.

Step 2 – Prepare a Change In Plan Letter

To properly prepare this letter you must:

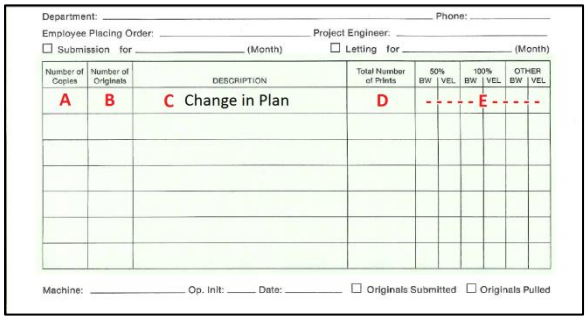
- Know which Residency is now in charge of the project
- Know the date (month and year) the project was let
- Be able to briefly explain the Type of Change(s) made
- Know the reason for the change(s) (a request from the field, in-house design review, etc.)
- You will need to get the signature of your Engineering Manager

The above information should be supplied by the consultant. If you are missing any information needed for the letter talk to your Engineering Manager.

Save a copy of the letter in the consultant project directory. If such a directory does not exist, create it and inform the Engineering Manager that you have done so.

Change-In-Plan (Consultant)

Step 3 – Take the Revised Sheets to Reproduction


Department: _____ Phone: _____
Employee Placing Order: _____ Project Engineer: _____
☐ Submission for _____ (Month) ☐ Letting for _____ (Month)

Number of Copies	Number of Originals	DESCRIPTION	Total Number of Prints	50% BW	50% VEL	100% BW	100% VEL	OTHER BW	OTHER VEL
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Machine: _____ Op. Init: _____ Date: _____ ☐ Originals Submitted ☐ Originals Pulled

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Field Division	Half Full	1 1	With copy of Letter	
Construction	Half	1	With copy of Letter[2]	
Design Team	Half	1	Keep	Insert into Squad's Copy[3]
Engineering Manager	Half	1	Keep	Insert into EM's Copy[3]
Project Management	Half	1	Routing Slip[2]	
Bridge, Traffic, Right of Way, etc.	Half	1+	Routing Slip[2]	Reproduction can provide additional copies beyond those listed in the distribution table, upon request, for distribution to other involved entities.

If you end up with extra sets of plans after distribution is done; stash the extras in a safe place for approximately one week. There is always the chance that additional copies will be requested by involved entities.

[1] This can usually be easily determined by checking the Project Status in Oracle.
[2] Optionally these can be hand-delivered to divisions located within the central office.
[3] Staple or otherwise attach these on top of the old sheets. Do not remove the old sheets.

“This Page Is Intentionally Left Blank.”

Checklists

- **Survey Data and TOPO**
- **Preliminary Plan Field Review Plans**
  - **Field Review Erosion Control**
- **Right-of-Way and Utility Meeting Plans**
- **Final Plan Field Review Plans**
- **Methods of Plan Markups**
- **Plan-in-Hand Field Review Meeting Plans**
- **Final Plan Review Plans**

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Survey Data and TOPO Checklist

Note: As you review survey look for duplicate text, note misspelling, missing line styles, and any other types of common drafting errors.

When receiving Survey updates: (newer versions of the survey information)

____ 1. Reference the new file into the old file. Make sure that everything is still within the same coordinates.
____ 2. The existing ground (.dtm) file should be renamed existing so that any new versions could just replace the previous by renaming the new version "existingv2" (a new folder should be created to hold all .dtm's not in use) and InRoads will recognize it and not have any difficulties.

Survey Title Sheet:
____ 3. SWO
____ 4. J/P Number
____ 5. Highway
____ 6. Layout map (check image reversal, raster file)
____ 7. Survey stamp
____ 8. Index of sheets

Benchmarks:
____ 9. Locate the Benchmarks on the plans (Station & offset). Verify all information on the Benchmarks that are needed for the project extents. A Benchmark is needed a minimum of one for every 300 feet for urban project and one at least every 700 feet for rural projects.

A001 (survey data sheet): (Verify the following)
____ 10. Description along centerline survey; verify that it matches the alignment in the ALG file (InRoads).
____ 11. Information related to the survey alignment (POT's, Bearings, Curve Data, PI's, PC's and PT's).
____ 12. Snap to COGO points on the centerline survey, their X & Y coordinates should agree with the Easting/Northing as listed in the Survey Data Sheets.
____ 13. Survey information on the TOPO file to confirm the information matches that given in the Survey Data Sheets.

Survey Data and TOPO Checklist

Check corner sections: (Verify the following)

____ 14. Section Line is depicted and has the proper labeling.
____ 15. Section, Township and Ranges are all shown and labeled correctly.

Drainage:

____ 16. Check for crossing and side drains and their notes.

Utilities and ownership:

____ 17. Proper labeling (Verify utility information with utilities branch)
____ 18. (Check text file provided by survey for additional information)

Hazardous waste sites found on plans:

____ 19. Check survey TOPO file for possible environmental mitigation issues.

Present Right-of-Way & Section Line Right-of-Way:

____ 20. Dimensions are given for existing Right-of-Way
- ____ a. Plus and distance (if applicable)
- ____ b. Labeled at the beginning and ending of each sheet

COGO points: (Verify existing…)

____ 21. Right-of-way,
____ 22. Alignment (Curve Data, Bearings, etc…)
____ 23. Utilities (should be consistent with TOPO and survey information)
____ 24. Snap to COGO points to get an Easting/Northing location

Change or add on all sheets for:

____ 25. Sheet #'s (ex: S1, S2)
____ 26. SWO
____ 27. State job number
____ 28. County name
____ 29. Highway number
____ 30. Proper text and sizing

Additional TOPO:

____ 31. Fencing and labeling
____ 32. Drives with proper description
____ 33. Present Right-Of-Way with proper labels and Dimensions

Preliminary Plan Field Review Plans Checklist

Minimum plan requirements for the **Preliminary Plan Field Review**:

____ 1. Title (minus Index of Sheets and Standards)
____ 2. Preliminary Typical Section (with assumed thickness)
____ 3. Plan and Profile sheets
- ____ a. existing topography
- ____ b. existing right-of way limits from survey
- ____ c. existing access control from survey
- ____ d. existing utilities from survey
- ____ e. utility ownership, size and type from survey
- ____ f. existing grade
- ____ g. preliminary grade
- ____ h. preliminary superelevation
- ____ i. preliminary top of cut/ toe of slope
- ____ j. existing drainage structures
- ____ k. preliminary bridge
- ____ l. final bridge hydraulic information
- ____ m. existing fencing
- ____ n. existing driveways
- ____ o. location, width and type of driveways (to be verified at meeting)
- ____ p. city corporate limits from survey
- ____ q. section, township and range from survey
- ____ r. preliminary detour location with horizontal and vertical
- ____ s. preliminary horizontal alignment
- ____ t. preliminary retaining walls and soundwalls

____ 4. Preliminary Bridge General Plan and Elevation
- ____ a. existing structure
- ____ b. existing contours
- ____ c. preliminary structure
- ____ d. preliminary bridge header and riprap
- ____ e. existing and proposed profile
- ____ f. hydraulic information
- ____ g. construction phasing
- ____ h. Centerline Station
- ____ i. vertical and horizontal clearance

____ 5. Preliminary Estimate of Earth Work
____ 6. Survey Data Sheets including Utility Data Sheets

Plan Submission Erosion Control Checklist for ODOT Roadway Design Squads

Date:
County: JP# Submit date: Let date:
Submitted By:

Are these Completed ?

YES / **NO** / **N/A**
PLEASE CHECK BELOW **Erosion Control sheets listed on the Title Sheet Index**

___ ___ ___ Drainage Map
___ ___ ___ Summary of Erosion Control
___ ___ ___ Stormwater Management Plan (SMP) sheet
___ ___ ___ Erosion Control Site Specific Plan Sheets
___ ___ ___ Special Detail Sheet
___ ___ ___ E.C. Standard Drawings

Checklist for E.C. Items in Plan and SPECIAL PROJECTS FILES

				Ck.by Spec.Proj. Complete / Incomplete
___	___	___	Drainage Map	---- / ----
___	___	___	E.C. Items in the Summary of Pay Quantities	---- / ----
___	___	___	Erosion Control Pay Quantity Notes	---- / ----
___	___	___	Erosion Control Construction Notes	---- / ----
___	___	___	Seasonal Planting Restrictions	---- / ----
___	___	___	Schedule of Erosion Control (Permanent Grassing)	---- / ----
___	___	___	Summary of Temporary Sediment Controls	---- / ----
___	___	___	Erosion Control Typical Section	---- / ----
___	___	___	Erosion Control Site Specific plan Sheets	---- / ----
___	___	___	SMP plan sheet (OKR10 9/13/12)	---- / ----
___	___	___	Title Sheet	---- / ----
___	___	___	P/H Letter	---- / ----

Date:

Please feel free to ask any Questions concerning the list above.
Comments:

Dennis Schieber, Roadside Development, 521-4483

Right-of-Way and Utility Meeting Plans Checklist

Minimum plan requirements for the **Right-of-Way and Utility Meeting**:
Note: The **bold items** are in addition to the requirements for the Preliminary Plan Field Review Meeting.

____ 1. Title (minus Index of Sheets and Standards)
____ 2. **Final** Typical Section (with assumed thickness)
____ 3. Plan and Profile sheets to include:
- ____ a. existing topography
- ____ b. existing right-of way limits from survey
- ____ c. existing access control from survey
- ____ d. existing utilities from survey
- ____ e. final utility ownerships, size and type
- ____ f. existing grade
- ____ g. **final** grade
- ____ h. **final** superelevation
- ____ i. **final** top of cut/ toe of slope
- ____ j. existing drainage structures
- ____ k. preliminary bridge
- ____ l. final bridge hydraulic information
- ____ m. existing fencing
- ____ n. existing driveways
- ____ **o. final driveway location, width and type with notes**
- ____ p. city corporate limits from survey
- ____ q. section, township and range from survey
- ____ **r. final detour location with horizontal and vertical alignments**
- ____ **s. final horizontal alignment**
- ____ **t. new right-of-way**
- ____ **u. new access control**
- ____ **v. final structures including storm sewers with notes**
- ____ **w. new R/W fence requirements**
- ____ **x. plusses and distances to any potentially effected building**
- ____ **y. final location of retaining walls and sound walls**
- ____ **z. environmental commitments**

Right-of-Way and Utility Meeting Plans Checklist

____ 5. Survey Data Sheets including Utility Data Sheets

____ **6. Cross Sections**

- ____ **a. final toes**
- ____ **b. existing utilities**
- ____ **c. final driveways and notes**
- ____ **d. final structures including storm sewers and notes**
- ____ **e. new right-of-way**
- ____ **f. retaining walls (offset and earthwork)**
- ____ **g. final detours**

Plan-in-Hand Field Review Meeting Plans Checklist

Minimum plan requirements for the **Plan-in-Hand Field Review**:

____ 1. Title (minus Index of Sheets and Standards)
____ 2. Preliminary Typical Section (with assumed thickness)
____ 3. Plan and Profile sheets
- ____ a. existing topography
- ____ b. existing right-of way limits from survey
- ____ c. existing access control from survey
- ____ d. existing utilities from survey
- ____ e. utility size and type from survey
- ____ f. existing grade
- ____ g. final grade
- ____ h. final superelevation
- ____ i. final top of cut/ toe of slope
- ____ j. existing drainage structures
- ____ k. preliminary bridge
- ____ l. final bridge hydraulic information
- ____ m. existing fencing
- ____ n. existing driveways
- ____ o. final driveway location, width & type with notes (verified at meeting)
- ____ p. city corporate limits from survey
- ____ q. section, township and range from survey
- ____ r. final detour location with horizontal and vertical alignments
- ____ s. final horizontal alignment
- ____ t. new right-of-way
- ____ u. new access control
- ____ v. final structures including storm sewers with notes
- ____ w. new R/W fence requirements
- ____ x. plusses and distances to any potentially effected building
- ____ y. final location of retaining walls and sound walls
- ____ z. known environmental commitments

Plan-in-Hand Field Review Meeting Plans Checklist

____ 5. Preliminary Bridge General Plan and Elevation
- ____ a. existing structure
- ____ b. existing contours
- ____ c. proposed structure
- ____ d. proposed bridge header and riprap
- ____ e. existing and proposed profile
- ____ f. hydraulic information
- ____ g. preliminary construction phasing
- ____ h. Centerline Station
- ____ i. vertical and horizontal clearance

____ 6. Preliminary Estimate of Earth Work

____ 7. Survey Data Sheets including Utility Data Sheets

____ 8. Preliminary Cross-Sections
- ____ a. final toes
- ____ b. existing utilities
- ____ c. final driveways and notes
- ____ d. final structures including storm sewers and notes
- ____ e. new right-of-way
- ____ f. retaining walls (offset and earthwork)
- ____ g. final detours

Methods of Plan Markups

All discrepancies and concerns will be indicated in red on the electronic copy (PDF) of the construction plans.

Plan sheets shall communicate coherently with one another and not be in conflict.

PLAN ITEMS THAT WILL BE REVIEWED

Construction plans submitted for review will be reviewed for the following items that could obstruct construction of the roadway portion of the project and/or produce an inaccurate project estimate. The plan reviews will be consistent with the practices taught by the Performance and Development Branch.

All construction plans will be globally checked for correct title block information and sheet numbers that correspond to the index of sheets.

1. Title Sheet

    a. Items to be checked:

        ___ Location Map
        ___ Design Traffic Data
        ___ Project Lengths
        ___ Project Job Number
        ___ Control Section Number & Subsection Number
        ___ County Information
        ___ Project Type (As entered by Programs Division)
        ___ Bridge Information (Begin & End Stations)
        ___ Index of Sheets
        ___ Standard Drawings (Roadway)

    b. Checking Method:

        Title Sheet items will be checked for correctness to the project information documents.

2. Typical Sheet

    a. Items to be checked:

        ___ Entire Typical Section(s) with Station extents.

    b. Checking Method:

        Typical Sections will be checked for consistency with the Pavement

Methods of Plan Markups

Design document through the pavement design engineer and plan sheets for any special design features.

3. Pay Quantities and Notes

a. Items to be checked:

___ Pay Items
___ Pay Item Quantity Totals
___ Notes
- G notes
- R notes and any special notes
- Environmental Mitigation notes, If applicable
- Railroad notes, If applicable
- ABB notes, If applicable

___ Sequence of Construction

b. Checking Method:

The Pay Quantity list will be checked against the plan sheets and summaries to ensure that the proper pay items are being used. The pay item quantity totals will be checked to ensure that they include the amounts from the summaries and notes. All notes will be checked for validity and pay item notes will be inspected to make sure that they are tied to the correct pay items. The presence of a Sequence of Construction will be checked as it relates to the calculation of the project quantities.

4. Summary Sheets

a. Items to be checked:

___ All quantities in summaries
- Surfacing
- Driveways
- Earthwork
- Guardrail Lengths and Guardrail Widening
- Mailbox and Mailbox Widening
- Drainage Structures
- Fence and Gates
- Removals
- Temporary and Permanent Erosion Control
- Ditch Treatments

Methods of Plan Markups

b. Checking Method:

Summaries will be checked against plan sheets, special detail sheets and typical sections for verification of necessary pay items. Individual quantities within the summaries and summary totals will be checked using manual calculations with the assistance of spreadsheets. The designed length of the structures, paved ditches, and guard rail, as shown on the plans, will be used for quantity calculation purposes. The structure lengths will not be calculated unless the plan reviewer deems it necessary to calculate the designed length, using a load sheet, due to discrepancies in the construction plans.

5. Temporary Erosion Control Sheets

a. Items to be checked:

___ Temporary Erosion Control Measures

b. Checking Method:

Temporary Erosion Control Sheets will be examined for consistency with the Summary of Temporary Erosion Control.

6. Storm Water Management Plan

a. Items to be checked:

___ Project information is filled out.
___ Erosion and Sediment control practices are marked.

b. Checking Method:

Storm Water Management Plan will be visually examined for the correct project information and checked against required Erosion Control Measures.

Methods of Plan Markups

7. Removal Sheets (If applicable)

a. Items to be checked:

___ Areas to be removed are clearly shown

- Asphalt Removal
- Concrete Removal
- Concrete Removal with Asphalt Overlay
- Concrete Driveway Removal
- Sidewalk Removal
- Curb Removal
- Pavement Sawing

___ Sheet totals are shown

b. Checking Method:

Removal sheets will be checked by measuring the areas and lengths of removal items using MicroStation or by manual calculation. Design review will attempt to ascertain the likelihood of concrete pavement with asphalt overlay.

8. Special Detail Sheets (If applicable)

a. Items to be checked:

___ Required sheets are included

b. Checking Method:

Special Detail Sheets will be checked for consistency with the Index of Sheets and that they are included in the project plans.

9. Mass Diagram Sheets

a. Items to be checked:

___ Consistency between the Sequence of Construction, Cross Sections, and Summary of Earthwork.

b. Checking Method:

Mass Diagrams will be checked to ensure that they are consistent with the volumes shown on the cross sections and the Summary of Earthwork. The phasing, if applicable, will be examined for consistency with the Sequence of Construction.

Methods of Plan Markups

10. Plan & Profile Sheets

a. Items to be checked:

___ New construction information
- Horizontal and Vertical Geometry
  - Curve Criteria
- Begin and End Stations, Equations & Exceptions
- Mainline and Detour Pavement Edges
- Top of Cut/Toe of Slope
- Driveways and Driveway Notes
- Fence and Fence Notes
- Structures and Structure Notes

___ North Arrow
___ Section, Township, Range
___ Benchmarks
___ Bridge Information
___ Leave and Remove labels for Existing Structures
___ Right of Way

b. Checking Method:

Plan & Profile sheets will be checked to ensure that the new construction items are shown and properly labeled. All items (North Arrow, Benchmarks, Etc.) will be examined for presence and sheet to sheet consistency.

Methods of Plan Markups

11. Cross Section Sheets

a. Items to be checked:

___ Template
___ Annotation (Including superelevation annotation)
___ Structures
___ Driveways
___ Cut & Fill Areas and Volumes
___ Phase patterning following Sequence of Construction
___ R/W (Present and New)
___ Utilities
___ Finish Grade Elevations (Checked against the Plan & Profile Sheets)
___ Special Ditch Elevations

b. Checking Method:

Cross Section sheets will be inspected to ensure that end-area volumes correspond with construction phasing determined by the sequence of construction. The cross sections will also be checked to ensure that the new construction items are shown and properly noted.

This is a general list of checked items and is not meant to be viewed as exhaustive in nature.

PLAN ITEMS THAT WILL NOT BE REVIEWED

Construction plans will not be reviewed for certain items that do not affect construction of the roadway portion of the project and/or affect the project estimate.

Examples include:

- Traffic, Bridge or other division plan sheets
- Survey Data and Notes
- Topo Data and Notes
- Special Details

Final Plan Field Review Plans Checklist

Minimum plan requirements for the **Final Plan Field Review Meeting**:
The **bold items** are in addition to the requirements for the Preliminary Plan Field Review and Right-of-Way Meetings.

____ 1. Title (**with Preliminary Index of Sheets and Standards**)
____ 2. **Final** Typical Section (with final pavement design)
____ **3. Pay Item List, Quantities and Notes**
____ **4. Environmental Mitigation Notes**
____ **5. Sequence of Construction**
____ **6. Storm Water Pollution Prevention Plan**
____ **7. Erosion Control Plan Sheet**
____ 8. Plan and Profile sheets to include:
- ____ a. existing topography
- ____ b. existing right-of way limits from survey
- ____ c. existing access control from survey
- ____ d. existing utilities from survey
- ____ e. final utility ownerships, size and type
- ____ f. existing grade
- ____ g. final grade
- ____ h. final top of cut/ toe of slope
- ____ i. existing drainage structures
- ____ j. **final** bridge
- ____ k. final hydraulic information
- ____ l. existing fencing
- ____ m. existing driveways
- ____ n. final driveway location, width and type with notes
- ____ o. city corporate limits from survey
- ____ p. section, township and range from survey
- ____ q. final detour location with horizontal and vertical
- ____ r. final horizontal and vertical alignment
- ____ s. final new Right-of-Way
- ____ t. final new access control
- ____ u. final structures including storm sewers with notes
- ____ v. new R/W fence requirements
- ____ w. plusses and distances to any potentially effected building
- ____ x. location of retaining walls
- ____ y. environmental commitments
- ____ **z. removal notes**
- ____ **aa. finish grade elevations**

Final Plan Field Review Plans Checklist

____ **9. Proposed Bridge General Plan and Elevation**

- ____ 1. existing structure
- ____ 2. existing contours
- ____ 3. final structure
- ____ 4. final bridge header and riprap
- ____ 5. existing and final profile
- ____ 6. hydraulic information
- ____ 7. construction phasing
- ____ 8. Centerline Station
- ____ 9. vertical and horizontal clearance

____ **10. Final Computed Earthwork and Mass Diagram**

____ **11. Detail Sheets (as required for discussion)**

____ 12. Survey Data Sheets including Utility Data Sheets

____ 13. Cross Sections

- ____ a. final toes
- ____ b. existing utilities
- ____ c. final driveways and notes
- ____ d. final structures including storm sewers and notes
- ____ e. final new right-of-way
- ____ f. retaining walls (offset and earthwork)
- ____ g. final detours

Final Plan Review Plans Checklist

Minimum plan requirements for the **Final Plan Review Meeting:**

____ 1. Title (with Preliminary Index of Sheets and Standards)
____ 2. Final Typical Section
____ 3. Pay Item List, Quantities and Notes
____ 4. Environmental Mitigation Notes
____ 5. Sequence of Construction
____ 6. Storm Water Pollution Prevention Plan
____ 7. Erosion Control Plan Sheet
____ 8. Plan and Profile sheets to include:
- ____ a. existing topography
- ____ b. existing right-of way limits from survey
- ____ c. existing access control from survey
- ____ d. existing utilities from survey
- ____ e. final utility ownerships, size and type
- ____ f. existing grade
- ____ g. final grade and finish grade elevations
- ____ h. final top of cut/ toe of slope
- ____ i. existing drainage structures
- ____ j. final bridge
- ____ k. final hydraulic information
- ____ l. existing fencing
- ____ m. existing driveways
- ____ n. final driveway location width and type with notes
- ____ o. city corporate limits from survey
- ____ p. section, township and range from survey
- ____ q. final detour location with horizontal and vertical
- ____ r. final horizontal and vertical alignment
- ____ s. final new right-of-way
- ____ t. final new access control
- ____ u. final structures including storm sewers with notes
- ____ v. new r/w fence requirements
- ____ w. plusses and distances to any potentially effected building
- ____ x. location and final design of retaining walls and sound walls
- ____ y. final environmental commitments
- ____ z. removal notes

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Section 14
Helpful Links

- **Internet Links**
- **Intranet Links**
- **File Locations**

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Internet Links

Roadway Design's Division Site
http://www.okladot.state.ok.us/roadway/

Roadway Standard Drawings
http://www.okladot.state.ok.us/roadway/roadway99/engpdf99.htm

Roadway Pay Quantity Notes
http://www.okladot.state.ok.us/roadway/roadway2009/2009%20Roadway%20Notes.pdf

Pay Items Lists
http://www.okladot.state.ok.us/contracts/itemlist.htm

2009 Specifications Book
http://www.okladot.state.ok.us/c_manuals/specbook/oe_ss_2009.pdf

County maps (used for creating title sheets)
http://www.okladot.state.ok.us/roadway/county_maps/

Control Section Map
http://www.okladot.state.ok.us/hqdiv/p-r-div/maps/2006control/index.htm

Average price History
http://www.okladot.state.ok.us/contracts/avgprices/index.php

Bridge Division
Site http://www.okladot.state.ok.us/bridge/index.htm
Standards http://www.okladot.state.ok.us/bridge/standards.htm

Survey Divisions
Site http://www.okladot.state.ok.us/survey/index.htm
Specifications & Standards http://www.okladot.state.ok.us/survey/specs.htm

Traffic Engineering Divisions
Site http://www.okladot.state.ok.us/traffic/index.htm
Standards http://www.okladot.state.ok.us/traffic/standards.htm

Project Development Process
http://www.okladot.state.ok.us/projmgmt/contracts/pdfs/pmd_project-dev-process.pdf

Bentley Learn
http://www.Learn.bentley.com

Intranet Links

Survey Archived Files
http://intranet.okladot.state.ok.us/survey/data/fsvarch/

2009 Pay Items List
http://intranet.okladot.state.ok.us/contracts/pdfs/itemlist2009.pdf

Average Price History
http://intranet.okladot.state.ok.us/contracts/avgprices

2009 Specification Book
http://intranet.okladot.state.ok.us/c_manuals/specbook/oe_ss_2009.pdf

2009 Special Provisions
http://intranet.okladot.state.ok.us/c_manuals/specprov2009/index.php

Roadway Archive Files
http://intranet.okladot.state.ok.us/roadway/archive/

CADD Support
http://intranet.okladot.state.ok.us/roadway/cadd/index.htm

File Locations

For ODOT Roadway Design use only

County maps (used for creating title sheets)
R:\CADD_Support\MicroStation\County Maps\County Maps

Roadway Cell Libraries
R:\CADD_Support\MicroStation\Cells\Roadway

Roadway Seed Files
R:\CADD_Support\MicroStation\Seed Files\Roadway\North Zone
R:\CADD_Support\MicroStation\Seed Files\Roadway\South Zone

InRoads File
R:\CADD_Support\Design\InRoads

Superelevation Tables
R:\CADD_Support\Design\InRoads\Superelevation

General CADD Information
Y:\#Support Documentation

Spreadsheets
Y:\#Support Documentation\SpreadSheets

Load Sheets
Y:\#Support Documentation\Load Sheets

Erosion Control Plan-n-Hand Discussion and Plan Submit Check List
Y:\Erosion Control

Form Letters
Y:\FORMS

Roadway Detail Sheets
Y:\Standards\2009 Roadway Details

Pay Quantities Notes
Y:\Standards\2009 Roadway Notes

Roadway Standards
Y:\Standards\2009 Roadway Standards

Roadway New Employee Training Materials
Y:\Performance and Development\Training PDFs