2024

ITD CADD Standards Guide

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Contents

Introduction

This guide does not reference any Engineering Design Standards. Refer to the ITD Roadway Design Manual, AASHTO's A Policy of Geometric Design for Highways and Street (Greenbook) and other appropriate publications for design standard guidance.

The ITD Computer Aided Drafting and Design Standards and Procedures Guide (CADD Standards Guide) is intended to outline the use of Idaho Transportation Department 's (ITD) corporate workspace and Bentley System's ProjectWise and OpenRoads software packages, as well as other tools and procedures developed internally.
Following these standards will help to unify the appearance of drawings included in plan sets and facilitate the exchange of information between ITD districts and sections as well as consultants or contractors working on ITD projects. The ITD CADD Standards Guide will address issues such as software, standards, tools, and procedures which will aid in the efficiency and consistent production of ITD plan sets. This guide and the electronic resource files contained in the ITD workspace are intended to be used by both ITD internal design sections and the consulting firms doing business with ITD utilizing ITD's ProjectWise managed workspace.
With the use of ITD's ProjectWise Managed workspace and CADD Standards guide ITD has created a complete electronic project delivery and archival system beginning with Planning and continuing through Construction and Maintenance. The combination of software, workspace, and workflows will allow all users to work together in the most efficient and productive environment possible.

ITD's deployed software Versions:

ProjectWise Explorer:	10.0.3.453
OpenRoads Designer 2023:	23.00.01.11

Useful ProjectWise Links:

ITD Knowledge Library

Standard Drawings

Borders

OpenRoads Seed Files

Plotting Resources

ITD Workspace Standards

The ITD Corporate Workspace is a custom environment designed to facilitate CADD productivity and direct the user to ITD specific standards, workflows, and procedures. The ITD Workspace is a set of ProjectWise csb/cfg files, OpenRoads Designer resource files, documentation, and customized tools, designed to work together to allow for development of a standardized project plan sets.
The ITD csb and cfg files define locations within ProjectWise where OpenRoads Designer will find ITD specific resources. Along with the csb/cfg files, custom tools, tasks, and utilities needed to perform design and drafting functions have also been created and made available to the users within the workspace. These tools have been included to save the user's time and enable them to be consistent between projects.
For all users, ITD employees and consultants, installation of the workspace is not required if the ProjectWise Managed Workspace is utilized.
All CADD software upgrades and the workspace maintenance will be maintained by HQ CADD/ProjectWise support team with guidance being provided by the Technology User Group (TUG), a group of designated power users from all pertinent groups within ITD. The use of ProjectWise and its managed workspace will ensure that all ITD and consultant users are using the same and most up to date workspace available.

If Consultants wish to download and use ITD's workspace outside of ITD's ProjectWise Environment (not recommended as updates are performed regularly) they can contact ITD CADD/ProjectWise support team and request the needed files or download the workspace folder from ProjectWise. If this is done it is to be known that from said day of download it is possible the workspace files will not be up to date and ITD will not support issues that may arise from a user's custom workspace.

Drafting Standards and Resource Files

ITD standard resource files consist of cell libraries, seed files, level libraries, text and linestyle design libraries, and other CADD information necessary to create project plan sets that conform to ITD standards. Adherence to these standards ensures consistent plan set appearance and accuracy.

Seed Files

Seed files are the basis for all ITD OpenRoads Design files. Seed files are templates in which parameters have been set for the ITD standards. The seed files define the working units, global origin of the coordinate system, resolution, and whether the file is a 2D or 3D file. Seed files for both 2D and 3D are available in the workspace and should always be used when creating a new design file. All ITD design disciplines use the ITD "Standard" seed files except for the Bridge Section. ITD's Bridge Section has its own "Bridge" 2D and 3D files.

Working Units

Working units settings are used to control units of measurement for design files. ITD requires that all design projects be completed in imperial or "English" units; therefore, ITD seed files have been

developed for imperial units only. ITD working units are based on the U.S. Survey Foot for master units and US Survey Inches for the sub-unit.

Units Resolution

The resolution for all ITD seed files, including Bridge seed files, has been set to 12000 units per US Survey Foot and this resolution setting should not be changed. This setting affects the size of the elements within an OpenRoads file and if changed will incorrectly scale all existing elements within the file.

Coordinate and Angular Readouts

The coordinate system determines the accuracy and format of the design file. ITD uses the Idaho State Plane Coordinate System on all roadway design projects and the standard seed files will accommodate this coordinate system.
The Coordinates set the format and accuracy of the design file based on the working units. The degree of accuracy is based on the number of decimal places or, for Bridge, the fraction selected. ITD Standard seed files are set to a coordinate readout of Master Units with an accuracy of four decimal places. The Bridge seed files are set to a coordinate readout of Master Units and accuracy of 1/32.

The Angle settings control the format, mode, or accuracy of the design file angular readout. ITD Standard 2D and 3D seed files are set with the angular format of Degrees/Minutes/Seconds with an accuracy of 0**.** The Bridge seed files set the angular format to Degrees/Minutes/Seconds with an accuracy of 0 and the mode to “Bearing”.

Global Origin

The file global origin is a point within the design plane used as a base point for the placement of graphics elements. ITD’s 2D and 3D files use the default OpenRoads global origin which is located in the center of the design plane.

2D or 3D Seed Files

The ITD Standards contains both 2D and 3D seed files and both are available for use when creating a new file. Both files have the same settings applied to them with the addition of the Z value in the 3D file. All design model files should be created using the 3D seed file. All other .dgn files should be created from the 2D seed file and referenced to the 3D model files.

Cell Libraries

The ITD Workspace contains many cell libraries, each of which is made up of discipline specific data and is intended to be accessed and used by designers of all sections. Cell libraries will be listed when the cell placement tool is activated within the software.

Design File Level Libraries

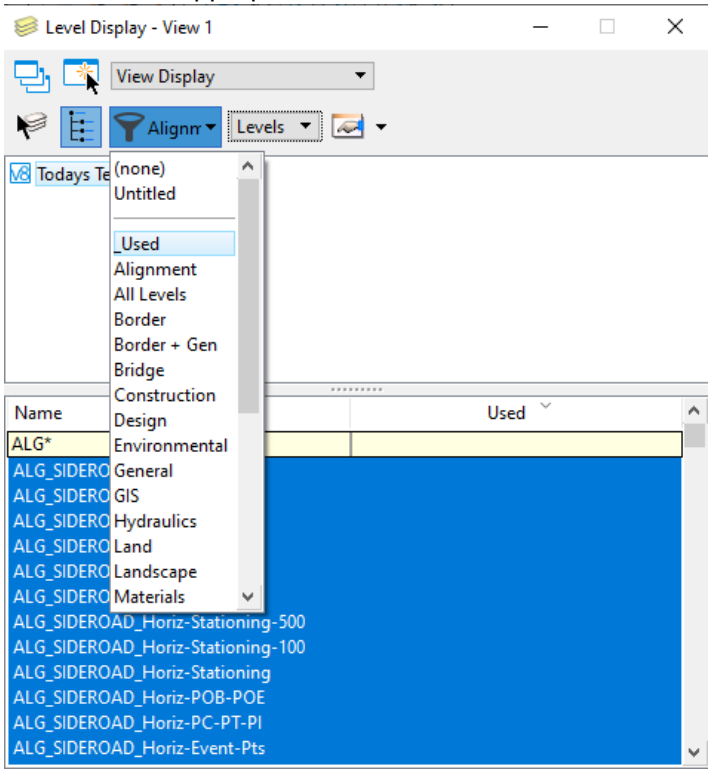
Design File Level Libraries (DGNLIB) and corresponding specialty section filters have been developed to allow users to seamlessly work across disciplines and level duplication has been avoided wherever possible. The DGNLIB files are assigned to the seed files and available when a new file is created. The creation of new levels and changes to the existing levels has been locked within the ITD Workspace in order to maintain the "ByLevel" symbology that allows data to inherit attributes for color, linestyle and weight from the level it is placed on. ByLevel symbology is the default for all level libraries and is the required ITD standard. ITD levels are named with the following format: **Type_Use_Description**, for example, DES_ROADWAY_Aggregate-for-Base.

Type or Use Designators:

ALG – Alignment
ANNO - Annotation
BRDG – Bridge
CONST – Construction
DES – Design
ENV – Environmental
GEN – General
HYDR – Hydraulics
LAND – Landscape
MATL – Materials
ROW – Right of Way
STD – Standard Drawing
STRC – Structure
SURV – Survey
TOPO – Topography
TRAF – Traffic
TYP - Typical
UTIL – Utility
VISU - Visualization

Level Filters

Filters have been created for each of the ITD discipline specific level libraries to allow users too quickly and efficiently place elements on the appropriate levels and to turn levels on or off.



Color Table

The standard color table file, ITD.tbl, is attached by default to all ITD seed files. The colors within the table correspond to the By Level color symbology specified in the level libraries. Specific colors are assigned to ensure consistency and to enable users to easily identify data. Colors are defined by a number and OpenRoads reads this color table to determine the correct color to display.

Line Weights

Line weights in OpenRoads are defined by designating the thickness of the line used when plotting an element. ITD uses line weights 0-4 on plan sets. These weights correspond to the ByLevel weight assignments within the level libraries.

Line Styles

A custom line styles library has been developed for use within ITD. The line styles are contained within the workspace in an OpenRoads resource file called ITD_Linestyles.dgnlib. These lines styles correspond to ByLevel line style assignments within the level libraries.

Annotation

ITD has developed several font resources available in the ITD workspace and they are attached to the design file by configuration variables. The standard Font for plan sheet text is "**Engineering Vert Bold**". ITD standard annotation text styles and dimension styles are contained in DGNLIB files. These libraries contain predefined text and dimension settings for several different sizes of text. These standard text styles have been defined to ensure consistent legibility on all plan sheets. When a user selects a text style, the height, width, line spacing, justification and font is set automatically so no adjustments are needed. The desired style must be picked from the drop-down menu before placing text as the default style attached to all ITD Seed files is "No Style". If Italics or Underline is desired, it can be selected through the OpenRoads Text Editor.

ITD text style names include Size_Font_Justification Position, for example **0067_Eng Vert Bold_Lt Bot**, some are followed by the word **(Masked)** which clips background elements around the text. Text sizes refer to the size of the text when plotted, not the text size in the OpenRoads file. The text size in the OpenRoads file is dependent upon the intended plot scale and the annotation scale.

Maintaining the minimum letter height and letter stroke width is very important so that information does not disappear or become illegible when plan sheets are photocopied or reduced.
The standard text style to be used for general purpose annotation is **0067_Engr Vert Bold_Ctr Ctr**. There are several text styles available; however, these sizes are normally only used as titles or on presentations and exhibits.

The **ITD_Text Favorites_Text Styles_Dimension Styles.dgnlib** file contains standard dimension styles for Bridge, Traffic and Design drawings.

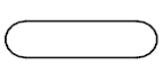
Annotation Scale

The annotation scale is used for defining the scale of the cells, text, custom line styles, and dimensioning in both sheet files and model files. Only custom linestyles are affected by this scale factor, native OpenRoads line codes are not. By default, the annotation scale lock is turned on. The default drawing scale setting is 1:40. If a different scaled drawing is desired, the user must edit the drawing scale in the model properties or under the "Settings" option on the main menu bar. Annotation that has been placed by OpenRoads is not affected by the model drawing scale. OpenRoads text size is controlled by the global scale factor in OpenRoads. If OpenRoads text is not displayed the right size or if a different scale is required, the annotation should be redisplayed with OpenRoads using the correct global scale factor.

Drawing Notes

Drawing notes should be a combination of uppercase and lowercase lettering. Uppercase lettering is desirable for all drawing titles.
Notes and lettering on plan sheets should be readable from either the bottom or right-hand edge of the sheet. Vertical lettering, approximately perpendicular to the bottom of the sheet, should be upright in relation to the right-hand edge of the sheet. All other lettering should be upright in relation to the bottom of the sheet.

Callouts on the plan sheets that refer to notes or further information shall use the following standards:



Capsules Designates Pay Item callouts.
Numbers to reflect bid items and/or special provision items. Use the pay item number.
Cell Name: _Lbl_Pln_Pay Item

Octogons designate property ownership. Number According to Right of Way information.
Cell Names: #(color)

Squares designate curve data. Start with 1 and increase by increments of 1.
Number each sheet seperately.
Cel Name: _Lbl_Pln_Curve Data

Circles designate notes
Cell Name: _Lbl_Pln_Notes

Diamonds designate miscellaneous items to be determined by the deisgner.
Cell Name: _Lbl_Pln_Misc

Traingles designate revisions to the plans. Start with number 1 and increase by icrements of 1.
To be used only during Contract Advertising submittal by Roadway Design.
Cell Name: _Lbl_Pln_Revisions

Modeling Standards and Resources Files

Workspace settings are controlled by a number of dgnlib's that apply various settings automatically. All settings are applied in Element Templates and/or Feature Definitions, below is a brief description of both.

Element Templates

Element Templates are used to apply CADD standards and define symbology. Element templates refer to ITD's "By Level" symbology and are set up to be the base symbology for Feature definitions.

Feature Definitions

Feature Definitions are used to control symbology, annotation, and various other properties that are applied to the geometric elements.

The feature definitions are used to:

- Define what the geometric elements are. What is being modeled such as curb, centerline, edge of pavement, etc.
- Control symbology in various views, including capability to define differing symbology in plan, profile, and 3D spaces
- Define terrain modeling attributes (spot, break line, void, etc.)
- Define surface display characteristics

Below are brief descriptions of the common output and input files that can be used in OpenRoads. This is a limited list of file types and just touches on the capabilities of OpenRoads input and output files.

Digital Terrain Models (*.dtm)

Digital Terrain Models are mathematical representations of the surface of the earth. OpenRoads uses DTM data to produce contours, display the existing and proposed ground lines in profile and cross section grids and in the calculation of cut and fill quantities. DTMs are created with a combination of surface points identified as spot points, break lines, contour lines or other point types used to define the surface.

Existing Ground Surface

Existing ITD Digital Terrain Models represent existing ground conditions at the time that survey data was collected. Existing DTMs may be assembled from traditional survey, LiDAR mapping, aerial ortho-photography, or a combination of those methods.

Proposed Ground Surface

Proposed ITD Digital Terrain Models represent the project design surface as generated by OpenRoads using the horizontal alignments, vertical alignments, templates, and roadway definitions created by the designer. Most projects will contain multiple DTMs that define the changes to the existing ground surface for various portions of the project, such as the mainline, ramps or detours.

Geometry Project Files (*.alg)

ITD Geometry Project files contain horizontal alignment, vertical alignment, and superelevation information. The Existing Geometry Project contains the centerline of survey as acquired by the Survey department. Proposed Geometry files contain geometry relating to proposed horizontal and vertical data. The proposed geometry file will contain all alignments for the roadway design including ramps, detours, cross streets and the associated vertical profiles.

Important note: There are a number of settings in the alignment file that must be evaluated by the design engineer. Many of the settings have been addressed in the ITD configuration; however, care must be taken to assign proper values for the modeling of the design surface as required by the project.

Template Library (*.itl)

The Template Library contains templates, template components and end conditions, transition control names, and other data used to model the proposed roadway surface. The standard ITD Template Library file contains standard templates and tables that can be copied and modified for each specific project requirement. If the .itl file is stored outside the dgn file it should be placed in the Project Development\Project_Resources\ folder. The naming convention for Template Library consists of the project key number with the .itl file extension.

XML Data File (*.xml)

This file contains the geometry project cogo points and surface data that is used to create XML reports and can be imported to a dtm. When the xml file is generated by the OpenRoads XML Report tool, the file is placed in a temporary directory. If the xml file is to be saved for later formatting, the file should be placed in the Project_Development\Civil_Data folder in the project directory.

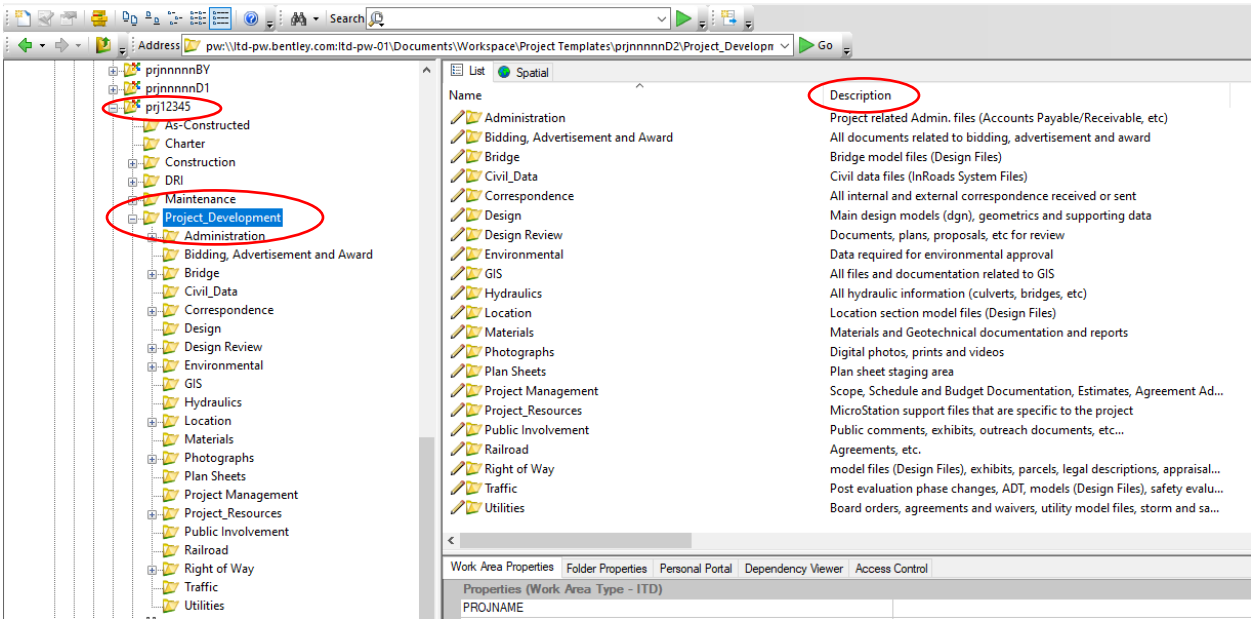
Styles Sheets (*.xsl)

OpenRoads reports are the result of xml data formatted by an .xsl or Style Sheet file. These files specify what information is used from the XML Data files that are output by OpenRoads and how the information will be formatted and displayed to create an OpenRoads report. Several ITD standard style sheets have been defined and are stored in the: Workspace\ITD OpenRoads\Organization-Civil\ITD_Standards\Reports\

Project Directory Structure

An ITD Corporate folder structure has been developed to store all project related data from planning through maintenance. This guide is concerned only with folders under the Project_Development directory and to the resource files and information related to the ITD Workspace. The Project_Development folder structure is integrated with the ProjectWise .csb and OpenRoads configuration files so that the user will not have to navigate to find files. OpenRoads will find the necessary files to ensure the ITD configuration runs correctly.

This directory structure, along with a standard CADD file naming convention, has been created to enable efficient management of all files within an ITD project. This will aid in the exchange of data between ITD sections and ensure consistent and reliable data retrieval by all members of a project team. This document will only address that portion of the file structure that pertains to the CADD design process. The ITD "Projects" Directory has been designed so that the top-level directory for each project is designated by the 5-digit project Key Number prefaced by the letters "prj". Under this directory the user will find sub-directories where all project information will be created and stored using ITD's standard file naming convention. Below the project directory you will find subdirectories for each of ITD's specialty sections. Under each specialty section directory is a sub-directory structure unique to that section. All folders have a Description of the documents that should reside within.



The project directories will be created by the Districts ProjectWise Coordinators/BASS Team or HQ support after the projects key # has been assigned. If a project directory is not created at the time work begins please contact the Districts ProjectWise Coordinator/BASS Team or HQ CADD/ProjectWise support team.

This directory structure is the foundation of a project lifecycle that includes electronic plan review, bidding, inspection, machine control and maintenance. Following this standard directory structure without revision will ensure the accurate sharing of information between sections within the department as well as with consultants and contractors.

Project Directory Security

Security and access permissions are controlled ProjectWise Access Lists that are assigned to each folder by the Project Templates within ProjectWise. Each district has determined the level of security needed by members of their design teams and arrange for them to be included in the appropriate ProjectWise access lists.

Consultants and/or Contractors will need to contact their ITD Project Manager or equivalent to request Project permissions.

These requests should then be sent to the BASS Team or HQ CADD/ProjectWise support Team from the ITD Contact.

The Request should Include:
Company Name:
Users Email Address:
Project Key#: ProjectWise Link to Key#
Folders Requested: (A standard request of Project Development Folders or Constructions Folders is sufficient, but permissions can be as granular as needed)

CADD File Naming Conventions

The ITD design process requires that CADD drawings be created in multiple design files depending on their discipline. Over the life of a design project, many of the specialty sections will create CADD data in design files that need to be referenced together to produce a final plan set. These design files need standard, unique, names that allow the CADD user to easily identify the specialty section responsible for the file and the type of design data the file contains.

When used consistently, ITD's CADD File Naming Convention will allow for easy, dependable, archiving and retrieval of data for the complete lifecycle of a project. All ITD CADD drawings should follow this standardized naming convention so that project data can easily be identified and accessed by all sections.

Design File Types and Standard Naming Convention

Four primary design file types have been adopted with the new CADD standard naming convention.

Border Files

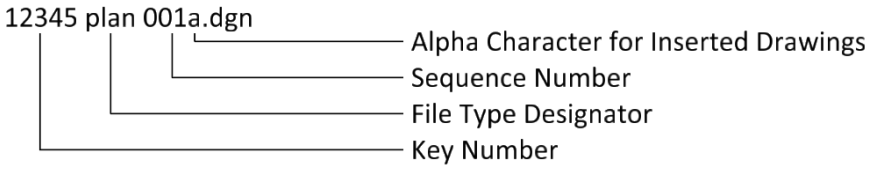
Border files are OpenRoads design files that contain a border template and annotation that is common to all pages within the plan set. This border file is referenced to the sheet files. Border files are stored with a .dgn file extension and should be copied into the project directory (prj#####\Project_Development\Project_Resources), from the following ProjectWise location:

pw:\\ltd-pw.bentley.com:ltd-pw-01/Documents/Standards/Borders/

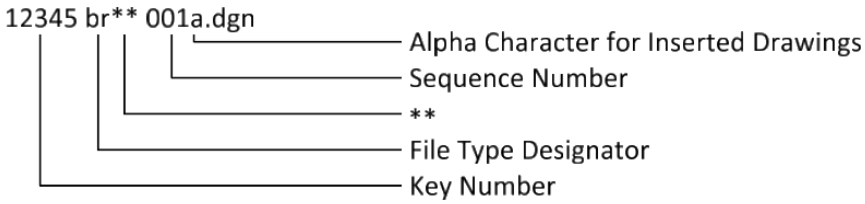
Sheet Files

Sheet files are OpenRoads design files that contain annotation and graphics that are specific to one page in a plan set. Model files and border files are referenced to the sheet file to create a plan set drawing ready for plotting. Sheet files are created by the designer or by the OpenRoads "Named Boundary Tool" and are stored in the project directory (prj12345\Project_Development\Plan Sheets) with a .dgn file extension.

Sheet files will be named using a project key number prefix, four-letter sheet designator code, a three-digit sheet number and an alpha character used only if the sheet is being inserted into an existing plan set. The three primary components will be separated by a space in the file name, as shown below:



There will be slight differences in the naming convention for Bridge files.

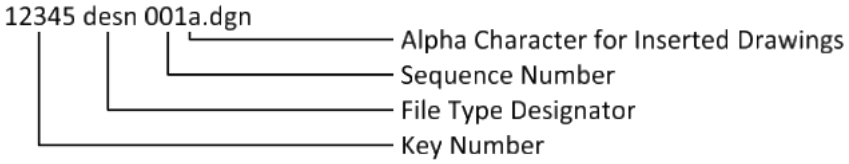


* The spaces in the naming convention for the Bridge sheets indicate where a two- character code will be inserted to denote the location of the bridge in the roadway project.

Model Files

Model files are OpenRoads design files that contain design graphics representing existing or proposed features and conditions of the project. These files are referenced to the sheet files. Models could be referenced to a single sheet file multiple times or may be referenced to multiple sheet files. Model files are created by the designer and stored in the appropriate section or discipline's directory in the (prj12345\Project_Development) directory with the standard OpenRoads .dgn file extension.

The naming conventions that are presented below are intended for model design files. Names will include a project key number prefix, a file type designator code, three-digit sequence number, and alpha character used only for design files that are inserted into the sheet sequence at a later time. The three primary components of the name will be separated by space when the design file is created, as shown in the example below:



File Types and Designators

File Type	Discipline	File Type Designator
Border	All	bord
Bridge Details	Bridge	bdtl
Bridge Materials	Bridge	brmt
Bridge Summary	Bridge	bsum
Design	Roadway	desn
Details and Diagrams	All	detl
District Traffic Signal	Traffic	dtsg
Erosion Control	Roadway	eros
Foundation Investigation	Materials	finv
HQ Signal	Traffic	hqsg
Hydraulics	Roadway	hydr
Illumination	Traffic	illm
Illumination Materials	Traffic	Ilmt
Intersection Controller Schematics	Traffic	Icsc
Landscape	Roadway	land
Minor Structures	Roadway	mstr
Pipe Culvert Summary	Roadway	pcsm
Plan	All	plan
Plan and Profile	Roadway	plpr
Profile	Roadway	prof
Project Clearance Summary	Roadway	pcsm

Record of Survey	Survey	rosv
Right-of-Way	Right-of-Way	row
Right-of-Way Plans	Right-of-Way	rowp
Roadway Details	Roadway	rdtl
Roadway Material Quantities	Roadway	rwmt
Roadway Summary	Roadway	rsum
Signal Controller Schematics	Traffic	scsc
Signals	Traffic	sgnl
Signing	Traffic	sign
Pavement Markings	Traffic	pvmk
Soils Profile	Materials	soil
Source	Materials	plat
Special Drawings	All	spec
Special Map	All	smap
State Maintenance Group	Maintenance	smgr
Title	All	titl
Topography	Survey	topo
Total Ownership Map	All	omap
Traffic Control Plan	Traffic	trcp
Traffic Detail	Traffic	tdtl
Typical Sections	All	typi
Utility Sheets	Roadway	util
Vicinity Map	All	vmap
Work zone Traffic Control	Traffic	traf
X-Section	Roadway	xsec

Standard Drawing files

Standard drawings are design files that contain completed design standards that are used repetitively in plan sets and have their own special border sheets. These drawings are inserted, without modification, directly into the plan sets. Standard drawings are stored on the ITD web page (Standard Drawings) in PDF format and in OpenRoads format. Files are also located within ProjectWise at this location: pw:\\Itd-pw.bentley.com:Itd-pw-01\Documents\Standards\Standard Drawings\

OpenRoads Data File Types and Standard Naming Convention

Geometry Alignment files

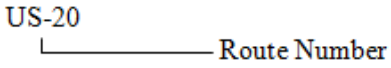
The primary working geometry alignment file for a roadway project will be named using the project key number and stored in the prj12345\Project_Development\Civil_Data directory, for example:

12345.alg

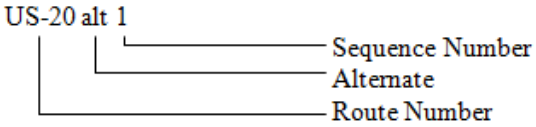
This working file may contain many horizontal alignments and working variations of the project geometry. The alignment description should include the date, the route number and a brief explanation of the purpose. For example:

3/17/08 I-15 expansion

Horizontal alignments are generally used to represent geometry of the centerline of both existing and proposed routes. Horizontal alignment will be named using the route number or name. For example:



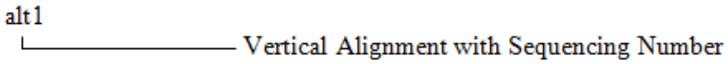
When alternate horizontal geometry alignments become necessary during the course of a roadway project, their names will consist of the name of the route, a space, the letters “alt” to designate that the file contains alternate geometry and a sequencing number:



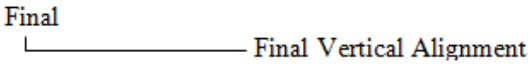
For final horizontal alignments simply add the word “final” to the name to indicate that the horizontal alignment represents the final vertical geometry as shown below:

US-20 Final Final Horizontal Alignment

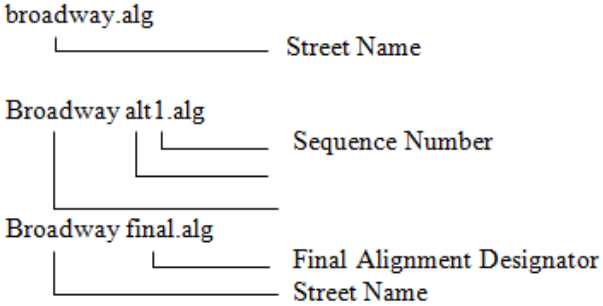
Vertical alignments are children of the horizontal alignment. Each parent alignment may have several “children” and their names only need to designate the difference between versions or revisions. Vertical alignments will be named “alt” with a sequencing number to designate different alternates as shown below:



For final vertical alignments simply use the word “final” in the name to indicate that the vertical alignment represents the final vertical geometry as shown below:

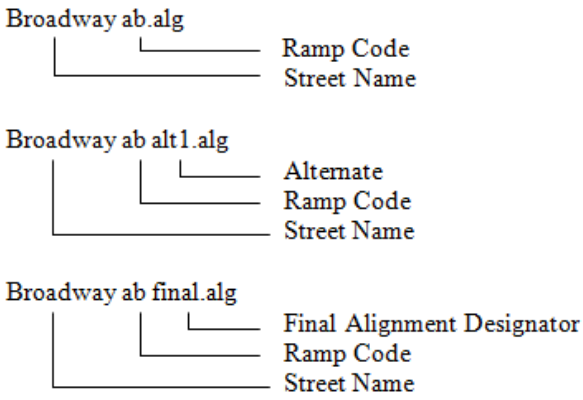


Alignments for streets or cross streets will include the street name. Alternate alignments for streets will include the “alt” designation and final alignments for streets will include “final” in their names as shown below:



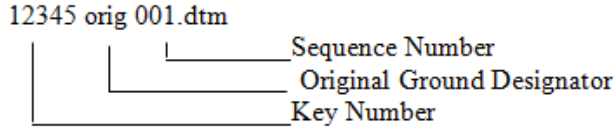
Alignments for ramps will include the name of the street to which the ramp will connect a space, and a two-letter code representing the terminal points of the ramp.

Alternate alignments for ramps will include an “alt” designation and final alignments for streets will include “final” in their names as shown below:



Surface files

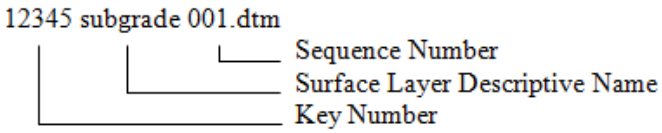
Original ground surface names will include the project key number, the descriptive name “orig” to indicate that the surface represents original ground and a 3-digit number to indicate the surface sequence. Original ground surface files will be stored in the prj12345\Project_Development\Location directory.



The description will include the date, the route number and a brief description of the surface, as shown below:

3/17/03 I-15 original ground surface

The surface files that are created during the design process will also use this convention with a descriptive name indicating the design layer the surface represents and a 3-digit number to indicate the surface sequence. These files will be stored in the prj12345\Project_Development\Civil_Data directory.

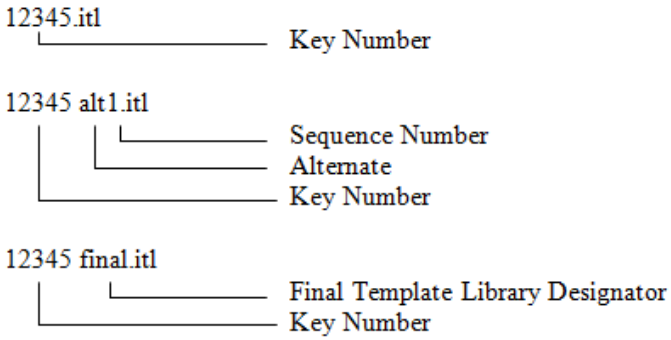


The surface description will include the date, the route number, and a brief explanation of the surface, as shown in the example below.

3/17/03 I-15 mainline subgrade surface

Template Libraries

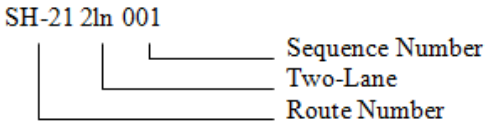
Template library names will use the project key number and will be stored in the prj12345\Project_Development\Civil_Data directory. If alternate template libraries are created, the names will consist of the project key number the letters "alt" to designate that the file contains alternate templates and a sequencing number. The final template libraries will include "_final" in their names as shown below:



The template library description will include the date, the route number, and a brief explanation of the purpose of the template library. For example:

3/17/03 I-15 typical sections

Template names will include descriptive information, such as the route number, the number of lanes that the template will model and a sequencing number to differentiate between multiple templates. For example, a two-lane template for a section of highway on Idaho State Highway 21 could be named as follows:

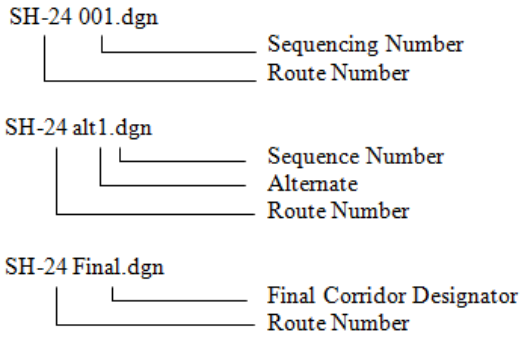


The template description will include the date, route number, short indication of the template's purpose and the station range in which the template will be used, as shown in the example below:

3/17/03 SH-95 centerline two-lane from 125+50 to 235+70

Corridor Definitions

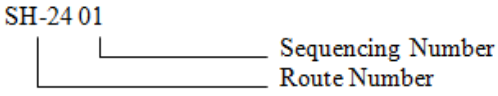
Corridors files will be named using the route number, as shown below, and stored in the prj12345\Project_Development\Design directory. If alternate Corridor files are created, the names will consist of the letter's "alt", to designate that the file contains alternate corridors, and a sequencing number. The final corridor definition will include "final" in their names as shown below:



The corridor file description will include the date, the route number, and a brief explanation of the corridor. For example:

3/17/03 SH-24 corridor definitions

Corridor names for the roadway project will include the route number and a sequencing number. For example, a roadway definition for a section of highway on State Highway 24 will be named as follows:



The Corridor file description will include the date, route, street or location and station range of the corridor being modeled. For example:

3/17/03 SH-95 Main Line from 1500+00 to 2700+00
or
3/17/03 Broadway from 240+00 to 290+00

Project Plan Sets

This chapter is concerned with the CADD standards aspects of preparing an ITD plan set.

All plan sheets should be developed using ITD's CADD Standards and the ITD Corporate Workspace. All plan sets will have English units throughout and shall be in a format compatible with the ITD CADD system.

Final plan sheets submitted for advertisement shall be properly endorsed by the engineer. They shall be created in a pdf electronic format and/or on a durable medium such as mylar or other archivable paper to preserve the drawings for archival purposes.

Some necessary details for preparing project plan sheets may not be covered in these procedures. If questions arise on the amount of detail or appropriate format, other similar project plans should be reviewed for example or the Roadway Design section should be contacted. Variations to these instructions require approval from Roadway Design.

Appendix 1 – Example Plan Sheets

The following information explains typical plan preparations and organization for preparing project plan sheets for the Idaho Transportation Department.

Plan Sheet Size

ITD prepares plan sheets for design and construction in two sizes, Standard plan sheet which is 11" x 17"; and Maintenance Project sheet which is 8 ½" x 11". In addition to the plan sheets, the Bridge section requires a 22"x34" mylar sheet for their records and the Location section produces a Record of Survey which is an 18"x27" transparency. The drawing details should not be crowded on the plan sheet and the text size should conform to ITD standards.

Plan Sheet Scales

The following plan sheet scales shall be used on all drawings for the Idaho Transportation Department:

Roadway drawings

1"=10'

1"=20'

1"=40'

1"=100'

1"=200'

1"=400'

Full Size 1=1

Traffic drawings

1" = 100' ----- Minimum scale for pavement markings plan sheets without transitions or special details.

1" = 40' ------ Preferred scale for pavement markings plan sheets with transitions or special details.

1" = 40' ------ Scale for traffic signal intersection plans.

Bridge drawings

1"=1'

1"=5'

1"=10'

1"=20'

1"=30'

1"=40'

1"=50'

1"=60'

1”=100’

3/32”=1’

1/8”=1’

3/16”=1’

1/4”=1’

3/8”=1’

1/2”=1’

3/4”=1’

1 1/2”=1’

3”=1’

Right of Way Drawings

1”=20’ Urban

1”=40’ Rural

Plan Sheet Title Block

All plan sheets shall use the ITD title block designed for that specific sheet. The title block shall have all the necessary information shown in its appropriate place. Changes to the title block may be made with the approval of the Roadway Design section. The following describes the basic information in a standard title block.

Revisions

The revisions section is only for changes to the plan sheets after they have been stamped and endorsed by the engineer. Each change should be marked with a triangle and numbered successively. In the revisions box the triangle shape should be marked with the corresponding number of the plan sheet change and a date, the initials of the person making the revisions, and a description of the revision entered in the appropriate place. Each different change should be entered on a new line. Entries in this box should primarily be made by the Roadway Design section.

Preparer's Names

Enter the names of the designer, the person who checks the design, the detailer, and the person who checks the drawing, whenever appropriate.

CADD File Name

File Name: A standard electronic file naming convention is used by ITD for the naming of plan sheets to be retained and archived.

Date

Enter the date the drawing is completed, which is usually when the last corrections are made for Final Design or Contract Advertising submittal.

Section Name

The section name box is directly below the ITD name and seal and is for the area section name, or the consultant may place their business name within this box. Appropriate names would include the district and section, such as “District 6 Design” or “Headquarters Traffic Section.”

Federal-Aid Project Number

On the title sheet only, for federal-aid projects it may be necessary to show two or more project numbers when right of way and construction are handled under separate project numbers. Show the construction project number only on all other sheets.

If it is a state project, show the project number in this box.

Sheet Title, Project Name, and Description Box

A sheet title consisting of the type of sheet it is should be shown for each sheet. The names should generally coincide with those shown in the index.

The large box below should generally have the project name but may include additional information such as sheet station limits, structure numbers, intersection names, and other brief identifying descriptions.

County, Key Number, Sheet Number

The top box is the system of measurement, in most cases ENGLISH. The second box should show the county or counties in which the project is located. The third box should show the project key number. The bottom box is for sheet numbering.

Engineer's Endorsement Space

The endorsement by the engineer must be on a standard size plan sheet. Full size electronic representations of the engineer's stamp shall be used on standard size plan sheets.

Order of Plan Sheets

Plan sheets shall be assembled in the following order.

Roadway Group

Title Sheet

Standard Drawing Index

Vicinity Sketch

Total Ownership Map

Plan sheet index showing the area covered by each plan sheet on the Total Ownership Special Maps

Project Clearance Summary

Typical Sections Summaries

Roadway Summary

Bridge Summary

Pipe Culvert, Pipe Siphon, Irrigation Pipe, Sewer Pipe Summaries

Pipe Under Drain Summary

Plan and Profile Sheets

Special Drawing Group

Sediment and Erosion Control

Minor Structures Drawings

Drainage Plans

Paving, Concrete Joint, Approach Slab Details

Roadside Development and Landscaping Plans

Bike Lanes and Pedestrian Path Plans

Source Plat and Reclamation Plans

Traffic Group

Illumination Materials List

Illumination Plans

Traffic Signalization Materials List

Traffic Signal Plans

Railroad Signal and Crossings

Signing Erection Specifications

Signing Plans

Pavement Marking

Delineation and Raised Channelization

Traffic Control Plans

Utility Group

Optional separate numbering

Right of Way Group

Optional separate numbering

Bridge Drawings

Optional separate numbering

State Maintenance Group

Optional separate numbering

Standard Drawings

Detail sheets shall be located directly after the plan sheets to which they are related.

Assembling Sheets Files

Projects plan sets consist of both planimetric sheets, which contain plan and/or profile views of a design model and informational sheets that contain text-only information.

Project plan sheet files should be made up of design model files drawn in real world coordinates and attached to the sheet files as reference files. Informational sheets need not contain design graphics, but may only contain text such as general notes, or other instructions or details. It is recommended that text-only information be placed within the sheet file. If the text is in a table format the text and linework should be placed on their appropriate levels. In the case of a typical section or detail drawing it is suggested that the linework be drawn in a model file on the appropriate drafting levels and the text and dimensioning be placed in the sheet file.

Some types of graphic information that does not reside in real world coordinates such as a scaled detail of an irrigation structure, could be placed in either a model file or a sheet file.

Right of way or Utility plans are put together in the same manner as Roadway plan sheets, according to the guidelines of the ROW or Utility section guides, by referencing a combination of existing design and plan sheet files to specific Right-of-Way or Utility files to show the necessary topo, survey and roadway details required to make up a detailed set of plans for the use of the Right of Way and Utility sections in their work.

The ITD workspace is setup to use the Named Boundary tool for creating Plan, Profile, and Cross Sections sheets in varying scales per ITD standards. This tool automates the attachment of references files and rotates and clips the file to align with the profile and sheet border.

The Place Named Boundary tool uses the designated OpenRoads horizontal alignment to determine the center of the plan view window. The clipping boundaries and match line locations are defined by the user.

Plan sheets for projects that do not contain OpenRoads alignments will need to be set up by individually attaching, rotating, and clipping the required reference files to the sheet file.

Plotting

ITD uses the standard print and print organizer tools available in the OpenRoads software. ITD has created support files within the Workspace to help streamline the printing process.

Appendix 2 – ITD Printing Guide

Design Scripts

ITD design scripts are applied during plotting to control pen widths, colors, and specially colored plots such as right-of-way plan sheets. These design scripts recognize ITD's named levels and elements placed on incorrect levels may not plot as desired. Standard design scripts have been created for black and white plotting, full color plotting, and for black and white plotting with colored right-of-way or utility details in each acceptable sheet size.

Roadway plans should be plotted using the **Halfsize BW.pen** design script.

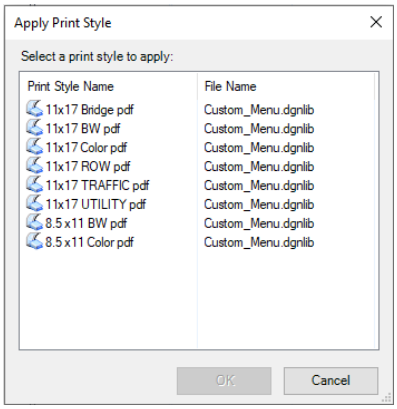
Traffic plans should be plotted using the **Halfsize BW Signs.pen** design script which plots everything on levels **TRAF_SIGN_Annotation, TRAF_SIGN_Existing, TRAF_SIGN_Portable, TRAF_SIGN_Post, and TRAF_SIGN_Proposed** WITHOUT fill on the signs.

ROW plans should be plotted using the **Halfsize ROW.pen** design script which plots everything on levels **ROW_Parcel**, **ROW_Easement-Hatch**, and **ROW_Total-Ownership- Boundary** in color with a transparency of 80% and everything else black.

Utility plans should be plotted using the **Halfsize Utility.pen** design script which plots everything on levels beginning with **UTIL_*** , **TOPO_ELEC_*,TOPO_GAS_*,TOPO_LIGHTING_*,TOPO_OIL_* TOPO_SAN_*,TOPO_STORM_*,TOPO_TELE_* , TOPO_TV_*, TOPO_WTRUTIL_* and TRAF_ILLUMINATION_*** in color with a transparency of 80% and everything else black.

Print Styles

The ITD Workspace has various Print Styles setup to set the print settings in a print organizer file(pset). These print styles are named to match the type of sheets you are trying to create and allow for settings to be applied to multiple sheet files at a time. see below.



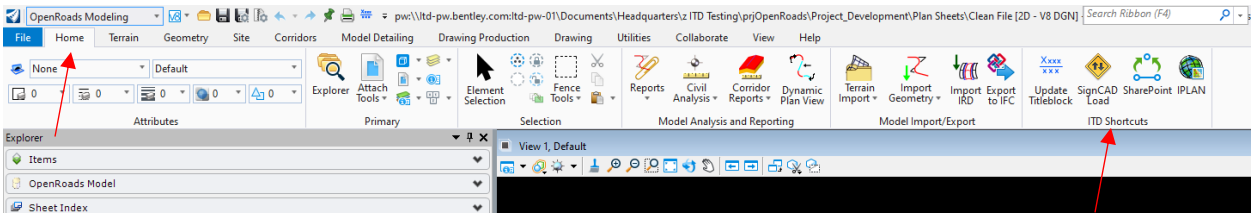
Acceptable Plot Sizes

The standard ITD plot size is 11" x 17" which is the default setting. Other plot size settings are available, such as 8 ½”x11” for Maintenance type jobs and other varying sizes for larger size exhibits or presentations.

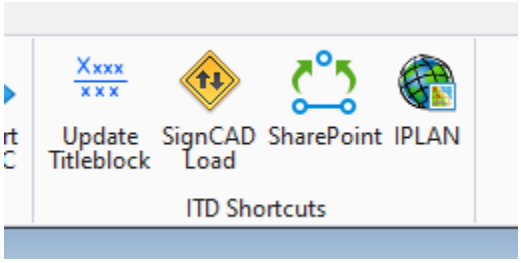
OpenRoads Designer Customized Ribbon

ITD has customized the OpenRoads toolbar and Ribbon to streamline and simplify some often-used commands and processes.

The ITD Shortcuts portion of the ORD Ribbon appears under the Home tab under all workflows available.



ITD Shorcuts Tools and links



Update Titleblock-Updates the ITD Titleblock Cell from the ProjectWise Attributes

Appendix 2 - Titleblock instructions are located on pages 10-12

SignCAD Load- Loads SignCAD if the software is installed on your pc

SharePoint-Is a Link to ITD’s internal SharePoint Site for OpenRoads Designer (CADD)

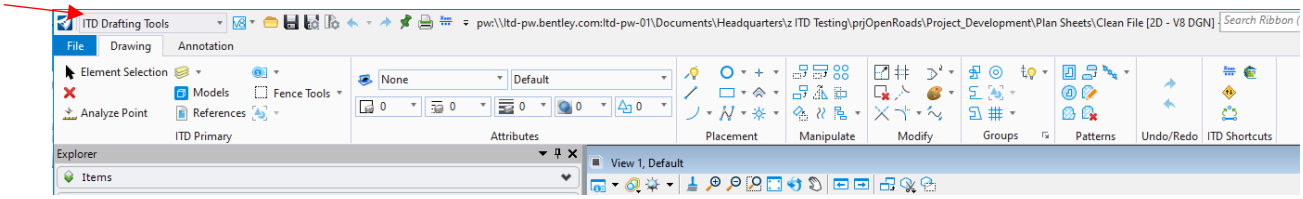
IPLAN-Link to ITD’s GIS site for the creation of Vicinity maps for Title Sheets.

Appendix 3 -ITD Vicinity Map Instructions

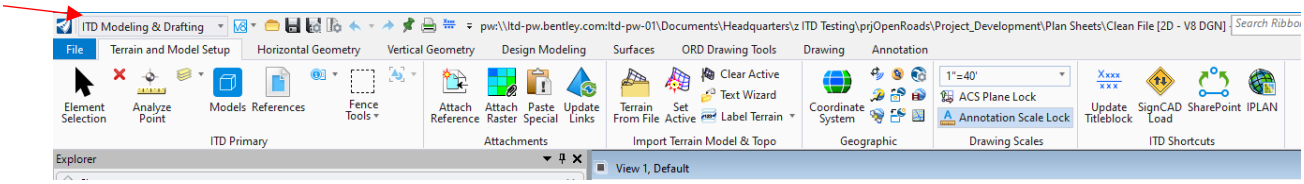
ITD Workflow Customization

ITD has developed some simplified workflows for Drafting and Modeling. These workflows reduce the tools on the ribbon and focuses the tools to common commands most often used.

ITD Drafting Tools workflow



ITD Modeling and Drafting



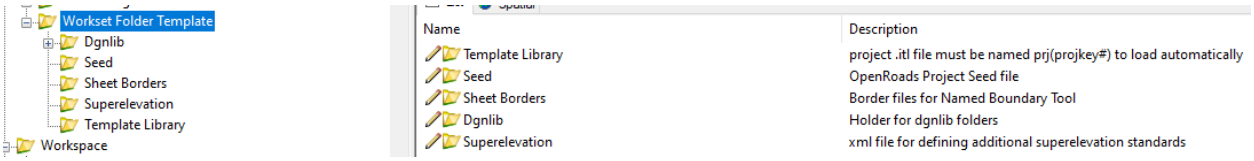
Worksets and the Managed Workspace

ITD's ProjectWise Managed Workspace is configured for the use of Worksets. Worksets are project level standards that may be added to ITD's workspace if desired. The operation of the Workset is controlled by the prj(projkey#).cfg found at the root of the Workset folder, the name of this cfg can NOT be changed and remain functional, it is also not recommended to modify the content of this cfg file. Modification can be done in more advanced setups but is not recommended. Also, at the root of the Workset folder is the projects dgnws file, this file is created automatically and can NOT be renamed.

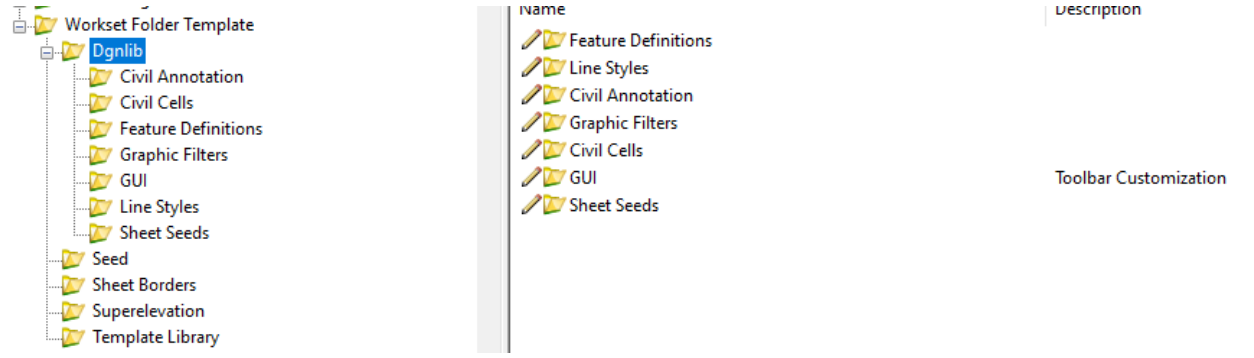
These dgnlibs, .itl files, etc. can be added under the Workset folder of the Project, prj12345\Project_Deveopment\Project_Resources\Workset\. By default, only three folders are created here as they are the most common project related files.

Name	Description
Dgnlib	Project Specific dgnlibs
Seed	Project Seed Files
Sheet Borders	Project Specific Sheet Borders

Notice the description of the folder for proper file placement. See Workset template folders here: [pw:\\ltd-pw.bentley.com:ltd-pw-01\Documents\Standards\Workset Folder Template\](pw:\\ltd-pw.bentley.com:ltd-pw-01\Documents\Standards\Workset Folder Template\)



The Dgnlib folder requires additional sub folders to function correctly and all files placed in the sub folders must be dgnlibs to be loaded.



Copy the required folders from the Workset Template and paste them within the Workset folder in the project.

Attention should be given to the folder Descriptions as explanation of use is spelled out there. One important note about Template libraries is that the project .itl file has to be named prj(projkey#).itl to load automatically. It can be loaded manually if more than one is used but will default to the correctly named .itl file.

Example 1

Recommended order of sheets.

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PROJECT CLEARANCE SUMMARY
3	TYPICAL SECTIONS
4-5	ROADWAY SUMMARY
6	BRIDGE SUMMARY
7	PIPE CULVERT SUMMARY
8-24	PLAN AND PROFILE SHEETS
25	SOURCE PLAT
26-28	ILLUMINATION SHEETS
29-32	SIGNALIZATION SHEETS
33-40	DELINEATION SHEETS
41-45	PAVEMENT MARKINS
46-52	SIGNING SHEETS
53-58	TRAFFIC CONTROL PLAN
59-62	R/W PLANS
1-13	UTILITY PLANS
1-5	STRUCTURE DRAWINGS
1-15	BRIDGE DRAWING NO. 15406
1-13	BRIDGE DRAWING NO. 15421

Text for Index: tx=0.0067, wt=1, font=Engineering Vert Bold (upper case)

Extend index as needed.

Drawing Groups: May be numbered separately or independently of the other sets within the set.

IDAHO TRANSPORTATION DEPARTMENT

PLAN AND PROFILE OF PROPOSED

U.S. 2, THAMA TO WRENCO LOOP

Route, Project Name & Project No.: tx=0.01, wt=3, font=Engineering Vert Bold (upper case)

IDAHO FEDERAL AID PROJECT NO. STP-512(044)

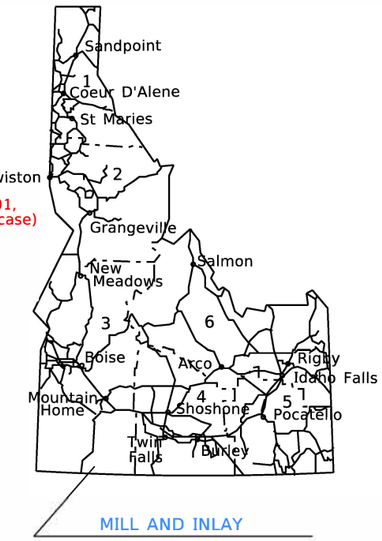
KEY NO. 4178

Key No. & County: tx=0.02 wt=1, font=Engineering Vert Bold (upper case).

BONNER COUNTY

MAY 2018

PS&E Date: Month and year of nearest date, tx=0.0083, wt=2, font=Engineering Vert Bold (upper case)



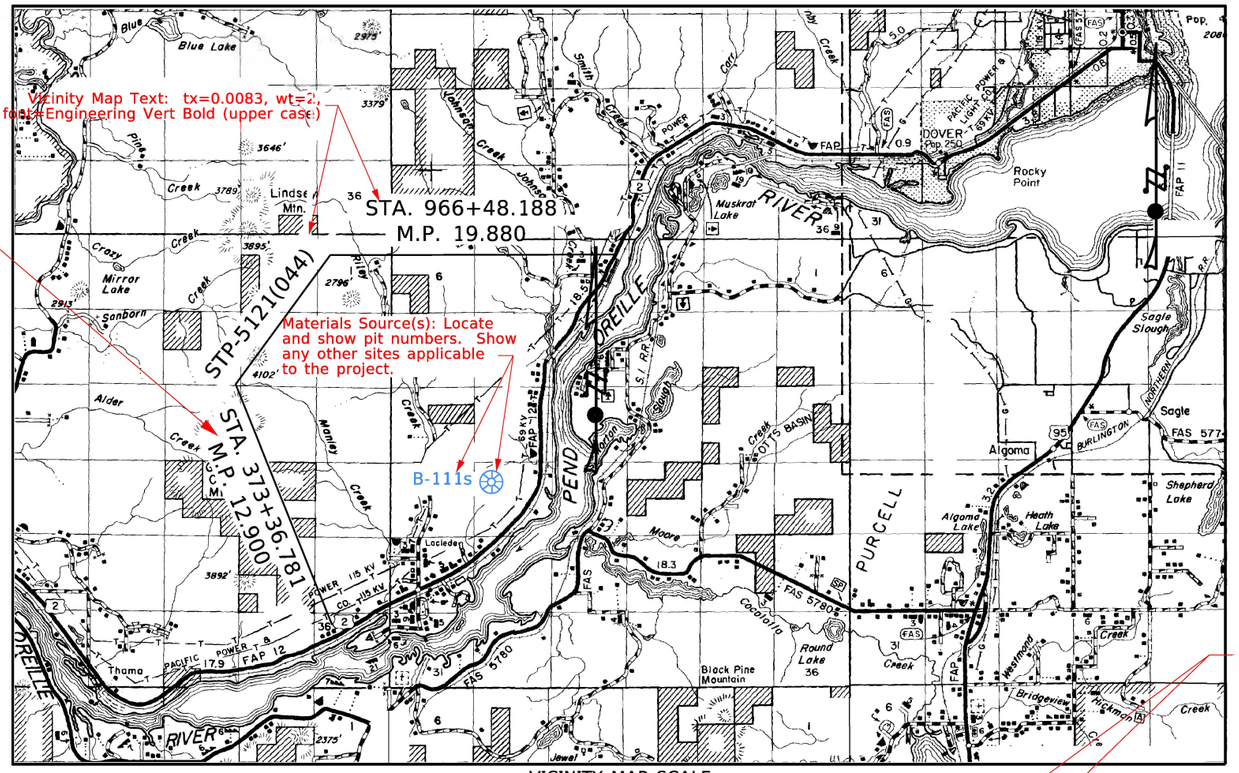
MILL AND INLAY

M.P. 12.900 to M.P. 19.880

SEGMENT CODE 001590

Project Type
M.P. (milepost), and segment code,
tx=0.0067, wt=1, font=Engineering Vert Bold (upper case).

Vicinity Map Text: tx=0.0083, wt=2, font=Engineering Vert Bold (upper case)



Raster Map:
Erase a small area within the margin of any text relating to the project placed on the map. Replace any pertinent text cut away or destroyed during the cutting process such as township and range, north arrow, etc. County maps in raster file format may be obtained from ITD Mapping.

Materials Source(s): Locate and show pit numbers. Show any other sites applicable to the project.

VICINITY MAP SCALE

1 ½ 0 1 2

MILES

DESIGN DESIGNATION

ADT (1991)	9040
ADT (2013)	14020
DHV (1991)	1020
DHV (2013)	1560
D	60/40%
V	55 MPH
TRUCKS:	
ADT (1991)	540
ADT (2013)	840
DHV (1991)	60
DHV (2013)	90

Design designation information:
Fill in year and data values supplied by ITD TP&P, See Design Manual Section 335.02 for Current and Design Year.
tx=0.0067, wt=1, font=Engineering Vert Bold

Projects No.: It may be necessary to show two or more project Nos. when right-of-way and construction are managed under separate Nos. Show construction No. only on the following plan sheets. See ITD Design Manual.

For Sheet Block Information See Example 3 (General Information Sheet)

REVISIONS			
NO	DATE	BY	DESCRIPTION
1	7-04	MSM	REVISED DWG. TO ENGLISH

THE DIMENSIONS SHOWN ON THE PLANS SHALL BE ATTAINED WITHIN LIMITS OF PRECISION THAT GOOD CONSTRUCTION PRACTICES WILL PERMIT

SCALE IS AS SHOWN ON PLANS

CADD FILE NAME 4178_titl_001.dgn

DRAWING DATE: NOVEMBER 2001

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity

DISTRICT 1 - COUER D'ALENE, ID

PROJECT NO.
R/W
STP-512-(043)
CONST>
STP-5121-(044)

TITLE SHEET
THAMA TO WRENCO LOOP

ENGLISH

COUNTY Bonner

KEY NUMBER 4178

SHEET 1 OF 62

Approved for Advertising

Date Approved

Example 2

CLEARANCES

	+ CLEARED UNDER PROJECT NO.	+ APPROVAL DATE
PROJECT STANDARDS		
CHARTER APPROVAL ■ AASHTO ☐ 3R ☐ 1R ☐ STATE	A013(006)	1-20-15
☐ PM ☐ OTHER	N/A	
DESIGN EXCEPTIONS: AASHTO roadway width Of 43.0 ft. - ITD Policy A-14-02, recommends 33.5 ft.	N/A	
	N/A	
PUBLIC HEARING WAIVER	A013(006)	7-9-15
PUBLIC HEARING DATE (Latest hearing date held or scheduled for opportunity)	N/A	
DESIGN APPROVAL	A013(006)	7-9-15
RECLAMATION PLAN APPROVAL NO(S)	N/A	
AIRPORT	N/A	
Land Survey Monument Search and Documentation (I.C.55-1613)	A013(006)	6-29-15
R/W CERTIFICATE: Issued by ■ HQ ☐ DISTRICT	A013(006)	++ 9-22-15
TRIBAL LANDS: ☐ AGREEMENT REQUIRED ■ SPECIAL PROVISIONS FOR CONTRACT PROPOSAL	A013(006)	N/A
BRIDGE PS & E	N/A	
ENVIRONMENTAL DECISION: TYPE ■ CAT-EX ☐ FONSI ☐ ROD	A013(006)	6-29-15
ENVIRONMENTAL RE-EVALUATION	N/A	

Placed Text: tx=0.0067 wt=1, font=Engineering Vert Bold

Fill one Block

Fill one Block

All Fill In Text: tx=0.08, wt=1, font=Engineering Vert Bold (upper and lower case).

PERMITS

		+ EXPIRATION DATE
IDAHO DEPARTMENT OF WATER RESOURCES PERMIT NO(S)	N/A	
US ARMY CORPS OF ENGINEERS 404 PERMIT NO(S) NWW-2015-356-B02	A013(006) 9-2-15	3-18-17
OTHER	N/A	

All shall be listed.

DEQ SECTION 401 WATER QUALITY CERTIFICATION ■ YES ☐ NO

NPDES GENERAL PERMIT/SWPPP REQUIRED ■ YES ☐ NO

POLLUTION PREVENTION PLAN REQUIRED ☐ YES ■ NO

AGREEMENTS (List Appropriate Name)

LOCAL: CITY	N/A	
COUNTY	N/A	
HIGHWAY DISTRICT	N/A	
ROAD CLOSURE AND MAINTENANCE	N/A	
STATE/LOCAL CONSTRUCTION	N/A	++

IRRIGATION DISTRICT(S): Crossing Agreement Required ☐ YES ☐ NO
(Signatures Required on either Structure Drawing or Bridge Sheet)

UTILITIES: List all Utilities shown on plans

	RETAIN & PROTECT	+ APPROVAL DATES: UTILITY HEARING WAIVER	+ APPROVAL DATES: AGREEMENT	+ AGREEMENT NO.
Co. CENTURY LINK	■	7-15-15		
Co.	☐	N/A		
Co.	☐	N/A		
Co.	☐	N/A		
Co.	☐	N/A		
Co.	☐	N/A		
Co.	☐	N/A		

All items must be addressed, enter Wavier Date or N/A (but not both)

RAILROAD List all Railroads encroached upon

	+ AGREEMENT FOR	+ AGREEMENT: EFFECTIVE DATE	+ AGREEMENT: NO.
Co.	N/A		
Co.	N/A		

ESTIMATING BASIS

The text sizes given in red highlight are for a 11" x 17" sheet.

Tack and Prime:
CSS-1 for Tack at 0.06 gal./yd.`
MC-250 for Prime at .030 gal./yd.`
Blotter Material at 1.02 lbs./ft.`

Paving:
AC-10 for Plant Mix at 6.0% by Weight of Aggregate and 0.5% Anti-Strip Additive by Weight of Asphalt.
Class II Plant Mix Pavement, Lab No. 87-A0612.

Aggregate:
Size, Est. Aggregate Compacted Mass per cubic foot.
$^{61}/_{64}$" Aggregate at 141 lbs./ft.|for Base Including 7.0% Water, Lab No. 217186.
$^{61}/_{64}$" Aggregate for Class II Plant Mix Pavement at 144 lbs./ft.|Including Asphalt and Additive, Lab No. 219650.
Cover Coat Material, Class 4 at 100 lbs./ft.|

Seal:
CRS-2R Emulsified Asphalt at 0.25 gal./yd.`
Cover Coat Material, Class 4 at 2.43 gal./yd.`
Rejects for Maintenance at 0.07 gal./yd.`
Blotter and Rejects at 1.10 gal./yd.`

NOTES

Class A and C Compaction are Specified. Stations of Class C Compaction are 55+10 to 69+50.

For Sheet Block Information See Figure C-25 (General Information Sheet)

+ ENTER "N/A" WHEN NOT APPLICABLE

++ LPA PROJECTS - DATE ENTERED BY ROADWAY DESIGN WHEN PROJECT SENT TO PS&E.

Storage & Location Information To Accompany Disclaimer

STAMP W/Signature Or Disclaimer

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT	PROJECT NO.		ENGLISH
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED		YOUR Safety→YOUR Mobility→YOUR Economic Opportunity	A013(006	MT. HOME TO SIMCO RD.	COUNTY Elmore
				DETAILED	CADD FILE NAME				KEY NUMBER 13006
				DRAWING CHECKED	DRAWING DATE:	WORLD CLASS ENGINEERING			SHEET 2 OF 47

ITD Current Sheet information: Make sure Plans use most current sheets (remove text if desired, not necessary for Plan reproduction).

GENERAL INFORMATION SHEET

Example 3

ITD CADD Design Guide information only.

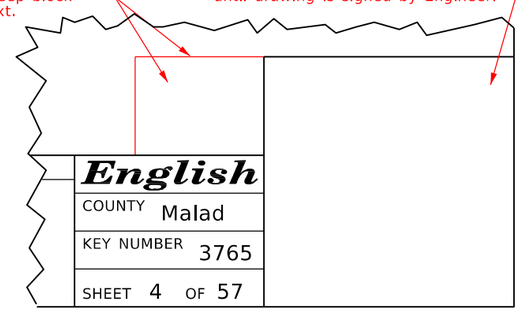
NOTES

1. The information in red highlight is intended to be generic for plan construction and the information in the sheet blocks should remain the same througout the plans. The text sizes given are for a 11" x 17" sheet.
2. Text underlines should extend the length of the text underlined and be placed a minimum of one half the text height below the text at the same line weight.

PRELIMINARY DRAWING

Original Storage & Location Block: leave block blank and take care to keep block clear of drawing details and text.

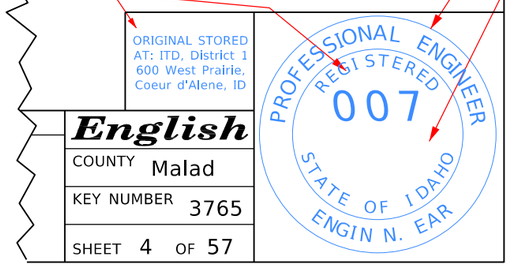
Use preliminary drawing disclaimer until drawing is signed by Engineer.



Original Signed By: tx=0.058, wt=1, font=Engineering Vert Bold (enter name in data field as it appears on engr's stamp, upper and/or lower case).

Original Stored: Original storage and location required; tx=0.0058, wt=1, font=Engineering Vert Bold (upper & lower case vertical). Follow sheet instructions for correct level and respective District (use only if disclaimer is used).

Required: Engineer's Stamp without signature.



CADD File Name: See CADD Standards Guide, tx=0.0067, min. tx=0.0058 wt=1, font=Engineering Vert Bold (lower case).

Drawing Date: Month Spelt out and 4 Digit Year. Date of last change to the sheet. tx=0.0067, min. tx=0.0058 wt=1, font=Engineering Vert Bold (upper case).

Designed
Design Checked
Detailed
Drawing Checked
Name: First Initial. Last Name
tx=0.0067, min. tx=0.0058 wt=1, font=Engineering Vert Bold (upper case).

Drawing Revisions: To be filled in by C.A. or Designer.

Project No.: tx=0.0083, wt=2, font=Engineering Vert Bold (upper case)

Organization Responsible for Project Development. Who to be contacted if there are questions on the plans. Consultant Name, District Number - D/C Group, or ITD Hdqs. (Boise, Idaho), tx=0.0083, wt=2, font=Engineering Vert Bold (upper case)

Sheet Reference Text: tx=0.0083, wt=2, font=Engineering Vert Bold (upper & lower case)

Route, Project Name: As it appears in OTIS. Include supplemental information like station limits if desired, tx=0.01, wt=3, font=Engineering Vert Bold (upper case)

Original Storage & Location Block: leave block blank and take care to keep block clear of drawing details and text.

Required: Engineer's Stamp, Signature and Date (month\day\year). signed across stamp.

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT	PROJECT NO.		ENGLISH
NO.	DATE	BY	DESCRIPTION	D. ESIGNED		YOUR Safety→YOUR Mobility→YOUR Economic Opportunity			COUNTY Malad
1	12-04	MSM	Modfied Sheet Format	DESIGN CHECKED D. ESIGNED			IM-IR-F-3115(38)	US-12 MONTANA LINE TO SENCO RD.	KEY NUMBER 3765
				DETAILED D. ESIGNED	CADD FILE NAME				SHEET 4 OF 57
				DRAWING CHECKED D. ESIGNED	DRAWING DATE:	S & W ENGINEERING			

Example 4

RURAL TYPICAL

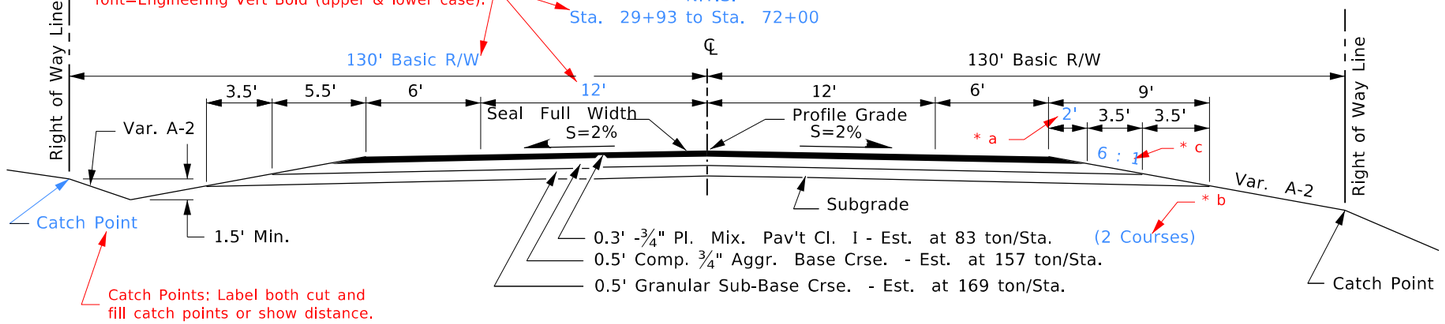
Major Titles: tx=0.01, wt=3, ft=130, font=Engineering Vert Bold (upper case). Underline same weight as text when used.

SH-5

N.T.S.

Sta. 29+93 to Sta. 72+00

Station & Dimension Text: tx=0.0067, wt=1, font=Engineering Vert Bold (upper & lower case).



* a 1.5 ft. for plantmix pavement 0.2 ft. or less thickness. 2.0 ft. for plantmix pavement greater than 0.2 ft thick.

* b Two or more courses required for pavement thickness greater than 0.25 ft. unless otherwise specified in the approved Joint Phase 3 Materials Report.

* c Subgrade shoulder slopes flatter than 1 : 6 may be specified.

NOTES

1. Draw typicals large enough to be legible on 17" x 11" plans.
2. PROJECT NOTES and ESTIMATING BASIS may be placed on this sheet if not shown on the PROJECT CLEARANCE SUMMARY SHEET.
3. Dimension all lanes, total roadway width, and right-of-way width both directions from centerline. Dimension sidewalks, curb and gutters, and other features from the preceding features.
4. Roadway materials, ballast requirements, and special drainage features are to be as determined by materials report.
5. The text sizes given in red highlight are for a 17" x 11" sheet.

URBAN TYPICAL

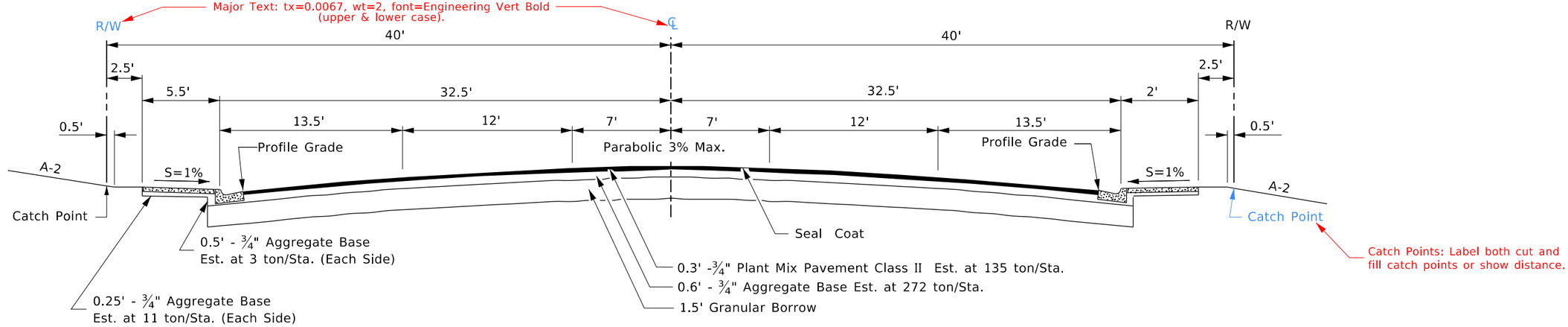
SH-5 BUSINESS LOOP

N.T.S.

Transition Sta. 72+00 to Sta. 74+00

Sta. 74+00 to Sta. 78+35

Major Text: tx=0.0067, wt=2, font=Engineering Vert Bold (upper & lower case).



For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT YOUR Safety→YOUR Mobility→YOUR Economic Opportunity	PROJECT NO.	TYPICAL SECTION	ENGLISH
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED			STP-4326(4)	PLUMMER TO ST. MARIES PHASE I	COUNTY
				DETAILED	CADD FILE NAME				KEY NUMBER
				DRAWING CHECKED	DRAWING DATE:				SHEET OF

Example 5

INTERSTATE TYPICAL

US-95

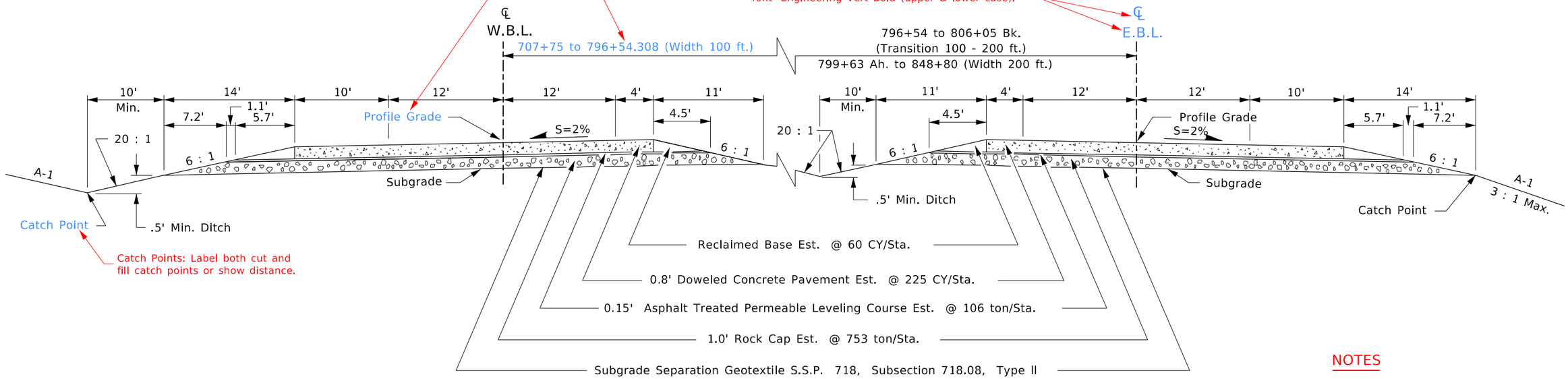
N.T.S.

Sta. 707+74 to Sta. 848+80

Major Titles: tx=0.01, wt=3, font=Engineering Vert Bold (upper case). Underline same weight as text when used.

Station & Dimension Text: tx=0.0067, wt=1 font=Engineering Vert Bold (upper & lower case).

Major Text: tx=0.0083, wt=2, font=Engineering Vert Bold (upper & lower case).



NOTES

1. Draw typicals large enough to be legible on 17" x 11" plans.
2. PROJECT NOTES and ESTIMATING BASIS may be placed on this sheet if not shown on the PROJECT CLEARANCE SUMMARY SHEET.
3. Dimension both directions from E.B.L./W.B.L. centerlines. Dimension right-or-way width, E.B.L centerline. to W.B.L. centerline, median width, and other features as required.
4. Roadway materials, ballast requirements, and special drainage features are to be as determined by materials report.
5. The text sizes given in red highlight are for a 11" x 11" sheet.

For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT YOUR Safety→YOUR Mobility→YOUR Economic Opportunity	PROJECT NO.	TYPICAL SECTION	ENGLISH
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED			IM-84-2(35)95	VIEWPOINT CR. BRIDGE EAST STAGE I	COUNTY
				DETAILED	CADD FILE NAME				KEY NUMBER
				DRAWING CHECKED	DRAWING DATE:	DISTRICT 3 - D/C A			SHEET OF

Example 6

	SHEET NUMBER	16	17	18	19	20	21	22	23	24				
	STATION - STATION	Still Rd. 13+70 - 18+30	I.S. 382+00- 390+00	I.S. 390+00- 396+60		Ramp B-C 0+00- 2+45	Ramp D-A 1+25- 3+74.785	Ramp C-D 0+00- 2+75	Frontage Road	Park & Ride				
ITEM NO.	ITEM	UNIT	TOTAL											
202-005A	SELECTIVE REMOVAL OF TREES	Each	4								4			
203-005A	REMOVAL OF OBSTRUCTIONS	LS	1											
203-015A	REMOVAL OF BITUMINOUS SURFACE	SY	5689	204	2722	2530	59	55	57	62				
203-075A	REMOVAL OF GUARDRAIL	LF	1053	352	251	450								
203-080A	REMOVAL OF FENCE	LF	3549	345	1370	1286	154	288	106					
205-010A	EXCAVATION SCHEDULE NO. 1	CY	2380	832			125	110	176	128	227	782		
205-015A	EXCAVATION SCHEDULE NO. 2	CY	18423	5587			4458	4553	1135	2690				
205-040A	GRANULAR BORROW	CY	9641											
205-060A	WATER FOR DUST ABATEMENT	MG	3											
205-065A	DUST OIL	gal.	1710											
209-005A	SMALL DITCH	LF	150											
213-005A	TOPSOIL	CY	6381	878	1041	1161	646	775	603	660	136	481		
303-021A	61/64" AGGREGATE FOR BASE	ton	2311											
401-015A	SS-1 DILUTED EMULSIFIED ASPHALT FOR TACK COAT	gal.	2340											
403-045A	CRS-2R EMULSIFIED ASPHALT FOR SEAL COAT	ton	20											
403-055A	REJECTS	ton	40											
403-075A	BROOMING	mi.	5.39											
403-125A	COVER COAT MATERIAL CLASS 4	ton	145											
405-025A	PLANT MIX PAVEMENT INCLUDING ASPHALT & ADD. CL. 1	ton	2760											
405-240A	MISCELLANEOUS PAVEMENT	SY	397			139	56	87	8	107				
602-020A	10" PIPE CULVERT	LF	15											
610-030A	FENCE TYPE 3 B 32" MESH	LF	137											
610-035A	FENCE TYPE 4 96" MESH	LF	2908	38	1350	1254		262	3	1				
610-250A	BRACES	Each	28		10	8	2		8					
612-005A	METAL GUARDRAIL	LF	385		162	223								
612-065A	METAL TERMINAL SECTION TYPE 3	Each	12	4	3	5								
612-075A	METAL TERMINAL SECTION TYPE 5	Each	12	4	3	5								
615-400A	COMBINATION CURB AND GUTTER TYPE A 2	LF	116	24	45	47								
616-010A	SIGN TYPE B	SF	241											
616-015A	SIGN TYPE C	SF	493											
616-035A	SIGN BRACKET AND BRACE ANGLE	lb.	97											
617-005A	DELINEATOR TYPE 1	Each	60											
617-010A	DELINEATOR TYPE 2	Each	18											
617-020A	DELINEATOR TYPE 4	Each	9											
618-010A	RIGHT-OF-WAY MARKER	Each	18	4	4	4	3		3					
621-005A	SEED BED PREPARATION	Ac	5.4											
621-010A	SEEDING	Ac	5.4											
621-015A	MULCHING	Ac	5.4											
621-025A	MULCH ANCHORING TACKIFIER	Ac	5.4											
2629-05A	MOBILIZATION	LS	1.0											

Roadway Name & Stationing: Beginning and ending stationing signifying the construction limits per sheet and pay items contained. The roadway name is optional.

Construction Length: Use this row to list the length of construction per sheet.

Sheet Columns: Enter pay items on each sheet per column

Line Space: Leave to accommodate pay item additions.

Fill-in Text Part #2: tx=0.0067, wt=1, font=Engineering Vert Bold (numeric data only). Use center text justification.

Fill-in Text Part #1: tx=0.0067, wt=1, font=Engineering Vert Bold. Use left bottom text justification.

Project Limits: Place project limits in a prominent place on the sheet. This total must match program length, tx=0.0083, wt=1, font=Engineering Vert Bold (upper & lower case).

Project Limits
0.84 mi.

NOTES

1. All non-participating items are grouped and labeled separately for accounting purposes.
2. Abbreviate item descriptions and units only as shown on the Bid Item Control File supplied by CA or the bid item cell file found in CADD directory /usr/standard. Item descriptions for special provisions (SP's) do not apply.
3. The text sizes given in red highlight are for a 11" x 17" sheet.

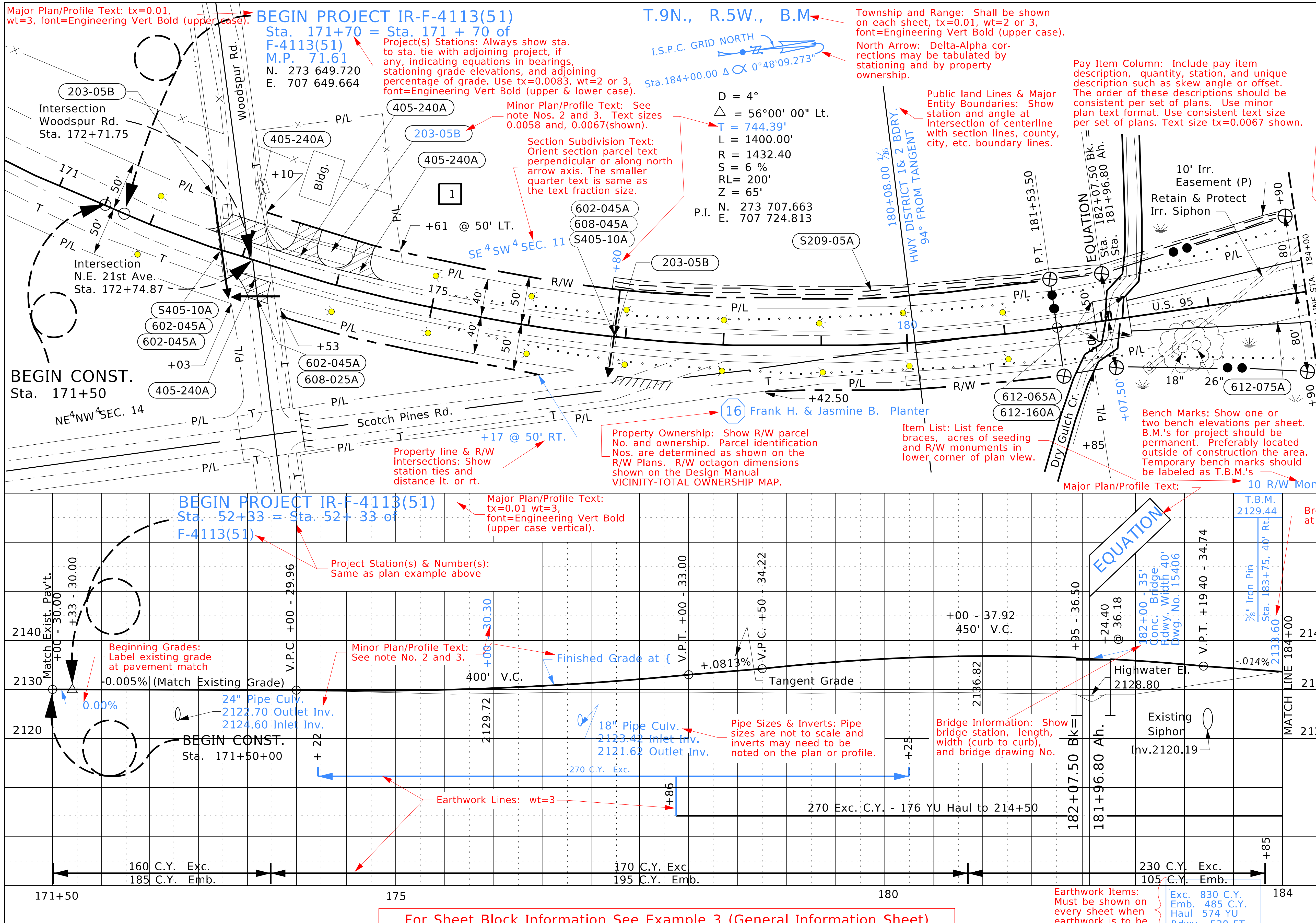
For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT YOUR Safety→YOUR Mobility→YOUR Economic Opportunity	PROJECT NO.	ROADWAY SUMMARY	ENGLISH
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED			IM-84-1(007)48	BLACK CAT RD. I.C.	COUNTY
				DETAILED	CADD FILE NAME				KEY NUMBER
				DRAWING CHECKED	DRAWING DATE:				SHEET OF

Example 7


Major Plan/Profile Text: tx=0.01, wt=3, font=Engineering Vert Bold (upper case).
BEGIN PROJECT IR-F-4113(51)
Sta. 171+70 = Sta. 171 + 70 of F-4113(51)
M.P. 71.61
N. 273 649.720
E. 707 649.664
Project(s) Stations: Always show sta. to sta. tie with adjoining project, if any, indicating stationing grade elevations, and adjoining percentage of grade. Use tx=0.0083, wt=2 or 3, font=Engineering Vert Bold (upper & lower case).
T.9N., R.5W., B.M.
Township and Range: Shall be shown on each sheet, tx=0.01, wt=2 or 3, font=Engineering Vert Bold (upper case).
I.S.P.C. GRID NORTH
Sta.184+00.00 Δ 0°48'09.273"
North Arrow: Delta-Alpha corrections may be tabulated by stationing and by property ownership.
203-05B
Intersection Woodspur Rd. Sta. 172+71.75
Woodspur Rd.
405-240A
203-05B
Minor Plan/Profile Text: See note Nos. 2 and 3. Text sizes 0.0058 and, 0.0067(shown).
Section Subdivision Text: Orient section parcel text perpendicular or along north arrow axis. The smaller quarter text is same as the text fraction size.
D = 4°
Δ = 56°00' 00" Lt.
T = 744.39'
L = 1400.00'
R = 1432.40
S = 6 %
RL= 200'
Z = 65'
P.I. N. 273 707.663
E. 707 724.813
Public land Lines & Major Entity Boundaries: Show station and angle at intersection of centerline with section lines, county, city, etc. boundary lines.
HWY DISTRICT 1& 2 BDRY. 94° FROM TANGENT
180+08.00 1/16
Pay Item Column: Include pay item description, quantity, station, and unique description such as skew angle or offset. The order of these descriptions should be consistent per set of plans. Use minor plan text format. Use consistent text size per set of plans. Text size tx=0.0067 shown.
P.T. 181+53.50
EQUATION Sta. 182+07.50 Bk. = Sta. 181+96.80 Ah.
10' Irr. Easement (P)
Retain & Protect Irr. Siphon
+90
405-240A
+10
Bldg.
1
602-045A
608-045A
S405-10A
+61 @ 50' LT.
SE 4 SW 4 SEC. 11
+80
203-05B
S209-05A
Intersection N.E. 21st Ave. Sta. 172+74.87
R/W
P/L
175
180
U.S. 95
MATCH LINE STA. 184+00
S405-10A
602-045A
602-045A
+53
602-045A
608-025A
+03
405-240A
BEGIN CONST. Sta. 171+50
NE 4 NW 4 SEC. 14
Scotch Pines Rd.
+17 @ 50' RT.
+42.50
16 Frank H. & Jasmine B. Planter
612-065A
612-160A
Dry Gulch Cr.
+07.50
+85
18"
26"
612-075A
Property line & R/W intersections: Show station ties and distance lt. or rt.
Property Ownership: Show R/W parcel No. and ownership. Parcel identification Nos. are determined as shown on the R/W Plans. R/W octagon dimensions shown on the Design Manual VICINITY-TOTAL OWNERSHIP MAP.
Item List: List fence braces, acres of seeding and R/W monuments in lower corner of plan view.
Bench Marks: Show one or two bench elevations per sheet. B.M.'s for project should be permanent. Preferably located outside of construction the area. Temporary bench marks should be labeled as T.B.M.'s
10 R/W Mon.
Major Plan/Profile Text:
BEGIN PROJECT IR-F-4113(51)
Sta. 52+33 = Sta. 52+ 33 of F-4113(51)
Major Plan/Profile Text: tx=0.01 wt=3, font=Engineering Vert Bold (upper case vertical).
Project Station(s) & Number(s): Same as plan example above
Match Exist. Pav't. +00 - 30.00
+33 - 30.00
V.P.C. +00 - 29.96
+00 - 30.30
V.P.T. +00 - 33.00
V.P.C. +50 - 34.22
+00 - 37.92
450' V.C.
+.0813%
Tangent Grade
Beginning Grades: Label existing grade at pavement match
-0.005% (Match Existing Grade)
0.00%
Minor Plan/Profile Text: See note No. 2 and 3.
Finished Grade at ℄
400' V.C.
24" Pipe Culv. 2122.70 Outlet Inv. 2124.60 Inlet Inv.
BEGIN CONST. Sta. 171+50+00
2129.72
+22
18" Pipe Culv. 2123.42 Inlet Inv. 2121.62 Outlet Inv.
Pipe Sizes & Inverts: Pipe sizes are not to scale and inverts may need to be noted on the plan or profile.
2136.82
+25
Bridge Information: Show bridge station, length, width (curb to curb), and bridge drawing No.
EQUATION
+95 - 36.50
+24.40 @ 36.18
182+00 - 35' Conc. Bridge Rdwy. Width 40' Dwg. No. 15406
V.P.T. +19 40 - 34.74
T.B.M. 2129.44
5/8" Iron Pin Sta. 183+75, 40' Rt. 2133.60
-.014%
Highwater El. 2128.80
Existing Siphon Inv.2120.19
182+07.50 Bk. = 181+96.80 Ah.
MATCH LINE 184+00
Break Elevation: Place elevation at match line or sheet break.
2140
2130
2120
270 C.Y. Exc.
+86
Earthwork Lines: wt=3
270 Exc. C.Y. - 176 YU Haul to 214+50
+85
160 C.Y. Exc.
185 C.Y. Emb.
170 C.Y. Exc
195 C.Y. Emb.
230 C.Y. Exc.
105 C.Y. Emb.
171+50
175
180
184
Earthwork Items: Must be shown on every sheet when earthwork is to be performed.
Exc. 830 C.Y.
Emb. 485 C.Y.
Haul 574 YU
Rdwy. 530 FT.
For Sheet Block Information See Example 3 (General Information Sheet)

203-05B Rem. of Obst.
195' Asphalt Curb and 300 S.Y. Bit. Surf., Sta. 173+15 to 174+10
18" x 65' CMP w/hdwls., Sta. 172+44
18" x 90' CMP, Sta. 173+88

S209-05A Construct Ditch
720 ft., Sta. 176+80 -184+00 Lt.

S405-10A Plantmix Patching
15 S.Y. 172+76
20 S.Y 176+88

405-240A Approach (4)
1 Ea., Sta. 172+94 Lt., 35
1 Ea., Sta. 173+58 Lt., W=24'
1 Ea., Sta. 174+18 Lt., W=18'
1 Ea., Sta. 173+17 Rt., W=20'

602-045A 12" Pipe Culvert
50', Skew/7° Rt. (Woodspur Rd.), Sta. 172+00 to Sta. 172+48

602-045A 18" Pipe Culvert
90', Skew/1° Rt., Sta. 176+88 to Sta. 172+89

602-045A 24" Pipe Culvert
95', Skew/25° Lt., Sta. 172+52 to Sta. 172+95

608-045A 12" Apron For Pipe
2 Ea. Sta. 172+00 & 172+48

608-025A 18" Apron For Pipe
1 Ea., Sta. 172+52
1 Ea., Sta. 172+95

608-025A 24" Apron For Pipe
1 Ea., Sta. 172+52
1 Ea., Sta. 172+95

Pay Item Capsule: Capsule border is wt=1. Use minor text format, see note Nos. 2 and 3. Text size may differ in the plan view and pay item column, however the text size in each part shall be the same and consistent per set of plans. 5/8" to 3/4"

2xtext ht.

Capsule Size: One capsule size shall be used for both minor text sizes and all pay item numbers.

NOTES

1. General and minor items such as delineators and/or removals need not be shown as a pay items on each sheet, only on the ROADWAY SUMMARY.
2. PLAN and/or PROFILE minor text is, either tx=0.0058 or 0.0067, font=Engineering Vert Boldand lower case. Use the most appropriate text size according to the amount of detail needed. Use a consistent text size on individual items per set of plans.
3. The PLAN and/or PROFILE title blocks at the sheet bottom shall be filled with the same format as the GENERAL INFORMATION SHEET
4. The text sizes given in red highlight are for a 11" x 17" sheet.

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED
DESIGN CHECKED
DETAILED
DRAWING CHECKED

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME
DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity

PROJECT NO. IM-IR-F-4113(51)

PLAN / PROFILE
US 95
STA. 171+70 TO STA. 195+00

ENGLISH
COUNTY Washington
KEY NUMBER 3501
SHEET 10 OF 62

Example 8

RAMP D-A

Major Profile Text: tx=0.08, wt=3, ft=130 (see note No. 2).

Control Pt. 22 m Lt. 317+97.690 (Interstate Shoulder Line)

Begin Ramp D-A
62' Lt.
I.S. Sta. 1030.00

+30.00 - 46.71
+05.60 - 49.50
+31.40 - 50.05
+31.40 - 54.37
+39.60 - 59.11
+24.00 - 65.42
+38.80 - 66.57
+00.40 - 65.61
+89.20 - 66.51
+75 - 64.60
+00.40 - 65.61

+0.574%
+1.538%
+1.250%
+1.280%
+0.893%

400' V.C.
320' V.C.
300' V.C.

V.P.C. +59.60 - 63.21
P.I. =+99.60 - 3361.21
PI = +31.40 - 51.31

Finished Grade on control line

596 C.Y. Exc.
+50
788 C.Y. Exc.
+23
652 C.Y. Exc. to Ramp D-C
+32
269 C.Y. Emb.
+11
255 C.Y. Emb.
+15
65.94
64.27

2' S.S.G.
Ac. Rd. Shld.

Sta. 1055+38.80 = {Ac. Rd. Sta. 64+00.00

Secondary Major Text: Use tx=010, wt=2 or 3, see note No. 3. Use same weight for circle as text weight.

Minor Profile Text: See note Nos. 3 and 4, tx=0.0067 size shown.

1035 1040 1045 1050 1055

RAMP A-B

Beg. Ramp A-B
62' Rt.
I.S. Sta. 1041+75.59

+75.60 - 50.98
+40.20 - 51.93
+50 - 53.40
+50 - 56.71
+25 - 61.82

Control Pt. 72' Rt. +31.925 - (Interstate Shoulder Line)

+1.75%
+2.750%

204 C.Y. Exc.
+5
1029 C.Y. Exc.
+45
763 C.Y. Exc. to Ramp B-C
+44
386 C.Y. Emb.

P.I. +00-53.94
2.0' S.S.G.
Fin. Gr. on Control Line

Sta. 1058+00.40 ℄ Ac. Rd. Sta. 17+068.80

1040 1045 1050 1055

Off-set text: See note No. 2.

Minor Profile Text: See note Nos. 3 and 4, tx=0.0067, wt=2, is shown.

B.M. 3341.82

WEST BOUND LANE

R/W Mon. 150' Rt. @ 1044+94.75

+00 - 46.14
+25 - 45.76
+51.50 - 51.97

+0.507%
+.111%

2300' V.C.

Invert @ ℄ 3347.44
507 C.Y. Exc.
50.98

2' S.S.G.
Finished Grade @ ℄

1301 C.Y. Borrow for Backfill from Borrow #2
+46
+96
639 C.Y. Emb.
+76
830 C.Y. Emb.
+28
60 C.Y. Emb.

Break Elevation: place elevation at match line or sheet break.

B.M. 3372.29
3350.04
3352.69
R/W Mon. 312' Rt. Sta. 1061+67.98
Match Line 1061+34

EAST BOUND LANE

+00 - 45.73
+93 - 45.21

PI = 3351.67
+0.810%
+0.101%

Invert @ ℄ 3350.54
2462.80' V.C.
50.90
+31.40

Pipe Sizes & Inverts: Pipe sizes are not to scale and inverts may need to be noted on the plan.

2' S.S.G.
Finished Grade @ ℄

+0.483%
2254 C.Y. Borrow for Backfill from Borrow #2
+35
588 C.Y. Emb.
+38
905 C.Y. Emb.
+55
269 C.Y. Emb.
+42
154 C.Y. Emb.

1040 1045 1050 1055 1060

Bench Marks: Show one or two bench elevations per sheet. B.M.'s for project should be permanent. Preferably located outside of construction area. Temporary bench marks should be labeled as T.B.M.'s

Exc. 3549 C.Y.
Emb. 3969 C.Y.
Bor. 3555 C.Y.
Rdwy. 2134 FT.

For Sheet Block Information See Example 3 (General Information Sheet)

NOTES

1. For additional profile formatting information refer to the Design Manual.
2. All PROFILE text is font=Engineering Vert Bold. Avoid placing text on a solid profile line, place text to side or with arrow to control point.
3. PROFILE minor text is, either tx=0.0058 or 0.0067-, wt=1, upper and lower case. Use the most appropriate text size according to the amount of detail needed. Use a consistent text size on items per set of plans.
4. The PROFILE title blocks at the sheet bottom shall be filled with the same format as the GENERAL INFORMATION SHEET.
5. The CADD text sizes given in red highlight are for a 11" x 17" size sheet.

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED
DESIGN CHECKED
DETAILED
DRAWING CHECKED

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME
DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity
DISTRICT 1 - D/C A

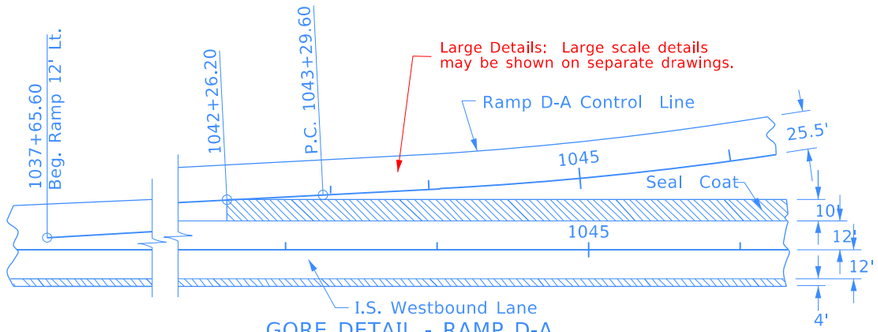
PROJECT NO.: I-90-1(002)50

PROFILE: LAKESHORE I. C.

ENGLISH

COUNTY Kootenai
KEY NUMBER 1321
SHEET 10 OF 22

Example 9



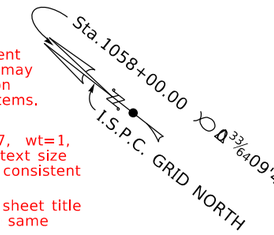
GORE DETAIL - RAMP D-A

Not to Scale

Intermediate Plan Text: Use tx=0.0083, wt=2, See note No. 3. Use same weight for underline as text weight.

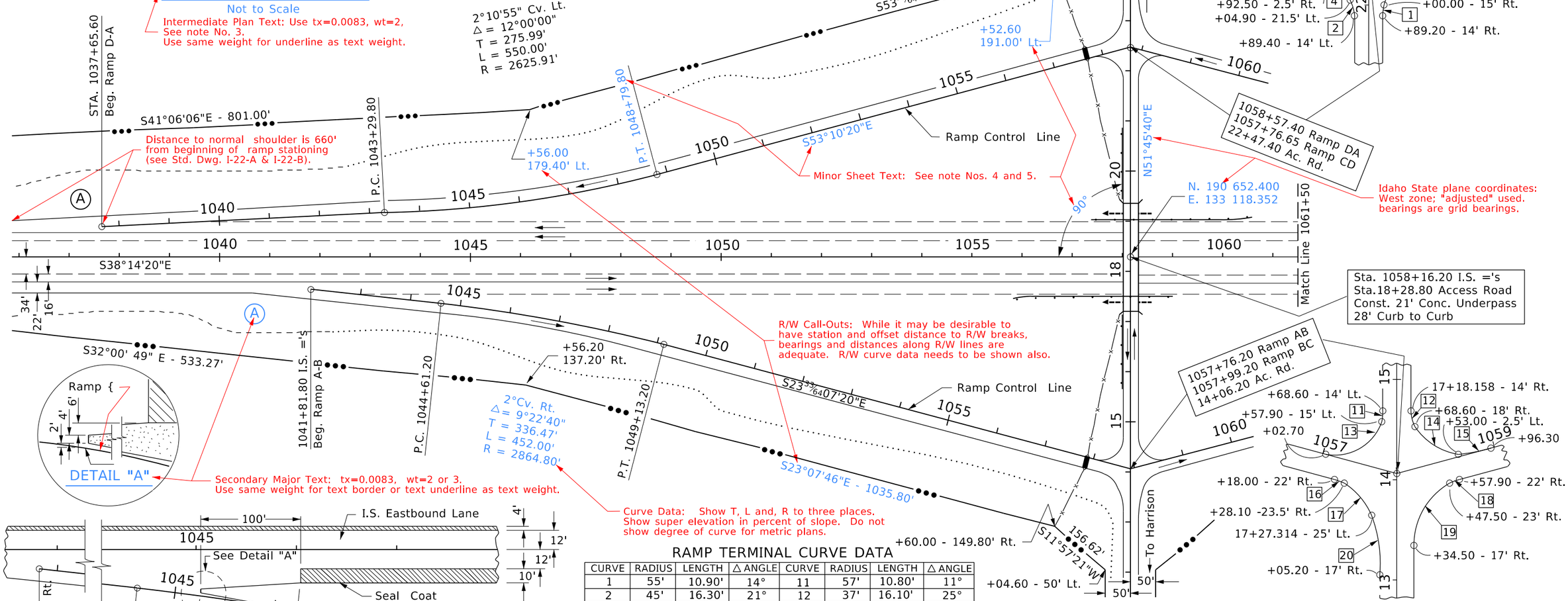
NOTES

1. All pay items for interchange area are to be shown on standard roadway plan sheets.
2. Interchange detail plans are made to supplement the normal roadway and right-of-way plans which may be too congested to show all necessary information for construction staking and recording of all pay items.
3. All PLAN text font=Engineering Vert Bold
4. PLAN minor text is, either tx=0.0058 or 0.0067, wt=1, upper and lower case. Use the most appropriate text size according to the amount of detail needed. Use a consistent text size on items per set of plans.
5. The PLAN (interchange - horizontal alignment) sheet title blocks at the sheet bottom shall be filled with the same format as the GENERAL INFORMATION SHEET.
6. The CADD text sizes given in red highlight are for a 11" x 17" sheet.



D INTERSECTION DETAIL

100 SCALE, 1' = 100'



RAMP TERMINAL CURVE DATA

CURVE	RADIUS	LENGTH	△ ANGLE	CURVE	RADIUS	LENGTH	△ ANGLE
1	55'	10.90'	14°	11	57'	10.80'	11°
2	45'	16.30'	21°	12	37'	16.10'	25°
3	46'	71.80'	89°	13	49'	70.10'	82°
4	55'	53.60'	55°	14	64'	52.60'	47°
5	160'	33.00'	23°	15	170'	33.10'	10°
6	53'	10.40'	11°	16	80'	10.50'	7°
7	54'	44.40'	48°	17	73'	42.40'	33°
8	65'	10.60'	9°	18	58'	10.50'	10°
9	66'	74.30'	65°	19	72'	74.60'	60°
10	330'	59.50'	10°	20	135'	60.30'	26°

GORE DETAIL - RAMP A-B

Not to Scale

LAKE SHORE I.C.

200 SCALE, 1" = 200'

B INTERSECTION DETAIL

100 SCALE, 1' = 100'

For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT	PROJECT NO.	INTERCHANGE DETAIL	ENGLISH
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED		YOUR Safety→YOUR Mobility→YOUR Economic Opportunity	I-90-1(004)94	WALLACE I. C.	COUNTY Kootenai
				DETAILED	CADD FILE NAME				KEY NUMBER 7703
				DRAWING CHECKED	DRAWING DATE:				SHEET 27 OF 35

STATION	PIPE CULVERT (LENGTH IN FEET) PIPE SIZE (INCHES) 120" x 78"	12"	18"	24"	36"	PLASTIC PIPE: RIBBED POLYETHYLENE (PE)	PLASTIC PIPE: CORRUGATED POLYETHYLENE (PE)	PLASTIC PIPE: RIBBED POLYVINYL CHLORIDE (PVC)	METAL PIPE: STEEL PIPE: GALVANIZED STEEL	STEEL PIPE: ALUMINIZED STEEL	STEEL PIPE: ½" CORRUGATION DEPTH	STEEL PIPE: " CORRUGATION DEPTH	STEEL PIPE: COATED	STEEL PIPE: ANNULAR CORR.	STEEL PIPE: HELICAL CORR.	ALUMINUM PIPE: ¼" TO ½" CORRUGATION DEPTH	ALUMINUM PIPE: CORRUGATION DEPTH	ALUMINUM PIPE: COATED	ALUMINUM PIPE: ANNULAR CORR.	ALUMINUM PIPE: HELICAL CORR.	CONCRETE PIPE: REINFORCED CLASS	CONCRETE PIPE: IRRIGATION OR DRAINAGE	CONCRETE PIPE: TYPE OF BEDDING	RUBBER GASKET JOINTS REQUIRED	FILL HEIGHT	STR. EXC.	COMP. BKFILL	MINOR STRUCTURES: DRAWING NUMBER	MINOR STRUCTURES: STRUCTURE	MINOR STRUCTURES: CONCRETE	MINOR STRUCTURES: METAL REINF.	MINOR STRUCTURES: TIMBER	MINOR STRUCTURES: GRATES	APRONS	INLETS	CATCH BASINS	REMARKS (INDICATE ELONGATION) (WHEN REQUIRED)
						X	X	X	X	X	THICK. (")		X	X	X	THICK. (")		X	X	X	II-V	X	1,2,3	X	FT.	C.Y.	C.Y.	Drawing Number: List standard drawing number or structure drawing number.	EA.	C.Y.	LBS.	MFBM	EA.	EA.	EA.	EA.	Example 10
144+38	10									X	2.8		X	X				X	X						0.5	14	93											Cross Drain Ext. Rt.
144+38	10									X	2.8		X	X				X	X						0.5	14	93											Cross Drain Ext. Lt.
160+61		15							X		1.6				X	1.5				X	IV		1	X	1	12												Side Drain Lt.
165+45		22							X		1.6				X	1.5				X	IV		1	X	1	7												Side Drain Rt.
168+79		15				X	X		X		1.6				X	1.5				X	III		1		4	19	44								2			Cross Drain
176+85			20			X	X	X	X		1.6				X	1.5				X	III		1		3		14								2			X.D. Skewed 45 33/64 Lt.
177+23					22	X	X	X	X		1.6				X	1.5				X	III		1		2		56								2			S.D. Appr. Rt.
181+90		18				X	X	X	X		1.6				X	1.5				X	III		1		3.5	7	8								2			Cross Drain
184+14				18					X		1.6				X	1.5				X	IV		1			2	25								2			X.D. Skewed 45 33/64 Rt.
187+25				22		X	X	X	X		1.6				X	1.5				X	III		1	X	5		41							2				X.D., 2-Hdwls. Req'd.
192+42		16				X	X	X	X		1.6				X	1.5				X	III		1		2		12								2			Side Drain Lt.
195+87			16						X		1.6				X	1.5				X	IV		1					1							1			S.D. Lt., Str. Req'd.
196+50		22				X	X	X	X		1.6				X	1.5				X	III		1												2			S.D. Appr. Lt.
196+97					20				X		1.6				X	1.5				X	IV		1												2			X.D., Safety Apron
201+54		16							X		1.6				X	1.5				X	IV		1															Req'd Lt. & Rt.
205+67			21			X	X	X	X		1.6				X	1.5				X	III		1															Cross Drain
																																					S.D. Appr. Rt.
208+68		16							X		1.6				X	1.5				X	IV		1												2			Cross Drain
210+31				18		X	X	X	X		1.6				X	1.5				X	III		1												2			Side Drain Rt.
210+90		18				X	X	X	X		1.6				X	1.5				X	III		1												2			Cross Drain
211+65		18				X	X	X	X		1.6				X	1.5				X	III		1												2			Side Drain Lt.
212+95				16					X		1.6				X	1.5				X	IV		1															S.D. Appr. Lt.
215+50		16				X	X	X	X		1.6				X	1.5				X	III		1												2			Side Drain Rt.
218+74		18				X	X	X	X		1.6				X	1.5				X	III		1		1.0	5	7								2			Cross Drain
SHEET TOTAL	20	210	57	74	42																					211	355						2	29			
PROJ. TOTAL	20	344	106	146	64																					453	795						9	64			

Sheet Fill In Text: tx=0.0067, wt=1, font=Engineering Vert Bold (upper and lower case vertical). Use center text justification.

Remarks Column: Indicate side drain (rt./lt.) or cross drain (w/skew angle), use of safety apron, if minor structure is required, and unique features of pipe culvert. Use abbreviations as needed, tx=0.0067, wt=1, font=Engineering Vert Bold (upper and lower case). Use lower left bottom Justification.

NOTES

1. Plastic pipes shall require aprons or headwalls.
2. An increased thickness of pipe may be specified in place of the coating.
3. If more than one PIPE CULVERT SUMMARY sheet is required to list culverts, show a sheet total on each sheet and on the last sheet show a project total.
4. When safety aprons are required indicate in the "remarks" column for each culvert it applies to.
5. For details on bituminous or polymer coatings and other related details refer to ITD Design Manual.
6. Rubber gaskets are required when a culvert flows (0.75) full for more than one month per year.
7. The pipe culvert station reflects the midpoint of the culvert at the roadway centerline. The skew angle should be indicated in the "remarks" column.
8. The PIPE CULVERT SUMMARY title blocks at the sheet bottom shall be filled with the same format as the the GENERAL INFORMATION SHEET.
9. The text sizes given in red highlight are for a 11" x 17" sheet.

Sheet & Project Total: See note No. 3, tx=0.0083, wt=2, font-=Engineering Vert Bold(upper case)

Fill In Text: Same as the rest of the sheet.

For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS NO.	DATE	BY	DESCRIPTION

DESIGNED | DESIGN CHECKED | DETAILED | DRAWING CHECKED

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME | DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity

DISTRICT 1 - D/C A

PROJECT NO. STP-5121-(044)

PIPE CULVERT SUMMARY: THAMA TO WRENCO LOOP

ENGLISH

COUNTY Bonner

KEY NUMBER 4178

SHEET 9 OF 62

Example 11

PIPE UNDERDRAINS
(LENGTH IN FEET)

STATION TO STATION	PIPE SIZE (NOM. DIA. IN INCHES)															CORRUGATED POLYETHYLENE (PE) DRAINAGE TUBING	POLYVINYL CHLORIDE (PVC) PIPE	METAL PIPE			SPECIAL BACKFILL	STRUCTURE EXCAVATION	COMPACTING BACKFILL	REMARKS
																		STEEL		ALUM.				
																		THICKNESS		THICK.				
	5" HALF ROUND	6" ROUND	8" ROUND	10" ROUND	12" ROUND	15" ROUND	18" ROUND	21" ROUND	24" ROUND	27" ROUND	30" ROUND							ROUND	HALF ROUND TYPE IIIA	ROUND				
																		TYPE OF BEDDING		TYPE OF BEDDING				
																		1,2,3	X	1,2,3	TON OR C.Y.	C.Y.	C.Y.	
111+45		76														X					28	43		Attach To X-Drain Hdwl.
113+05		21														X					8	12		Attach To X-Drain Hdwl.
116+60		15														X					5	8		See To Str. Dwg. No. 1
117+45		73														X					26	40		See To Str. Dwg. No. 2
342+18		50														X					18	28		See To Str. Dwg. No. 3
421+75		76														X					27	43		See To Str. Dwg. No. 4
SHEET TOTAL																					112	174		
PROJECT TOTAL		311																			112	174		

Sheet Fill In Text: tx=0.0067, wt=1, font= Engineering Vert Bold(Upper and lower case). Use center text justification.

Remarks Column: Indicate structure drawing required, skew angle, and unique features of underdrain pipe. Use abbreviations as needed, tx=0.0067, wt=1, font=Engineering Vert Bold (upper and lower case). Use lower left justification.

Sheet & Project Total: See note No. 1, tx=0.0083, wt=2, font=Engineering Vert Bold (upper case).

Fill In Text: Same as the rest of the sheet.

NOTES

1. If more than one PIPE UNDERDRAIN SUMMARY sheet is required to list pipes, show a sheet total on each sheet and on the last sheet show a project total.
2. The pipe underdrain station reflects perpendicular line from the roadway centerline to the midpoint of the pipe.
3. The PIPE UNDERDRAIN SUMMARY title blocks at the sheet bottom shall be filled with the same format as the the GENERAL INFORMATION SHEET.
4. The text sizes given in red highlight are for a 11" x 17" sheet.

For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS			
NO.	DATE	BY	DESCRIPTION

DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
DESIGN CHECKED	
DETAILED	CADD FILE NAME
DRAWING CHECKED	DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity

PROJECT NO.	PIPE UNDERDRAIN SUMMARY
STP-5121-(044)	THAMA TO WRENCO LOOP

ENGLISH

COUNTY Bonner

KEY NUMBER 4178

SHEET 15 OF 62

Example 12

STATION TO STATION	IRRIGATION PIPE (LENGTH IN FEET) PIPE SIZE (INCHES) 6"	12"	15"	18"	32"	54"	PLASTIC PIPE: CORRUGATED POLYETHYLENE (PE)	RIBBED POLYVINYL CHLORIDE (PVC)	SOLID WALL POLYVINYL CHLORIDE (PVC)	SIPHON TYPE METAL PIPE: STEEL ½ in CORR. DEPTH	STEEL CORR. DEPTH	ALUM. ¼ in TO ½ in CORR. DEPTH	ALUM. CORR. DEPTH	CONCRETE PIPE: REINFORCED CLASS	NON REINFORCED CLASS	TYPE OF BEDDING	FILL HEIGHT FT	MINOR STRUCTURES: DRAWING NUMBER	STRUCTURE EA.	CONCRETE CY	METAL REINF. lb	TIMBER MFBM	GRATES EA.	REMARKS
							X	X	X	THICKNESS (INCHES)				II-V		1,2,3								
196+83					66					0.64				V			3	D-5	2					1 Apron
196+55			14					X		0.64		0.60		III			8'-6"	D-5 &	2					Appr. Lt., 1 Apron
																		26-3						
197+10			12							0.64		0.60		III			7'-6"	26-4	1					Appr. Lt.
197+20		12								0.64		0.60		IV			5'-6"	26-4	1					1-45° Elbow
199+15		15								0.64		0.60		III			11'-10"	D-5	1					1 Apron
197+05		3								0.64		0.60		IV			5'-0"	30-1	1					45° Skew Lt.
201+60		140								0.64		0.60		III				26-4	1					
203+90		12								0.64		0.60		III			15'-9"	30-1 &	1					
																		30-2						
207+58		224								0.64		0.60						D-5 &	2					
																		30-2						
207+58		224								0.64		0.60		III			7'-2"	31-1 &	2					
																		32-2						
211+60		17								0.64		0.60		III			11'-2"	34-1	2					
211+60		17								0.64		0.60		III			14'-10"	31-1	2					
233+23										0.64		0.60		IV			6'-3"	32-1	1					Appr. Lt., 1 Apron
244+30	55									0.64		0.60		III			7'-6"	32-2	2					
																		37-1 &						
245+90				43				X		0.64		0.60		III			18'-9"	37-3	1					
304+20		9						X		0.64		0.60		III			7'-0"	39-1	1					
308+50	244									0.64		0.60		III			12'-2"	39-1 &	2					Pressurized
																		39-2						
316+00		9								0.64		0.60		III				46-1 &	2					
																		46-2						
320+00										0.64		0.60					3'-3"	46-2	2					45° Skew Lt.
363+70		14						X		0.64		0.60		IV			20'-4"	53-1	2					
365+10										0.64		0.60		IV			8'-10"		2					Connect To Exist., Irr. Pipe
383+81										0.64		0.60		III			6'-3"	53-3	2					Connect To Conc., Lined Ditch
457+03										0.64		0.60		IV			7'-10"							1-120° Elbow Connect to Siphon
473+20										0.64		0.60		III			5'-3"							Connect To Conc. Lined Ditch Ends
SHEET TOTAL	299	662	696	314	66	67																		
PROJECT TOTAL	507	434	1819	958	175	67																	35	

Sheet Fill In Text: tx=0.0067, wt=1, font=Engineering Vert Bold(Upper and lower case). Use center text justification.

Sheet & Project Total: See note No. 1, tx=0.0083, wt=2, font=Engineering Vert Bold (upper case).

Fill In Text: Same as the rest of the sheet.

Drawing Number: List standard drawing number or structure drawing number.

Metal Reinforcement: Round to the nearest pound.

REMARKS

Remarks Column: Indicate pipe skew angle, use of minor str(s)., sheet No. (optional), and unique features of irrigation pipe. Use abbreviations as needed, tx=0.0067, wt=1, font=Engineering Vert Bold (upper and lower case). Use lower left bottom justification.

NOTES

1. Plastic pipes require aprons, headwalls, or minor structures as end treatment.
2. If more than one IRRIGATION PIPE SUMMARY sheet is required to list pipes, show a sheet total on each sheet and on the last sheet show a project total.
3. The irrigation pipe station reflects the midpoint of the pipe at the roadway centerline. The skew angle should be indicated in the "remarks" column.
4. The IRRIGATION PIPE SUMMARY title blocks at the sheet bottom shall be fill in the same format as the the GENERAL INFORMATION SHEET.
5. The text sizes given in red highlight are for a 11" x 17" sheet.

For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT	PROJECT NO.	IRRIGATION PIPE SUMMARY	ENGLISH
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED		YOUR Safety→YOUR Mobility→YOUR Economic Opportunity			COUNTY
				DETAILED	CADD FILE NAME				KEY NUMBER
				DRAWING CHECKED	DRAWING DATE:				SHEET OF

Example 13

STATION TO STATION	SEWER PIPE (LENGTH IN FEET) PIPE SIZE (INCHES) 12"	15"	18"	36"				PLASTIC PIPE: CORRUGATED POLYETHYLENE (PE) X	RIBBED POLYVINYL CHLORIDE (PVC) X	SOLID WALL POLYVINYL CHLORIDE (PVC) X	ABS COMPOSITE X	SIPHON TYPE METAL PIPE + COATING IS REQUIRED IF CHECKED: STEEL ½ IN CORR. DEPTH THICKNESS (INCHES)	STEEL CORR. ___ DEPTH	ALUM. ¼ IN TO ½ IN COOR. DEPTH THICKNESS (INCHES)	ALUM. CORR. ___ DEPTH	BITUMINOUS OR + POLYMER COATING X	CONCRETE PIPE: REINFORCED CLASS II-V	NON-REINFORCED CLASS X	TYPE OF BEDDING 1,2,3	MAN-HOLES: TYPE A ___ EA.	TYPE B ___ EA.	CATCH BASINS: TYPE ___ EA.	TYPE ___ EA.	TYPE ___ EA.	INLETS: TYPE 1 ___ EA.	TYPE ___ EA.	TYPE ___ EA.	REMARKS
172+19	14											1.6		1.5			IV		1						1			Inlet Req'd. Lt.
172+50	3										X	1.6		1.5			IV		1						1			Inlet Req'd. Rt.
29+28				125								1.6		1.5			III		2	1								Manhole Req'd. Rt.
25+99				75								1.6		1.5			III		1									
24+61				9					X		X	1.6		1.5				X	1									
173+47											X	1.6		1.5			III		1									
174+77									X			1.6		1.5			IV		1						1			Inlet Req'd. Rt.
																														Manhole Req'd. Rt.
175+00	8											1.6		1.5			IV		1						1			Inlet Req'd. Lt.
175+06	17											1.6		1.5			IV		1						1			Inlet Req'd. Lt.
176+60		97							X		X	1.6		1.5			III		1									
		97										1.6		1.5			III		2	1								Manhole Req'd. Rt.
																														Manhole Req'd. Lt.
83+85	9											1.6		1.5			IV		1		1				1			Inlet Req'd. Rt.
182+45	10								X		X	1.6		1.5			III		1									
181+94	14											1.6		1.5														
																	IV		1						1			Inlet Req'd. Rt.
182+30	11											1.6		1.5			IV		1		1				1			Manhole Req'd. Rt.
85+81	92											1.6		1.5			IV		1		1							Inlet Req'd. Rt.
																														Manhole Req'd. Lt.
87+04	18											1.6		1.5			IV		1		1				1			Inlet Req'd. Lt.
87+65	21																								1			Inlet Req'd. Rt.
SHEET TOTAL	217	194	94	209																2	4				10			
PROJECT TOTAL	1255	398	94	443																5	9				17			

REMARKS

Remarks Column: Indicate manhole(s) required, and unique features of sewer pipe. Use abbreviations as needed, tx=0.0067, wt=1, font=Engineering Vert Bold (upper and lower case) Use lower left bottom justification.

Sheet Fill In Text: tx=0.0067, wt=1, font=Engineering Vert Bold(Upper and lower case) Use center text justification.

Sheet & Project Total: See note No. 2, tx=0.0083, wt=2, font=Engineering Vert Bold(upper case).

Fill In Text: Same as the rest of the sheet.

NOTES

1. An increased thickness of pipe may be specified in place of the coating.
2. If more than SEWER PIPE SUMMARY sheet is required to list pipes, show a sheet total on each sheet and on the last sheet show a project total.
3. The sewer pipe station reflects perpendicular line from the roadway centerline to the midpoint of the pipe.
4. The SEWER PIPE SUMMARY title blocks at the sheet bottom shall be fill in the same format as the the GENERAL INFORMATION SHEET.
5. For details on bituminous or polymer coatings and other related details refer to ITD Design Manual.
6. The text sizes given in red highlight are for a 11" x 17" sheet.

For Sheet Block Information See Example 3 (General Information Sheet)

REVISIONS NO.	DATE	BY	DESCRIPTION

DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT YOUR Safety→YOUR Mobility→YOUR Economic Opportunity	PROJECT NO.
DESIGN CHECKED			SEWER PIPE SUMMARY
DETAILED	CADD FILE NAME		ENGLISH
DRAWING CHECKED	DRAWING DATE:		COUNTY
			KEY NUMBER
			SHEET OF

ENGR'S. STAMP W/Signature Or Disclaimer

Example 14

STATION	PIPE SIPHONS (LENGTH IN FEET) PIPE SIZE (INCHES) 12"	15"	24"	GASKETED JOINTS REQUIRED: SIPHON TYPE METAL PIPE STEEL ½ IN CORR. DEPTH (THICKNESS (INCHES))	STEEL 1 IN CORR. DEPTH	ALUM. ¼ IN TO ½ IN CORR. DEPTH	CONCRETE PIPE REINFORCED CLASS	CONCRETE PIPE TYPE OF BEDDING	STRUCTURE EXC. CY	COMP. BACKFILL CY	MINOR STRUCTURES DRAWING NO.	STRUCTURE EA.	CONCRETE CY	MET. REINF. lb	TIMBER MFBM	GRATES EA.	REMARKS
							II-V	1,2,3									
108+10			80	1.6		1.5	V	1	182	156	D-10	3.4	50			2	30° Skew, 2 Hdwls. Req'd.
115+05			80	1.6		1.5	V	1	182	156	D-10	3.4	50			2	63° Skew, 2 Hdwls. Req'd.
155+30			54	1.6		1.5	V	1	126	108	D-10	1.7	25			1	5° Skew, 1 Hdwl. Req'd., Str. Dwg. NO. 14-3
155+85			68	1.6		1.5	V	1	154	132	D-10	1.7	25			1	1 Hdwl. Req'd., Str. Dwg. NO. 21-1
156+15			68	1.6		1.5	V	1	154	132	D-10	1.7	25			1	Connect To Exist. Str., 1 Hdwl. Req'd.
170+15			60	1.6		1.5	V	1	137	117							15° Skew, Str. Dwgs. NO. 22-1 & NO. 22-2
172+95			52	1.6		1.5	V	1	119	102							Str. Dwgs. NO. 25-1 & NO. 26-1
237+25			68	1.6		1.5	V	1	154	132	D-10	1.7	25			1	1 Hdwl. Req'd., Str. Dwg. NO. 37-3
																	55° Skew, Str. Dwg. NO. 39-1, Conn.To Exist. siphon,
243+50			128				V	1	294	252							1 Reducer
276+90			70				V	1	161	138	D-10	1.7	25			1	1 Hdwl. Req'd., Str. Dwg. NO. 43-3
280+20			80	1.6		1.5	V	1	182	156	D-10	1.7	25			1	35° Skew, 1 Hdwl. Req'd., Str. Dwg. NO. 44-1
304+50			76	1.6		1.5	V	1	175	150	D-10	3.4	50			2	2 Hdwls. Req'd.
																	20° Skew, Str. Dwg. NO. 47-1, Conn. To Exist. Siphon,
333+80			70				V	1	161	138							1 Reducer
347+60			68	1.6		1.5	V	1	158	135							10° Skew, Str. Dwg. NO. 49-1, Conn. To Exist. Siphon,
																	1 Reducer
356+80	80						V	1	104	96							30° Skew, Connect To Exist. Siphon
357+20		86					V	1	140	122							35° Skew, Connect To Exist. Siphon
364+45			76	1.6		1.5	V	1	193	165							60° Skew, Str. Dwgs. NO. 63-1 & NO. 53-1
385+40			134	1.6		1.5	V	1	308	264						1	60° Skew, Str. Dwgs. NO. 65-1 & NO. 53-3
387+25			66	1.6		1.5	V	1	151	129						1	Str. Dwgs. NO. 65-1 & NO. 54-1
410+20			100				V	1	231	198	D-10	1.7	25				15° Skew, Connect To Exist. Siphon,
461+75			140	1.6		1.5	V	1	221	189							1 Hdwl. & 1 Reducer Req'd.
																	65° Skew, Str. Dwgs. NO. 72-2 & NO. 75-2
SHEET TOTAL	80	86	1470						3697	4167		22.1	325			14	
PROJECT TOTAL	380	560	6090	42					264252	4354		45.2	574			35	

Sheet Fill In Text: tx=0.0067, wt=1, font=Engineering Vert Bold(Upper and lower case). Use center text justification.

Drawing Number: List standard drawing number or structure drawing number.

Metal Reinforcement: Round to the nearest pound.

Remarks Column: Indicate pipe skew angle, use of headwall(s), sheet No. (optional), and unique features of pipe siphon. Use abbreviations as needed, tx=0.0067, wt=1, font=Engineering Vert Bold(upper and lower case). Use lower left bottom justification.

Sheet & Project Total: See note No. 3, tx=0.0067, wt=1, font=Engineering Vert Bold(upper case).

Fill In Text: Same as the rest of the sheet.

NOTES

1. An increased thickness of pipe may be specified in place of the coating.
2. For details on bituminous or polymer coatings and other related details refer to ITD Design Manual.
3. If more than one PIPE SIPHON SUMMARY sheet is required to list pipes, show a sheet total on each sheet and on the last sheet show a project total.
4. The pipe siphon station reflects the midpoint of the pipe at the roadway centerline. The skew angle should be indicated in the "remarks" column.
5. The PIPE SIPHON SUMMARY title blocks at the sheet bottom shall be filled with the same format as the the GENERAL INFORMATION SHEET.

For Sheet Block Information See Example 3 (General Information Sheet)

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP W/Signature Or Disclaimer

REVISIONS NO.	DATE	BY	DESCRIPTION

DESIGNED | DESIGN CHECKED | DETAILED | DRAWING CHECKED

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME | DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity

PROJECT NO.

PIPE SIPHON SUMMARY

ENGLISH

COUNTY | KEY NUMBER | SHEET OF

Example 15

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PROJECT CLEARANCE SUMMARY
3	TYPICAL SECTIONS
4-5	ROADWAY SUMMARY
6	BRIDGE SUMMARY
7	PIPE CULVERT SUMMARY

Text for Index: tx=0.0067, wt=1, font=Engineering Vert Bold(upper case).

IDAHO TRANSPORTATION DEPARTMENT

RIGHT OF WAY PLANS OF PROPOSED

U.S. 2, THAMA TO WRENCO LOOP

Route, Project Name & Project No.: tx=0.01, wt=3, font=Engineering Vert Bold (upper case)

FEDERAL AID PROJECT NO. STP-512(044)

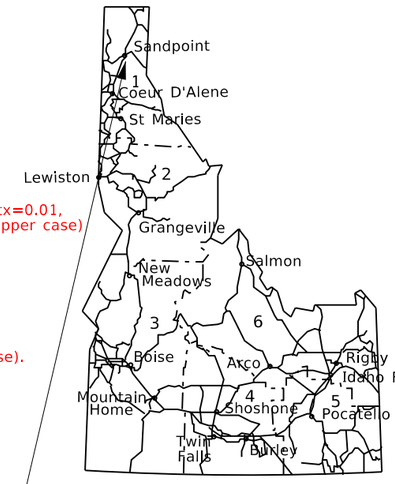
KEY NO. 4178

BONNER COUNTY

Key No. & County: tx=0.02 wt=1, font=Engineering Vert Bold (upper case).

MAY 2018

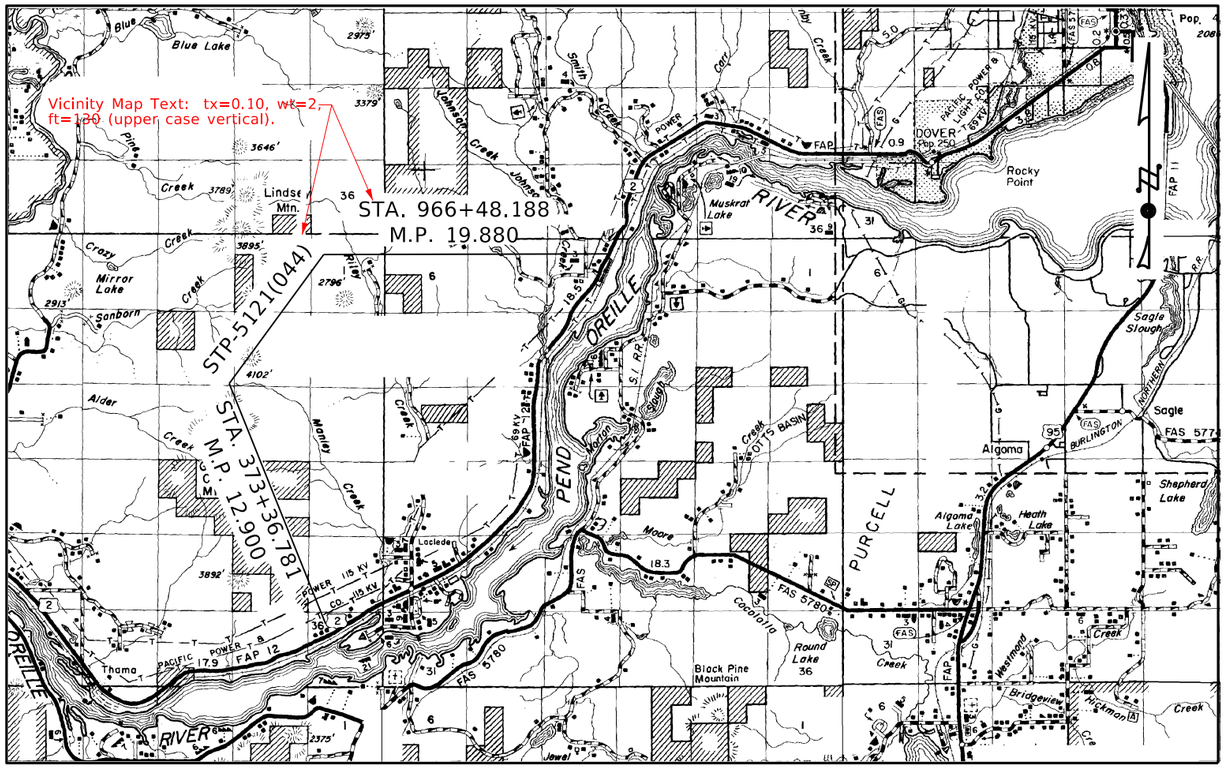
PS&E Date: Month and year of nearest date, tx=0.0083, wt=2, font=Engineering Vert Bold (upper case)



MILL AND INLAY

M.P. 12.900 to M.P. 19.880
SEGMENT CODE 001590

Project Type
M.P. (milepost), and segment code,
tx=0.0067, wt=1, font=Engineering Vert Bold (upper case).



VICINITY MAP SCALE
1 ½ 0 1 2

Vicinity Map Text: tx=0.10, wt=2, ft=1.20 (upper case vertical).

DESIGN DESIGNATION

ADT (1991)	9040
ADT (2013)	14020
DHV (1991)	1020
DHV (2013)	1560
D	60/40%
V	55 MPH
TRUCKS:	
ADT (1991)	540
ADT (2013)	840
DHV (1991)	60
DHV (2013)	90

OFFICIAL R/W PLANS

Submitted By:
Consultant Surveyor/ITD Surveyor — Date

Recommended For Approval By:
Project Manager or Design/Construct Engineer — Date

Approved By:
Design/Construct Engineer — Date

Found in ITD's R/W cel Library

For Sheet Block Information See Example 3 (General Information Sheet)

REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	7-04	MSM	REVISED DWG. TO ENGLISH

THE DIMENSIONS SHOWN ON THE PLANS SHALL BE ATTAINED WITHIN LIMITS OF PRECISION THAT GOOD CONSTRUCTION PRACTICES WILL PERMIT

SCALE IS AS SHOWN ON PLANS

CADD FILE NAME 4178_titl_001.dgn

DRAWING DATE: NOVEMBER 2001

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity

DISTRICT 1 - COUER D'ALENE, ID

PROJECT NO.
R/W
STP-512-(043)
CONST>
STP-5121-(044)

TITLE SHEET
THAMA TO WRENCO LOOP

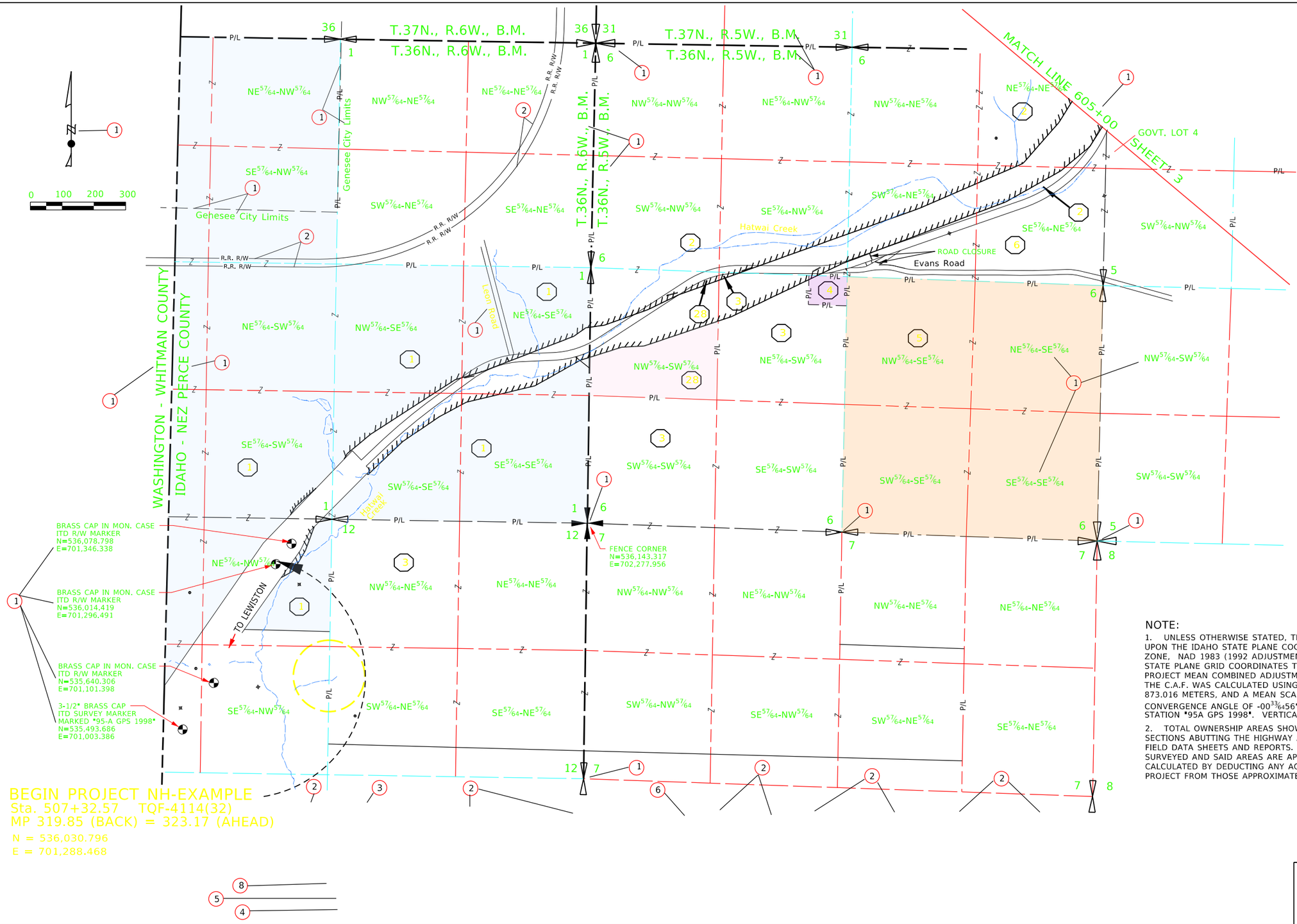
ENGLISH

COUNTY Bonner
KEY NUMBER 4178
SHEET 1 OF 62

Approved for Advertising

Date Approved

Example 16



1. City, county, state lines, railroad, county roads city streets labeled. Correct symbols for found and unfound monuments. North arrow shown, Sheets numbered consecutively. New and existing alignments shown. Match lines and sheet reference. Township, Range,section and $^{57}/_{64}$ $^{57}/_{64}$ sections, government lots designated.
2. Owner Data Table with requirments from the Essential Requirements Checklist. ITD Form 0131
3. Parcel ID No.'s properly assigned to requirments and permanent easements.
4. Temporary easements only, use an "E" designator for parcel ID No.
5. LPA parcels use an "L" designator for the parcel ID No. (not shown)
6. Acreage for requirements must match acreage data in legal discription.
7. Advanced purchace parcels identified with an asterisk, with explanation.
8. Information only parcels labled, if shown.
9. Data table color coded across entire tabulation block and matches parcel colors on all plan sheets.

Plan and/or profile minor text is either tx=0.70 or 0.80, wt=1, ft=130 upper and lower case. Use the most appropriate text size according to the amount of detail needed. Use a consistant text size on individual items per set of plans

NOTE:

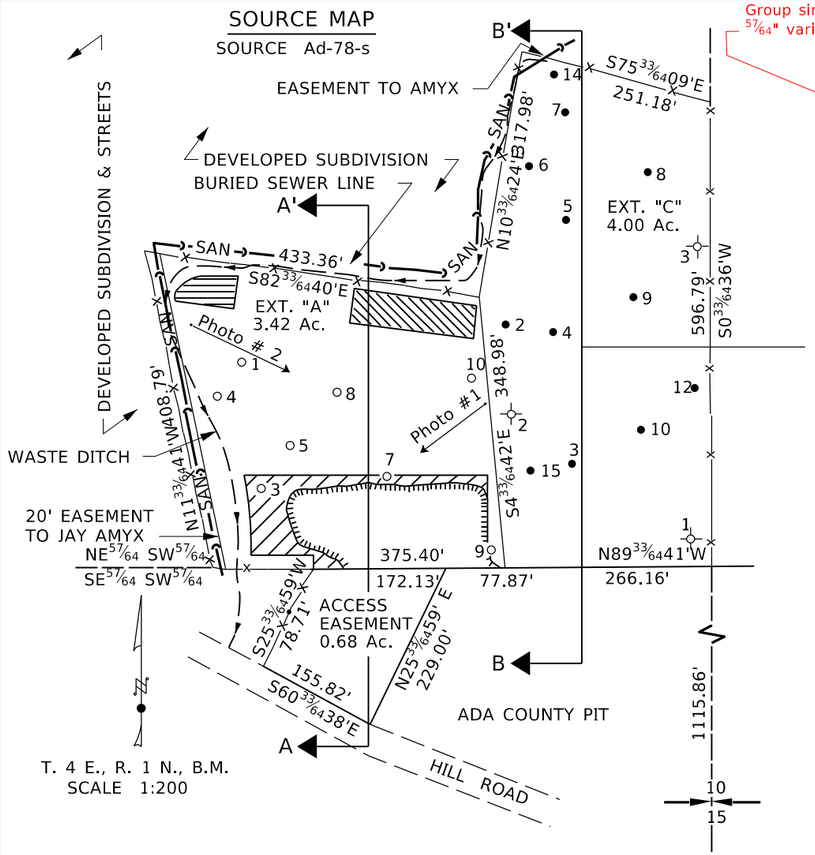
1. UNLESS OTHERWISE STATED, THE COORDINATES SHOWN ARE BASED UPON THE IDAHO STATE PLANE COORDINATE (I.S.P.C.) SYSTEM, WEST ZONE, NAD 1983 (1992 ADJUSTMENT), AND HAVE BEEN ADJUSTED FROM STATE PLANE GRID COORDINATES TO PROJECT COORDINATES, USING A PROJECT MEAN COMBINED ADJUSTMENT FACTOR (C.A.F.) OF 1.000083241. THE C.A.F. WAS CALCULATED USING A MEAN PROJECT ELEVATION OF 873.016 METERS, AND A MEAN SCALE FACTOR OF 0.999946245. A CONVERGENCE ANGLE OF -00°$^{33}/_{64}$56'05.7647" WAS CALCULATED AT N.G.S. STATION "95A GPS 1998". VERTICAL DATUM IS N.A.V.D. 88.
2. TOTAL OWNERSHIP AREAS SHOWN REPRESENT THE AREAS WITHIN THE SECTIONS ABUTTING THE HIGHWAY AS DETERMINED FROM ASSESSOR'S FIELD DATA SHEETS AND REPORTS. THE OWNERSHIP PARCELS WERE NOT SURVEYED AND SAID AREAS ARE APPROXIMATE. REMAINDER AREAS WERE CALCULATED BY DEDUCTING ANY AQUISITIONS MADE AS A RESULT OF THIS PROJECT FROM THOSE APPROXIMATE AREAS AND ARE ALSO APPROXIMATE.

REVISIONS				DESIGNED	SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT	PROJECT NO.		ENGLISH
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED		YOUR Safety→YOUR Mobility→YOUR Economic Opportunity			COUNTY
				DETAILED	CADD FILE NAME				KEY NUMBER
				DRAWING CHECKED	DRAWING DATE:				SHEET OF

Example 17

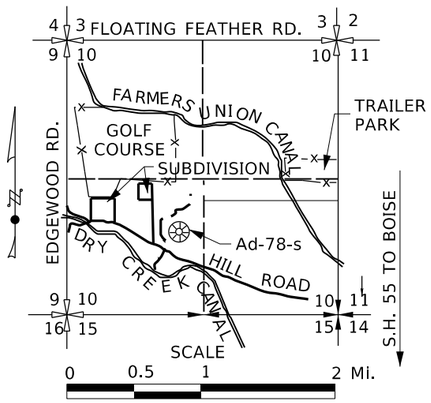
SOURCE MAP

SOURCE Ad-78-s



VICINITY SKETCH

Minor sheet text: Use tx=0.08, wt=1 or 2, ft=130. Size tx=0.07 is acceptable for small space.



UNDEVELOPED PASTURE LAND

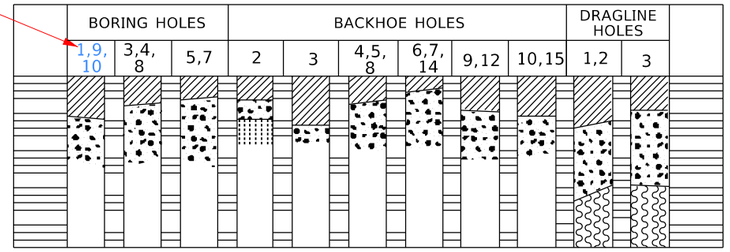
LEGEND:

- BACKHOE HOLES
- BORING HOLES
- DRAGLINE HOLES
- EXISTING EXCAVATION
- AREA TO BE WORKED
- OVERBURDEN PLACEMENT AREA
- TOPSOIL PLACEMENT AREA

Group similar test holes. No more than 5/64" variation in thickness of layers.

TEST HOLE LOGS

Overburden | Sand | Sand & Gravel | Silt



LABORATORY ANALYSIS

PERCENT PASSING / TEST HOLE	BORING HOLES 9	4	3	2	BACKHOE HOLES 12	2	3	9
3" SQUARE	93	84	92	83	94	93	86	96
2" SQUARE	78	63	78	70	77	83	73	83
1 59/64" SQUARE								
1" SQUARE	58	41	59	54	54	67	57	66
61/64" SQUARE	49	36	53	49	47	61	50	57
59/64" SQUARE	41	31	46	43	39	55	42	46
□" SQUARE	37	29	43	39	35	52	38	41
□" SIEVE	30	25	39	32	28	46	28	32
□" SIEVE	26	23	38	27	25	42	23	28
□" SIEVE								
□" SIEVE								
220 SIEVE								
200 SIEVE								
150 SIEVE								
100 SIEVE								
50 SIEVE								
LIQUID LIMIT	NV	NV	NV	NV	NV	NV	NV	NV
PLASTIC INDEX	NP	NP	NP	NP	NP	NP	NP	NP
SAND EQUIVALENT	70	23	44	34	77	29	60	24
L.A.WEAR	26	37		29	25			
DEPTH IN METERS	2.0-4.6	1.5-4.3	1.5-3.7	1.6-4.5	1.7-4.1	1.2-2.3	2.4-3.4	1.7-4.1
APPROX.MAX.SIZE IN.	12	12	12	14	6	9	7	4
SP.GR.(AVG.OF TESTS)	2.60	2.60		2.60	2.57			
ABSORPTION	1.2	1.6		1.4	1.2			
LAB.NO.	198833	198798	198796	198635	207365	207327	207326	3-6781

NOTES

1. The SOURCE PLAT sheet title blocks at the sheet bottom shall be filled with the same format as the GENERAL INFORMATION SHEET.
2. The CADD text sizes given in red highlight are for a 11" x 17" size sheet.

This section shall be compiled using the 621 insert and information from Chapter 4 Seeding Design

GENERAL NOTES

1. TEST HOLE LOGS OF DEPTHS AND TYPES OF MATERIAL ENCOUNTERED AND LABOROTORY TEST RESULTS WERE OBTAINED FOR DEPARTMENTAL USE IN DESIGN. VARIATIONS ARE TO BE EXPECTED FROM INDIVIDUAL TEST HOLE DATA. GENERAL REQUIREMENTS APPILCABLE TO THIS SOURCE.

FINAL RECLAMATION PLAN

1. UPON COMPLETION OF MATERIAL REMOVAL FROM THIS SOURCE, ALL PIT SLOPES SHALL BE 2:1 OR FLATTER.
2. THE PIT FLOOR AND SLOPES SHALL BE LEFT REASONABLY SMOOTH AND SLOPED TOWARD THE SOUTH FOR DRAINAGE.
3. A 2 FT. OFFSET SHALL BE RETAINED TO MAINTAIN WASTE DITCH.
4. NO OFFSET IS REQUIRED ALONG SOUTHERN BOUNDARY.
5. A 2 FT. OFFSET SHALL BE RETAINED ALONG REMAINING BOUNDARIES.
6. ALL REMAINING REJECTS AND STOCKPILED OVERBURDEN SHALL BE REDISTRIBUTED OVER ALL DISTURBED AREAS IN A REASONABLY UNIFORM MANNER AND SEEDED IN ACCORDANCE WITH SECTION 621 SEEDING, AS FOLLOWS:

GRASSES:	BULK SEED RATE (lbs./Ac.)
"SODAR" STREAMBANK W.G.	15 lbs.
"SIBERIAN W.G.	15 lbs.
EPHRAIM LEGUME W.G.	15 lbs.
LADAK ALFALFA	5 lbs.
TOTAL	50 lbs.

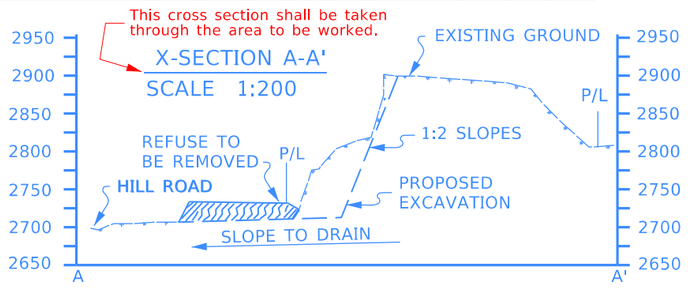
7. 48.5 lbs. (N) NITROGEN AND 37.5 LBS (P) PHOSPHOROUS FERTILIZER SHALL BE APPLIED PER ACRE.
8. STRAW OR GRASS-HAY MULCH SHALL BE APPLIED AT 2 tons/Ac.

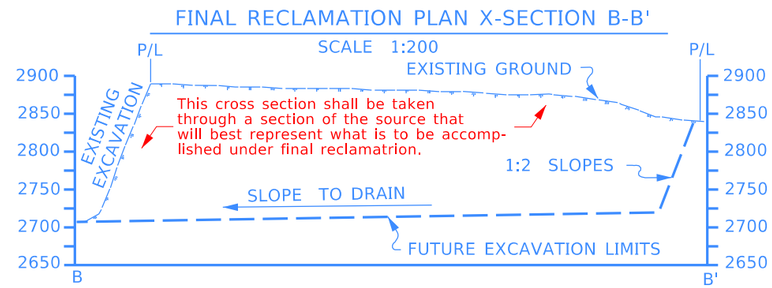
OPERATION OF SOURCE

1. OPERATIONS ON THIS PROJECT SHALL COMPLY WITH ITEMS 1 & 2 OF THE FINAL RECLAMATION PLAN. NO SEPARATE PAYMENT WILL BE MADE FOR THESE ITEMS.
2. ALL SURVEY MARKERS, CORNER PINS, POSTS, AND FENCES WILL BE PROTECTED UNLESS OTHERWISE DIRECTED BY THE DISTRICT MATERIALS ENGINEER.
3. EXISTING REFUSE IN PIT AREA SHALL BE REMOVED AND WASTED AT A CONTRACTOR FURNISHED SITE PRIOR TO CRUSHING OPERATIONS.
4. EXCAVATION SHALL PROCEED FROM SOUTH TO NORTH FOR THE FULL WIDTH AND DEPTH SHOWN IN PLAN VEIW AN X-SECTION A-A'.
5. THE TOP 1 FT. OF OVERBURDEN SHALL BE CONSIDERED TOPSOIL AND SHALL BE STRIPPED AND STOCKED SEPARATELY FROM OVERBURDEN.
6. MATERIAL MAY HAVE TO BE REMOVED FROM BELOW WATER.

This statement shall appear on the source plat and in the Special Provisions when a water table is present

This cross section shall be taken through the area to be worked.





LOCATION : APPROXIMATELY 1.2 MILES WEST OF MP 162.4 ON S.H. 55
LEGAL DESCRIPTION : N.E. 57/64 S.E. 57/64 & S.E. 57/64 S.W. 57/64, SEC. 10, T.4N., R.1E., B.M.

U.S.GOV'T. WITHDRAWAL NO. _____
B.L.M.FREE USE PERMIT NO. _____
RECLAMATION PLAN APPROVED DATE 3/26/89
ARCHAEOLOGICAL CLEARANCE DATE 12/4/94
GEOLOGICAL REPORT DATE _____

DATE PURCHASED 4/20/85 RECORDED 6/7/85
INSTRUMENT NO. 613043 ; 646696 DATE _____
LESSOR _____
LEASE PERMIT NO. _____ EXPIRES _____
AREA 7.43 Ac.

Storage & Location Information To Accompany Disclaimer

ENGR'S. STAMP

For Sheet Block Information See Example 3 (General Information Sheet)

REVISIONS NO.	DATE	BY	DESCRIPTION

DESIGNED | DESIGN CHECKED | DETAILED | DRAWING CHECKED

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY | CADD FILE NAME | DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
YOUR Safety→YOUR Mobility→YOUR Economic Opportunity

PROJECT NO.

SOURCE PLAT
SOURCE NO. Ad-78-s

ENGLISH
COUNTY
KEY NUMBER
SHEET OF

Print Organizer

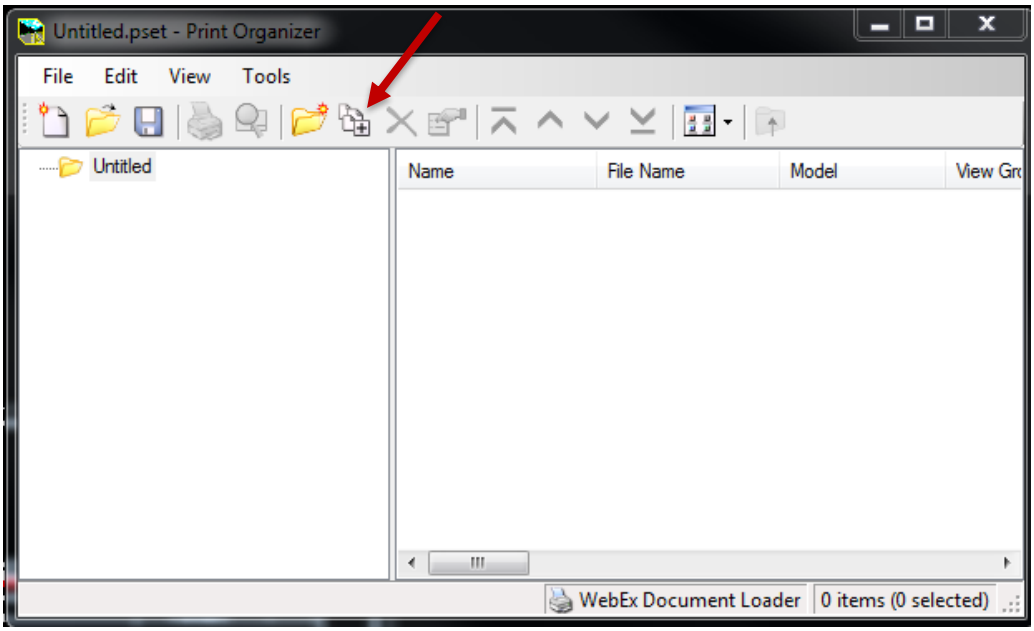
Contents

1. Creating a “Plot Set”

A “Plot Set” is a group of drawings put together that you will eventually print, one or all. You may want to create a paper copy or a pdf. This will only cover drawings with an ITD Border attached.

Open any drawing in MicroStation in ITD Workspace. (If you are opening a drawing from ProjectWise you will be in ITD Workspace.)

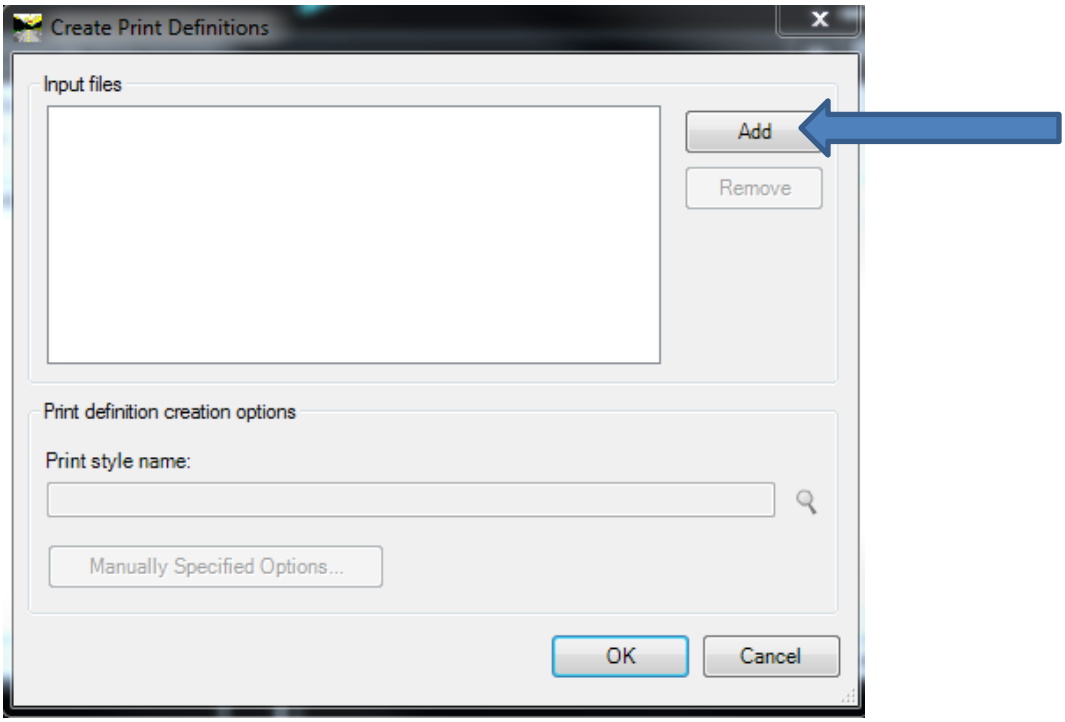
Go to “File” then down to “Print Organizer”. You will get a tool box pop up like below.



You are ready to add files. You can either select “File>Add Files to Set”. Or select the tool at the top.

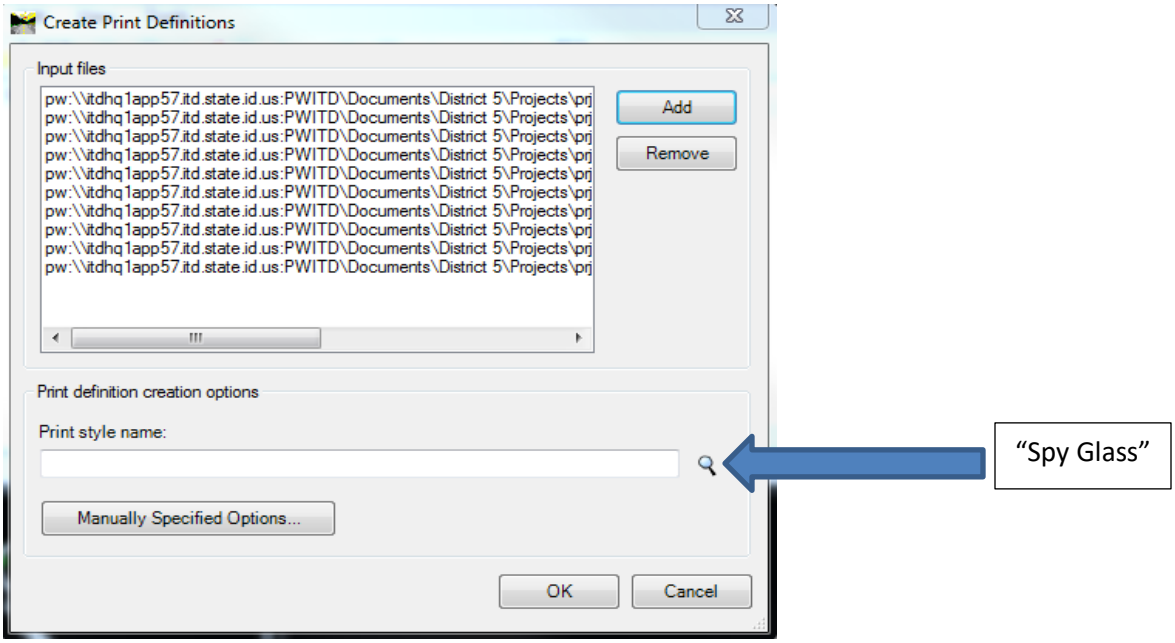
 (When hovering over it says “Add Files to Set”)

The next box pops up. Select Add

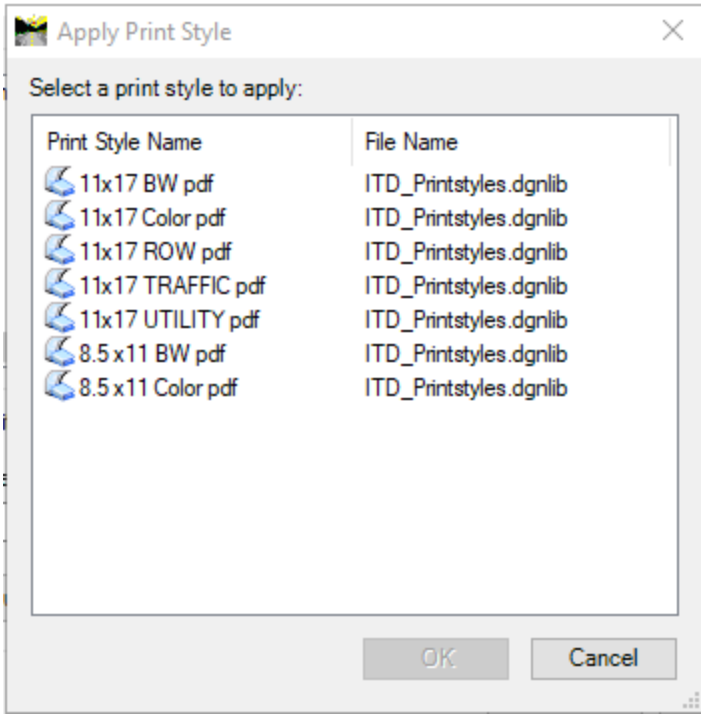


In the next window, select any or all the plan sheets you would like to print. Order does not matter. You can always add more later. When done, select “OK”.

Depending on your selection it may take a minute or two. I picked 10 drawings, they all show below.



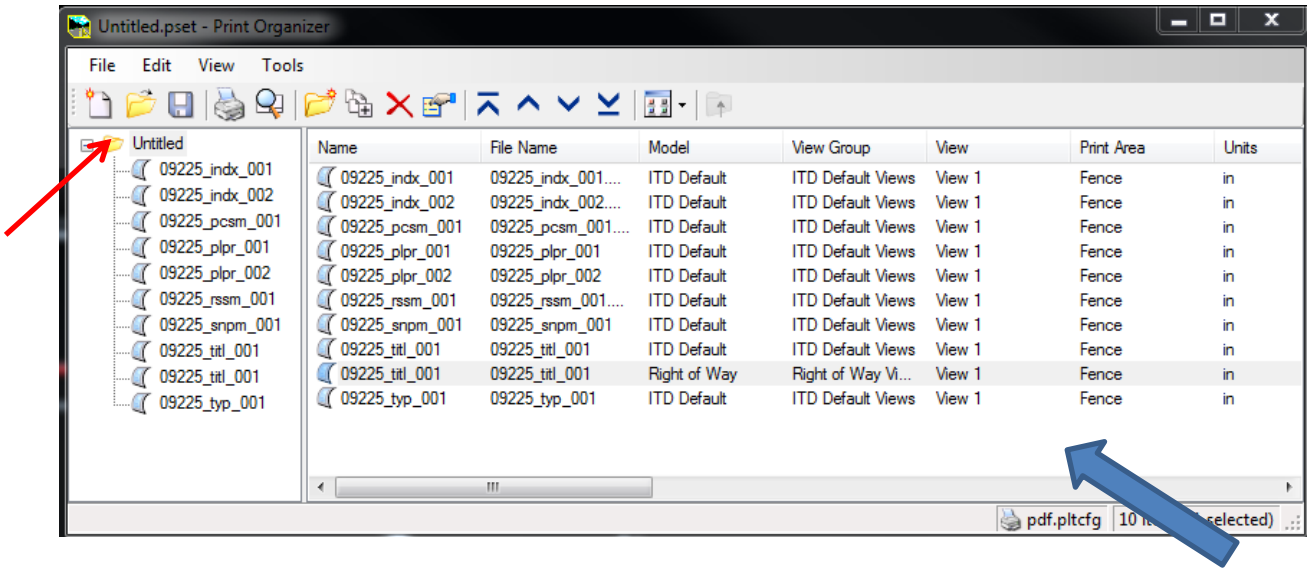
Now we will select a Print Style name: Select the spy glass. The next window pops up. Depending on what you are wanting to do, you will select the Print Style that you want. I want to create a 11x17 plan set. So I selected 11x17 BW.pdf. Select and then OK.



This is with window that comes up. These are the Print Styles set up and are ready to use.

(You can find more explanation on the Styles; ROW, TRAFFIC, and UTILITY in Section 4 of this guide.)

Then Select OK again on the original window. Give it a few minutes to create your plot set.



Now you can put your sheets in order. The order of your drawings are especially important if you are using the cell and attributes that will number your pages automatically. (See that section 3 for further directions.)

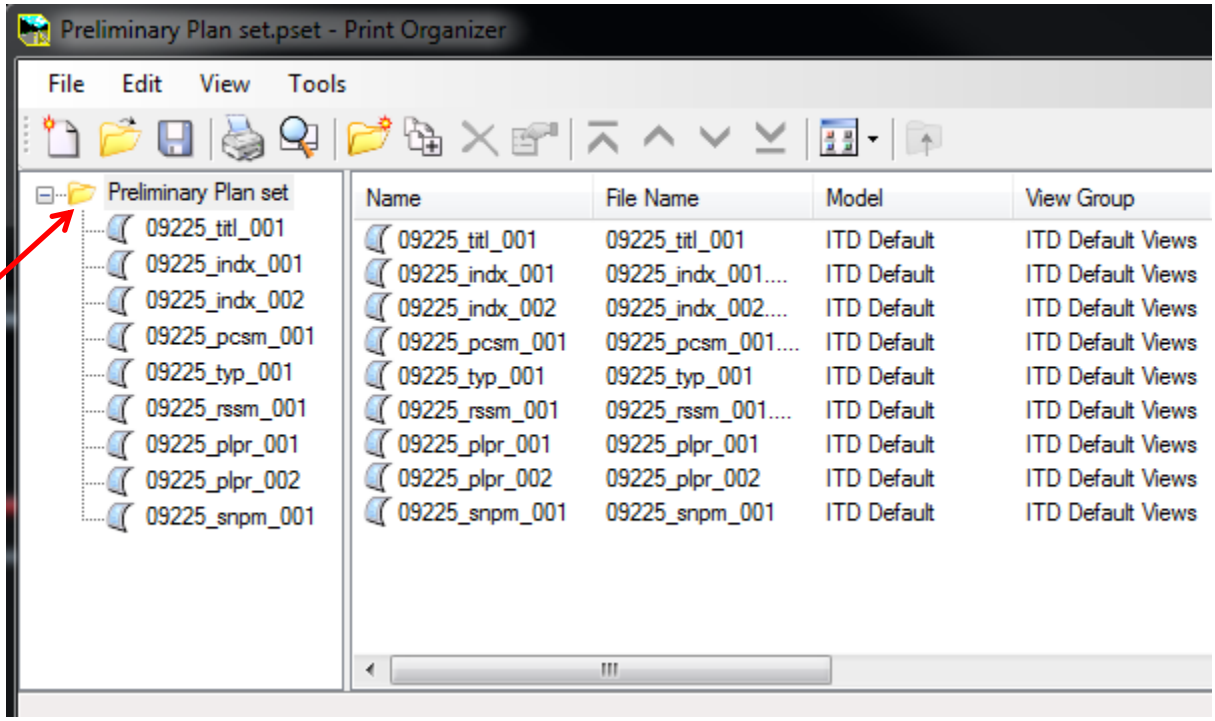
On the Right select a drawing. Then use the tools  to either move it up one or move it to the top or bottom. (Hover over tools to help to know what they do.) You can also remove a drawing from your plan set if needed. Looks like I have 2 title sheets selected. In the Right Box, Select any that does not belong and then select the red x to remove it. 

NOTE: when creating a plan set and one of your pages to be included is already a pdf you will need to add a "Placeholder" page. Any misc. page drawing will work, I use a blank border. It is important to put it in the order where the pdf will be. For example; if you have a signed Monument Sheet that is a pdf; add to your plot set any random drawing for a "Placeholder" page in the spot you want it accounted for. After you have created your plan set, you will have to use your Blue Beam to take out the "Placeholder" page and insert your signed monument page.

Before moving too far along it is a good idea to save the plot set. Once the plot set is saved, next time you are ready for printing, you will only need to open the plot set from any drawing and you will be ready to add more drawings or simply print.

Right now your Plot Set is named "Untitled". See by the red arrow on the above screen print. Save by selecting the "Save" tool or File> Save As. You should recognize the next several windows that are common to the save process in ProjectWise. I will be saving this plot set under my project key number and plan sheet folder. If you want to double check to see if it saved, the extension is .pset. You will want to remember this as it will be easy to open in the future for printing.

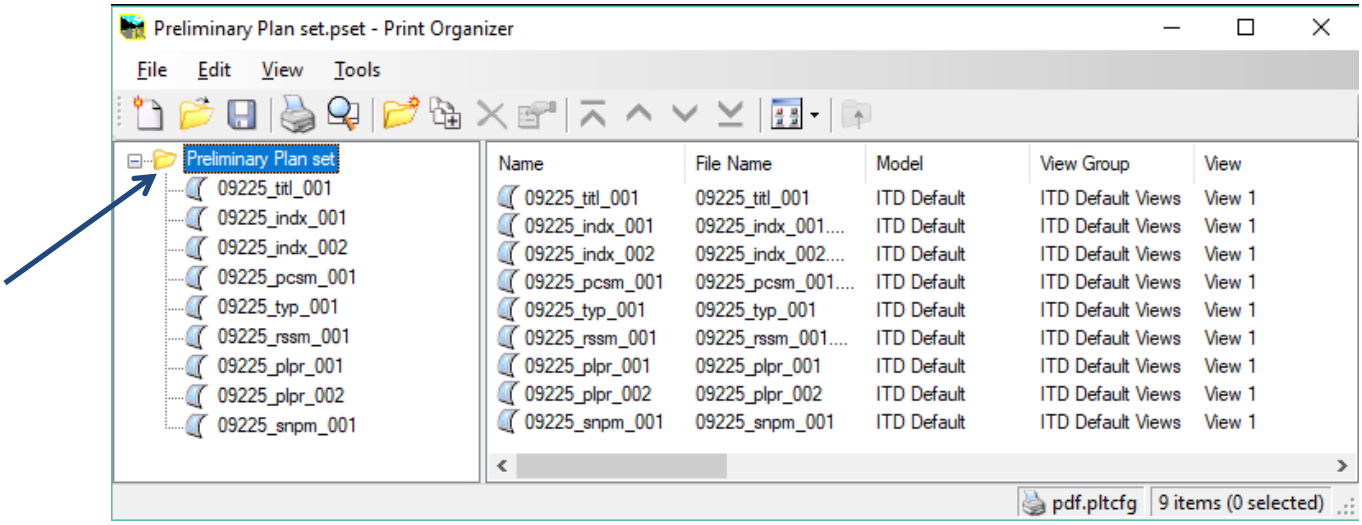
Now my Plot Set is saved and named Preliminary Plan set.



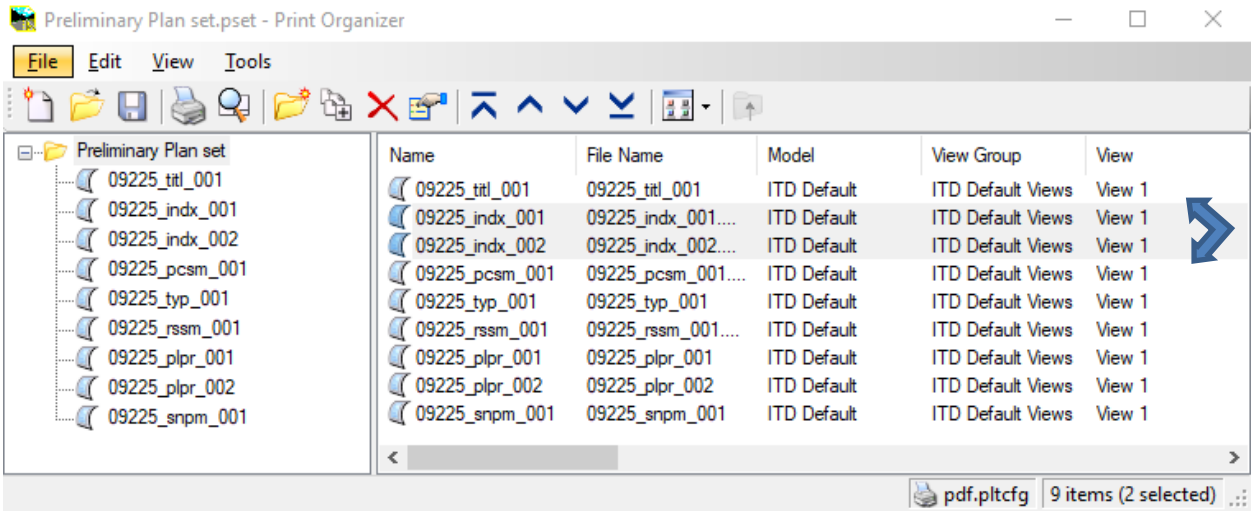
2. Creating a Print

In any drawing you can open any Plot Set: File> Print Organizer, then select “Open” in the Print Organizer window. (Remember the file extension is .pset)

You can print one or more or all documents in your set. If you want the entire set, you can select the folder on the top Left.



Or you can make a selection and only print the selection. Make the selection on the Right side shown below.

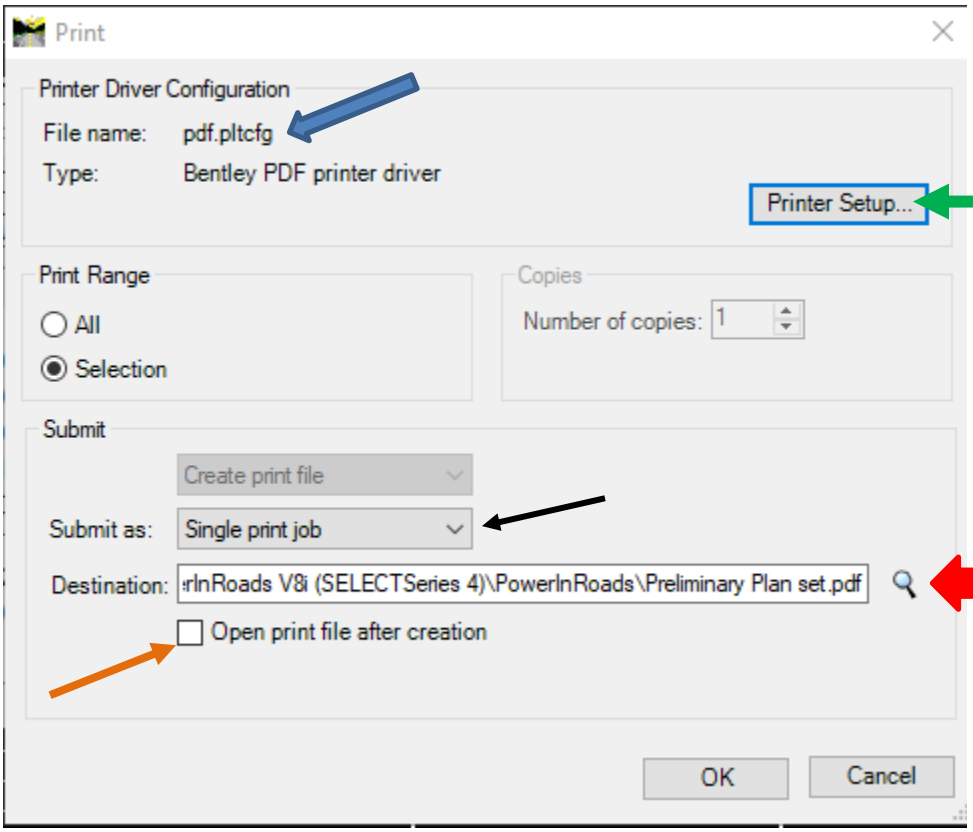


2 are selected

Select the “Print” Tool Icon.

Producing a PDF

As a default ITD Workspace is set up to create a pdf from your Plot Set as your first option. This is really the easiest and best option. The pdf configuration file uses Bentley Drivers that read all the settings we have as standards. After the pdf is created, you can use your pdf reader (Blue Beam) to print to any printer for a paper copy, or send the pdf for others to view/print. Choosing a printer here *IS* an option but does have more steps and may not print exactly as desired.

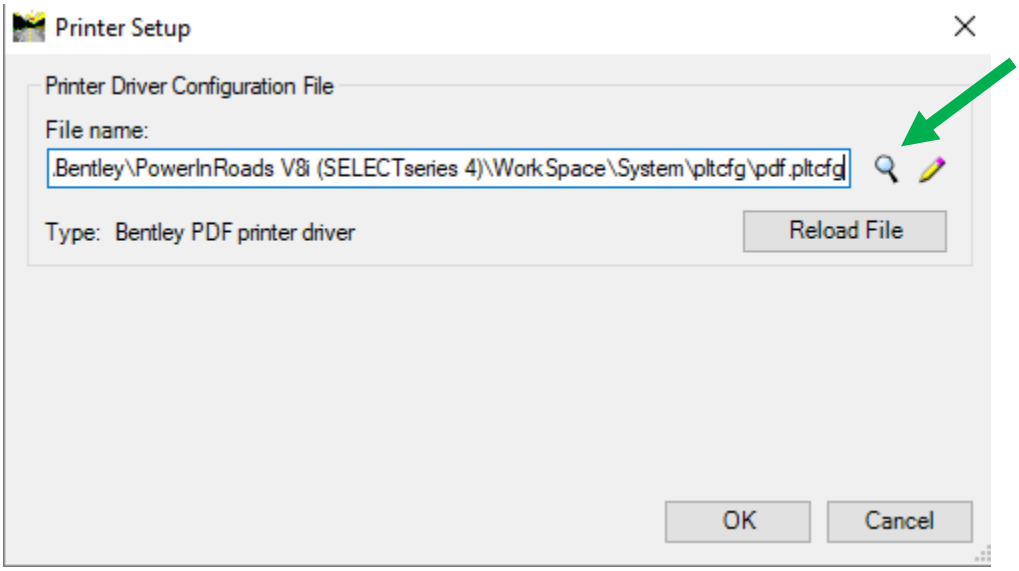


Select Here: for a Paper Copy – See next page for directions.

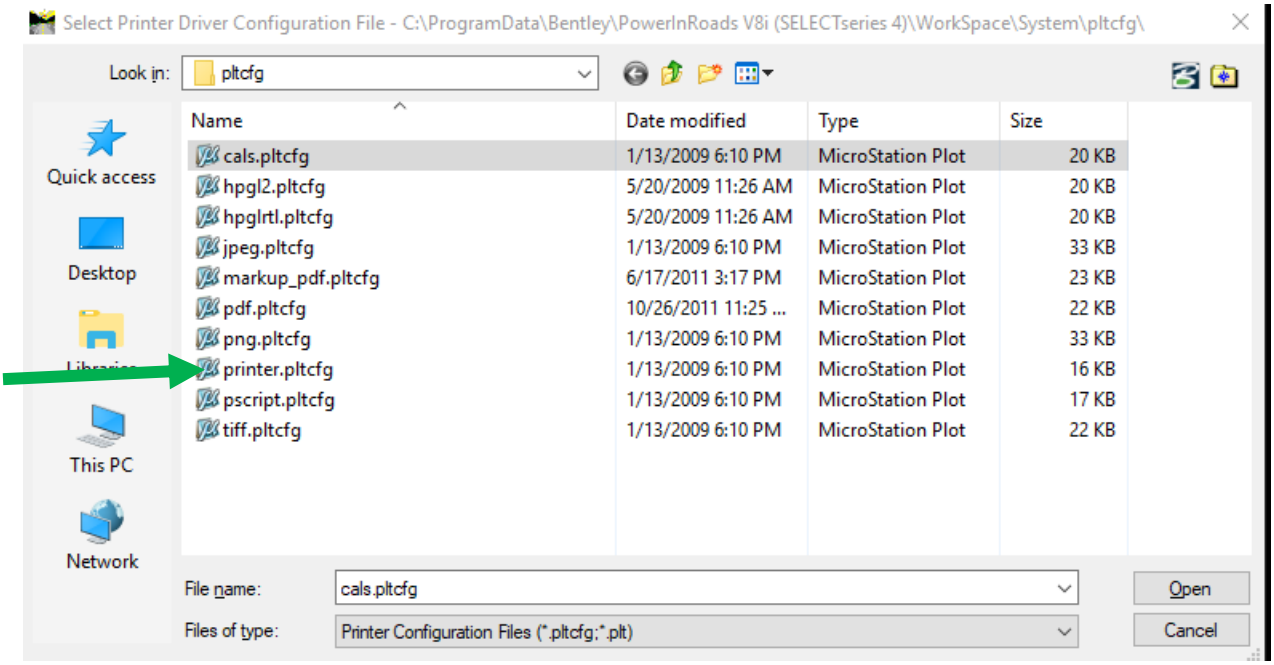
Above is the window that will pop up. The blue arrow shows you are set up to create a pdf. Select the spy glass by the red arrow. Then toggle your way to the location you would like to save the pdf. (Typically in your plan sheet folder.) If you would like to have the pdf open after it is created, select the box by the orange arrow. * **See Tips and Tricks in Section 6 of this guide for File Naming Issues***

To get a pdf and not several separate pdf's, you NEED to make sure the Submit as is set as "Single print job" (Black Arrow)

Producing a Paper Copy



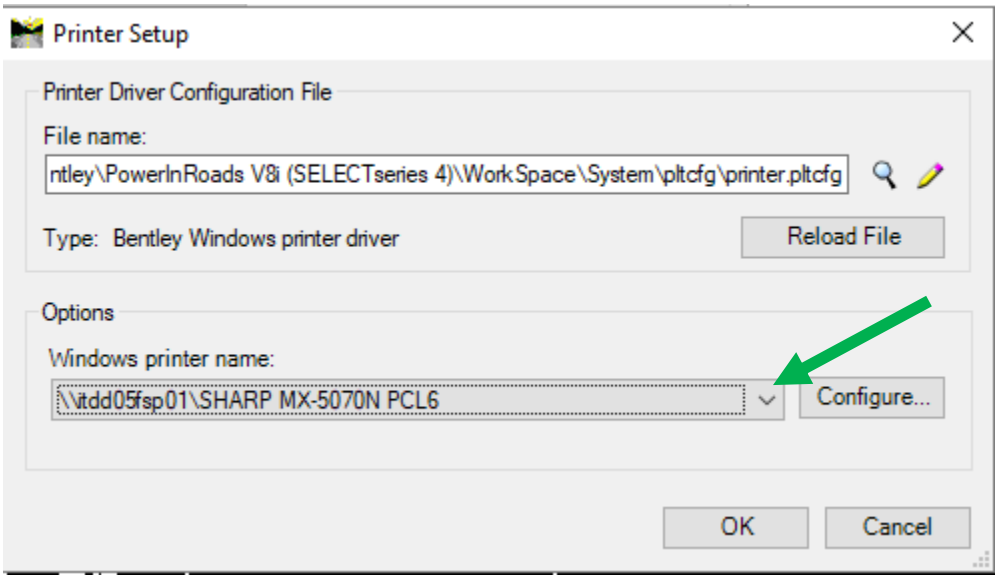
Above is the box that pops up after you select the button “Printer Setup”. Select the spy glass by the green arrow. Then “Cancel” out of the Projectwise box. Your computer selection box opens.



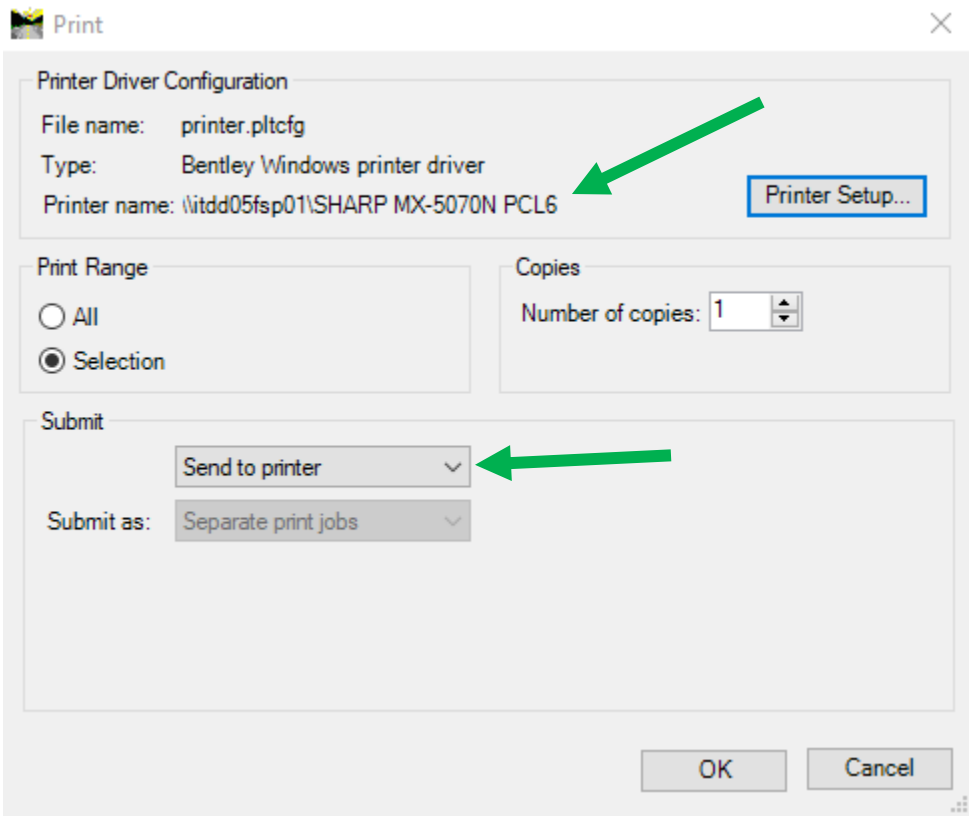
(At the top of the above screen print, it shows the location where the default Bentley printer config files are set up just in case your box does not open to this location, toggle through your c: drive and find this location.)

Select the “printer. pltcfg” near the green arrow. Select “Open”

The box will change and give the option on the bottom to select any printer you have mapped to your computer. Use the down arrow to make your selection.



Select OK. Then Ok on the Original Print window. The below screen shot shows the printer name and that it will be sent to the printer.

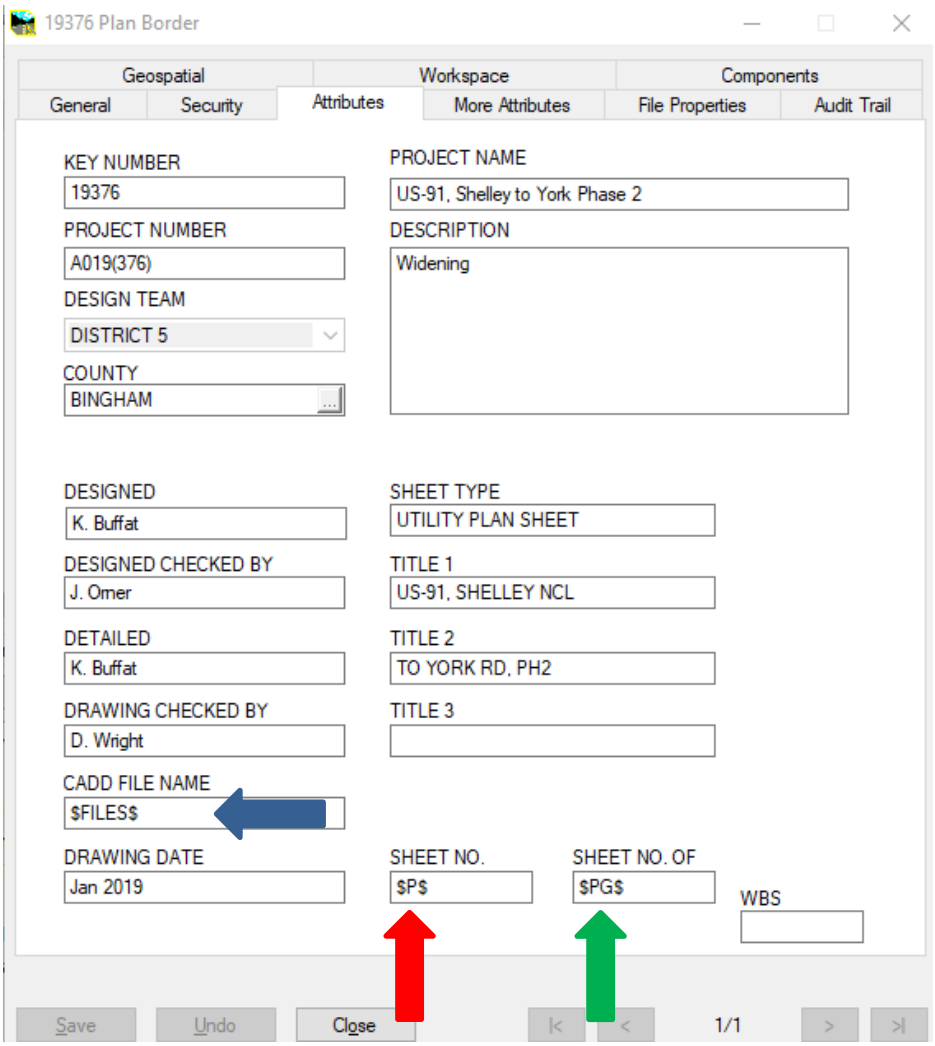


3. Creating a set that will **Auto-Number** and **Name** each sheet

It is common practice to copy border sheets you will need for your project from the ITD Standards folder Borders . Copy these borders to your Project Resources folder under your Project >Project Development. You will use these borders to reference in to your plan sheets, therefore all the information can be filled out in the border, making this step a onetime step. If modifications are needed, you will only need to fix one border and all your plan sheets will be updated. In fact most of the information resides in the ProjectWise Attributes.

Find your border drawing in ProjectWise. Right Mouse Click and go down to properties. This will open the document attributes. (SHORT CUT: select the document/drawing, push the space bar. This too will open the document attributes.)

Fill out all information. Overwrite/Delete the XXXXXX. The SHEET TYPE is where the name of the sheet is. This border is for Utility Plan Sheets. The TITLE 1, 2 & 3 is where the name of your project goes. When the 3 lines are not needed, put the information in TITLE 2 so the words will be centered in the title block.



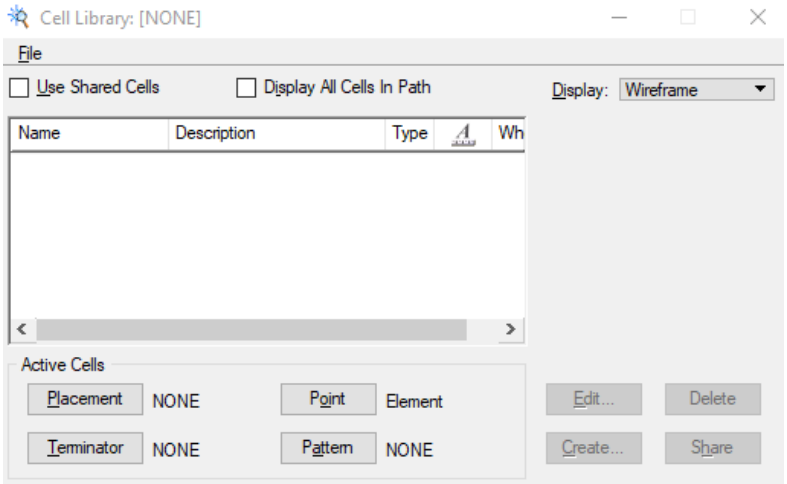
To have your drawing name and your sheet no's auto fill it is important to fill in the following:

CADD FILE NAME type **$FILES$** (Blue Arrow)

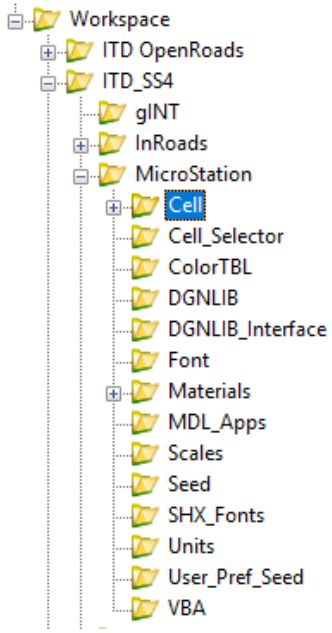
SHEET NO. Type **P** (Red Arrow)

SHEETE NO. OF type **PG** (Green Arrow)

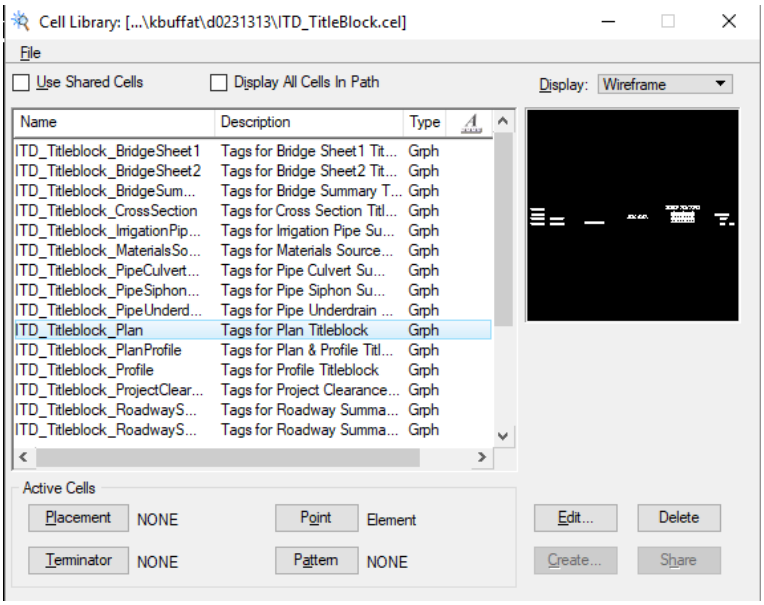
Close when completed. Then open up your border drawing. You will now place a title block cell. In MicroStation, on the top menu select Element>Cells



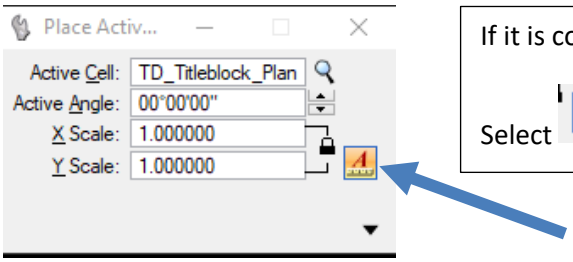
In this window that pops up, go to File>Attach File. Toggle through the Projectwise window to Workspace>ITD SS4>Microstation>Cell



In the "Cell" folder find the "ITD_TitileBlock.cel". Select it and "Open".



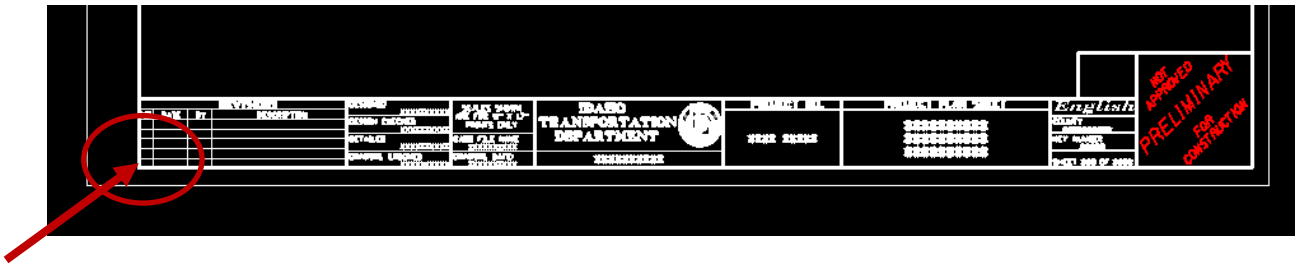
Once this is open, you will see many cell choices in the Cell Library window. Double click on the cell you would like to place. That cell is now attached to your pointer in MicroStation. You may see that the text is SUPER big. Find the window that popped up called “Place Active cell” Turn OFF the Annotation Lock.



If it is colored, it is “on”.

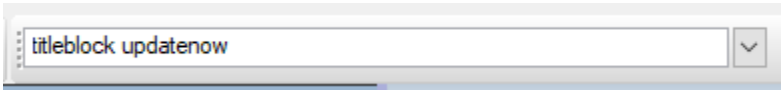
Select  to turn it off.

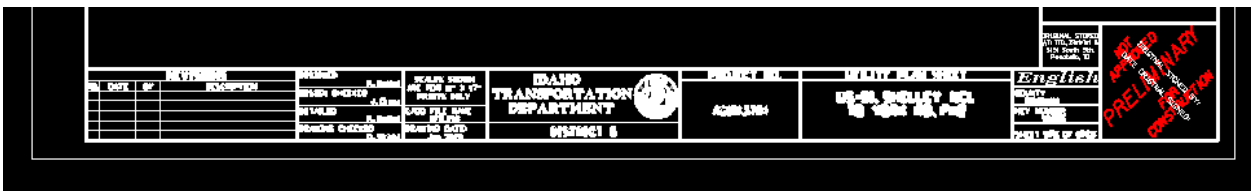
Now your text should be the correct size and ready to be placed. You will need to “SNAP” to the bottom of the left hand corner of the plan sheet (not the cut border).



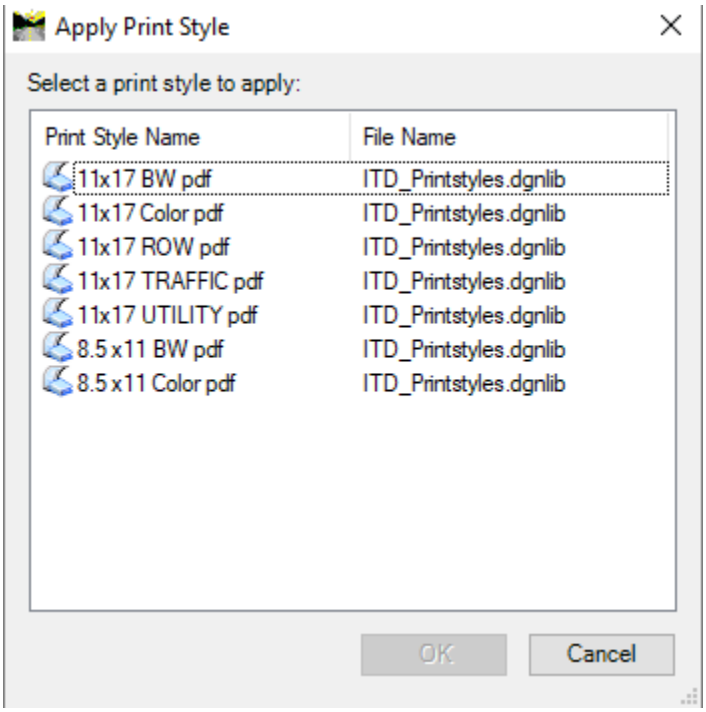
Your Cell is now attached. Next you must update to view the attribute you filled out in ProjectWise. Select “Utilities” from the top MicroStation menu. Then “Key-in”.

In the Key-in type **“titleblock updatenow”** and Enter





4. Utilizing Custom Printing Styles



This is with window that comes up when you are ready to select Print Styles.

These Print Styles are custom and set up for particular use.

- **11x17 BW and 11x17 Color**. These Styles are self-explanatory. These are the Styles that will be used the most.

- **11x17 ROW**. Use this Style when you are needing to print Right of Way drawings. Everything will be Black/White except anything on the following levels:
    - ROW_PARCEL
    - ROW_Total-Ownership-Boundary
    - ROW_Easement-Hatch

- **11x17 TRAFFIC**. Use this Style when you are needing to print plans with traffic signs. This will print WITHOUT the fill on the signs. This will included Signs created from Cells or imported from Sign CADD. These signs must be placed on the following levels.
    - TRAF_SIGN_Annotation
    - TRAF_SIGN_Existing
    - TRAF_SIGN_Portable
    - TRAF_SIGN_Post
    - TRAF_SIGN_Proposed

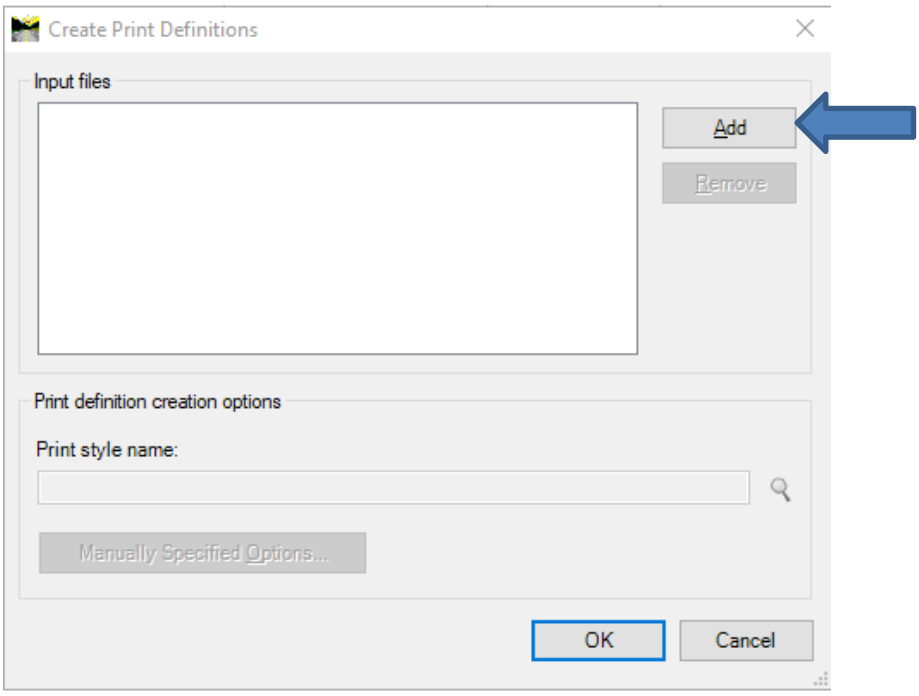
- **11x17 UTILITY**. Use this Style when you are needing to print Utility plans. All referenced files will be gray, then everything in the drawing will be Black/White except anything on the following levels:
    - TOPO_ELEC_*
    - TOPO_GAS_*
    - TOPO_LIGHTING_*
    - TOPO_OIL_*
    - TOPO_SAN_*
    - TOPO_STORM_*
    - TOPO_TELE_*
    - TOPO_TV_*
    - TOPO_WTRUTIL_*
    - TRAF_ILLUMINATION_*
    - All levels that begin with UTIL_* (attributes will also be a weight 2)

- **8.5x11 BW and 8.5 11 Color**. These Styles will print like the 11x17 Styles except it is set up for the 8.5 x11 sheet size.

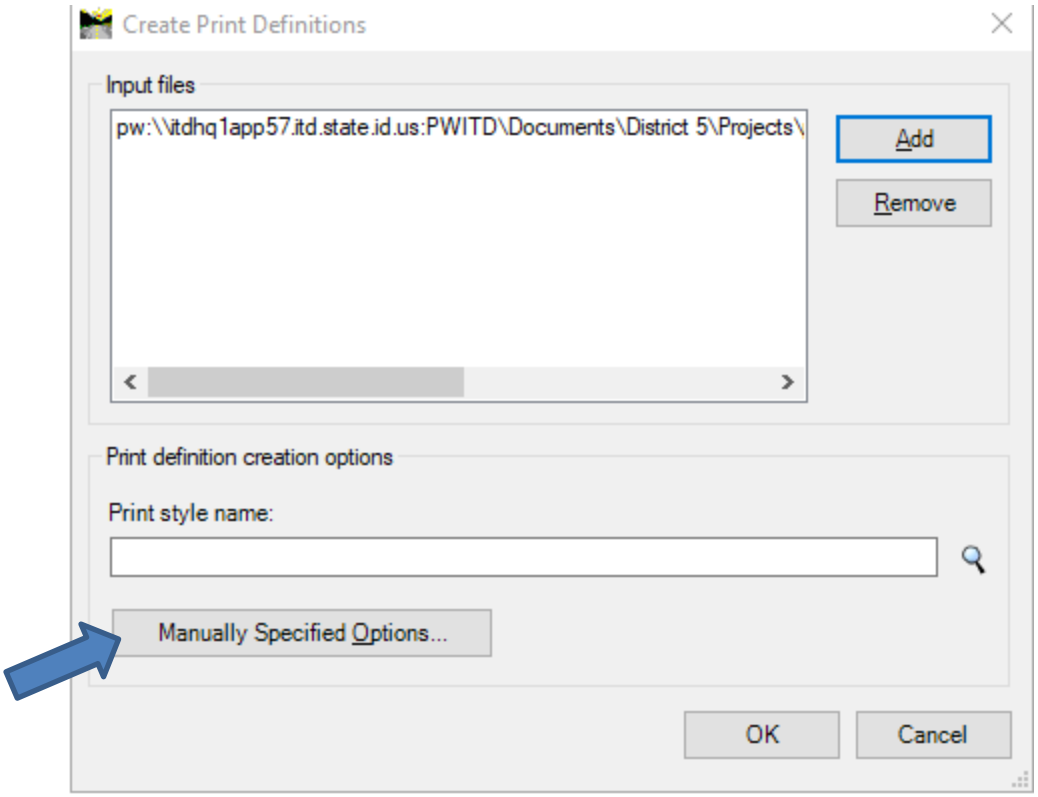
5. Creating a 3D pdf

A 3D pdf is a great way to show others your Terrain Model or Corridor.

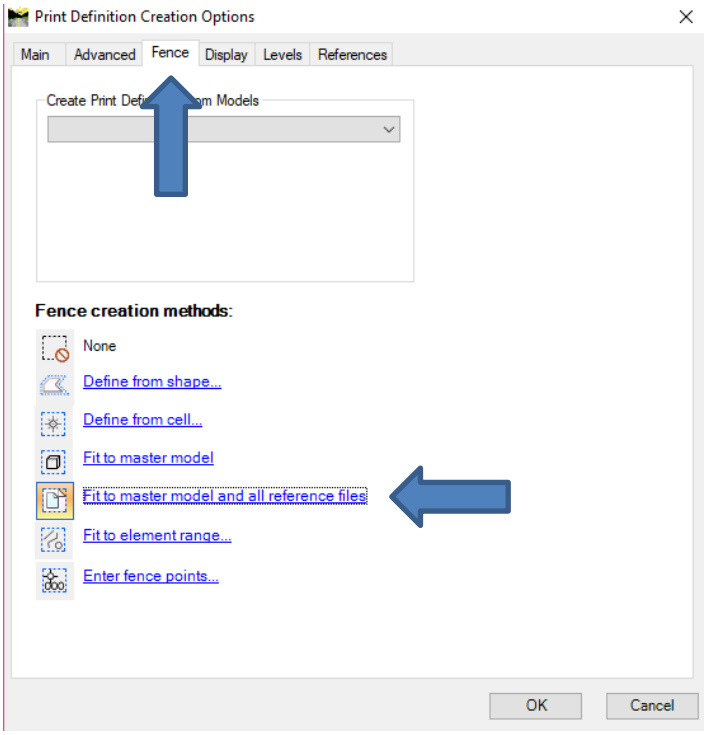
In any Drawing open Print Organizer. Select the tool to “Add File” 



Select “Add” then toggle through the ProjectWise menu to find the drawing you need. You can select your design drawing even though it is a 2D drawing. If you created a Corridor in your design file, the Print Organizer will select all models and your 3D model will be show up.

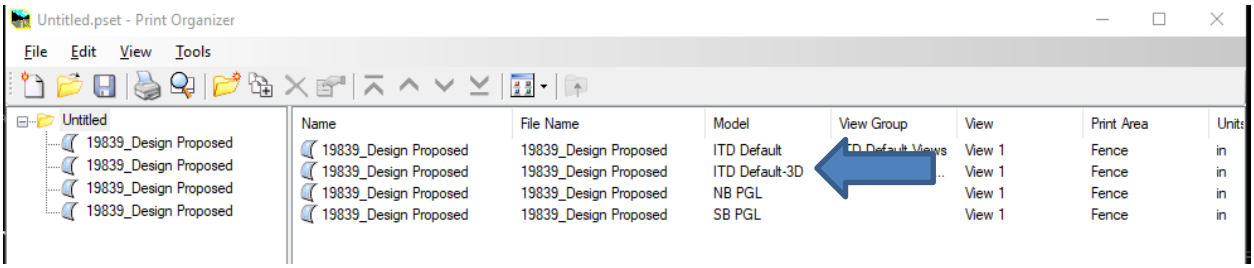


After you have selected your drawing, Select “Manually Specified Options”.

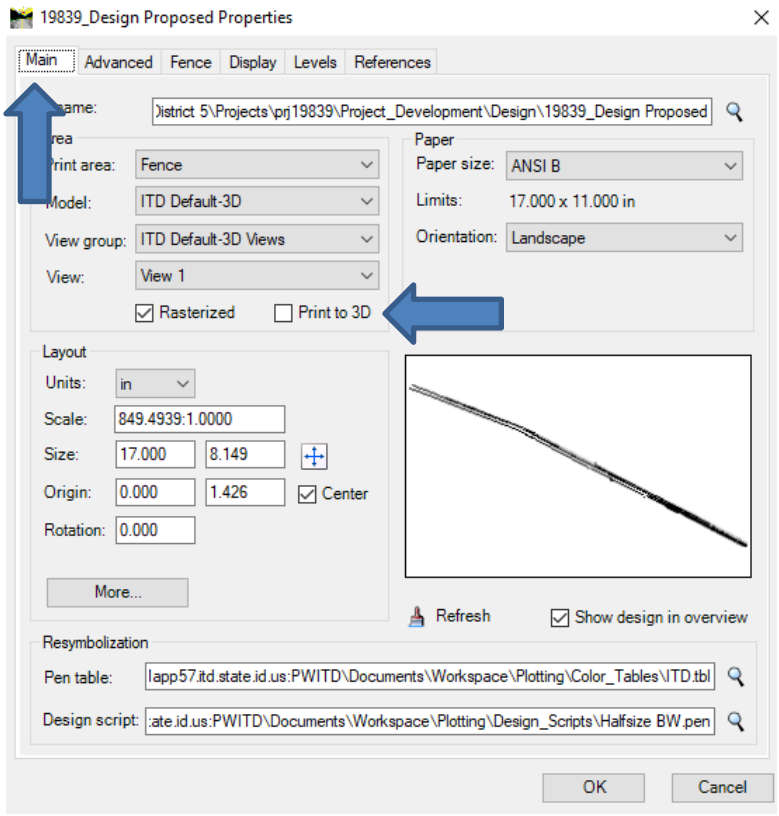


Go to your “Fence” tab at the top of the new window, then select “Fit to mater model and all reference files”. Then select “OK”. Then “OK” again in the “Create Print Definitions” window.

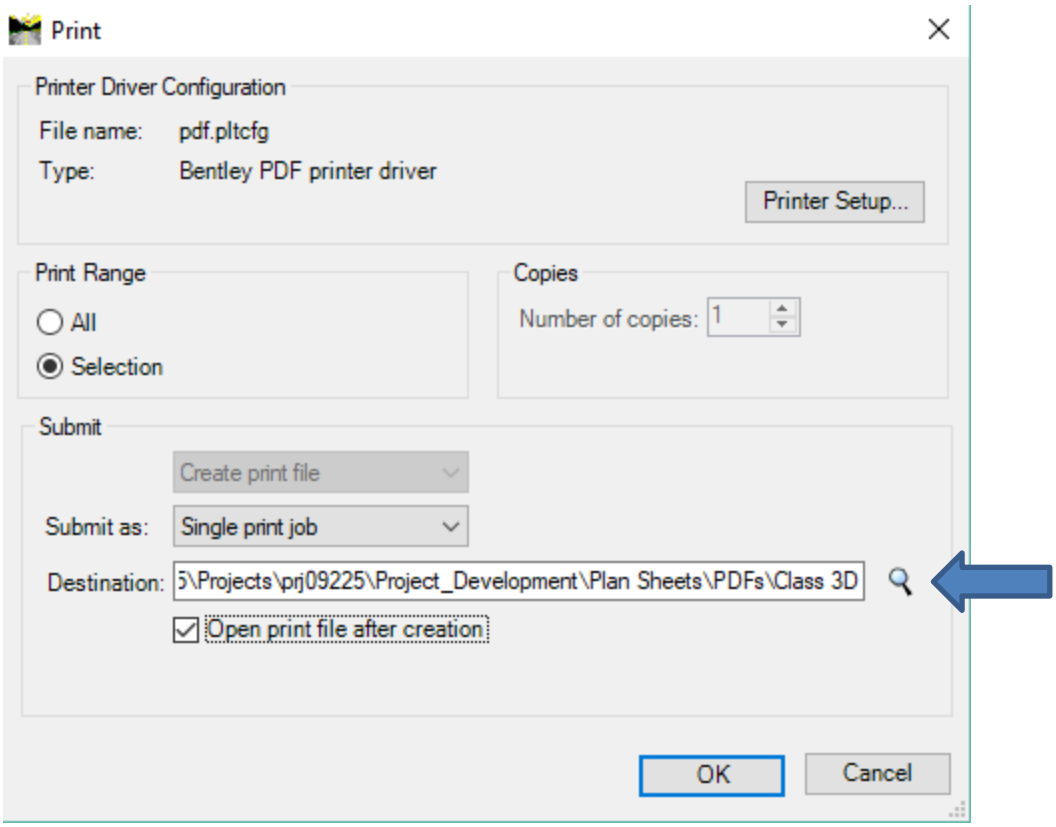
Depending on the size of your drawing this will take a few minutes.



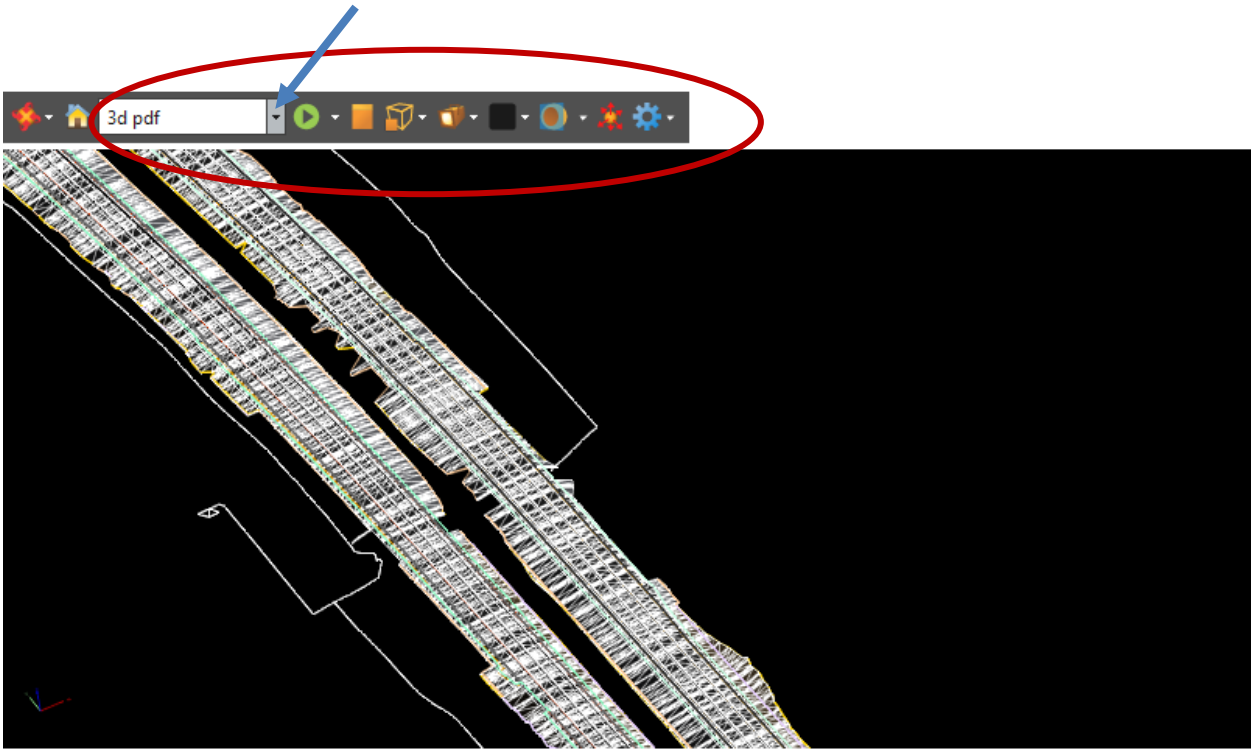
The above screen shot is what the print organizer loaded. This is every model you have in your drawing. Select the ITD Default 3D. This model is the one created when you created your corridor. Select and Right Mouse click then go to “Properties”.



On the main tab select “Print to 3D. Now select “OK” Now you can create your 3D pdf. Select your 3D Model, then select Print.



Select the “Spy Glass” to give it a destination. This is also where you give it a name. You need to toggle through the ProjectWise menus. Also, if you want the pdf to open after it is created, check mark in the box. The Print Organizer will show you it is processing.



There are several tools in BlueBeam and Adobe that can change your view. For example from Solid to Wireframe. You can also rotate the view by clicking in the window holding down your left mouse key.

If you have “Saved Views” in your model they come through to your pdf. This is a good idea so the user can view particular areas you may have concerns with. (Plus it takes a good coordinated mouse hand to rotate the view to where you want.)

If you created multiple views in MicroStation you can easily go through those views by selecting the pull down arrow at the top. (Near the Blue Arrow above)

6. Tips Tricks and Trouble Shooting

How to manage a very large plot set: If you have a very large plot set it does take a great amount of time to prepare for printing. Sometimes it will not finish the entire set or will have an error. Try producing it in sections or half at a time. You can split it and put the final pdf together using Blue Beam. Also try working on large plot sets in the morning when there is less workload on the system. The system seems to slow as the day goes on.

FILE NAMING ISSUES: Print Organizer **does not override/replace the previous pdf**. You must delete the previous pdf or RENAME the pdf. The process will error out. If you are saving to ProjectWise; just deleting the pdf and renaming it the same will also error out because of the copy that is created on your local drive. As an alternative consider saving/creating the pdf on your desk top. You will still need to delete the pdf with the same name, but until you get exactly what you want, this is quicker with the lower possibility of error. After you are happy with your results, drag and drop into ProjectWise.

If the Plot Organizer seems to be **hanging or getting stuck** on a particular drawing. You can see what drawing it is stuck on during the process. Try Un-attaching it and re-attaching will usually fix it.

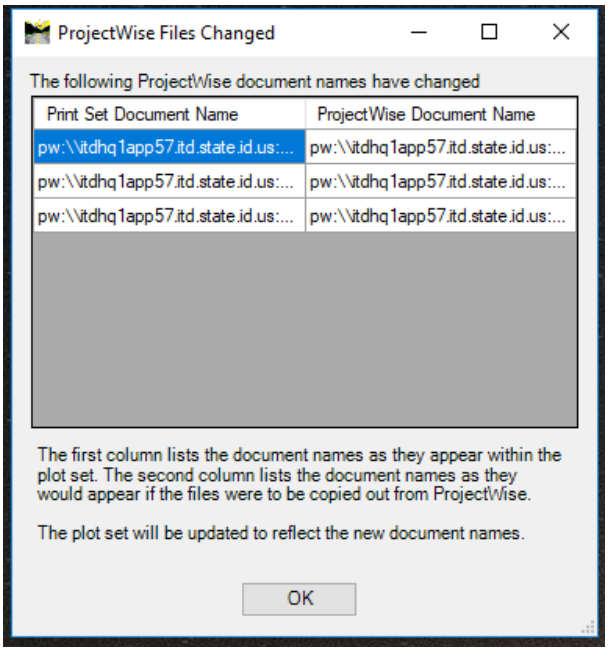
If you need to **change properties to multiple drawings** in "Print Organizer". Select all that need the change. Right Click, Select Properties. Make the changes, then select "OK". All selected drawings have been updated to with your change.

If you have made changes in the drawing you are in and want those changes to be included in your new plot set, you will need to **"update server copy".** You will find this in MicroStation under "File". (If your change is very small it may not recognize the change, be sure to check)

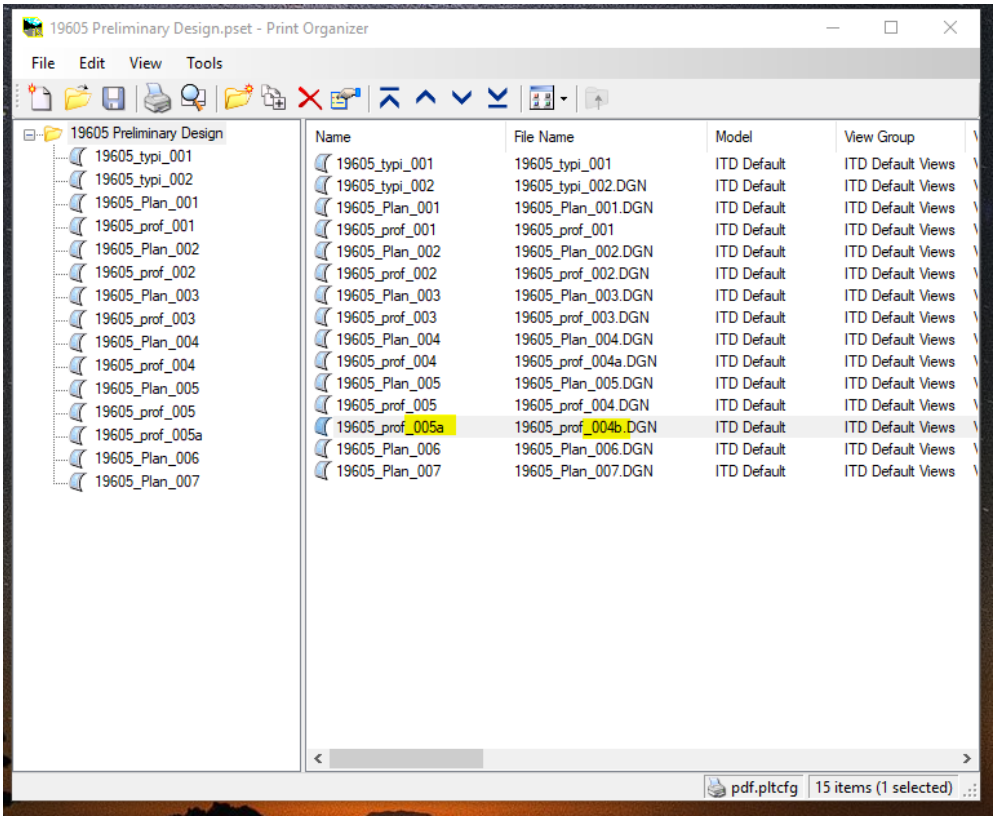
If you are having problems getting your **title sheet** to print correctly; in your Print Organizer right mouse click in your title sheet, go to properties, then in the main tab check the "Rasterized" box.

If you have **renamed a drawing** Print Organizer may not recognize the change. For example pl_001 to pl_001a. Try Un-attaching it and re-attaching will usually fix it. It will attempt to use the re-named .dgn in the list but it will not be able to update the "name" column in print organizer. If you change a file name, be sure you are looking at the "file name" column when checking if it grabbed the right file. Below is a screen shot of the error and an example of the file name vs name.

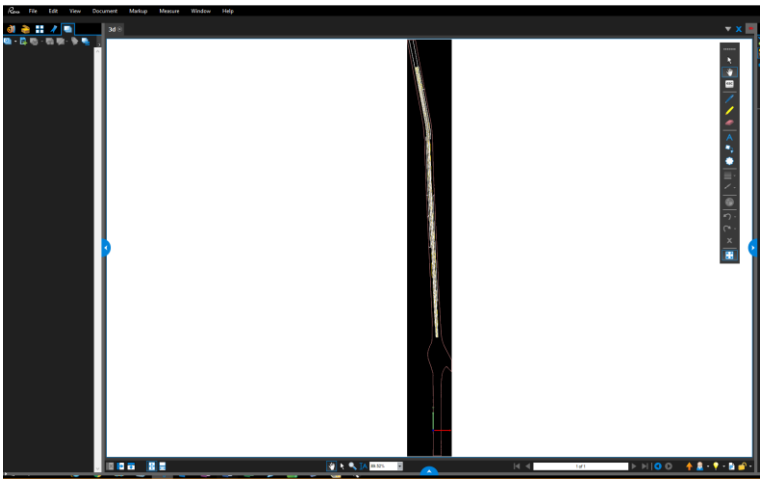
If you notice your **line styles change** to a solid line in your prints then you will need to select your drawing in your plot set, Right Mouse click, pick the Display tab and un-check "Level overrides". This has been fixed and will work correctly with any new drawings created.



Note that when this happens, it looks like it grabbed the right dgn's but it did not update the "Name" in the print organizer list. This can cause confusion. The "File Name" field is what it is based on the .dgn but the "Name" field is editable by the user so it doesn't update the user defined name when the cad name changes. See below:



In a **3D pdf,** if your view is long and skinny, you may need to go back to the properties in Print Organizer and change the Print area. (This is on the Main tab.) Below is an example of what you DO NOT want.

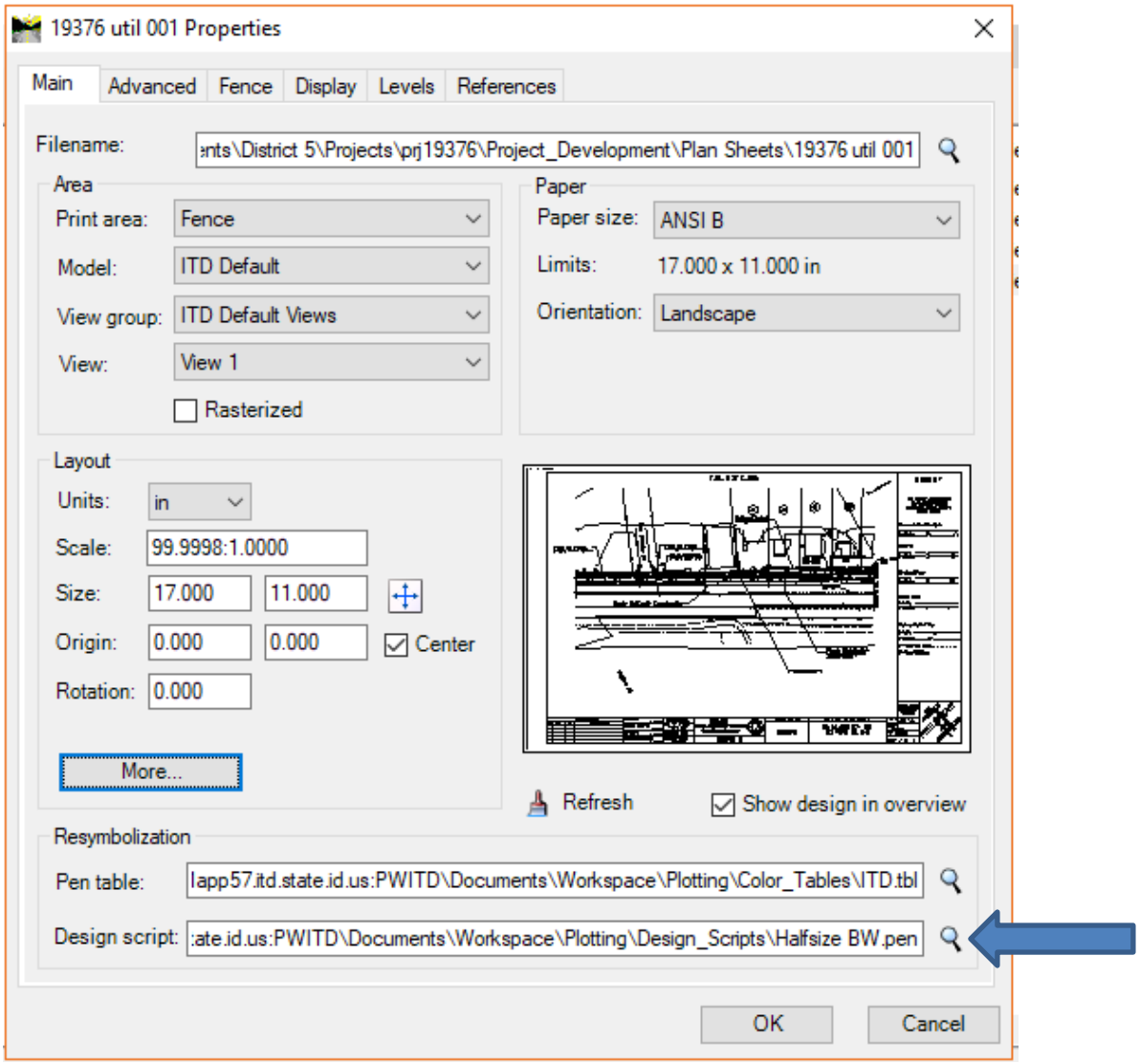


If an update to this guide needs done, Contact Kathy Buffat District 5

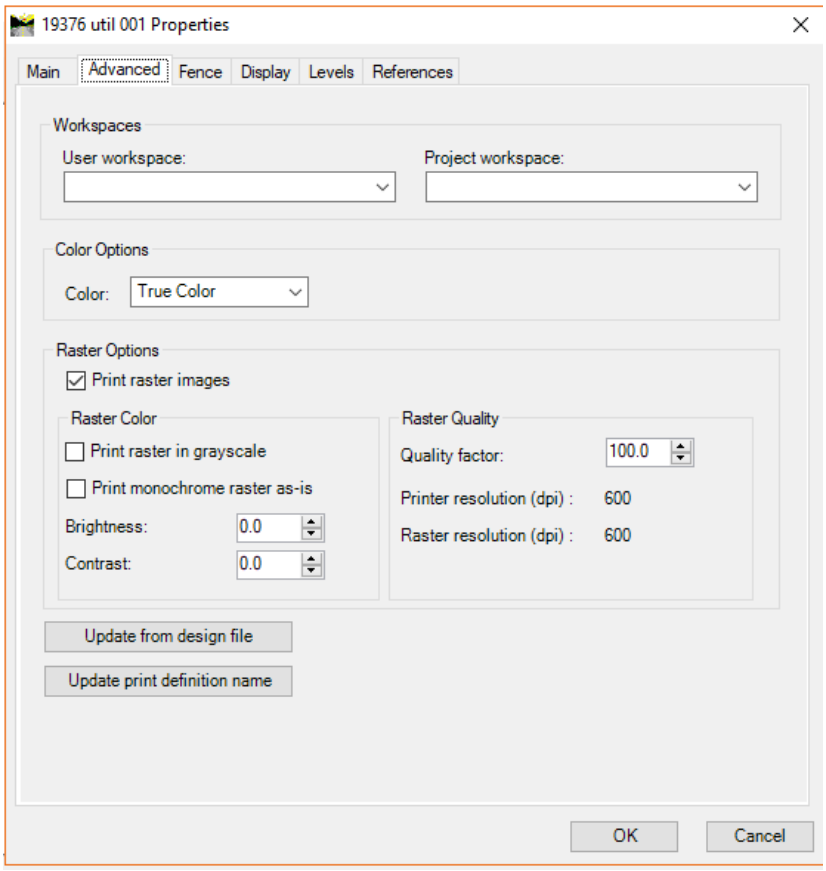
Manual Date 3/2019

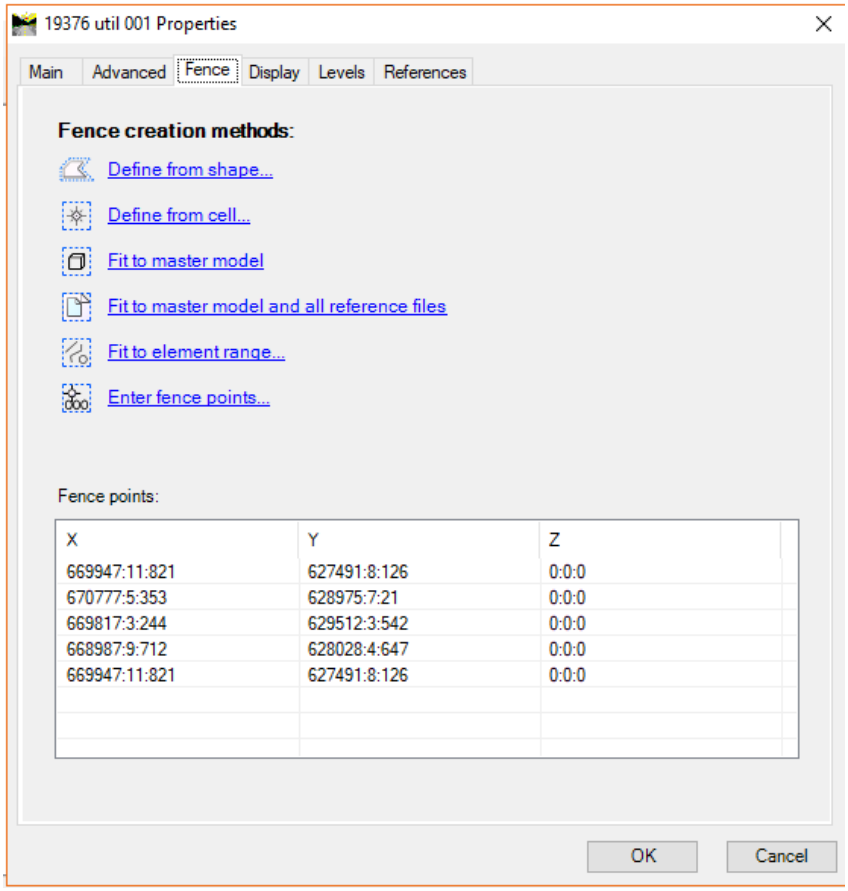
7. Default Properties

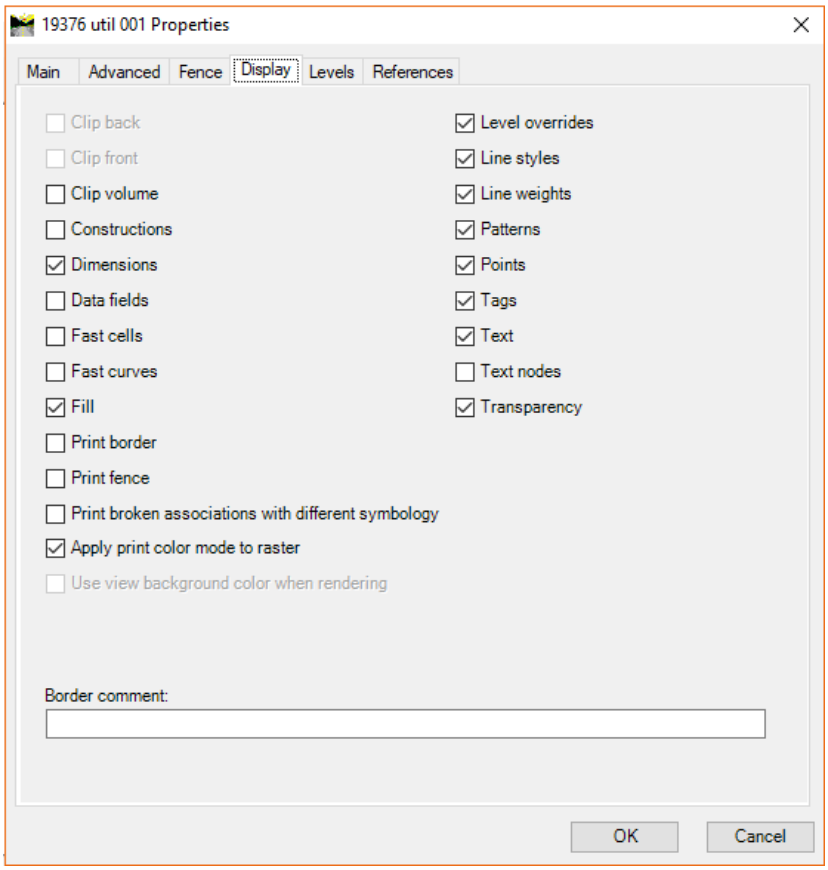
The following are screen shots of the Print Styles Properties.

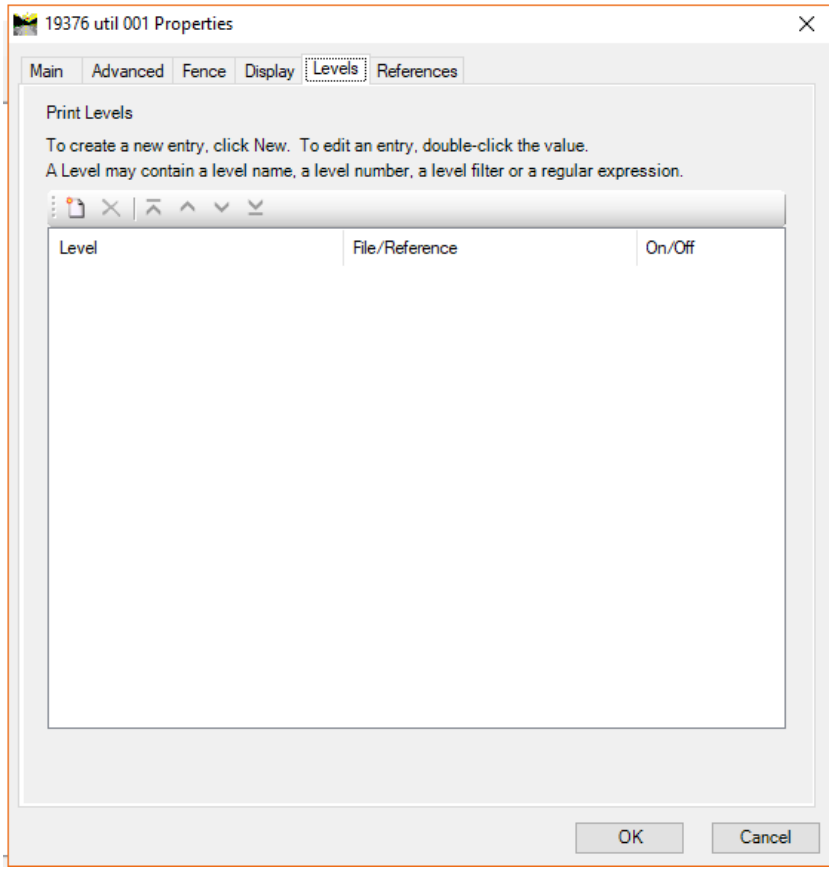


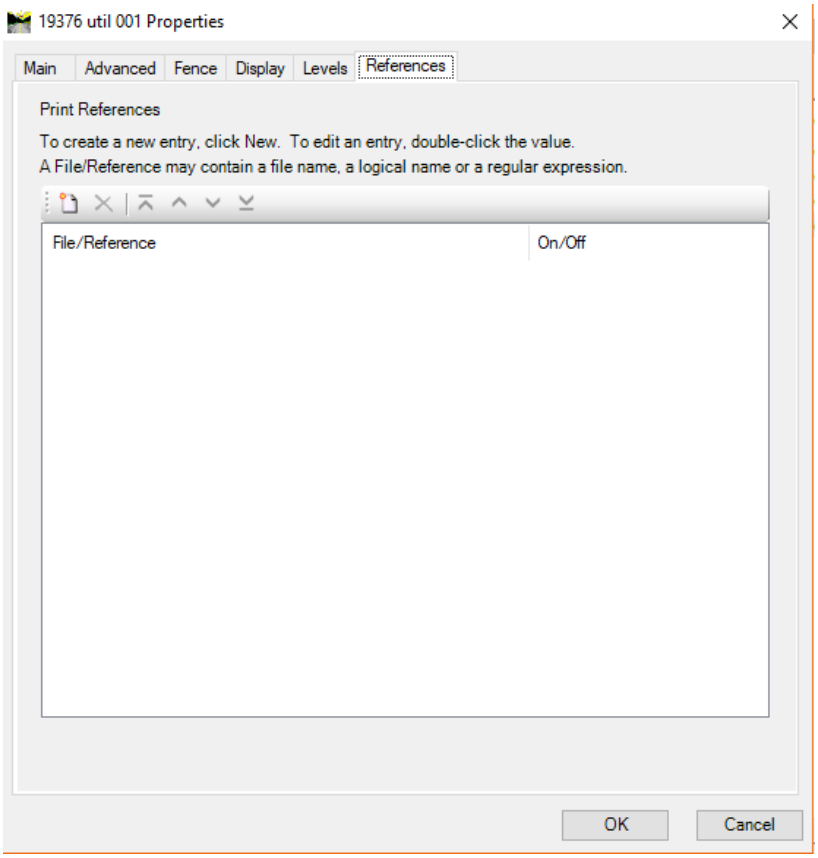
This Main tab is really the only place you will find a difference in the default set ups. The pen table will always be the "ITD.tbl" But the Design script will show the style that is selected for that drawing. This one is the "Halfsize BW.pen". If you decided you want this color, select the spyglass to change it.


19376 util 001 Properties
Main
Advanced
Fence
Display
Levels
References
Workspaces
User workspace:
Project workspace:
Color Options
Color:
True Color
Raster Options
Print raster images
Raster Color
Print raster in grayscale
Print monochrome raster as-is
Brightness:
0.0
Contrast:
0.0
Raster Quality
Quality factor:
100.0
Printer resolution (dpi) :
600
Raster resolution (dpi) :
600
Update from design file
Update print definition name
OK
Cancel

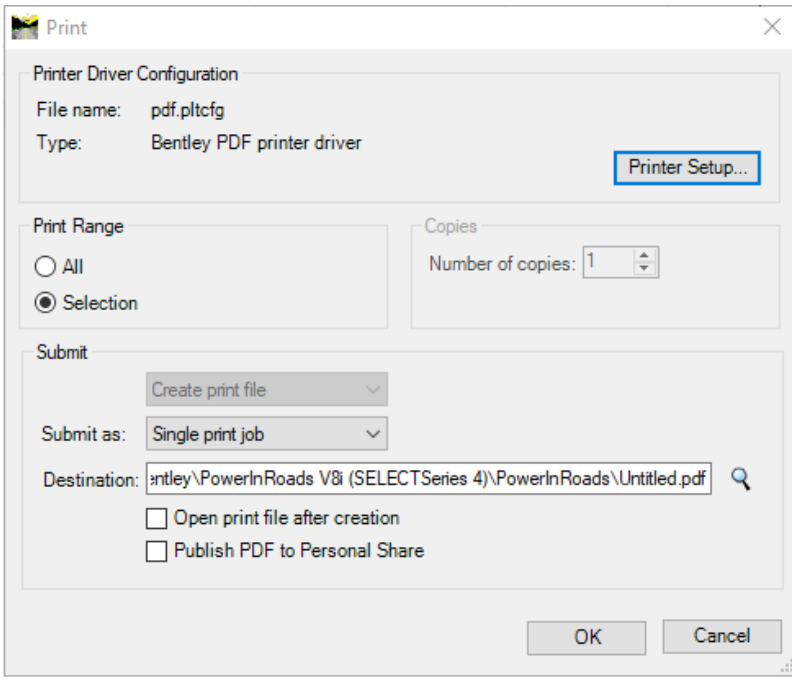

19376 util 001 Properties
Main
Advanced
Fence
Display
Levels
References
Fence creation methods:
Define from shape...
Define from cell...
Fit to master model
Fit to master model and all reference files
Fit to element range...
Enter fence points...
Fence points:
X
Y
Z
669947:11:821
627491:8:126
0:0:0
670777:5:353
628975:7:21
0:0:0
669817:3:244
629512:3:542
0:0:0
668987:9:712
628028:4:647
0:0:0
669947:11:821
627491:8:126
0:0:0
OK
Cancel


19376 util 001 Properties
Main
Advanced
Fence
Display
Levels
References
Clip back
Clip front
Clip volume
Constructions
Dimensions
Data fields
Fast cells
Fast curves
Fill
Print border
Print fence
Print broken associations with different symbology
Apply print color mode to raster
Use view background color when rendering
Level overrides
Line styles
Line weights
Patterns
Points
Tags
Text
Text nodes
Transparency
Border comment:
OK
Cancel


19376 util 001 Properties
Main
Advanced
Fence
Display
Levels
References
Print Levels
To create a new entry, click New. To edit an entry, double-click the value.
A Level may contain a level name, a level number, a level filter or a regular expression.
Level
File/Reference
On/Off
OK
Cancel



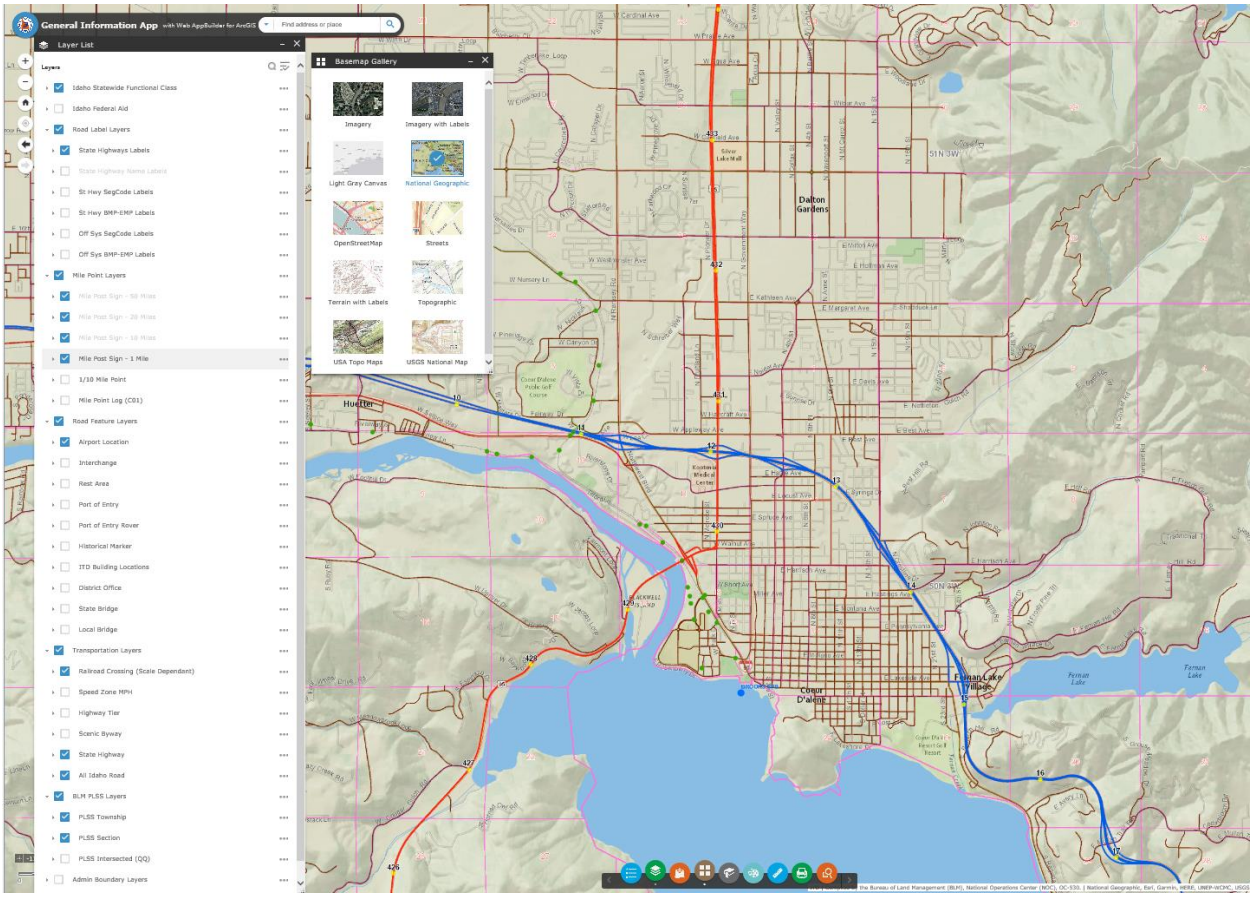
Below is the default window if you right click and select “print”



ITD VICINITY MAP

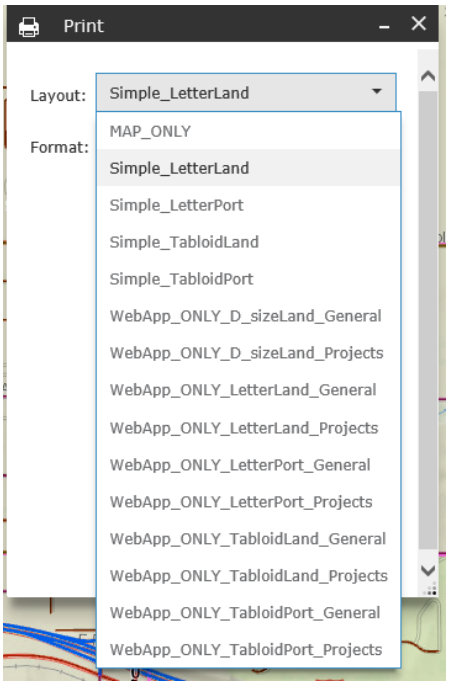
Go to the IPLAN app on the ITD website. http://iplan.maps.arcgis.com/home/index.html

- Use the General ITD Information app for the maps.

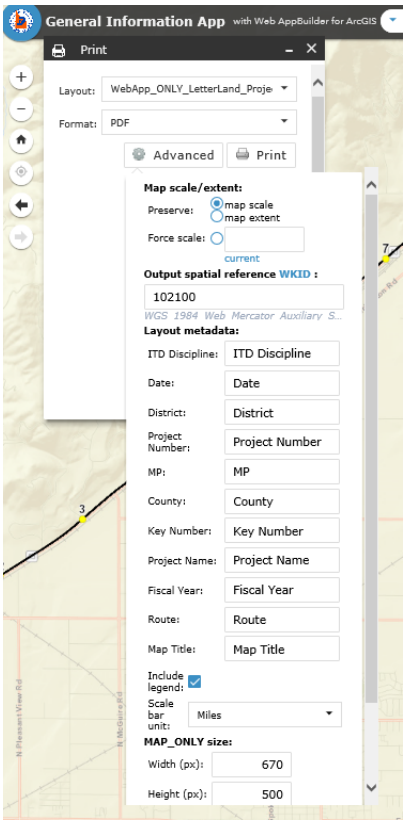


Setting up the vicinity map

- Set up the layers you would like to see on the map (i.e. Mile Point Layers, BLM PLSS Layers (township/range)).
- Basemap gallery, use “National Geographic”
- Pick print



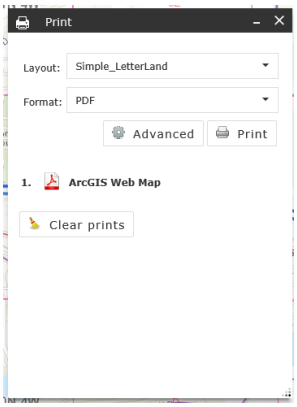
- If you pick one of the layouts that have the word Project on the end, you will get this layout from the Advanced button.



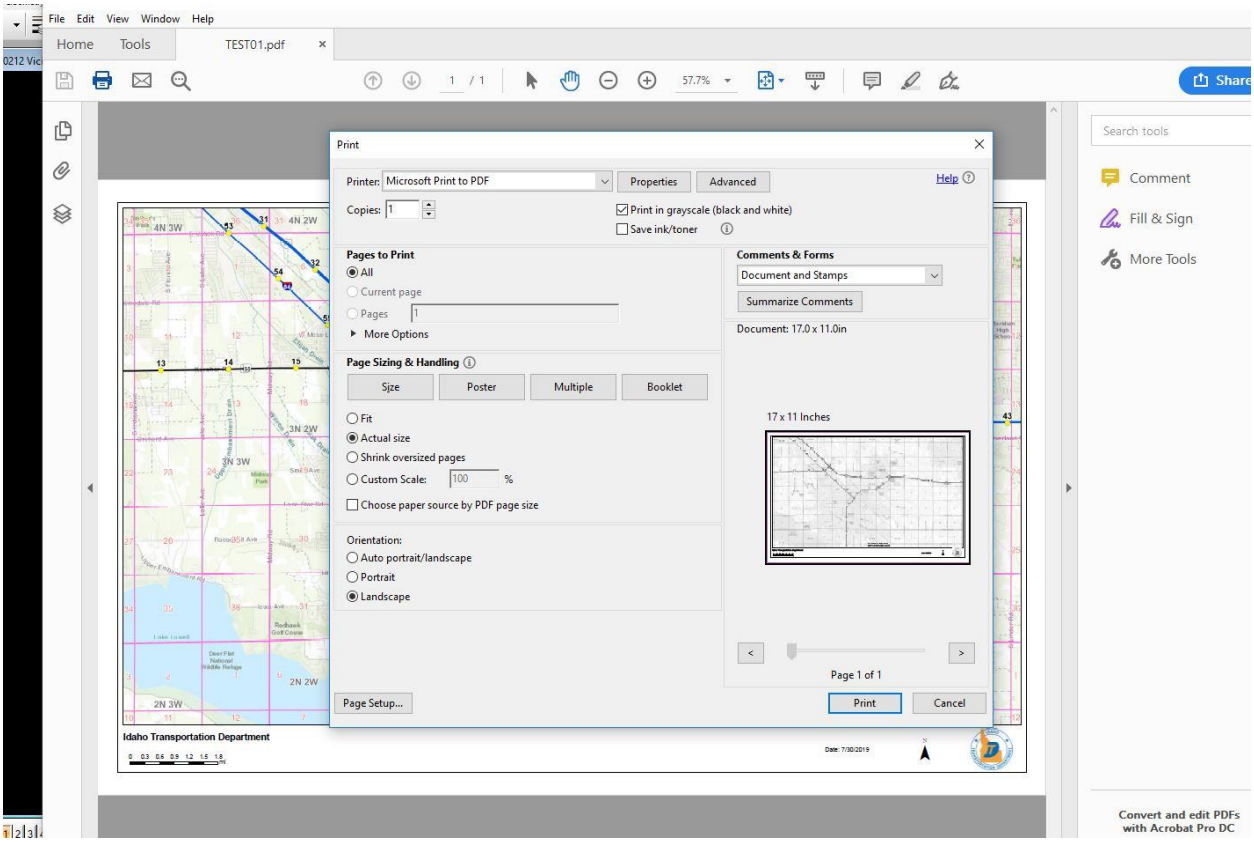
This would be great for the environmental maps. This information will be placed in the lower right corner of the PDF.

Printing to a pdf (color)

- Pick the print icon at the bottom then pick Advanced and setup the print options shown in the screen shot. Lots of options that we will need to look into.
- Set the print quality higher than 330 it may crash.
- After setting the print options Pick Print.

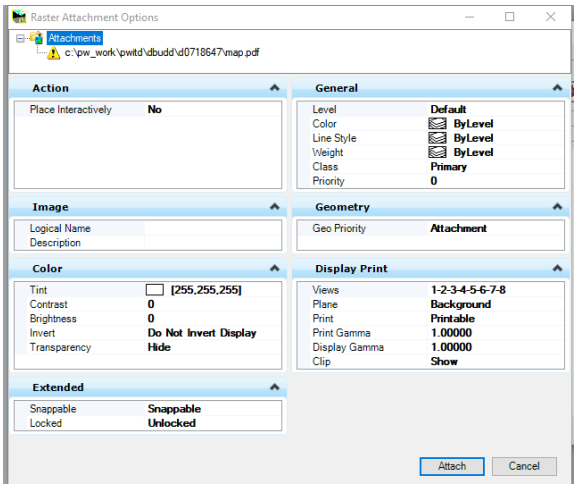


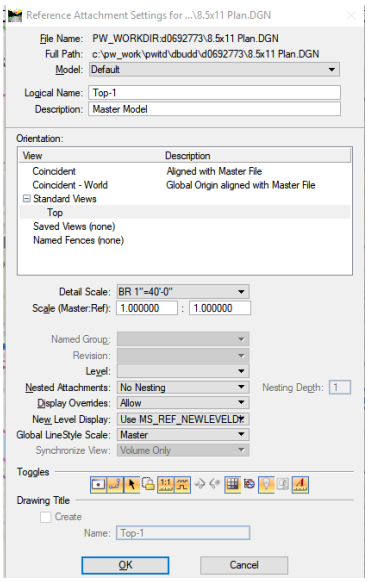
- After it creates a PDF pick the file.
- After the PDF opens make sure you like what you see
- Then pick File then Save as in the upper left corner and put it on your Desktop.
- Then drag it into your ProjectWise folder.
- You can print it if you like



Printing to a pdf (black/white)

- To get a black and white use the settings shown in the screen shot.

1. Create a CADD file to reference in the PDF
2. Open the CADD file
3. Open the Raster Manager
4. Pick File, then Attach, then Raster
5. Navigate to the folder you copied the map too.
6. Pick it then pick OK
7. 

8. Under Place Interactively leave it at No
9. Open the Reference box and pick Tools then Attach
10. Navigate to the folder you copied the border too.
11. Pick it then pick OK
12. 

13. Now place it over the Map
14. Now place a fence around the map you want to keep
15. Pick the raster in the Raster Manager
16. Then pick Edit and then Clip
17. In the tool setting box make sure the Method is set to Fence and the Mode is set to Clip Boundary
18. Then do a Data Button (Left Button) in the screen
19. Then hold down the Reset Button (Right Button) until a menu pops up then pick Turn Level Off By element.
20. Then pick the line along the right side.
21. Now place your project note
22. If you need to place a fence around your note 15, 16, and 17 but under Mode set it to Clip Mask